US Army Corps of Engineers®
Portland District

WILLAMETTE VALLEY SYSTEM OPERATIONS AND MAINTENANCE

FINAL ENVIRONMENTAL IMPACT STATEMENT

APPENDIX V: DRAFT ENVIRONMENTAL IMPACT STATEMENT PUBLIC COMMENTS AND RESPONSES

Public Comments and Responses
on the U.S. Army Corps of Engineers
Draft Environmental Impact Statement
for Willamette Valley System Operations and Maintenance

Public Comment Period: November 25, 2022 - February 23, 2023

Photo by Wes Messinger (USACE Portland District Media Images Database)

Fender's blue butterfly.

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INTRODUCTION

The U.S. Army Corps of Engineers (Corps), Portland, Oregon District, solicited comments from the public on the Draft Environmental Impact Statement (DEIS) as part of the public involvement process for the Willamette Valley System Operations and Maintenance Environmental Impact Statement. The DEIS public comment period provided an opportunity for individuals, tribes, and organizations to review and submit comments, questions, and concerns prior to Final Environmental Impact Statement (FEIS) completion and Corps decision-making.

The DEIS was published on November 25, 2022, and initiated a 55-day comment period to close on January 19, 2023 (87 FR 72482). Based on public requests to extend the comment period, the Corps announced a 35-day extension in the Federal Register on January 13, 2023 (Federal Register: Environmental Impact Statements; Notice of Availability 88 FR 2357). The Corps also provided the extension information to contacts on its public distribution list. The full 90-day comment period closed on February 23, 2023.

This appendix presents all public comments received during the DEIS comment period, along with Corp responses to those comments. Each comment letter or email is provided at the end of the comment and response section. The appendix is formatted to present comments as copied from letters and email correspondences, followed by a Corp response. A comment code and document identifier with a PDF file name were assigned for internal cataloguing purposes.

The comments have been copied into text format exactly as they were received, without editing or correction, to ensure that the original intent and content of each comment has been preserved. Consequently, some comments may contain spelling, grammatical, or punctuation errors, which were not corrected or altered (except for redacted offensive language).

Comments submitted that contain multiple concerns were separated to represent each, unique concern with an associated response. Corps responses to comments are included after each comment, providing clarification, additional information, and, where applicable, an explanation of how a comment was considered in development of the FEIS.

BONNEVILLE POWER ADMINISTRATION (LEADY, WILLIAM)

Comment Document: 2023-02-03_PublicComment_WV_DEIS_BPA_Leady_Attachment.pdf

Comment: NEPA Process-39

Bonneville would like to take this opportunity to present its views on the Draft PEIS, particularly where it believes the PEIS would benefit from additional analysis. In addition to the themes discussed in this letter, Bonneville will provide the Corps with specific updates and revisions related to hydropower generation and transmission analysis in the Draft PEIS, as part of Bonneville's ongoing participation in this PEIS process as a cooperating agency.

Response:

Comment noted.

Comment: Hydropower-23

The Draft PEIS evaluated alternatives to achieve multiple objectives; however, none of the action alternatives to restore naturally spawning salmon and steelhead above Willamette Valley dams would maintain economical hydropower as a residual benefit of the system.

Response:

The Corps analyzed potential impacts to hydropower production, including economic impacts, under each of the alternatives in Section 3.12 and Appendix G, Power Generation and Transmission. Economic impacts to hydropower production from the measures proposed to comply with ESA requirements and their tradeoffs have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation. The Corps also analyzed potential effects to listed fish and other threatened species under each of the alternatives.

When making its decision based on analyses in an EIS, Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional direction to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Hydropower-24

The current action alternatives in the draft PEIS have outcomes which reduce the availability of hydropower generation while multiplying its costs.

Although the Draft PEIS clarifies some of the challenges of maintaining economical hydropower as a benefit of the Willamette Valley System, Bonneville believes that the Final PEIS would benefit by including specific elements to more completely capture the scope of those challenges, as well as identifying steps towards addressing them.

Response:

The Corps continued to work with the BPA as a Cooperating Agency on the analyses in the FEIS (FEIS Appendix L, Cooperating Agencies).

Comment: Hydropower-25

Bonneville continues to request that the Corps include in the final PEIS its implementation plan for the consideration of de-authorization and cost allocation updates at these projects.

Response:

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action. The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies. The Corps is required under Congressional direction to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. See also Appendix A, Alternatives Development, Attachment 1. Because of this requirement, all eight purposes are addressed in the EIS.

Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the Proposed Action and alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on all eight authorized purposes.

Comment: Hydropower-26

Bonneville notes the recent mandate from Congress in the 2022 Water Resources Development Act directing system-wide disposition studies of the power purpose of the Willamette dams by June 2024. Bonneville also offers the following considerations for the disposition studies:

Disposition studies will inform potential congressional deauthorization of power at the Willamette dams. If Congress does deauthorize power, the Corps may be able to design less costly and more effective passage routes for juvenile salmon.

Response:

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action. The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies. The Corps is required under Congressional direction to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. See also Appendix A, Alternatives Development, Attachment 1. Because of this requirement, all eight purposes are addressed in the EIS.

Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the Proposed Action and alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on all eight authorized purposes.

Comment: Hydropower-27

Disposition study analysis should also inform needed cost allocation updates. Significant operational changes and the shifting economics of managing hydropower and flood control at Willamette Valley projects make cost allocation updates necessary. The Draft PEIS estimates the annual benefit of flood protection to be at least $1 billion and power generation to be $26 million, yet power's cost allocation averages around 40 percent. If the disposition studies, as part of assessing whether hydropower is in the federal interest, do find net economic value for remaining hydropower generation at one or more of the Willamette dams, the Corps and

Bonneville should use that analysis to implement the needed appropriate cost allocation between flood risk management and power.

Response:

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action. The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies. The Corps is required under Congressional direction to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. See also Appendix A, Alternatives Development, Attachment 1. Because of this requirement, all eight purposes are addressed in the EIS.

Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the Proposed Action and alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on all eight authorized purposes.

Comment: Hydropower-28

Meeting Congress' timeline for completing disposition studies by June 2024 should support implementation planning for the Final PEIS and help inform Bonneville's decisions for continued investments in the dams' power facilities. It will be important for the Corps to limit the scope of the disposition studies and focus only on the effects of deauthorizing hydropower.

Response:

The Congressional requests for reports from the Secretary of the Army for Civil Works under WRDA in 2020, 2022, 2024 were not incorporated into this EIS as this EIS was scoped to consider actions outside of the Corps authorities but excluded actions that would eliminate current Congressionally authorize purposes for the Willamette Valley System. See Appendix A, Alternatives Development, Attachment 1.

Comment: Hydropower-29

The Corps should revise the PEIS analysis to fully include the impact of the continuation of the near-term operations in the planned implementation of the final preferred alternative. The most significant impact on hydropower is the provision to continue the operations of the 2021 Oregon District Court injunction until the Corps completes structural measures, which, for some of the measures, would be well into the 2040s under the Draft PEIS implementation schedule. The current analysis does not reflect these operations which stand to reduce the value of hydropower generation by nearly a third. The Final PEIS should include revised estimates for the remaining value of hydropower generation that incorporates the near-term measures. Because these estimates are also necessary for the disposition studies directed by Congress, their inclusion will help inform both Congress and the Final PEIS.

Response:

The term "near-term operations" has been changed to "Interim Operations" in the FEIS. The DEIS and FEIS analyses do include consideration of Interim Operations in Section 3.12, Power Generation and Transmission. Interim Operations are not part of the long-term plan identified under Alternative 5, Preferred Alternative. See FEIS Chapter 1, Introduction, Section 2.8.5, Interim Operations.

Comment: References and Data-86

Bonneville continues to urge the Corps to update structural cost estimates. The estimated costs of structures for fish passage and water temperature seem to be quite conservative. The Corps states in the Draft PEIS that it is basing cost estimates on conceptual designs and that actual costs could likely more than double. Additionally, recent economic events of inflation, constrained supply chains, and escalated interest rates make the Draft PEIS estimates likely out of date.

Response:

Total cost estimates cannot be determined until more site-specific information becomes available when project details are prepared. The estimates used in the EIS are based upon best available information used for comparative purposes, including recently completed or proposed projects with available detailed engineering designs. Cost estimates used in the final EIS were updated for Fiscal Year 2025 values and are presented in Appendix M, Costs.

Comment: Proposed Action-55

This represents an important milestone for the future management of the Willamette Valley System. The system continues to provide substantial regional value through flood risk management, water supply, and recreation as its operations evolve to benefit fish and wildlife.

We submit these comments with the objective of resolving the anticipated major, adverse impacts presented in the PEIS to economic and reliable power generation.

Response:

The Corps analyzed potential impacts to hydropower production, including economic impacts, under each of the alternatives in Section 3.12 and Appendix G, Power Generation and Transmission. Economic impacts to hydropower production from the measures proposed to comply with ESA requirements and their tradeoffs have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation. The Corps also analyzed potential effects to listed fish and other threatened species under each of the alternatives.

When making its decision based on analyses in an EIS, Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional direction to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

CITY OF SALEM (PULLEY, JASON)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_CityofSalem_Jason Pulley_Attachment.pdf

Comment: Alternatives-49

The City is writing to express our general support for the Preferred Alternative (Alternative 5) identified in the DPEIS… Preferred Alternative 5 appears to be in alignment with the interim injunctive measures issued by the United States District Court, District of Oregon, in the case of Northwest Environmental Defense Center, et.al. v. U S. Army Corps of Engineers and National Marine Fisheries Service (NEDC v. Corps) (Case No. 3:18-cv-00437-PK.) During negotiations for remedy, the City participated extensively in the development of measures for the operation of Detroit and Big Cliff Dams. The interim measures are intended to be implemented during the reinitiated consultation addressing the operation and maintenance of the WVP and have been carried forward as part of the DPEIS Preferred Alternative.

Response:

Comment noted.

Comment: Water Supply-18

Continued operation of the WVP and the measures the U.S. Army Corps of Engineers (Corps) implements for future operations could have prolonged impacts on Detroit Reservoir, the North Santiam River, and the City's ability to continue to meet the water needs of our residents and customers.

Response:

The Corps evaluated each of the alternatives for impacts to multiple resources, including water supply, and identified major impacts to certain basins associated with Alternative 3A and Alternative 3B. Effects to water supply are described in Section 3.13.3, Water Supply, Environmental Consequences.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Alternatives-50

Interim measures identified in NEDC v. Corps specifically for the North Santiam River, as included in Preferred Alternative 5, have mostly been implemented without any adverse impact to the City's ability to withdrawal water from the North Santiam River and deliver treated drinking water to the City's customers. Therefore, the City requests that the Final Preferred Alternative continues to include the operational framework required by the NEDC v. Corps remedy.

Response:

Comment noted.

Comment: Geomorphology-2

In particular, the City is concerned with how proposed gravel augmentation below Big Cliff Dam may impact the City's water intake at Geren Island, which is already challenged by sedimentation and channel migration processes. The DPEIS fails to provide sufficient detail related to proposed gravel augmentation to allow for a reasonable consideration of impacts, while also failing to identify measures that would be taken to avoid, reduce, or mitigate impacts to water providers should water intakes be hindered due to this measure. While the DPEIS states that individual projects will undergo further site-specific permitting and analysis, the City requests that the DPEIS analyze generally how gravel augmentation sites would be chosen·, how augmentation could modify channel geomorphology downstream over time and acknowledge any general impacts that could result from such action.

Response:

Gravel Augmentation Measure 384 is described in FEIS Chapter 2, Section 2.10.4, Action Alternatives. Dam locations where Measure 384 would be implemented are summarized in FEIS Table 2.10-5.

As described in FEIS Section 2.10.4.1, Measures Common to All Alternatives, Gravel Augmentation Below Dams (384), surveys would be conducted below the identified dams to determine where gravel placement could increase usable spawning areas while considering channel bathymetry, water temperature, hydrology, and hydraulics. More detail on possible locations is not available for the programmatic EIS.

Gravel augmentation effects on river mechanics (i.e., changes in potential sediment supply) are analyzed in the FEIS Appendix C, River Mechanics and Geomorphology. The Corps discloses that there is major potential for geomorphic change in several basins due to the Gravel Augmentation Below Dams Measure (384) under various alternatives as compared to the No-action Alternative.

COLUMBIA RIVER BASSMASTERS (PELLETIER, RENAUD)

Comment Document: 2023-02-20_PublicComment_WV_DEIS_Columbia River Bassmasters_Renaud Pelletier_Attachment.pdf

Comment: Recreation-18

The recreational impact on the reservoir will be significant, as boaters and bank anglers alike will have problems accessing the lake. We as outdoor sports enthusiasts pay taxes and wish to use places like Green Peter to recreate. Your proposed course of action would result in the loss of this location to recreate.

Response:

Substantial, adverse effects on water-based recreation opportunities at many of the projects in the Willamette Valley System would occur under various alternatives as described in FEIS Section 3.14, Recreation Resources.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Socioeconomic Resources-11

The economic impact to other small communities nearby will be significant, as there won't be as many people coming through to use the lake.

Response:

This comment letter specifically requests information regarding impacts to the Green Peter Reservoir. The FEIS has been revised to include information on the economic impacts on local communities from recreation-related employment and revenue at each reservoir under each alternative in Section 3.11, Socioeconomics. Effects on local recreation opportunities has been revised in FEIS Section 3.14, Recreation Resources.

Regional economic modeling under all alternatives was updated in FEIS Appendix I, Socioeconomics Analysis. Regional modeling under all alternatives at all reservoirs provided in FEIS Appendix K, Recreation Analysis, was applied to the FEIS Section 3.11, Socioeconomics analysis of Recreation-related Revenue and Employment Earnings under All Alternatives. The FEIS also includes an analysis of the Economic Relationship with Communities that qualitatively describes impacts/benefits under all alternatives in Section 3.11, Socioeconomics.

Comment: Fish-37

The loss of fish habitat is our second point of issue. Drawing down the reservoir would cause significant damage to bass and other warm water species that need shallow water to properly

complete the spawn cycle. Taking the water down a significant amount would have an unknown impact on the fish, their habitat and their ability to return to the populations they are now.

Response:

The Corps analyzed potential effects to fish and other threatened species under each of the alternatives. Further, the Corps consulted with ODFW, NMFS, and USFWS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation. An additional assessment of resident fish species in reservoirs targeted for recreational, sport fishing has been included in the FEIS (See Section 3.8, Fish and Aquatic Habitat).

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION (DECOTEAU, AJA)

Comment Document: 2023-03-09_PublicComment_WV_DEIS_CRITFIC_Porter_Attachment1.pdf

Comment: NEPA Process-36

While some of the actions we identified in the scoping process were included in the alternatives analyzed in the Draft PEIS, not all the tribal recommendations were considered or applied to the identified preferred alternative (Alternative 5). These recommendations include setting infrastructure in place to collect, hold, and transport lamprey in trap-and-haul until actual passage is restored, as well implementing RM&E to monitor for passage success. CRITFC requests that you review the recommendations made in the June 19, 2019 letter, attached.

Response:

After evaluating the scoping comments, the Corps chose not to propose reintroduction of lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the tribe, USFWS, or ODFW.

In response to public scoping comments, the Corps developed Measure 52, which has been revised in the FEIS, to clarify its intention to find ways to improve design features at passage facilities for ESA-listed species that could also benefit lamprey (FEIS Chapter 2, Alternatives, Section 2.8, Final Measures Developed for Action Alternatives). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the Willamette Valley System while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species (Section 2.4, Purpose of and Need for the Proposed Action). The Corps appreciates the

interest of tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Fish-88

The WVS operations have contributed to the significant decrease in historical numbers of Pacific lamprey and a contraction of the historical range, with lamprey blocked from prime spawning and rearing habitat by thirteen dams and other passage barriers.

A primary concern is the impact the hydrosystem facilities have had and will continue to have on the Pacific lamprey in the Willamette Basin. These lamprey provide a vital food source for the tribes in the region, and traditional harvests have occurred at Willamette Falls for generations. Unfortunately, the abundance of Pacific lamprey at the falls has been significantly diminished due to the dams in the area. These structures have blocked passage to prime habitat and caused the loss of spawning and rearing areas, floodplain function, and stream sinuosity, as well as introducing and retaining contaminants.

Response:

Comment noted.

Comment: Fish-89

Therefore, it is imperative to initiate directed restoration efforts within the Willamette River basin to increase the abundance of Pacific lamprey locally. The Tribal Pacific Lamprey Restoration Plan for the Columbia River Basin outlines some of the work that has been done to conserve lamprey populations in the Willamette Basin.

Response:

Comment noted.

Comment: Alternatives-111

This comment letter focuses on the potential impact of Alternative 5, the preferred option in the PEIS, on Pacific lamprey and future restoration efforts. Measure 52, which outlines lamprey measures for action alternatives, is described in the PEIS. The measure aims to provide features for lamprey passage during the construction and design of new adult fish facilities. However, there are no funds allocated to Measure 52 in the cost estimate, which is concerning.

Response:

The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities being built to provide passage for ESA-listed species, to the extent the design features do not adversely impact ESA-listed species utilizing the adult fish facilities, like rounded corners on the fish ladder. The continued operation and maintenance of the Willamette Valley System in compliance with the Corps' authorized purposes without jeopardizing ESA-listed species remains the purpose of this programmatic EIS review.

The Corps appreciates the interest of Tribes and regional stakeholders in pacific lamprey in the region and is committed to continuing conversations about efforts to benefit the non-listed ESA Pacific lamprey species, but such actions are unknown at this time and thus are not included for analysis. Measure 52 has been revised in the FEIS (Chapter 2, Alternatives, Section 2.8.4.1, Provide Pacific Lamprey Passage and Infrastructure).

Comment: Alternatives-112

Moreover, none of the alternatives presented in the PEIS adequately address Pacific lamprey passage throughout the basin or provide effective plans to restore lamprey populations within the Willamette Basin. (See Table 3.1-1 and 3.1-6). There is little assurance that lamprey will be considered in further ESA and EIS consultation. Increasing lamprey numbers in historically occupied locations to self-sustaining levels could have positive ecological impacts and support treaty-reserved tribal harvest.

Response:

Measure 52 has been revised in the FEIS to remove information on lamprey passage structures (FEIS Chapter 2, Alternatives, Section 2.8, Final Measures Developed for Action Alternatives). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the Willamette Valley System while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species (FEIS Chapter 2, Alternatives, Purpose of and Need for the Proposed Action). The Corps appreciates the interest of Tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Climate Change-20

Additionally, climate change impacts on lamprey populations need to be considered, and appropriate measures should be developed to address these impacts. The Implementation Plan and the Adaptive Management Plan do not sufficiently address Pacific lamprey restoration efforts. (See §§ 5.4, 5.5, Appendix N).

Response:

The FEIS has been updated to include information on lamprey as part of the Affected Environment and Environmental Consequences in Section 3.8, Fish and Aquatic Habitat. Appendix N, Implementation and Adaptive Management Plan, has not been revised to include lamprey planning. Climate change-related effects to all species analyzed in FEIS Section 3.8, Fish and Aquatic Habitat, is provided in Section 3.8.5, Climate Change Effects under All Alternatives.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the Willamette Valley System while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species (Section 2.3, Purpose of and Need for the Proposed Action).

The Corps appreciates the interest of Tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Fish-90

However, the lack of lamprey trapping infrastructure means that lamprey passage is rare, and specific trapping and passage infrastructure for lamprey should be included at all 13 dams to provide adequate lamprey passage.

To address this, the USACE should fund a full-time lamprey biologist to provide technical expertise on lamprey passage needs, and lamprey should be considered when implementing passage improvements for salmonids. The draft PEIS aims to continue operating and maintaining the WVS for authorized purposes while minimizing the impact on ESA-listed species and their critical habitats and should also include non-ESA-listed species such as lamprey.

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW.

Measure 52 has been revised in the FEIS to remove information on lamprey passage structures in Chapter 2, Alternatives, Section 2.8.4.1, Provide Pacific Lamprey Passage Infrastructure (52)). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the WVS while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species. The Corps appreciates the interest of Tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: References and Data-83

The PEIS highlights the absence of juvenile lamprey passage infrastructure, with USACE only incorporating lamprey features into adult salmonid facilities for upstream passage. (See, PEIS 3-650). Therefore, it is necessary to review previous studies and establish priorities for developing passage infrastructure at each dam location. A radio tag study conducted in 2009 and 2010 by Clemens et al. (2017) revealed that most lamprey detections were found in the Mainstem Willamette River (69.9%), followed by East-side tributaries like Santiam (19%), Molalla (3.5%), and West-side tributaries like Yamhill (3.5%). These results suggest potential key areas to focus initial efforts, but other areas should also be considered based on lamprey habitat potential.

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any alternative. Further, the Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW.

The Corps is prepared to work on a prioritization framework with the Tribe and other partners that seek to reintroduce this species above WVS dams. Such coordination is necessarily separate from development of this EIS since reintroduction is not within the scope of this programmatic NEPA review. Measure 52 has been clarified for the FEIS, and explicitly states that lamprey features currently are or would be included at any new facilities. Measure 52 has been revised in the FEIS to remove information on lamprey passage structures in Chapter 2, Alternatives, Section 2.8.4.1, Provide Pacific Lamprey Passage Infrastructure (52).

Comment: Proposed Action-48

CRITFC recommends that the USACE include a Lamprey Passage Framework in the PEIS as part of its proposed action for the WVS for the next 30 years. The framework includes immediate implementation of lamprey passage via trap and haul for a set of "first-phase" dams then develop a Comprehensive Passage Plan with the state, tribes, and federal entities. The Plan will address implementation of Pacific lamprey passage, modification of all adult fish facilities, and add a RM&E plan. The RM&E plan should evaluate the population establishment and passage success within each basin, and the results from the RM&E should be provided to the parties in an annual report. The Comprehensive Passage Plan for Pacific Lamprey should be reviewed and collaboratively revised by the parties to update the plan based on available data, new information, and refine passage and data collection after 5 years of implementation.

Response:

After evaluating the scoping comments, the Corps chose not to propose reintroduction of lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the tribe, USFWS, or ODFW.

In response to public scoping comments, the Corps developed Measure 52, which has been revised in the FEIS, to clarify its intention to find ways to improve design features at passage facilities for ESA-listed species that could also benefit lamprey (FEIS Chapter 2, Alternatives, Section 2.8, Final Measures Developed for Action Alternatives). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the Willamette Valley System while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species (Section 2.4, Purpose of and Need for the Proposed Action). The Corps appreciates the interest of tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Fish Passage-58

1) Immediate implementation of trap-and-haul from the closest available source in the basin (e.g. the Willamette Falls) to historical habitats above WVS dams. This will be the first phase of the Lamprey Passage Framework and will focus on a set of dams that the USACE already intends to provide passage structures or operations for downstream passage of salmonids (i.e., Cougar,

Detroit, Fall Creek, and Foster). The purpose of this passage is to immediately reinstate Pacific lamprey spawners to these key habitats and provide progeny for future outmigration studies.

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW. Measure 52 has been revised in the FEIS to remove information on lamprey passage structures in FEIS Chapter 2, Alternatives, Section 2.8.4.1, Provide Pacific Lamprey Passage Infrastructure.

The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the WVS while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species. The Corps appreciates the interest of Tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Fish Passage-59

2) Within one year of signing the Record of Decision (ROD) for the WVS, the USACE, state, tribes and federal entities (parties) will work together to create a Comprehensive Passage Plan for Pacific Lamprey (Lamprey Passage Plan) to implement permanent Pacific lamprey passage, including timelines, at each of the dams of the WVS.

3) The Lamprey Passage Plan should include lamprey reintroduction and subsequent supplementation of adult lampreys into all subbasins to jump-start the population above each dam that in all likeliness provided historical habitat for Pacific lamprey. Reintroduction and supplementation would be expanded above other WVS dams beyond those targeted in the “first phase” listed above. The “second-phase” dams should begin equivalent levels of supplementation as “first-phase” dams by prioritization based on habitat availability and likelihood of re-establishment of lamprey, including consideration of available downstream passage routes.

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW. Measure 52 has been revised in the FEIS to remove information on lamprey passage structures in FEIS Chapter 2, Alternatives, Section 2.8.4.1, Provide Pacific Lamprey Passage Infrastructure.

The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the WVS while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species. The Corps appreciates the interest of Tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Fish Passage-60

4) The USACE should modify all Adult Fish Facilities (AFF) within five years of signing the ROD to enable effective collection and transportation of Pacific lamprey adults above their dams.

Response:

As described under Measure 52, the Corps' policy to modify all adult fish facilities to enable effective lamprey collection and transport would continue to be implemented under any alternative (Appendix A, Alternatives Development). All Corps' facilities currently include upstream passage features for lamprey in adult fish facilities. Lamprey are transported whenever collected at these traps.

Measure 52 describes how this practice would continue under any new adult facilities that come online. Measure 52 has been revised in the FEIS to remove information on lamprey structures (Chapter 2, Alternatives, Section 2.8, Final Measures Developed for the Action Alternatives).

Comment: Proposed Action-49

5) Develop a comprehensive RM&E plan for all “first-phase” and “second-phase” dams to evaluate the population establishment and passage success within each basin. Such plan development for downstream evaluation should co-occur with reintroductions, as it will take

multiple years (4+ years) for juveniles to begin outmigration for evaluation. RM&E plan should evaluate/include the following:

- Spawning distribution and success upstream of each dam (equivalent success rates as anadromous salmon counterparts).
- Outmigrant monitoring to document timing for movement/migration by life phases.
- Genetic monitoring of all life phases to understand population structure, parentage-based tagging, species identification, age and timing of transformation and migration, and address critical uncertainties.
- Route selection and passage survival at each dam for larval and juvenile outmigrants.
- Migration success of larval and juvenile Pacific lamprey downstream of WVS dams (in equivalent rates as anadromous salmon counterparts).
- Collection efficiency of adults returning to each AFF as modified to collect and transport lampreys.
- Adaptive management targets and criteria to improve efficient passage of larvae and juveniles at each dam and evaluate the relative productivity of each stream reach for the Willamette River basin as a whole. This type of monitoring will require infrastructure such as rotary screw traps above and below each dam and a means to sample outmigrating juveniles at the Willamette Falls via modifications to the current juvenile bypass facility to allow for biosampling.
- Development and collection of a long-term data set including coordination with other studies and monitoring in the Willamette Basin (such as other juvenile outmigration monitoring efforts and adult mark/recapture to estimate abundance of Pacific lamprey) to evaluate how much overall Pacific lamprey juvenile productivity has translated to increases in adult abundance at the falls in future years.

6) Results from the RM&E should be provided to the parties in an annual report, and each year's report should incorporate and build upon previous years' data and results.

Response:

The FEIS has been revised to include an updated Implementation and Adaptive Management Plan based on input from public comments and ESA Section 7 consultation with USFWS and NMFS in FEIS Appendix N, Implementation and Adaptive Management Plan.

Comment: Proposed Action-50

7) After 5 years of implementation, we recommend the Comprehensive Passage Plan for Pacific Lamprey should be reviewed and collaboratively revised by the parties to update the plan based on available data, new information, and refine passage and data collection. This Revised Comprehensive Passage Plan for Pacific Lamprey would be completed within one year and this

plan will be updated every five years until the last year of coverage by the USACE's proposed action in the PEIS to ensure continued and restored passage and evaluation of Pacific lamprey at WVS dams.

Response:

After evaluating the scoping comments, the Corps chose not to propose reintroduction of lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the tribe, USFWS, or ODFW.

In response to public scoping comments, the Corps developed Measure 52, which has been revised in the FEIS, to clarify its intention to find ways to improve design features at passage facilities for ESA-listed species that could also benefit lamprey (FEIS Chapter 2, Alternatives, Section 2.8, Final Measures Developed for Action Alternatives). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the Willamette Valley System while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species (Section 2.4, Purpose of and Need for the Proposed Action). The Corps appreciates the interest of tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: NEPA Process-37

CRITFC requests that the USACE consult with the tribes to develop a comprehensive Pacific Lamprey Strategic Passage Plan as part of the final PEIS. In support of this, CRITFC is providing its lamprey plan, "Framework for the Pacific Lamprey Strategic Passage Plan" (attached). CRITFC supports and incorporates the scoping comments of the Yakama Nation (attached) and the recommendations of the USFWS and ODFW.

Response:

After evaluating the scoping comments, the Corps chose not to propose reintroduction of lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the tribe, USFWS, or ODFW.

In response to public scoping comments, the Corps developed Measure 52, which has been revised in the FEIS, to clarify its intention to find ways to improve design features at passage facilities for ESA-listed species that could also benefit lamprey (FEIS Chapter 2, Alternatives, Section 2.8, Final Measures Developed for Action Alternatives). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the Willamette Valley System while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species (Section 2.4, Purpose of and Need for the Proposed Action). The Corps appreciates the interest of tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION (DECOTEAU, AJA)

Comment Document: 2023-03-09_PublicComment_WV_DEIS_CRITFIC_Porter_Attachment2.pdf

Comment: Fish Passage-61

These findings provide impetus for directed restoration efforts that need to occur within the Willamette River Basin to increase abundance of Pacific lamprey locally. Some of the work CRITFC and its member tribes have conducted to conserve Willamette Basin lamprey populations can be found in the Tribal Pacific lamprey Restoration Plan for the Columbia River Basin. However, we strongly recommend that the following basic restoration actions take place to begin a timely remedy for the loss of blocked passage above the Willamette Valley dams:

We recommend the Corps include a Lamprey Passage Framework in the EIS as part of their proposed action for the Willamette Valley System (WVS) for the next 30 years. This Lamprey Passage Framework will include the following:

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW.

Measure 52 has been revised in the FEIS to remove information on lamprey passage structures in Chapter 2, Alternatives, Section 2.8.4.1, Provide Pacific Lamprey Passage

Infrastructure (52). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the WVS while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species. The Corps appreciates the interest of Tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Fish Passage-62

1) We recommend immediate implementation of Pacific Lamprey Passage via trap and haul (First Phase). We recommend the Corps fund or implement trap and haul of Pacific lamprey from the closest available source in the basin (e.g. the Willamette Falls) to historical habitats above WVS dams. This trap and haul / reintroduction will target a set of "first-phase" dams that the Corps already intends to provide passage structures or operations for downstream passage of salmonids (i.e., Cougar, Detroit, Fall Creek, and Foster). The purpose of this passage is to immediately reinstate Pacific lamprey spawners to these key habitats and provide progeny for future outmigration studies.

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW. Measure 52 has been revised in the FEIS to remove information on lamprey passage structures in FEIS Chapter 2, Alternatives, Section 2.8.4.1, Provide Pacific Lamprey Passage Infrastructure.

The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the WVS while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species. The Corps appreciates the interest of Tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the

non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Fish Passage-63

2) We recommend that within 1 year of signing the Record of Decision (ROD) for the WVS, the Corps develop collaboratively with the state, tribes and federal entities (parties) a Comprehensive Passage Plan for Pacific Lamprey to address implementation of Pacific lamprey passage, including timelines, at each of the dams of the WVS (Lamprey Passage Plan). The plan should be developed collaboratively with the parties, striving to reach consensus among the parties. The plan should include the following:

a. Lamprey reintroduction and subsequent supplementation of adult lampreys into all subbasins to jump-start the population above each dam that in all likeliness provided historical habitat for Pacific lamprey. Reintroduction and supplementation would be expanded above other WVS dams beyond those targeted in the "first phase" listed above. The "second-phase" dams should begin equivalent levels of supplementation as "first-phase" dams by prioritization based on habitat availability and likelihood of re- establishment of lamprey, including consideration of available downstream passage routes.

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW. Measure 52 has been revised in the FEIS to remove information on lamprey passage structures in FEIS Chapter 2, Alternatives, Section 2.8.4.1, Provide Pacific Lamprey Passage Infrastructure.

The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the WVS while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species. The Corps appreciates the interest of Tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Fish Passage-64

b. Modification of all Adult Fish Facility (AFF) to provide for the Corps to effectively implement the collection and transportation of Pacific lamprey adults above the Corps' dams within 5 years of signing the ROD.

Response:

With the exception of Dexter Dam Adult Fish Facility, all existing adult fish facilities would include adult lamprey passage features.

Comment: Proposed Action-51

c. Collaborative development of a comprehensive RM&E plan for all "first-phase" and "second-phase" dams to evaluate the population establishment and passage success within each basin. Such plan development for downstream evaluation should co-occur with reintroductions, as it will take multiple years (4+ years) for juveniles to begin outmigration for evaluation. RM&E plan should evaluate/include the following:

i. Spawning distribution and success upstream of each dam (equivalent success rates as anadromous salmon counterparts).

ii. Outmigrant monitoring to document timing for movement/migration by life phases.

iii. Genetic monitoring of all life phases to understand population structure, parentage-based tagging, species identification, age and timing of transformation and migration, and address critical uncertainties.

iv. Route selection and passage survival at each dam for larval and juvenile outmigrants.

v. Migration success of larval and juvenile Pacific lamprey downstream of WVS dams (in equivalent rates as anadromous salmon counterparts).

vi. Collection efficiency of adults returning to each AFF as modified to collect and transport lampreys.

vii. Adaptive management targets and criteria to improve efficient passage of larvae and juveniles at each dam and evaluate the relative productivity of each stream reach for the Willamette River Basin as a whole. This type of monitoring will require infrastructure such as rotary screw traps above and below each dam and a means to sample outmigrating juveniles at the Willamette Falls via modifications to the current juvenile bypass facility to allow for biosampling.

viii. Development and collection of a long-term data set including coordination with other studies and monitoring in the Willamette Basin (such as other juvenile outmigration monitoring efforts and adult mark/recapture to estimate abundance of Pacific lamprey) to evaluate how

much overall Pacific lamprey juvenile productivity has translated to increases in adult abundance at the falls in future years.

d. Results from the RM&E should be provided to the parties in an annual report, and each year's report should incorporate and build upon previous years' data and results.

Response:

The FEIS has been revised to include an updated Implementation and Adaptive Management Plan based on input from public comments and ESA Section 7 consultation with USFWS and NMFS in Appendix N, Implementation and Adaptive Management Plan.

After evaluating the scoping comments, the Corps chose not to propose reintroduction of lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW.

In response to comments, the Corps developed Measure 52, which has been revised in the FEIS, to clarify its intention to find ways to improve design features at passage facilities for ESA-listed species that could also benefit lamprey (Section 2.2.4.1, Provide Pacific Lamprey Passage and Infrastructure). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the Willamette Valley System while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species (Chapter 2, Alternatives, Purpose of and Need for the Proposed Action). The Corps appreciates the interest of Tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Proposed Action-52

e. After 5 years of implementation, we recommend the Comprehensive Passage Plan for Pacific Lamprey should be reviewed and collaboratively revised by the parties to update the plan based on available data, new information, and refine passage and data collection. This Revised Comprehensive Passage Plan for Pacific Lamprey would be completed within 1 year and this plan will be updated every 5 years until the last year of coverage by the Corps' proposed action in the PEIS to ensure continued and restored passage and evaluation of Pacific lampreys at WVS dams.

Response:

After evaluating the scoping comments, the Corps chose not to propose reintroduction of lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the tribe, USFWS, or ODFW.

In response to public scoping comments, the Corps developed Measure 52, which has been revised in the FEIS, to clarify its intention to find ways to improve design features at passage facilities for ESA-listed species that could also benefit lamprey (FEIS Chapter 2, Alternatives, Section 2.8, Final Measures Developed for Action Alternatives). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the Willamette Valley System while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species (Section 2.4, Purpose of and Need for the Proposed Action). The Corps appreciates the interest of tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION (PINKHAM, JAIME)

Comment Document: 2023-03-09_PublicComment_WV_DEIS_CRITFIC_Porter_Attachment4.pdf

Comment: Cumulative Impacts-3

The U.S. Army Corps of Engineers (USACE) needs to look at the cumulative impact of this and other on-going projects in the Willamette Basin to satisfy NEPA requirements. Since impacts to Pacific lamprey were not assessed in the current Willamette Basin Water Reallocation Environmental Assessment (EA), that project should be suspended and instead be subsumed into this EIS to fully address the effects of storage allocation and operations on lamprey and other aquatic species. The storage allocation and operations decisions are thoroughly intertwined and, currently, the Willamette Basin Water Reallocation EA is in violation of CEQ requirements by not evaluating the cumulative impact on lamprey.

An EIS for the Willamette Basin Water Reallocation Project is needed to better understand the impacts of that action, particularly on Pacific lamprey that are not even mentioned in that EA. Additional planning at the state level is needed before the federal approval of either storage allocation or storage operations decisions. The two matters should be considered together since

operational limitations will affect storage allocation and vice versa. The EA is clear that allocation and operations affect one another. What is not clear is how these effects will occur and how they will be managed.

At the State level the unknowns of how enforcement will work, when and where the water will be drawn from, distribution of the drought plan, and distribution of instream flows is also unclear.

There is the uncertainty of how the implementation of instream flow protections for fish and wildlife will work. Incorporating this project into the Willamette River System Operations EIS would present the opportunity to address the mitigation needs for lamprey and the opportunity to satisfy NEPA's cumulative impacts requirements.

Response:

The Willamette Basin Review Feasibility Study Environmental Assessment process included public comment review before finalization. Congress directed the Corps to carry out the Willamette Basin Review Feasibility Study substantially in accordance with terms and conditions of the Chief of Engineers' report, which were based on the study and Environmental Assessment that was completed for this project. The FEIS has been updated to include more information on the Willamette Basin Review in Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008.

Comment: Fish-91

One of our greatest concerns is the impact the project will have on the Pacific lamprey in the Willamette Valley. Lamprey provide an important source of food for the tribes in the basin. The Commission's member tribes have harvested lamprey at Willamette Falls for millennia. Due to the near extirpation of lamprey in many locations within the Columbia River Basin upstream of dams and impediments to passage, Willamette Falls is one of the few remaining traditional harvest locations for the CRITFC member tribes. The cultural and traditional significance of Willamette Falls can not be overstated to maintaining ties to Pacific lamprey and providing lamprey for subsistence and ceremonial purposes. Some of the work CRITFC and its member tribes have conducted to conserve Willamette Basin lamprey populations can be found in The Tribal Pacific Lamprey Restoration Plan for the Columbia River Basin.1 The Willamette Basin is one of the most prominent habitats for lamprey, with Willamette Falls as a significant historical fishing site.

Additionally, within the basin, the largest proportion of lamprey in the Willamette Basin inhabit the Santiam River, a tributary that will be affected by this project. Diminished in the Columbia River, the Willamette is one of the last few basins for lamprey to thrive. It's also important to add that there has been a number of restoration projects done for the lamprey in the basin and without enough flow they may be all for naught.

Response:

Comment noted.

Comment: Fish Passage-65

Improving the passage environment for Pacific lamprey, at all life history stages, remains the highest priority for restoration within the Willamette Basin.

- Improvements to passage by adult lamprey: Increase focus on addressing known adult lamprey passage bottlenecks in fishway sections that are upstream of entrances (i.e. transition pools, serpentine weirs). Evaluation of historic telemetry data suggests this will enhance likelihood of improving overall dam passage efficiency and conversion to upriver dams (Keefer et al. 2013).
- Development of alternative forms of passage: Efforts to develop and improve alternative forms of passage should continue in parallel with passage improvements. This would include expansion of adult translocation efforts that aim to bypass the difficult migration corridor and release adults into high-value spawning habitat in strategic locations within the Willamette Basin.
- Implementation of RM&E plan for larval/juvenile lamprey: Strongly consider multiple approaches (e.g. PIT and acoustic tagging) to inform management decisions regarding juvenile lamprey passage improvements, in addition to the current strategy of developing a juvenile lamprey acoustic transmitter.

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW.

Measure 52 has been revised in the FEIS to remove information on lamprey passage structures in Chapter 2, Alternatives, Section 2.8.4.1, Provide Pacific Lamprey Passage Infrastructure (52)). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the WVS while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species. The Corps appreciates the interest of Tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the

non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Fish-92

Pacific lamprey migration timing is influenced by a number of factors including water temperature and flow (Clemens et al. 2011, 2012). As temperatures increased, lamprey were observed holding overwinter in the mainstem Willamette River prior to resuming the spawning migration the following spring (Clemens et al. 2012). Testicular atresia of male lamprey has been observed in lamprey collected at Willamette Falls when temperatures exceeded 20°C. Lamprey may also respond to chemical cues from larval lamprey to guide their spawning migrations (Moser et al.

2015). Thus it is important that habitat and water quantity and quality are maintained in upstream tributaries where larval lamprey are observed to reside.

Response:

Comment noted.

Comment: Water Quality-50

Another concern is how changes in Willamette River System Operations will affect water quality in the Willamette Basin. Shifting water flow will affect the water quality of the basin from dilution of pollutants to affecting water temperature and availability of dissolved oxygen for aquatic species.

The quality of water disproportionately impacts juvenile lamprey, which spend up to seven years filter feeding in the silt and gravel of stream beds, making them particularly susceptible to toxics that settle in and out of the water. ESA-listed steelhead and chinook salmon are also vulnerable to water quality degradation and rely on flow objectives to dilute concentrations of toxics from municipalities, industry, and agricultural runoff.

Response:

Water quality effects have been updated in the FEIS in Section 3.5, Water Quality, and in Section 4.5, Water Quality cumulative effects. The FEIS has also been revised to add to add information on lamprey life history in the Affected Environment descriptions and anticipated impacts to lamprey under each alternative in Section 3.8.1, Fish and Aquatic Habitat, Affected Environment and Section 3.8.2, Fish and Aquatic Habitat, Environmental Consequences, respectively.

The Oregon Department of Environmental Quality applies water quality standards to assess whether the quality of Oregon's rivers and lakes is adequate for fish and other aquatic life, recreation, drinking, agriculture, industry, and other uses. These standards

were developed by the state to protect Oregon's native cold-water species and, therefore, are useful for assessing impacts to lamprey. Consequently, the Oregon State water quality standards were considered when assessing potential impacts to lamprey under each of the alternatives in the FEIS.

Comment: Climate Change-21

Thoroughly considering the likely effects of climate change is essential to an accurate Willamette River System Operation EIS. Climate change was not thoroughly taken into consideration in the Willamette River Basin EA, which provides this EIS an opportunity to assess the impacts to the Willamette River Basin.

The EIS should contend with the possibility that reservoirs may not adequately fill since tributaries, such as the North Santiam, are snowpack driven, which may be affected by climate change differently than rain-driven tributaries. Additionally, climate change will affect the local flows, including timing of flows, that are relied upon in the data to meet the BiOp objectives. The temperature of the water will also be affected by climate change and lamprey, steelhead and chinook salmon may require more live flow to keep Willamette tributaries at a habitable temperature. Overall, the inevitability of climate change impacts must be factored into this EIS.

Response:

The resource areas analyzed in Chapter 3, Affected Environment and Environmental Consequences, include a climate change effects analyses under each alternative, based on the foundational climate change analysis detailed in Appendix F1, Qualitative Assessment of Climate Change Impacts, and Appendix F2, Supplemental Climate Change Information. Climate change impacts anticipated under each resource were qualitatively assessed and assigned a numeric value that was incorporated into the Preferred Alternative identification evaluation matrix. Each resource in Chapter 4, Cumulative Effects, in the FEIS has been updated to clarify that the Corps will continue to consider climate change effects applying adaptive management planning.

Comment: BiOp-23

Perhaps the greatest concern is that there is not enough live flow to sustain fish and wildlife to meet BiOp requirements year-round. Models from the Willamette River Reallocation EA show that BiOp flow requirements are not consistently met, and in years of deficit and insufficient water availability, they are missed significantly. It would be wrong to assume that a water allocation decision in an EA that does not mention lamprey will in anyway override the needs of this species.

Response:

Comment noted.

Comment: Cultural and Tribal Resources-5

The interests of tribes in the protection of cultural resources associated with the Willamette River are not limited to the information contained in the archaeological sites. Salmon and lamprey are tribal cultural resources that play an integral part of tribal religion, culture, and physical sustenance. Salmon and lamprey shaped the lives of the people who have lived here since time immemorial.

The cultures, intertribal interactions, fishing technologies, and very religions of the Pacific Northwest tribes were all impacted and influenced by salmon and lamprey. These fish have been an important part of the economies of the region for thousands of years, from the ancient Indian trade routes to modern commercial fishing.

Specifically, salmon also play an important role in the ecosystem of the region, returning ocean nutrients to the rivers and streams where they were born, feeding wildlife and even the forests with their bodies. Wy-Kan-Ush-Mi Wa-Kish-Wit, the salmon's spirit, is sacred life. The salmon was provided a perfect world in which to thrive. For thousands of years the salmon unselfishly gave of itself for the physical and spiritual sustenance of humans.3

USACE will need to work closely with the member tribes of CRITFC and their cultural resources departments during their analysis of cultural resources. CRITFC may be able to assist in coordination with the tribes.

Response:

Comment noted.

Comment: Alternatives-113

The EIS should consider a range of system operations and improvements with the goal of improving fish passage and maximizing system survival. Alternatives should include the following operation changes:

- A spill/flow program optimized for salmon survival under existing water quality waivers; set spill/flow at optimal levels based on individual project characteristics to maximize juvenile survival. Such spill may be greater than current spill, but may not necessarily require spill to the gas caps.
- Modified reservoir operating elevations at specific projects for either permanent drawdown or seasonal drawdown.
- Use spill/flow operations during the summer to deal with downstream water quality issues.
- Altered flood control operations in low- and mid-range water years to guarantee flows downstream of projects.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives including the Preferred Alternative. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: Fish Passage-66

Alternatives reviewed under the EIS should include structural modifications to again improve fish passage and system survival. The modifications for lamprey passage measures discussed above should be considered.

- Install additional temperature structures at appropriate projects to reduce summertime thermal issues.
- Install surface passage structures/collectors at designated projects such as outlined at Detroit and Cougar dams.
- Improve adult passage at existing ladders. Add trap-and-haul facilities if adult ladders are infeasible or not cost-effective options
- Evaluate different smolt transport options of trucking or long distance piping to move fish around dams.

Response:

The Preferred Alternative includes all these measures in different combinations at different projects. For example, a collector and tower are proposed for Detroit Dam. Drawdown to the diversion tunnel is proposed for Cougar Dam. In the Middle Fork, there is extremely limited opportunities to effect temperature with a tower during the summer because the tower could only draw warm water. Thermal mixing would be extremely limited.

Measures have been implemented at various projects to address project-specific limitations. There is limited evidence that long distance pipes are safe, effective, or feasible at high head dams with substantial reservoir volume fluctuations annually.

Comment: Mitigation-10

Inclusion of mitigation actions, such as those implemented through actions in the estuary and tributaries, as well as hatchery actions, is a requirement of the Northwest Power Act and must be included as part of the WRSO action so long as there are dams on the rivers; there is no system operation alternative that can alleviate the mitigation requirement. The alternatives in the EIS must therefore include an appropriate suite of tributary and estuary mitigation actions.

Mitigation funding plays a significant role in the economics of interior basin communities. Therefore, when analyzing the effects of tributary actions, the agencies will need to include analysis of the socio-economic benefit that mitigation funded tributary actions have on local communities, both tribal and non-tribal, and how those benefits change under the various alternatives.

Response:

The existence and continuation of the habitat program funded by BPA is not an action the Corps is taking pursuant to its Congressionally authorized authorities, which are limited to projects on Corps-managed lands.

Comment: Hydropower-22

The EIS will need to consider the effects of the existence and operation of the federal hydropower system on reservoir ecology. Before the dams, the Willamette River was just that – a river of free flowing water. The Willamette River system has turned these rivers into a system of connected reservoirs, bringing with it changes to the natural ecological river system, including invasive species, algae, seaweed, altered flood dynamics, sequestration of sediment, sand bars, water quality issues, and changes in temperature, to name a few. The WRSO EIS will need to evaluate the change in reservoir ecology associated with each alternative and how these changes affect fish and wildlife resources. We encourage the agencies to consider alternative actions – including system operation and restoration actions – to address reservoir ecology and its impacts on the fishery resource.

Response:

The Corps assessed current conditions of hydrologic processes, river mechanics, and geomorphology in DEIS Section 3.2, Hydrologic Processes, and in DEIS and FEIS Appendix C, River Mechanics and Geomorphology, respectively. Additional detail is found in Appendix B, Hydrologic Processes Technical Information.

Geology and material movement that can affect reservoir ecology are addressed in FEIS Section 3.4, Soils and Geology. Reservoir ecology is addressed by the parameters that comprise ecological systems within each subbasin such as water quality (temperature, total dissolved gas, mercury, turbidity, harmful algal blooms, habitat connectivity) in FEIS Section 3.5, Water Quality; Section 3.6, Vegetation; Section 3.7, Wetlands; Section 3.8, Fish and Aquatic Habitat; Section 3.9, Wildlife and Habitat.

Comment: References and Data-84

The EIS should review and include a range of fish metrics and data, including project survival, reach survival, and delayed mortality. Alternative development and analysis in the EIS should consider at least reach, project, and SAR survival metrics. In addition to these metrics, the

analysis should look to using various models and tools and not be completely dependent on the COMPASS model.

Response:

The Corps does not use the COMPASS model to evaluate alternatives. The Corps applied an ensemble modeling approach with several models and multiple lines of evidence to evaluate the alternatives: NMFS life cycle model, UBC IPA, and EDT. Two of these were dynamic.

At-dam project survival and reach survival below dams are accounted for in the life cycle models. The Corps then used several population-level metrics to evaluate the alternatives, primarily R/S, equilibrium abundance and QET. The Corps examined mortality. There is currently no determined mechanism to assess delayed mortality (though there are many hypotheses in the literature). An Adaptive Management Plan is included as Appendix N, defining how measures would be monitored and decisions made using new information as available to achieve objectives and criteria of each measure.

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION (PORTER, LAURIE)

Comment Document: 2023-01-10_PublicComment_WV_DEIS_CRITFC_Laurie Porter.pdf

Comment: Cultural and Tribal Resources-1

I had a question from the CRITFC member tribes as to who from the tribes received the letters/emails under the 'tribal consultation' (pages 6-4,6-5), as we are tracking down comments from that time period. Are you able to provide me with the names/emails of who would have been contacted? Or, is it in the documents somewhere?

Response:

The Corps contacted the following people from the four tribes represented by CRITFC: Nez Perce Tribe – Samuel Penney, Keith Baird, Nakia Williamson, Dave Johnson, Aaron Miles; The Confederated Tribes of the Umatilla Indian Reservation – Kat Brigham, Teara Farrow Ferman, Eric Quaempts, Lindsey Watchman, Board of Trustees email, Natural Resources Department email, Helen Morrison, Audie Huber; The Confederated Tribes of the Warm Springs Reservation of Oregon – Austin Greene, Jr., Robert Brunoe, Christian Nauer, Brad Houslet, Ronald Suppah, Louie Pitt, Brigette McConnville; The Confederated Tribes and Bands of the Yakama Nation – Paul Ward, Delano Saluskin, Casey Barney, Phil Rigdon, Melissa Hannigan. By the request of staff at the Confederated Tribes of the Umatilla Indian Reservation, the Corps also contacted CRITFC representatives Aja DeCoteau and Rob Lothrop. The FEIS has been updated to include the contact information in Appendix O, Tribal Coordination and Perspectives.

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION (PORTER, LAURIE)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_ColumbiaRiverInter-TribalFishCommission_Laurie Porter .pdf

Comment: Deadline Extension Requests-3

CRITFC will be submitting technical comments to the WVS Draft PEIS. We will be sending a Letter when we have completed our review.

Response:

Comment noted.

CONFEDERATED TRIBES OF GRAND RONDE (MERCIER, CHRIS)

Comment Document: 2023-02-21_PublicComment_WV_DEIS_CTGR_Kelly Dirksen_Attachment.pdf

Comment: BiOp-1

The Court also issued an injunction that requires the Corps to implement various interim measures to benefit salmonids until NMFS completes the new BiOp. The injunction measures are a good start, but the Corps must do more to protect salmon. We encourage the Corps to leave the injunction measures in place, conduct thorough monitoring of the results, and quickly move toward improving upon the injunction measures for fish passage.

Response:

Comment noted.

Comment: Fish Passage-14

Deep drawdown is the best way to achieve volitional passage for juvenile salmonids. Deep drawdown meets the biological needs of juveniles because it is the closest operational measure to a naturally-flowing river.

Response:

The Corps agrees with respect to volitional passage benefits that deep drawdowns can be highly effective for downstream passage, at least where outlet gates are available at river bed elevation (i.e., Fall Creek Dam). However, the Corps disagrees with respect to meeting biological needs using deep drawdowns in general (at all dams) for fish and other aquatic resources, due to differences in the configuration of each dam and local environmental factors. Additionally, deep drawdowns adversely impact on the multiple missions the WVS dams are required by Congress to achieve.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in Chapter 1, Introduction, and Chapter 2, Alternatives, of the EIS. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Alternatives-20

The preferred alternative should maximize deep drawdowns for all suitable reservoirs. Fortunately, drawdown is consistent with flood risk management. Lower reservoirs have room to manage storm events. In addition, low reservoirs provide less flood risk in the case of earthquakes.

Response:

Comment noted.

Comment: Endangered Species Act-3

While drawdown measures must balance numerous physical and biological factors, the Corps must prioritize protecting ESA-listed species over hydropower production.

Response:

As stated in FEIS Chapter 2, Alternatives, the purpose for the Proposed Action is to continue operations and maintenance of the Willamette Valley System. The need for the Proposed Action is to operate the system in accordance with the eight Congressionally authorized purposes and in compliance with the ESA.

The Corps analyzed potential effects to fish and other threatened species under each of the alternatives including the draft Preferred Alternative (Alternative 5) n the DEIS (See FEIS Appendix A, Alternatives Development, Attachment 4). Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: Hydropower-11

It is impossible to tell from the DEIS how the Corps weighed hydropower production when developing the alternatives. The final EIS should clearly spell out the maximum drawdown possible in depth, duration, and seasonality that would benefit the species. The final EIS should include a discussion of how much hydropower the Corps aims to produce under each alternative and how that production impacts salmonids.

Response:

Appendix A, Alternatives Development, Section 1.1.1, provides information on how hydropower influenced development of the alternatives. The Corps analyzed potential impacts to hydropower production under each of the alternatives in Section 3.12 and Appendix G, Power Generation and Transmission. Impacts to hydropower production have been identified and will be considered prior to a final decision by balancing the requirements Congress determined for the system operations and considering all resource effects and the need to comply with the ESA.

Comment: Alternatives-21

The preferred alternative should include at a minimum the downstream passage measures (#40) from alternative 3B, which includes deeper fall drawdown at Lookout Point, Hills Creek, Cougar, Blue River, Green Peter, and Detroit. The preferred alternative should also include spring passage measures (#720) for Hills Creek, Cougar, Green Peter, and other dams that benefit salmonid passage.

Response:

Fish passage is recognized as a primary limiting factor for migratory fish species. The purpose and need of this EIS defined in Chapter 2, Alternatives, includes addressing ESA species obligations.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect as predicted that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Fish-41

Limiting drawdown to a few weeks in the fall adversely affects the diversity of life histories for salmonids. Juvenile fish are in the reservoirs in nearly every month of the year and the survival rate drops the longer the fish remain in the reservoirs. The preferred alternative should explicitly evaluate a range of frequency (spring and fall) and duration (months) of drawdown.

In addition, refilling reservoirs greatly affects fish passage timing and survival. The final EIS should evaluate the impact of draft and refill operations and consider options to avoid refill where possible.

Response:

The alternatives evaluated in the DEIS and FEIS include combinations of fish passage operational measures occurring at a variety of times each year, particularly in both the spring and in fall. Juvenile Chinook salmon and steelhead are present in most months in the Willamette River Basin.

Studies of Chinook salmon and steelhead at WVS dams indicate that given an effective passage outlet, parr and smolts will leave relatively quickly, although passage rates will vary depending on life stage. Population assessments show there are important tradeoffs that occur between managing for life history diversity in emigration timing of juveniles.

Adult abundance is expected to decrease, to levels below population replacement, when a substantial number emigrate as small sub-yearlings in spring compared to larger sub-yearlings in fall. In Fall Creek Reservoir, adult returns have substantially increased associated with the deep reservoir drawdown in the fall (See a description of Fall Creek Dam in DEIS Section 3.1.1.3, Willamette System Features) (e.g., Murphy et al. 2019 in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses).

Comment: Alternatives-22

Cougar - The Corps should implement Cougar drawdown faster. The preferred alternative would delay the drawdown to the diversion tunnel at Cougar until 2040, even though this vital action has been proposed for years. While the Corps proposes construction to modify the tunnel, it should not take nearly two decades. Time is not on our side. The Corps should include the following into the preferred alternative: 1) fish passage through the diversion tunnel is operational by 2028, not 2040; 2) the Corps need not wait to complete the disposition study; 3) after the hydropower disposition process for Cougar is complete, the Corps should operate Cougar as run-of-the-river.

Response:

(1) Modification of the Cougar Dam diversion tunnel for fish passage operations along with all other structural modification measures under each alternative were assumed to

be in place within 5 years so that a comparison could be made as to the long-term impact of the different operations and passage solutions analyzed. An implementation schedule is provided in FEIS Appendix A, Alternatives Development, Attachment 4, Preferred Alternative.

(2) A more aggressive schedule for the Cougar diversion tunnel modification was not proposed under the Preferred Alternative because use of the diversion tunnel for routine operation is not currently feasible and requires engineering and design work, including dam safety studies, prior to construction. Additionally, the Corps must complete a disposition study recommending that Congress deauthorize hydropower, irrigation, and water supply. Congress must then act on that recommendation and dispose of those purposes at Cougar Dam. The studies and retrofits also need to be sufficiently funded by Congress; therefore, use of the diversion tunnel by 2028 is infeasible.

(3) Run-of-river operations are contrary to flood risk management operations by increasing flood risk, which was a constraint of this study.

Comment: Alternatives-23

Detroit - The Corps should immediately implement deeper drawdown to the regulating outlet in the spring and fall. If the Corps must sustain the recreational use of power boats for political reasons, the Corps could refill the reservoir in the summer to support some boat ramps. This approach may require the construction of a fish collection structure and a temperature control structure. If drawdown is successful, reevaluate whether structures are needed.

Response:

Under the Interim Operations, the fall drawdown at Detroit Dam would be continued under all action alternatives except Alternative 1. A delayed refill or spring drawdown was not proposed for further evaluation because of concerns about refill and impacts to the City of Salem's water supply.

Comment: Alternatives-24

Lookout Point - The Corps should complete its landslide risk assessment in early 2023 and then implement deeper drawdown in the spring and fall, as required by the injunction. The Corps should monitor results to evaluate whether a fish collection structure is needed in the future.

Response:

The Landslide Risk Assessment was completed and submitted to the Court in 2022; the drawdown occurred in the fall of 2023. Compliance with the Court's order is not under review in this NEPA EIS. Instead, the EIS analyzes the effects of continuing operations that are identical to, or are closely modeled after, the injunction measures. This analysis

incorporates Interim Operations or long-term operations under Alternatives 2A, 2B, 3A, 3B, and 5.

Comment: Alternatives-25

Hills Creek - The Corps should implement adult outplanting above the dam and deeper drawdown for juvenile passage as soon as possible. The Corps should monitor results to evaluate whether a fish collection structure is needed in the future.

Response:

Hills Creek Reservoir regulating outlet drawdown was evaluated under Alternatives 3A (fall only) and Alternative 3B (spring and fall). The Corps is currently implementing the drawdown operation as ordered by the injunction and would continue this operation under the Interim Operations, Alternative 3A, and Alternative 3B, including monitoring, to inform if additional passage is necessary. DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, includes details on monitoring at Hills Creek Dam and Reservoir.

Comment: Alternatives-26

Green Peter - The Corps should implement fall and spring deeper drawdown as soon as possible.

Response:

Comment noted.

Comment: Alternatives-27

The preferred alternative proposes to build juvenile fish passage structures at Detroit in 2036, Lookout Point in 2044, and Foster in 2032. These actions are not even certain-the Corps says the dates are "best-case scenario" and funding dependent. The decade-long delay is incompatible with fish recovery and should be changed in the final EIS.

The Corps should quickly implement and monitor aggressive volitional fish passage prior to investing in very expensive structural projects like juvenile fish collection facilities, which are unproven for high-head dams and may take decades to deploy.

Deep drawdown is already happening, partially, under the interim injunction measures. Data will be available soon. If deep drawdown is not successful, the Corps could build the fish collection structures later.

Response:

Realizing the realistic constraints for implementation of complex structural solutions and the need for immediate action for the species, all action alternatives include a suite of operations that continue volitional passage until long-term solutions are in place, as part of the Interim Operations (FEIS Chapter 2, Alternatives, Section 2.8.5, Interim Operations). These operations would continue to be optimized under the Implementation and Adaptive Management Plan as described in DEIS and FEIS Appendix N.

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives including the Preferred Alternative. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: Hydropower-12

Because hydropower production drives many of the Corps' operating decisions, the final EIS should provide an honest assessment of the value of hydropower. The description of hydropower in the DEIS leaves out the punchline: Upper Willamette River Basin hydropower does not make economic sense.

Under the preferred alternative, the dams would lose a stunning $714 million over 30 years because the cost of generation far outweighs the revenue.13 The DEIS stated there "would be a $939 million reduction in Net Present Value to -$714 million." Killing salmon to lose money deserves a deeper analysis. The final EIS should fully describe the impact on ratepayers and spell out alternatives for a more logical approach… The final EIS should contain a detailed evaluation of the cost of the hydropower and the impact on ratepayers, considering a range of additional fish mitigation measures proposed in the DEIS and the upcoming BiOp. The Corps fails to disclose the low economic value of hydropower, which prevents a fair assessment of hydropower's benefits versus the tremendous harm to fish and wildlife.

Response:

The primary drivers for the loss to hydropower identified under the Preferred Alternative are due to the cost associated with implementing the Preferred Alternative. The costs and benefits associated with deference given to hydropower generation are identified under the No-action Alternative, which does not indicate that operating at a loss would occur. A separate study to evaluate the Federal interest in hydropower is ongoing.

Comment: Alternatives-28

The final EIS should include a no-power alternative and fully evaluate the different operation measures if the dams are not managed for hydropower.

Removing hydropower is a reasonable alternative given the dire state of salmon health, warming water in reservoirs due to climate change, and-most obviously-the fact that hydropower production has no economic justification for these dams. It is not sustainable to lose hundreds of millions of dollars.

Removing hydropower is also a reasonable alternative because Congress has required the Corps to study deauthorizing hydropower. Congress passed the Water Resources Development Act (WRDA) of 2020, which required the Corps to study deauthorizing power as a purpose of Cougar, Detroit, and Big Cliff dams. WRDA 2022 requires the Corps to analyze the effects of "deauthorizing hydropower as an authorized purpose, in whole or in part, of the Willamette Valley hydropower project." Because the Corps is currently studying a major operational alternative, the Corps should include it in the final EIS.

Response:

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action. The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies. The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS.

Further, impacts to all Corps' Congressionally mandated purposes have been analyzed in the EIS including effects under each of the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily invite Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action. The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

Comment: Alternatives-29

The final EIS should provide more details on monitoring and adaptive management. Monitoring the effectiveness of new measures will be a critical part of decision making moving forward. We encourage the Corps to invest in a robust monitoring program that is at a scale and duration to provide data to answer the necessary questions.

CTGR participated in the WATER process after the 2008 BiOp. We encourage the Corps to develop a better and more inclusive process to work with federal, state, and tribal partners.

Response:

An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N, Implementation and Adaptive Management Plan). Metrics, criteria, and an approach to assess near-term fish passage operations have been revised to identify success. Metrics include assessing population-level performance by monitoring cohort replacement rates. The Plan also includes schedules for implementation of each measure.

The Plan includes continued coordination with regional partners in the WATER Forum, with additional specificity such as conducting annual meetings to review new information, proposals for changes to specific measures in the Plan, and development of annual updates to the Plan.

Comment: Environmental Justice-1

The DEIS discussion of environmental justice is wholly inadequate. If the Corps continues to operate the dams in a manner that drives UWR Chinook and steelhead to extinction, that is an ultimate injustice. The Corps must conduct a robust analysis to assess the full environmental justice implications of operating the dams and the impact on the CTGR, CTGR tribal members, and other Tribal Nations. The Corps must consider the disparate impacts that CTGR and other Tribal Nations have faced due to the Corps' construction and operation of the dams. The disparate impact analysis must inform any decision by the Corps and be included in the preferred alternative… The Corps must analyze the health, economic, and social effects of the dam operations and salmon impairment on the CTGR community. The DEIS fails to fulfill this duty.

Response:

There is not enough information in this comment to provide an informed response regarding the adequacy of the analyses. The comment does not specify what is meant by "wholly inadequate." However, the Corps acknowledges that all resources analyzed in the EIS affect area tribes (see Section 3.24 and Section 4.24, Tribal Resources). Analyses of air pollutant and greenhouse gas emissions, wildlife, vegetation (including species important to tribes such as Wapato), resident and gamefish, lamprey, cultural resources,

and climate change-related effects address effects of dam operations throughout the Willamette River Basin.

Several Executive Orders requiring an environmental justice analysis were rescinded during the preparation of the FEIS, therefore, this analysis is not included in the FEIS.

The EIS includes an analysis of effects at a broader level because the alternatives address only programmatic implementation. Site-specific project details for each construction measure will be determined during project implementation phases. Therefore, subsequent NEPA documents tiered to this programmatic EIS would discuss detailed site-specific effects (FEIS Chapter 1, Section 1.3.1,1, Programmatic Reviews and Subsequent Tiering under the National Environmental Policy Act).

Regarding the programmatic EIS, when making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Fish Passage-15

Passage at the regulating outlets at Detroit dam has not been assessed. Alternative 3 draws down to 1330 which is much closer to RO outlet and within the optimal range of passing juvenile salmonids. This would likely be a more effective passage route for downstream fish passage. Alternative 3 for Detroit should be included in the preferred alternative.

Response:

There is known variability and recognized uncertainty in the effectiveness of deep drawdowns to regulating outlets at Detroit Dam for downstream fish passage. Based on available data, the Corps expects that passage efficiency and survival for juvenile Chinook salmon and steelhead would be good when the reservoir water surface is at the same or just above in the intake elevations of the regulating outlets. However, it is uncertain how many juveniles would pass when the reservoir is being drafted down to

that elevation, when hydraulic head is higher and therefore survival rates would be lower due to sheer stress and strikes.

Moreover, annual and seasonal variation in hydrology would result in variability in reservoir water elevations, resulting in variable fish passage effectiveness. Deep spring reservoir drawdown was assessed as Measure 720 in the DEIS. This measure would substantially affect reservoir storage in most years resulting in adverse effects for meeting fish habitat needs downstream, water temperature targets, among other adverse effects to achieving WVS missions and objectives (Section 3.8, Fish and Aquatic Habitat, Summary of Effects).

Comment: Fish Passage-16

As previously mentioned, fish passage at the regulating outlets at Detroit dam has not been assessed. Unlike many of the other projects in the basin, Detroit has two sets of regulating outlets at elevation 1330 and 1260. Drawing reservoir levels down to elevation 1290 in the fall would likely be the optimal outlet for fish passage. The preferred alternative should include drawdown to elevation 1290 and fish passage and survival assessments should be conducted.

Response:

Best available data documents that juvenile Chinook salmon and steelhead will utilize the shallowest available outlets when Willamette Valley System reservoirs are drawdown in the fall (e.g., see Dam Passage Efficiency and Survival parameter information included in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses). The Corps does not have information to indicate that drawing down to the lower regulating outlets would result in increased passage efficiency or survival. To the extent that pool volume (e.g., reservoir length) effects downstream passage rates, a substantial reservoir pool would still exist when drawing down to near the upper or the lower regulating outlets at Detroit Dam.

Comment: Fish Passage-17

Alternative 3 calls for a spring drawdown to 780, while the injunction measure calls for spring spill. Unlike other dams in the basin, Green Peter dam is equipped with a very low regulating outlet. The 780 elevation will leave an 80 foot pool and may pose on optimal opportunity to pass fish downstream. Though spill can be very effective to pass fish, there is not enough data to determine which will have higher passage efficiency for salmonids and other native fish species. The preferred alternative should include assessing the effectiveness of spring drawdown as called for in Alternative 3.

Response:

Annual and seasonal variation in hydrology results in variability in reservoir water elevations. This variability, in turn, results in variable fish passage effectiveness. Deep

spring reservoir drawdown was assessed as Measure 720 in the FEIS. Measure 714 to use spillway to pass fish downstream in spring was also assessed. Both measures are expected to have reasonably good survival rates when water surface elevations are near these outlets based on available data (See Appendix E, Fish and Aquatic Habitat Analyses).

Use of the regulating outlet in spring under Measure 720 includes uncertainty of fish passing downstream through the regulating outlet when the reservoir is drafted, and poor survival conditions are due to hydraulic head. Further, this operational measure would have added impacts relating to reservoir storage due to delaying reservoir refill in spring before inflows drop down in late spring and summer. Therefore, Measure 720 would substantially affect reservoir storage in most years resulting in adverse effects for meeting fish habitat needs downstream, water temperature targets, among other adverse effects to achieving Willamette Valley System missions and objectives (FEIS Section 3.8, Fish and Aquatic Habitat Analyses).

Under Measure 714, fish passage efficiency would also be affected by annual hydrology, especially in drier winters and springs, which would either result in the water surface elevation not reaching the spillway crest or reducing the number of days in with surface spill can be operated. There would be additional benefits achieved by filling and spilling in spring for multiple fish objectives and for other Willamette Valley System mission objectives.

Comment: Wildlife-5

Fish and Wildlife have been identified as an Authorized Use for the Willamette Project dams. This is broader than the Endangered Species Act, as the DEIS does not provide sufficient alternatives to address non-listed fish and wildlife species, particularly Pacific lamprey Entosphenus tridentatus, Western ridged mussel Gonidea angulata, and Western pond turtle Actinemys marmorata, all of which have been severely impacted by the operations of the Willamette Project.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats. Further, the Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS.

Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation. Impacts to lamprey were assessed in Section 3.8, Fish and Aquatic Habitat. Western

ridged mussels and northwestern pond turtles were assessed in Sections 3.9.2, Wildlife and Habitat. Additionally, USACE conducted a voluntary conference with the USFWS addressing the northwestern pond turtle and prepared a Biological Assessment analyzing the effects of the proposed actions on the northwestern pond turtle.

Comment: Revetments-4

Levees and revetments that are Corps authorized, and hence fall under the "408 Program," continue to disconnect floodplain, off-channel, riparian, and wetland habitats to the detriment of a wide spectrum of fish and wildlife species and their habitats. The Corps should review the 408 Program to determine if there is any Program flexibility that would allow currently non-functional structures to be discontinued from Program coverage. If structures are non-functional, then the current level of protection would not change. This would provide a greater opportunity by project sponsors for levee set-backs and/or revetment modification or removal, which could reduce downstream flooding by allowing instream flow to laterally expand across a greater extent of the historic floodplain.

Response:

The FEIS has been updated to include information on revetments in Section 1.7.2, Revetments and Other Structures for Bank Protection.

The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley. The revetments converted to private sponsors to own and maintain are discussed in the FEIS in Section 1.7.2, Revetments and Other Structures for Bank Protection. Projects that propose to alter privately owned revetments, although they are no longer Federally owned and operated, are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Changes to the Rivers and Harbors Act Section 408 statutory program are outside the scope of this EIS.

The Corps would continue to maintain Corps-constructed revetments under all alternatives including the No-action Alternative. In contrast to the No-action Alternative, revetments could be modified to incorporate fish-friendly improvements under the action alternatives such as adding natural materials but must continue to provide the same level of protection as when originally authorized.

The Corps is also proposing to secure a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These restoration authorities would allow for a potential change in the protectiveness level of revetments studied. However, this collaboration is not part of the scope of this EIS because it has not been initiated.

Comment: Fish-42

The Corps should complete an effective Trap and Haul facility, specific to Pacific lamprey, to pass returning adult Pacific lamprey from the base of Fall Creek Dam into the stream reaches above the reservoir.

Pacific lamprey were successfully reintroduced above Fall Creek Dam over the past decade by efforts of the Confederated Tribe of the Grand Ronde Indians. Adult Pacific lamprey were transferred from Willamette Falls for seven years to riverine reaches above Fall Creek Reservoir: spawning was documented in these reaches, and juvenile Pacific lamprey were later collected in outmigrant monitoring trap immediately below the dam. The Corps recently incorporated many significant features necessary to collect adult Pacific lamprey within the new AFF for salmonids; however, a permanent, lamprey-specific passage structure within that fishway to pass adult Pacific lamprey has not been completed. Structures such as a wetted wall or inclined ramp into a lamprey- specific holding tank, (such as those that exist at Bonneville Dam or PGE's River Mill Dam), are potential solutions to address passage via Trap and Haul at Fall Creek Dam. Similar efforts to complete lamprey passage at the Cougar AFF, Foster AFF and re-establish lamprey above Cougar Dam, Foster Dam and possibly other WVS dams, should also be initiated.

Response:

Downstream passage for lamprey is provided with the draw down of the reservoir to riverbed annually in late fall. Upstream migration is provided with the adult fish facility completed in 2018. The adult facility was designed to avoid features that would inhibit the ability of adult lamprey to enter and be collected. However, the Federal, state, and tribal fisheries management agencies determine the species and life stages that are transported.

The DEIS includes an Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan). A component of that Plan is Research, Monitoring, and Evaluation to assess measures. If there is uncertainty in the ability of lamprey to enter and in the collection efficiency of adult lamprey, evaluation of the trap can be proposed as a part of the annual adaptive management process. Findings would be used to determine if and what actions would be taken to address adverse lamprey impacts. Any evaluation will also need to consider effects of any proposed changes on drafting rates or other changes on ESA-listed fish.

Comment: Water Supply-11

Determine the impacts of the annual complete reservoir drawdown on Pacific lamprey because the annual full drawdown of Fall Creek reservoir for salmonid passage may impact larval and juvenile Pacific lamprey that may be stranded in the sediments. In coordination with the Tribe and other experts, evaluate the potential to reduce the ramping rate to slow the change in reservoir elevation during the drawdown, especially in areas of the reservoir that contain fine

sediment deposits with little to no slope, or other strategies that would limit impacts to rearing Pacific larvae in the sediments.

Response:

At Fall Creek Dam, downstream passage for lamprey is provided with the drawdown of the reservoir to riverbed annually in late fall, which would continue under all alternatives. The FEIS includes an Adaptive Management Plan (Appendix N, Implantation and Adaptive Management Plan).

A component of that Plan is research, monitoring, and evaluation to assess measures. If there is uncertainty in the ability of lamprey to move downstream as the reservoir recedes, this would be identified and prioritized for evaluation as part of the adaptive management planning process.

Findings would be used to determine if and what actions will be taken to address adverse impacts to lamprey. Any evaluation would also contemplate effects of any proposed changes on drafting rates or other changes on ESA-listed fish.

Comment: Fish-43

Work with the Tribe and other experts to create a prioritization framework for Pacific lamprey conservation and reintroduction of lamprey into historical habitats above the Corps dams. Historically, Pacific lamprey distribution in the Willamette largely reflects anadromous salmonid distribution. Such a framework would include assessment of habitat availability and suitability for all life stages of Pacific lamprey and evaluate the potential for completing upstream passage for lamprey at its new AFF and evaluating downstream passage routes for outmigrating Pacific lamprey at the WVS dams (including an evaluation of predation risks from large populations of non-native fish residing in some reservoirs). Assess availability and suitability of off-channel habitats in reaches downstream of WVS dams. In reaches with relatively low presence of offchannel habitat, or where the lack of disturbance limits the creation of new off-channel habitats, prioritize the restoration of existing off-channel habitats (e.g., dredging and excavation, re-introducing disturbance by increasing up- and downstream connectivity of habitats, and removal of successional plant species). Prioritize floodplain restoration areas where capacity of floodplain expansion would have low risk existing infrastructure. Off- channel habitats are important rearing habitats for juvenile salmonids and Pacific larval lamprey.

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any FEIS alternative. Further, the Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW. The Corps is prepared to work on a prioritization framework with the Tribe and other partners that seek to reintroduce this

species above WVS dams but doing so would be outside of this effort as lamprey are not ESA-listed species.

Comment: Vegetation-2

Set up a formal monitoring plan to document the role of geomorphology, flows, and cottonwood in the Willamette floodplain to determine the effects of different dam operations on black cottonwood. Comment: Create functional flows with a combination of increased minimum flow and flow ramping to improve the health of established Cottonwood trees and increase seedling recruitment.

Response:

This comment would require a floodplain species plan, which is a site-specific plan and not applicable to a programmatic-level review of overall operations and maintenance. Implementation of such a plan would require a balance with floodplain management practices under the Corps' Congressional authorities. Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Hydrology-10

In coordination with the Tribe and other experts, modify operations to provide a more normative (pre-dam) hydrograph, particularly freshets and peak flows that (1) connect floodplain and off-channel habitat, and (2) initiate sediment transport and hence restore existing and creating new riverine and off-channel habitats.

Response:

The Corps is not proposing to alter the flood risk management operations of the WVS under the Proposed Action. Therefore, operations to reduce peak flows above bank full

stage would remain. Runoff from snowmelt is accounted for in annual water supply forecasts. Reservoir operations treat all inflow similarly regardless of origin (i.e., from rain or snow).

Comment: Alternatives-30

The preferred alternative identified in the draft EIS includes future operational and/or structural fish passage (up and downstream) at multiple WVS dams, geared largely towards ESA protected Chinook salmon (Oncorhynchus tshawytscha), winter steelhead (Oncorhynchus mykiss) and bull trout (Salvelinus confluentus). Given that passage is focused on Chinook, steelhead and bull trout, the dams investigated for passage are those likely to provide the greatest benefit to those three species, without much consideration to the migratory requirements of other native aquatic species at the remaining WVS dams and the continued impacts to these species from operation and maintenance of these dams into the future.

Response:

The Corps analyzed potential effects to fish and other threatened species under each of the alternatives. Additional information on resident fish and habitat have been added to FEIS Section 3.8, Fish and Aquatic Habitat. Further, the Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been included in the FEIS and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

CONFEDERATED TRIBES OF GRAND RONDE (RONDE, GRAND)

Comment Document: WVS DRAFT PEIS Grand Ronde Comments and Responses_2022Dec01.xlsx - Grand Ronde.pdf

Comment: NEPA Process-38

GENERAL: The 30-day turnaround to offer substantive comment as a cooperating agency on a document of this size is inadequate. If USACE truly wants this review process to offer us the opportunity to make substantive comment, the process needs to be longer. We are also concerned that, in order to fit into the predetermined timeline for public review, USACE will not give our comments the full consideration they require.

Response:

In addition to the 30-day review period for Cooperating Agencies, these Agencies were also provided 90 days to review and comment on the DEIS during the public comment period (a total of 120 days/4 months).

Comment: References and Data-85

GENERAL: Please do a "find and replace for the spelling of Grand Ronde. There are a few places throughout (including in charts) where it is misspelled as "Grande Ronde"

Response:

The FEIS has been updated to address editing errors.

Comment: Proposed Action-53

GENERAL: It would be helpful for us if there were a separate list/alternative that explicitly listed out actions designed to optimally benefit salmonids and ESA-listed species in the WVS. There are actions represented in some of the non-preferred alternatives (ex. fish passage at Hills Creek) that we would like to advocate for being included in the preferred alternative, but it is difficult to read through each section to see the proposed impacts and compare them to Alternative 5.

Response:

EISs for programmatic actions are inherently complex documents. Federal agencies adhere to the Council on Environmental Quality regulations for document development, which includes a recommended format (40 CFR 1501.10). Agencies have flexibility with the format and attempt to develop complex analyses in a reader-friendly manner without considerable deviation from the regulations. In this case, the Willamette Valley System EIS was formatted to combine the Affected Environment descriptions for each resource with the analyses of consequences to a given resource in one location - Chapter 3. However, there is inherent difficulty in simplifying this information when consequences must be analyzed for each resource under each of the eight alternatives and for each of several subbasin analysis areas.

Tables are provided to help the reader assess summaries of impacts across alternatives. A summary of effects to fish across all alternatives is provided in FEIS Section 3.8, Fish and Aquatic Habitat, Subsection 3.8.6, summarizes effects to fish across alternatives. Clarity and improvements to readability have been made to the FEIS as warranted.

Comment: Cultural and Tribal Resources-6

GENERAL: The Willamette Valley System falls entirely within the ceded lands of the 1855 treaties signed with the tribes and bands that were eventually moved to the Grand Ronde reservation. Our tribes were living at these dam sites when the treaties were signed, and as our ceded lands they take on a greater importance for us than simply usual and accustomed places.

Response:

Comment noted.

Comment: Proposed Action-54

GENERAL: For the preferred alternative, fish passage and adult fish facilities are not being considered for Hills Creek. We ask for additional assessment of the benefits of including these interventions as part of Alternative 5 and encourage the Corps to adopt these measures as part of the preferred alternative.

Response:

Two ESA-listed species are affected by Willamette Valley System dams in the Middle Fork Willamette River Subbasin: spring Chinook salmon and bull trout. Fish passage measures included under the Preferred Alternative (Alternative 5) would provide for up and downstream fish passage at Fall Creek and Lookout Point/Dexter Dams (FEIS Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Alternative 5). These actions would provide access for Chinook salmon to a majority of the available habitat in the Middle Fork Willamette River Subbasin.

Analyses included in the DEIS and FEIS demonstrate little change in Chinook salmon population performance with the addition of fish passage at Hills Creek Dam (DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses). The bull trout population in the Middle Fork Willamette River Subbasin primarily resides above Hills Creek Dam; the abundance of this population has been steadily increasing over the last decade under existing conditions (FEIS Section 3.8, Fish and Aquatic Habitat bull trout information). No evidence from the commentor is provided to support that passage at Hills Creek Dam is needed to "avoid extirpation of bull trout."

The FEIS includes an updated version of the bull trout effects analyses under each alternative in Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, including factors assessed using best available information on bull trout in the Middle Fork Willamette River Subbasin. The Adaptive Management Plan has also been updated in the FEIS to include assessment and decision triggers for construction and operation of a fish trap at the base of Hills Creek Dam for collection and transport of any bull trout that have moved downstream of the dam to access available spawning habitat (Appendix N, Implementation and Adaptive Management Plan).

Comment: Fish Passage-67

We support increased Pacific Lamprey passage and infrastructure (52). We would also like to see information on potential approach ramps to the ladders that actually encourage lamprey passage in addition to in-ladder infrastructure that makes it easier for them to navigate once they're inside it.

Response:

Comment noted.

Comment: Fish-93

We support the construction of new adult fish facilities (722).

Response:

Comment noted.

Comment: Fish-94

We are concerned about moderate to major adverse effects on Chinook salmon being identified in ALL of the alternatives, as well as minor adverse effects for winter steelhead and bull trout in all alternatives. Any impact to these species should be considered significant because of the compounding effects stressing populations within the river system. All of these species are already severely impacted, and any adverse effects should be treated as significant.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives, incorporating ESA requirements into a determination of effects. The Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

The FEIS has been updated to reflect results of the ESA consultation and Final Biological Assessment (Section 3.8, Fish and Aquatic Habitat, Alternative 5). The methods and criteria used for the analysis of effects on fish are described in the FEIS Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Methodology.

Comment: Cultural and Tribal Resources-7

We are deeply concerned about major effects to cultural resources being listed in all alternatives. We ask that the Corps identify specific strategies to moderate, mitigate, and prevent these effects. Specifically, we are asking for A) funding for site protection, B) the creation of designated spaces to reinter items and ancestral remains that may be affected, along with any relevant policy change necessary to make that happen, C) specific educational resources and ongoing funding to develop and implement looting prevention strategies in affected communities, as well as leaving open the possibility of prosecution and enforcement of existing law, and D) a cooperative agreement with USACE so that the Tribe can provide culturally relevant support and education around cultural resources in the WVS.

Response:

The Corps will use the programmatic agreement modifying the National Historic Preservation Act Section 106 process to avoid, minimize, and mitigate effects to cultural resources that have the potential to be impacted under all alternatives analyzed in the FEIS. The Corps will consult with programmatic agreement signatories and other non-signatories as needed. As part of the consultation process, the Corps would address any concerns expressed by the tribes. FEIS Chapter 7, Relationship to Other Environmental Plans, Policies, and Regulations, provides information on Corps compliance with other laws including the National Historic Preservation Act.

Comment: Fish-95

We support considering Pacific lamprey along with ESA-listed anadromous and migratory fish.

Response:

Comment noted.

Comment: Cultural and Tribal Resources-8

We have several comments regarding the "Environmental Justice" section and the Tribe's representation in this section. The Tribe is represented as having its reservation and off-reservation lands in Yamhill County, but the Tribe also owns off-reservation lands in Polk County. We would also ask that this section specifically acknowledge that the entire WVS lies within the ceded lands of the 1855 treaties with the tribes and bands who were moved to the Grand Ronde reservation—these are our ceded lands. We would also like acknowledgement that although our reservation is only in one part of the region, our members live all across the communities in and around the WVS; thus, the metric that connects the physical distance from one reservation to places for subsistence fishing (ex. Figure 3.20-1) does not accurately represent the effects the WVS has on tribal member access to places for subsistence fishing.

Response:

The FEIS has been updated to clarify that the Tribe also owns lands in Polk County and that the entire Willamette Valley System lies within the ceded lands of the Confederated Tribes of the Grand Ronde Community of Oregon in Section 3.24, Tribal Resources. Several Executive Orders requiring this analysis were rescinded during the preparation of the EIS so the referenced analysis was deleted in the FEIS.

Comment: Cultural and Tribal Resources-9

We are disappointed that all alternatives list minor to moderate adverse effects to subsistence fishing for the Tribes. It is inappropriate that not a single alternative identified options that could promote the health of the system, increase tribal sovereignty, and improve access to spaces to practice culture. We are being asked to select from a menu of options that does not

offer us any benefits, but instead requires us to select an alternative that simply produces the least amount of harm to our cultural resources, natural resources, and ways of life. This is inappropriate.

Response:

Comment noted.

Comment: Cultural and Tribal Resources-10

In addition to restoration, access to wildlife resources, and initiatives to preserve cultural resources, the Tribe is also working to improve access for tribal members to practice culture in these spaces. Our culture still exists today as an active culture, and we'd like that represented along with protecting the resources of our ancestors.

Response:

Section 3.24, Tribal Resources, and Appendix O, Tribal Coordination and Perspectives, have been updated to summarize official tribal websites, letters, and public comments created and provided by Willamette Valley Tribes to reflect the importance of natural and cultural resources as well as tribal access and practice in places managed by the Corps.

Comment: Cultural and Tribal Resources-11

It is inappropriate that that preferred alternative would have adverse effects on the majority of cultural resources within the WVS, and we are confused as to why USACE explicitly lists that "no improved access and wildlife/plant habitat at traditional cultural properties" is an outcome.

Why is USACE choosing NOT to increase access to these spaces for tribal members, especially when major adverse effects to cultural resources have been identified?

Response:

This language has been removed from the FEIS since modifying tribal access to Willamette Valley System lands is outside of the scope of the FEIS, but it is being considered with the Willamette Valley Project Master Planning efforts (FEIS Chapter 1, Introduction, Section 1.12.1, Master Plans and Operational Management Plans). The master plans address land use planning, while the FEIS addresses water movement through the system.

The Corps will use the programmatic agreement modifying the National Historic Preservation Act Section 106 process to avoid, minimize, and mitigate effects to cultural resources that have the potential to be impacted by all alternatives discussed in the FEIS. The Corps will consult with programmatic agreement signatories and other non-

signatories as needed. As part of the consultation process, the Corps would address concerns expressed by the Tribes.

EMERALD BASS CLUB (PARKS, CHRIS)

Comment Document: 2023-01-08_PublicComment_WV_DEIS_Emerald Bass Club_Chris Parkspdf.pdf

Comment: Fish-9

The Club and members are deeply concerned about the future of some of the World Class fisheries we have here in the Willamette Valley.

We went through this with Fall Creek Reservoir aprox 15 yrs ago when the lake became managed as a ""flow through"" Winter reservoir. The resident fish in the lake did not survive and we lost what was an excellent resource that was close to Eugene/Springfield area. The resource has not been the same since.

There has been the same speculation on plans to do this at other Reservoirs as well which would be an extremely devastating loss.

Response:

An additional assessment of resident fish species in reservoirs targeted for recreational fishing has been included in FEIS Section 3.8.2, Fish and Aquatic Habitat, Affected Environment, and Section 3.8.3, Fish and Aquatic Habitat, Environmental Consequences.

Comment: Fish-10

What plans are in place to ensure the resident fish survive these new proposals?

Response:

The FEIS has been updated to include impacts to all fish species in the analysis area including resident fish in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species. Further, the Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: Water Supply-3

What water levels are being proposed and for what duration of time?

Response:

The water levels resulting from multiple measures implemented under each alternative are described in FEIS Section 3.2, Hydrologic Processes, Environmental Consequences. These analyses describe the hydrologic effects of each alternative.

Comment: NEPA Process-4

How is the Corp partnering with ODFW?

Response:

ODFW was invited to participate in development of the EIS as a formal Cooperating Agency, which it accepted in a signed Memorandum of Understanding between the two agencies. Under 1978 Council on Environmental Quality regulations, Cooperating Agencies are those that have jurisdiction by law or special expertise regarding any environmental issue under NEPA review (40 CFR 1501.6).

The scope of ODFW's involvement included participation in the NEPA process "at the earliest possible time," responsibility for providing and reviewing information specific to ODFW "special expertise," and providing a staff representative, which attended monthly meetings with the Corps. The Corps is required to use the "environmental analysis and proposals" of Cooperating Agencies to the maximum extent possible consistent with its responsibility as the lead Federal agency for this NEPA review (Id.). See Appendix L, Cooperating Agencies; FEIS Section 1.6, National Environmental Policy Act Cooperating Agencies and Endangered Species Act Action Agencies; and EIS Cover Page.

Comment: NEPA Process-5

Is there a way to put plans in place that are equitable for all parties that utilize these resources?

Response:

The EIS describes seven alternatives to operate and maintain all 13 dams and reservoirs, in addition to an alternative of maintaining existing operations (No-action Alternative) (Chapter 2, Alternatives). 24 resources with potential impacts from implementation of any alternative were analyzed to allow the Corps decision maker to make an informed decision on which alternative to implement.

Under the National Environmental Policy Act, the agency Record of Decision (ROD) presents preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions. The ROD explains all the essential considerations balanced by the agency in making its decision and explains how those considerations entered into the alternative implementation decision (40 CFR 1505.2). This balancing requirement addresses issues raised by all parties, including the public, tribes, and Cooperating Agencies.

Regarding statutory missions, impacts to all of the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from each alternative on fish, hydropower, water supply, flooding, etc. Congressionally authorized purposes are described in Chapter 1, Introduction, Section 1.10, Congressionally Authorized Purposes.

Comment: Fish-11

We believe there are ways to manage these wonderful resources without having detrimental effect to the resident fish populations that have existed in these Reservoirs for the last 60-80 years.

Response:

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Altern

atives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative. Effects on reservoir and downstream habitat and on all fish species affected by dam operations are provided in FEIS Section 3.8, Fish and Aquatic Habitat.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: NEPA Process-6

We'll like to see if there is a way to collaborate with all parties involved so all these resources can continue to be enjoyed by all that visit them and not just one small special interest group.

Response:

The Corps collaborated with 12 agencies and tribes to participate in development of the EIS as formal Cooperating Agencies (See Appendix L, Cooperating Agencies; FEIS Section 1.6, National Environmental Act Cooperating Agencies; and EIS Cover Page). Under 1978 Council on Environmental Quality regulations, Cooperating Agencies are those that have

jurisdiction by law or special expertise regarding any environmental issue under NEPA review (40 CFR 1501.6).

The scope of collaboration included participation in the NEPA process "at the earliest possible time," responsibility for providing and reviewing information specific to agency or tribal "special expertise," and providing a staff representative, which attended monthly meetings with the Corps. The Corps is required to use the "environmental analysis and proposals" of Cooperating Agencies to the maximum extent possible consistent with its responsibility as the lead Federal agency for this NEPA review (40 CFR 1501.6).

EPA (BACA, ANDREW)

Comment Document: 2023-02-22_PublicComment_WV_DEIS_EPA.pdf

Comment: Proposed Action-28

EPA identified environmental concerns and deficiencies in the analysis that should be addressed in the Final PEIS. In addition to our input on administrative drafts of the DPEIS documents, EPA has recommendations related to our concerns that the proposed action and its tiered projects may result in adverse impacts primarily to water quality, aquatic resources, and cultural resources. Specifically, the proposed action and projects, as well as future tiered projects could result in:

Exceedances of state temperature Total Maximum Daily Load targets downstream of the dams, affecting fish. Reservoirs do not generally cool in the fall and exceed criteria for spawning, e.g., at Long Tom River.

Exceedances of state Total Dissolved Gas in the WVS, e.g., at Foster Reservoir.

Sediment accumulation in reservoirs and dams caused by deep reservoir drawdown… additional impacts to cultural resources because of ongoing major effects at all reservoirs resulting from reservoir water level fluctuations and other impacts.

Response:

Comment noted.

Comment: Water Quality-11

Inaccurate assessment of risks to human health and the environment due to insufficient reservoir and dam assessment data on several water quality parameters, e.g., turbidity, Harmful Algae Blooms, and methyl mercury. Scarce data on methyl mercury, for example, impact implementation of the Mercury TMDL for the Willamette Basin.

Response:

The comment does not provide enough information to respond to the issue of "scarcity" or "insufficiency" of data.

Comment: NEPA Process-14

To provide clarity to the public and the decisionmaker about the programmatic nature and tiering NEPA reviews, EPA recommends the FPEIS:

Indicate whether the anticipated NEPA analyses related to the six Master Plan (MP) revision efforts will tier to this WVS PEIS or the existing PEIS completed in the 1980s. EPA is aware of two Environmental Assessments associated with these efforts, one for Cottage Grove and Dorena Lakes MP, and the other for Foster and Green Peter Projects MP.

Explain the rationale for preparing suggested programmatic NEPA analyses for MP revision efforts and their relationship to this PEIS.1

Describe the potential effects of the activities authorized under the MPs on programmatic decisions resulting from this PEIS.

Indicate why continued implementation of existing or revised MPs are not considered under the No Action Alternative of this PEIS, consistent with the CEQ's 2014 Guidance on Effective Use of Programmatic NEPA Reviews.

Response:

Master Plans are strategic land use documents for the management of all project recreational, natural, and cultural resources of the water resources project and are governed by specific Corps regulations and policies (e.g., ER 1130-2-550, EP 1130-2-550). Master Plans are not within the scope of the Proposed Action; however, the DEIS has been modified to include information on (1) the relationship between the WVS EIS and Master Plans, (2) the relationship between Master Plan revisions and the WVS programmatic EIS, (3) how activities identified in the Master Plans were incorporated into the WVS EIS, (4) that Master Planning is applicable under all alternatives, and (5) to identify the Corps policies that govern these plans. See FEIS Section 1.12.1, Master Plans and Operational Management Plans.

Comment: Water Quality-12

As construction and operation activities may impact water resources, resulting in long-term impacts to water quality parameters and designated beneficial uses due to increased temperature, TDG, turbidity and sedimentation, and mercury, EPA recommends the FPEIS:

Provide the most current information regarding the status of the State of Oregon Clean Water Act Section 401 certification and any conditions of the certification that will ensure the

proposed program projects will meet the state's Water Quality Standards. The DPEIS indicates there are many impaired waterbodies in the planning area and that program activities may impact several water quality parameters, including temperature, methyl mercury, turbidity, etc...7

Response:

Regulations applicable to water quality are discussed in FEIS Section 3.5, Water Quality. The FEIS has been revised to include more information in Section 3.5, Water Quality, Table 3.5-1, Clean Water Act Section 303d-listed Impaired Water Bodies Downstream of the Willamette Valley System Dams.

The Corps would adhere to all state and Federal regulatory requirements under any alternative when construction details are fully developed. Site-specific information on water quality effects from construction activities are not available for this programmatic EIS review. The Corps would continue to consult with Department of Environmental Quality as part of any plans for construction or operational activities when site-specific information is made available to inform such consultations under any alternative. See FEIS Chapter 7, Relationship to Other Environmental Plans, Policies, and Regulations, for information on Corps compliance with the Clean Water Act, including Section 401, for the Proposed Action analyses.

Comment: Water Quality-13

Provide additional clarifying information on the apparent focus of the PEIS analysis on primarily temperature and TDG water quality parameters when there are other water quality parameters, such as DO, mercury, sedimentation and HABs that impact water quality in the WB.

Response:

DEIS Section 3.5.2.1, Water Quality, Environmental Consequences, Methodology, clarifies that quantitative modeling capabilities are limited to water temperature and total dissolved gas. Turbidity, mercury, harmful algal blooms, and FEIS information on dissolved oxygen are qualitatively described based on results from Appendix C, River Mechanics and Geomorphology. At the time of the EIS development, the Corps did not have the capability to quantitatively simulate water quality constituents other than water temperature and total dissolved gas. Further, these water quality parameters were included in the analyses because they are the critical measures of aquatic habitat for ESA listed fish in the Willamette Basin.

The fish analysis of alternatives accounted for water quality conditions under each alternative and included summaries relating to key thresholds commonly used to assess effects in ESA-listed fish (DEIS Section 3.8, Fish and Aquatic Habitat, Environmental Consequences and Appendix E, Fish and Aquatic Habitat Analyses). Detailed results are

included in DEIS and FEIS Appendix D, Water Temperature and Total Dissolved Gas Methodology.

Comment: Water Quality-14

Clarify how USACE will be working collaboratively with the Oregon Department of Environmental Quality (ODEQ) to ensure compliance with Water Quality Restoration Plans that will function as the USACE's share of the Willamette Basin Temperature and Mercury TMDLs implementation, designed to meet state and federal water quality rules and regulations. In addition, please clarify the DPEIS statement that, "USACE was given Designated Management Agency status under the act by the Governor of Oregon" and expected agency roles in ensuring state water resources are protected and water quality maintained…

Describe plans to coordinate with the ODEQ, all affected tribes, Water Boards, and Watershed Councils in the WB to assure that state and tribal water resources are protected from impacts associated with the proposed program's construction and operation activities and are used judiciously.

Response:

The Oregon Department of Environmental Quality is a Cooperating Agency integrally involved in the development of this EIS. As such, the Corps has conducted targeted consultations with the Department of Environmental Quality in preparation of its analyses for each of the alternatives. The Corps would continue to consult with Department of Environmental Quality as part of any plans for construction or operational activities when site-specific information is made available to inform such consultations.

The Corps also engages regularly in consultations and information sharing with affected tribes and water-specific agencies and organizations, which would continue under any alternative. The Corps would adhere to regulatory requirements under any alternative. See Chapter 7, Relationship to Other Environmental Plans, Policies, and Regulations, Table 7.8-1 for information on Corps compliance with the Clean Water Act for the Proposed Action analyses.

Comment: Water Quality-15

Include information to demonstrate that the proposed action will adhere to the anti-degradation provisions of the CWA to prevent deterioration of water quality within reservoirs and dams, and downstream waterbodies that currently meet Oregon Water Quality Standards.

Response:

The Corps would adhere to regulatory requirements under any alternative. The Corps would continue to consult with Department of Environmental Quality as part of any plans for construction or operational activities when site-specific information is made

available to inform such consultations under any alternative. See Chapter 7, Compliance with Environmental Laws, Regulations, and Executive and Secretarial Orders, Table 7.8-1 for information on Corps compliance with the Clean Water Act for the Proposed Action analyses.

Comment: Water Quality-16

As more assessments are conducted, EPA encourages the USACE to update information in the FPEIS to reflect any new and relevant information about water quality, including TMDLs, Water Quality Restoration Plans, and water quality criteria to protect beneficial uses… Impacts of dam operations that result in temperature increases to reservoirs and waters downstream of reservoirs will need to be addressed as part of the TMDL development process. Potential increases to reservoir mercury methylation caused by dam operations altering water levels will need to be addressed as part of the USACE DMA Implementation Plan with ODEQ under the WB mercury TMDL (2019). Therefore, it can be reasonably assumed that the USACE will play a major role in these TMDLs, and operations of the dams will have to factor in their impacts to water quality in the Willamette Basin.

Response:

Comment noted.

Comment: Water Quality-17

Add more information on the role of reservoir operation in pollution abatement to address the concerns about low DO and methyl mercury production. The DPEIS states that, “Pollution abatement via dilution was focused on dissolved oxygen, pathogenic bacteria, and solids, but not temperature management.”9 This implies that reservoirs help abate downstream water quality issues through dilution. While this may be the case for some water quality parameters, it is likely not the case for DO. DO levels in reservoir discharge water can be significantly lower than they would in free-flowing sections of the river. Therefore, instead of pollution abatement, reservoirs can be the cause of the water quality issue. In addition to DO, reservoirs can also result in an increase in the production of methylmercury—the more toxic and bioaccumulative form of mercury. EPA recommends including a similar summary in Section 1.7.8 where water quality issues are first introduced. As the text currently reads, the impacts of reservoirs on water quality are that they provide a net benefit to water quality through pollution abatement, with the one exception being temperature. This depiction of water quality issues associated with reservoirs does not accurately reflect the impacts on DO and mercury methylation. EPA appreciates that the USACE will continue to consult with EPA on these issues.

Response:

The term "pollution abatement" and associated sentence has been deleted from Section 1.7.8, Authorized Purposes, Water Quality, in the FEIS.

Comment: Water Quality-18

Clearly describe the limitations of the assessment of mercury methylation. Instead of stating that methylation can occur in the water column of reservoirs, EPA recommends including a statement in Section 3.5.2 to indicate that the role of water column methylation was not included in the analysis and that this could lead to an underestimation of the impacts on methyl mercury production in some reservoirs where stratification occurs. Inclusion of this information is important to contextualize what is and is not included in the methylation analysis and how it might impact the overall predictions. The DPEIS states that, “This metric is utilized to describe the potential for the methylation process to occur due to sediments exposed during water fluctuations and rewetting of soils.”10 While EPA agrees that the wetting and drying of sediments is an important process that influences mercury methylation, there is also the impact of reservoir stratification and zones of methylation occuring within an anoxic hypolimnion. EPA recommends including a discussion of this additional impact of reservoirs on methyl mercury production since it would not be covered using an erosion-based metric.

Response:

The FEIS states the following in Section 3.5, Water Quality, Subsection 3.5.3.1, Methodology, Mercury Qualitative Methodology: "Qualitative mercury methylation impacts are best estimates based on current understanding of dissolved oxygen, mercury data, methylation data, and methylation potential at each reservoir at the time the alternatives were analyzed."

Comment: References and Data-11

Provide additional clarification about how the breakpoints associated with “Effects Criteria Definitions” were established because it is not clear how these breakpoints were established based on supporting material presented on page 3-469, Table 3.5-7 in chapter 3 and Table 1 on page D-343 in Appendix D. Specifically, on page 3-469 it is stated that “Thresholds were established based on the distribution of the data and expert opinion”; EPA recommends further describing how expert opinion and “distribution of the data” was utilized to establish thresholds. Also, if available, we suggest including a discussion about how similar “Effects” threshold values were established and used during previous efforts.

Response:

As stated in the comment, temperature effects criteria are shown for each location and alternative in FEIS Appendix D, Water Temperature and Total Dissolved Gas Methodology. The range of the simulated water temperature data, available at the time of FEIS publication, provides a reasonable range of conditions in which continued operation of the Willamette Valley System could provide adequate water temperatures

for the listed species while balancing all other Congressionally authorized purposes (FEIS Section 1.10, Congressionally Authorized Purposes).

Temperature evaluation criteria threshold levels defined in Appendix D, Table 7 are based on the relative exposure experienced by the listed species relative to Oregon State water quality criteria and pre-dam conditions (temperature targets) in which the species evolved to. This evaluation method for assessing thermal exposure impacts to the listed species is similar to methods used in the Columbia River Systems Operations EIS analyses (USACE 2020).

Comment: Water Quality-19

Include information on multiple operational scenarios for operations of a temperature control structure (TCS) at Detroit Dam, including downstream temperature targets that are not as warm in the summer, similar to the way Cougar Dam TCS is operated. EPA recommends clarifying if fall temperature targets will be met while maintaining somewhat cool temperatures in the summer. The DPEIS analysis of the temperature conditions predicted to occur with installation and use of a TCS at Detroit Dam is overly simplistic. The primary focus of the TCS alternative is to achieve colder fall temperatures consistent with the natural seasonal pattern as described in the WQS and TMDL. The results of the alternative suggest that achieving fall cooling comes at a price of warmer spring and summer temperatures. EPA recommends the FPEIS clarify if the USACE explored different operations of a TCS to maximize fall benefits and minimize the elevation of summer temperatures. A TCS can be operated in myriad ways from one month to the next to meet downstream fish needs, and the PEIS structure does not highlight or analyze that capability. By analyzing only one TCS operation, the DPEIS does not include the full potential benefits of a TCS for year-round shaping of outlet temperatures. However, the modeling does show that a TCS at Detroit can meet the temperature targets shown in the Appendix D, including the fall temperatures.

Response:

This comment requests information regarding Temperature Control Structure operational scenarios for Detroit Dam that are out of scope for the EIS analyses. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, proposed action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record. However, Temperature Control Structure scenarios may be addressed in subsequent site-specific NEPA analyses that tier from this programmatic review.

Comment: Water Quality-20

Include actions identified in Table 2.2.11 as part of the No Action Alternative, revise Table 2.4-4 to include a temperature control strategy, and/or explain the lack of their inclusion. The DPEIS does not currently show that there will be strategic use of outlets to meet temperature targets identified for Detroit and Lookout Dams in Table 2.4-1. These actions are identified in Table 2.2.11 as a near-term measure at these dams. EPA recommends discussing a temperature control strategy for Lookout Dam in Table 2.4-4 or clarifying why it is not included.

Response:

FEIS Table 2.2-11 is the comprehensive list of the operations within the Interim Operations. FEIS Table 2.4-1 is the list of measures under the No-action Alternative (NAA). FEIS Table 2.4-4 is a list of temperature management operations under the No-action Alternative (NAA). The No-action Alternative was defined as those operations in place as of April 2019. It would not be applicable to include the actions listed in FEIS Table 2.2-11 as part of the No-action Alternative as those were not in place as of April 2019. The No-action Alternative description correctly identifies use of the spillway at Detroit Dam in FEIS Table 2.4-1 and described in FEIS Table 2.4-4. As of April 2019, there was no operational temperature strategy in place at Lookout Point Dam.

Comment: Endangered Species Act-4

EPA recommends that:

The USACE continue to coordinate with the U.S. Fish and Wildlife Service and National Marine Fisheries Service, and as appropriate, with the Oregon Department of Fish and Wildlife to reduce risks to species and protect biota and habitat as the proposed program is implemented over the next 30 years.

The FPEIS include any additional relevant information developed after coordination with these agencies, particularly outcomes of Section 7 of the ESA consultations with the Services, including any recommended measures to protect fisheries and other species.

Response:

Under ESA Section 7 regulations, the Corps is required to consult with NMFS and USFWS to aid in the conservation of listed species and to ensure its funding, authorization, or activities carried out are not likely to jeopardize the continued existence of federally listed species or destroy or adversely modify designated critical habitat. The Corps would continue to comply with this law and fully implement terms of the Final Biological Opinions issued by these agencies under any alternative.

Additionally, the Implementation and Adaptive Management Plan outlines the governance plan, which includes coordination with Federal and state agencies in DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan.

Comment: References and Data-12

The DPEIS includes inaccurate, inconsistent, and incomplete information that EPA recommends updating for the FPEIS. These data include the following:

- On p. 3-465 (Table 3.5-6), Cottage Grove WVP is incorrectly identified as Row River sub-basin instead of Coast Fork. EPA recommends changing Cottage Grove's sub-basin from Row River to Coast Fork Willamette.

  Response:

  Table 3.5-6 has been updated in the FEIS for correct identification of the Coast Fork River Subbasin.

Comment: References and Data-13

On p. 3-465, 3-463, and 3-462, references are made related to Black Butte Mine EPA CERCLA RI/FS data collection in Cottage Grove (CTG) which imply that data collection ended in 2021. This RI/FS is ongoing with sampling beyond 2021. Future sampling needs are dependent on data gap analysis during the RI/FS. EPA recommends changing all Black Butte Mine related CTG sampling references from 2021 to ongoing. Sampling data are being provided to USACE.

Response:

The FEIS has been revised in Section 3.5, Water Quality, Affected Environment, Mercury, Coast Fork and Long Tom Subbasins and Section 3.18, Public Health and Safety, Affected Environment, Mercury and Mine Waste Sites, Black Butte Mine, to specify the removal actions at Black Butte Mine and to delete information on long-term monitoring. This information includes a citation referencing the EPA's 2021 study with a new, full citation added to FEIS Chapter 10, References.

Comment: References and Data-14

On p. 3-465, Section 3.18-3.18-2, the CERCLA summary for Black Butte Mine includes reference to 'long term monitoring' and incomplete summaries of site status. EPA recommends changing the text to "One time-critical removal action and one non-time-critical removal action were completed during early-action work at the mine site. Site characterization of contamination

Response:

The FEIS has been revised in Section 3.5, Water Quality, Affected Environment, Mercury, Coast Fork and Long Tom Subbasins and Section 3.18, Public Health and Safety, Affected Environment, Mercury and Mine Waste Sites, Black Butte Mine, to specify the removal actions at Black Butte Mine and to delete information on long-term monitoring. This information includes a citation referencing the EPA's 2021 study with a new, full citation added to FEIS Chapter 10, References.

Comment: References and Data-15

On p. 3-1232 and 3-1233, Section 3.18.1.5.1, the DPEIS discussion of Black Butte Mine does not clearly identify the site boundary as including Cottage Grove Reservoir, Operable Unit 3 of the Site. Operable Units for Black Butte Mine are defined as follows: OU1 includes the former mining area and the abandoned underground mine, as well as adjacent reaches of Furnace Creek and Dennis Creek. OU2 includes Little River from the confluence of Furnace Creek through the Coast Fork Willamette River to Cottage Grove Reservoir. OU3 includes the full pool elevation of Cottage Grove Reservoir and the wetland area near the Coast Fork Willamette River confluence with Cottage Grove Reservoir. This information is incomplete, and EPA recommends adding a sentence to this section that clearly identifies for the public that CTG full pool and wetlands are within the CERCLA site boundary for Black Butte Mine, known as OU3.

Response:

A text box has been added to FEIS Section 3.18.2.5, Mercury and Mine Waste Sites to describe Operable Units. A statement specifying that the Cottage Grove Reservoir full pool and wetlands are within the Black Butte Mine's CERCLA Site Boundary as Operable Unit 3 has been included in this text box.

Comment: References and Data-16

In Section 3.3.2.3.10, several alternatives reference 'major' or 'moderate' impacts to River Mechanics and Geomorphology categories including shoreline exposure (due to changes in operational range and deeper drafts) and downstream potential for increase in fine grained sediment supply into the Coast Fork Willamette. For CTG, alternatives identifying increases in release of fine-grained sediments from the reservoir and CTG increased shoreline exposure are assumed at this time to represent mercury contaminated sediment. As noted elsewhere, nature and extent of site contamination is currently in progress for the RI/FS at Black Butte Mine including CTG. EPA recommends the FPEIS identify impacts for potential increased release and exposure of mercury contaminated sediment in alternatives with 'major' or 'moderate' identified shoreline exposure and increased fine sediment release from CTG.

Response:

The FEIS has been updated to address mercury-contaminated fine sediment in Section 3.5, Water Quality.

Comment: References and Data-17

Regarding the discussion of mercury under Sections 3.5.2.3.5 and 3.5.2.6.5, EPA recommends the PFEIS identify potential mercury contaminated fine grained sediment increased release for those alternatives which were categorized as 'moderate' or 'major' impacts to River Mechanics and Geomorphology categories. Add information consistent with the previous comment above.

Response:

The FEIS has been updated to address mercury-contaminated fine sediment in Section 3.5, Water Quality.

Comment: References and Data-18

For Sections 3.5.2.3.5, 3.5.2.6.5, 3.5.2.7.5, and others, EPA notes that the following statement is present in these sections and not consistently included in other mercury sections for alternatives which also have identified the same major impact to shoreline exposure: "As there would be a major change in shoreline exposure at Cottage Grove and Dorena dams there is potential for an increase for the methylation process to occur with water fluctuations and rewetting of soils." For the FPEIS, EPA recommends retaining consistent statements throughout all mercury sections pertaining to Coast Fork dams related to impacts of methylation processes caused by increased shoreline exposure. Please include this statement in all "major" and "moderate" alternatives for shoreline exposure.

Response:

The FEIS has been updated to address mercury-contaminated fine sediment in Section 3.5, Water Quality.

Comment: References and Data-19

On p. 3-1258, Section 3.18.1.5.1, the statement update regarding mercury non-cancer hazard is accurate, but is presented without context, and therefore may be misleading. Referring to the following USACE response to our input on the preliminary DPEIS: "CDM Smith, the EPA's prime contractor for the Black Butte Mine removal actions, determined in a post-removal risk assessment that the total cancer risks associated with residential exposure were within the EPA's acceptable risk range but above the ODEQ range, despite a lack of data relating mercury exposure to cancer (CDM Smith 2020; EPA 2005). The noncancer hazard for a child was still above the threshold, primarily due to exposure to mercury-contaminated sediment (CDM Smith 2020)." The OU1 HHRA does not state that cancer risks are resulting from mercury exposure. The OU1 HHRA does speak to cancer risk due to arsenic and chromium, primarily driven by soil

Response:

Information on cancer risk has been removed from the EIS. FEIS Section 3.18.2, Public Health and Safety, Affected Environment, Mercury and Mine Waste Sites, Black Butte Mine, has been revised to include a few sentences on arsenic and mine waste sites. The previous section has been revised in the FEIS to include both mercury and arsenic as the constituents of concern.

Comment: Cultural and Tribal Resources-2

Because of anticipated major adverse impacts to cultural resources due to the proposed program, EPA recommends that:

The FPEIS demonstrate that all impacts to cultural resources will be avoided, minimized, and/or mitigated.

The FPEIS include a copy of the recently executed programmatic agreement that modifies the Section 106 process to follow a streamlined and standardized approach to manage historic properties that have the potential to be impacted by the USACE's undertakings related to the current and future operations of the WVS.

EPA encourages the USACE to consult with the Tribes when making decisions regarding the program and tiered projects. EPA recommends the FPEIS describe the issues raised during consultation and how those issues were addressed.

Response:

(1) The Corps will use the programmatic agreement modifying the National Historic Preservation Act Section 106 process to avoid, minimize, and mitigate effects to cultural resources that have the potential to be impacted by all alternatives discussed in the FEIS.

(2) The FEIS has been updated to notify the public on how to request the programmatic agreement modifying the NHPA Section 106 process. The purpose and applicability of the programmatic agreement are adequately discussed in Section 3.21, Cultural Resources; Section 3.24, Tribal Resources; Chapter 7, Relationship to Other Laws, Policies, etc., National Historic Preservation Act. Tribal perspectives related to the proposed action are summarized in Appendix O, Tribal Coordination and Perspectives.

(3) The Corps will consult with programmatic agreement signatories and other non-signatories as needed related to the selected alternative and subsequent site-specific project work. As part of the consultation process, the Corps would address any concerns expressed by the tribes.

Comment: Environmental Justice-2

EPA recommends the FPEIS describe the approach for conducting EJ analyses at a finer resolution for subsequent tiered NEPA analyses. EPA recommends conducting the tiered analyses at the block group level in the vicinity of any construction activities as conducting EJ analyses at larger scales may lead to masking communities with EJ concerns when data is aggregated.

Response:

Several Executive Orders requiring this analysis were rescinded during the preparation of the EIS so the requested analysis was deleted in the FEIS.

Comment: Environmental Justice-3

EPA recommends the FPEIS describe how tiered NEPA analyses will ensure EJ assessments are conducted to meet the seven core objectives the USACE has laid out in its interim EJ strategic plan

Response:

Several Executive Orders requiring this analysis were rescinded during the preparation of the EIS so the requested analysis was deleted in the FEIS.

Comment: Environmental Justice-4

When discussing the timing and quality of outreach, EPA recommends the FPEIS discuss:

The selection process for outreach target communities and the locations of the events.

Determination of the timing, frequency, and duration of outreach events.

Any additional engagement activities to provide additional opportunities for communities to provide input.

For additional information on conducting meaningful public participation, EPA recommends utilizing its public participation guide15.

Response:

Chapter 6, Public Involvement, has been updated in the FEIS to provide details pertaining to the public outreach performed in advance of and during the public comment period for the Draft PEIS to include information on outreach target communities and event location selection, timing, frequency, and duration of outreach events determination and additional engagement activities implemented. The timing and scope of public outreach would be developed when the Corps identifies a site-specific Proposed Action. The Corps would implement its scoping procedure to identify issues related to NEPA compliance when it proposes a major Federal action triggering a NEPA review.

Several Executive Orders requiring this analysis were rescinded during the preparation of the EIS so the requested analysis was removed.

Comment: Socioeconomic Resources-12

When discussing the socioeconomic impacts of proposed construction spending in Appendix I, the impacts of Alternative 5, the agency's preferred alternative, are not included in any of the summary tables or detailed analysis. EPA suggests the FPEIS include this analysis within Appendix I as it has for the other Alternatives.

Response:

The costs for Alternative 2B (included in DEIS and FEIS Appendix I, Socioeconomics) would be the same under the Preferred Alternative, Alternative 5. FEIS Chapter 3.11, Socioeconomic Resources; Appendix I, Socioeconomics; and Appendix K, Recreation, have been updated in the FEIS to clarify that the Alternative 5 analysis is essentially the same as the analysis under Alternative 2B. Additionally, Appendix M, Costs, has been updated in the FEIS to include information on Measure 721 effects under Alternative 2A, Alternative 2B, and Alternative 5 for Blue River Dam.

EUGENE WATER & ELECTRIC BOARD (DONAHUE, DAVID)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_EugeneWaterElectricBoard_David Donahue_Corrected_Attachment.pdf

Comment: Water Quality-30

the highest TSS value reported over the last 20 years came from Blue River on November 19th, 2021. The cause of this event appears to be a sensor malfunction that allowed the lake level in Blue River Reservoir to drop well below the minimum pool (exact elevation not known) and expose deltaic and lakebed sediments to scouring river flows. EWEB staff observed significant channel incision and lakebed erosion on 11/18/2021 and notified USACE staff immediately. Turbidity levels in Blue River below the dam climbed above 100 FNU (Formazin Nephelometric Units) for more than 24 hours and peaked above 500 FNU during this event. Elevated turbidity was observed in the mainstem McKenzie River all the way down to EWEB's drinking water intake.

This event raised awareness that deep drawdown events in large reservoirs can potentially produce TSS concentrations that are orders of magnitude higher than ambient levels. With this consideration in mind, combined with generally higher TSS values that we've observed in the McKenzie River post-Holiday Farm Fire during storm events, especially as root systems decay and the potential for slope failure increases, we are particularly interested in understanding the likelihood for additional major suspended sediment inputs into the system. Although EWEB's conventional treatment plant and operations staff can handle a wide range of challenges, prolonged and/or frequent turbidity events can tax the system and prove costly in terms of additional treatment costs and staff expenses. The general opinion is that extended, or more

frequent high suspended sediment loads would also have a negative impact on other downstream drinking water providers.

This raises the question of whether a major sediment mobilization event, similar to the event that occurred during the 2021 Blue River Reservoir elevation drop, could be expected in Cougar Reservoir under the 1330' minimum lake elevation regime proposed under the preferred Alternate 5 option? To better understand and compare how the 2021 Blue River Reservoir turbidity event unfolded, it would be helpful if we could have access to estimated reservoir elevation data for Blue River Reservoir during the November 2021 event.

Response:

Blue River's pool would fill more under Alternative 5 than under the No-action Alternative to balance storage in the McKenzie River Basin, which means that it would be more likely to meet the target rule curve, not to exceed or extend it. The duration the pool is held at the summer conservation pool as evaluated using the target rule curve, when earthquake risk is at its highest, would not be increased under Alternative 5, as shown in FEIS Appendix B, Hydrologic Processes.

Blue River Dam operations and maintenance are currently undergoing an Issue Evaluation Study as noted in FEIS Appendix H, Dam Safety. Any structural modifications will be subjected to targeted risk assessments as discussed in DEIS Appendix H. A targeted risk assessment will consider the results of the Issue Evaluation Study when evaluating the dam's existing conditions.

The refill changes proposed for Blue River Dam are described under the DEIS Alternative 5, Preferred Alternative, which has been moved to Appendix A, Alternatives Development in the FEIS.

Comment: Water Quality-31

Although TSS samples were not collected in 2002 during peak turbidity events, turbidity levels did climb above 1,000 FNU in the South Fork McKenzie River briefly in 2002 and 2003 during the Cougar drawdown (Anderson, C., 2007, Influence of Cougar Reservoir drawdown on sediment and DDT transport and deposition in the McKenzie River basin, Oregon, water years 2002–04: U.S. Geological Survey Scientific Investigations Report 2007–5164). The proposed 1330' minimum lake elevation provided under Alternative 5 is approximately 120 feet lower than the minimum lake elevation adjustment made in 2002 as per the Cougar Dam Downstream Fish Passage Project EA. This additional 120 feet of elevation drop will likely expose significant older sediment deposits that have been stable for decades, in addition to anything recently deposited after the 2017 Rebel Fire and 2018 Terwilliger Fire.

Response:

This information has been added to the FEIS in Section 3.5, Water Quality, Affected Environment. The analysis of these effects remains consistent with conclusion in DEIS Section 4.5.2, Cumulative Effects.

Comment: Alternatives-51

A diagram of "Cougar Reservoir At 1450' Project Pool" was presented in the 2019 Cougar Dam Fish Passage Project EA. Could a similar diagram be provided for Cougar Reservoir illustrating the minimum pool elevation of 1330' as proposed under Alternative 5? Such a diagram could help visualize the spatial extent of additional sediment exposure below the 1450' pool elevation.

Response:

A figure has been added to the FEIS in Section 3.2, Hydrologic Process, Alternative 5, showing the difference in reservoir elevation between 1,330 feet (drawdown target elevation) and 1,532 feet (normal minimum conservation pool).

Comment: Alternatives-52

Preferred Option – Alternative 5

The timing for initial deep reservoir drawdowns to the 1330' elevation mark remains unclear. To recap the general timing, according to Figure 2-4 in Appendix N, the Cougar RO Mods will continue through 2027, overlapping with a Disposition Study to evaluate the potential for deauthorizing hydropower at Cougar, which, if approved by Congress, would allow the diversion tunnel to be used for fish passage. A second major check-in will occur in 2028 to decide next steps regarding use of the diversion tunnel for fish passage. Assuming this path is viable, a 1.5-year break for pre-construction planning will ensue (EDR, DDR, P&S, Const) before the Cougar Diversion Tunnel Construction begins in 2030. Of course, this timeline appears likely to change, as indicated by unknown variables within the Disposition Study.

However, assuming the general timeline above proceeds as planned, and with respect to the "Cougar Deep Reservoir Drawdown to Diversion Tunnel (720) in Spring and Fall" (Appendix N, Section 5.4.3), can you please provide the earliest year that the Dam Passage Survival (DPS) studies could be conducted in Cougar Reservoir? It is understood that DPS studies will cover portions of the spring and fall/winter during two separate years when water years are within 95% of normal hydrological conditions, and that the resulting reservoir elevation will be lowered to 25 ft over the top of the diversion tunnel. Is "25 feet over the top of the diversion tunnel" equal to a 1330' lake elevation?

Response:

(1) Survival studies of long-term passage Measure 40 and Measure 720 for downstream passage at Cougar Dam (reservoir drawdowns in spring and fall to the diversion tunnel), which will include evaluation in at least 2 separate water years, would occur within the first 5 years after implementation of the long-term measures. The Implementation and Adaptive Management Plan (DEIS and FEIS Appendix N) includes implementation of long-term passage measures in 2041.

(2) 25 feet over the top of the diversion tunnel is equal to a 1,330-foot reservoir water surface elevation.

Comment: Water Quality-32

From a water quality perspective, deep drawdown phases in Cougar Reservoir to the 1330' lake elevation, as described in Alternates, 2B, 3B and 5, will likely increase the potential for significant scouring and erosion of deltaic, slope and lakebed sediments, particularly during the first few spring and fall/winter storm events. It appears the USACE will continue to manage Cougar Reservoir for flood control within the confines of downstream flow targets and ramping rates. However, if flood potential is low throughout the rest of the Willamette Basin, but erosion potential is high in Cougar Reservoir, say a small- to mid-sized local rain event arrives in late May at the 1330' pool elevation following a relatively dry spring in year 1 of implementation, are there additional mitigation options that could be considered by USACE staff under Alternative 5 to minimize the frequency, duration and magnitude of major sediment events? In other words, if flow is not a concern, is there potential to use a downstream turbidity threshold, that when exceeded, would kick in to reduce outflows and allow more fines to settle out in the reservoir, thus dampening the storm sediment pulse and potential impacts to downstream drinking water providers? Are there other mechanisms in place that provide USACE staff additional flexibility to manage unusually high turbidity events?

Response:

This comment requests Corps' management adjustment at various projects, which is out of scope for the programmatic EIS analyses. The issues raised by this comment would be addressed through site specific NEPA and ESA consultation for the deep drawdown to elevation 1,330 feet at Cougar Reservoir when details regarding construction and final operational plan are developed. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, proposed action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record. The Corps would continue to consult with water management

organizations as part of any plans for construction or operational activities when site-specific information is made available to inform such consultations.

Comment: Water Quality-33

DDT and associated metabolites were detected at very low levels in the South Fork McKenzie River during the 2002-2004 Cougar Reservoir drawdown according to USGS studies (Anderson, C., 2007). Although the associated low-level concentrations and limited detections indicate minimal risk from the drawdown event, they do highlight the persistence of legacy pesticides that were applied back in the 1960s. Given that the 1330' minimum lake elevation level proposed in three of the Alternates (2B, 3B and 5) will likely expose older, previously undisturbed sediments, is there any proposed or planned downstream monitoring during high turbidity events for DDT and its associated metabolites?

Response:

No downstream monitoring is proposed in the FEIS because the review is programmatic. The Corps will continue to consult with Department of Environmental Quality as part of any plans for construction or operational activities when site-specific information is made available to inform such consultations. Information on use of pesticides in general is provided in Section 3.16, Hazardous Materials. Additional contaminant information is provided in Section 3.18, Hazardous, Radioactive, and Toxic Waste.

Comment: Water Quality-34

A final concern expressed by EWEB staff centers around potential costly sedimentation impacts further downstream, particularly in Leaburg Lake and around Walterville Canal. Are additional sediment characterization and transport studies planned for the McKenzie River in the future?

Response:

Effects to water quality are analyzed in FEIS Section 3.5, Water Quality. The FEIS has been revised to include more information in Section 3.5, Water Quality, Table 3.5-1, Clean Water Act Section 303d-listed Impaired Water Bodies Downstream of the Willamette Valley System Dams.

Specific studies, also referred to as research, monitoring, and evaluation, are not analyzed as part of this programmatic NEPA review. Additionally, water quality effects associated with site-specific construction were unknown at the time the alternatives were analyzed, but would be available for analysis in a site-specific NEPA review.

The Corps would continue to consult with Department of Environmental Quality as part of any plans for construction or operational activities when site-specific information is made available to inform such consultations under any alternative. See FEIS Chapter 7, Relationship to Other Environmental Plans, Policies, and Regulations, for information on Corps compliance with the Clean Water Act, including Section 401.

LINN SOIL & WATER CONSERVATION DISTRICT (NEAL, DAVID)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_LinnSoilandWaterConservationDistrict_Debra Paul_Attachment.pdf

Comment: Water Quality-35

By its rapid drawdown from the rule curve of Green Peter in July, Preferred Alternative #5 will negatively affect water quality with increased turbidity, increased Total Suspended Solids (TSS), increased erosion and sedimentation. As the reservoir pool decreases, additional cutting of the waterways above will increase erosion. The rapid drawdown will not allow enough time for vegetation to grow on the steep banks to aid in filtration of eroded soils.

Reduced pool volume will concentrate any pollutants contained in the reservoir.

Response:

Adverse impacts to water quality at the South Santiam River Subbasin dams under the DEIS Preferred Alternative is discussed in DEIS Section 3.5.2.9.2, Water Quality, Alternative 5, Environmental Consequences, South Santiam Dams. See FEIS Appendix C, River Mechanics and Geomorphology, for the description of potential for variations in sediment supply among alternatives. Sediment impacts anticipated under the Preferred Alternative are analyzed in DEIS Section 3.3.2.9, Alternative 5 and FEIS Section 3.5, Water Quality, Environmental Consequences.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such facto

rs…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)). The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Water Supply-22

Water supply is identified by the USACE as a reservoir benefit. The drawdown from July 1 through November will negatively affect water quantity available for irrigation, fish and wildlife,

and hydropower production… Moving forward, the region needs more water storage capacity; not less.

Response:

The Corps is not proposing changes to total water storage capacity under any alternative, although operations may affect how much water is stored in any given year. Water released during a drawdown under any alternative may be available for multiple purposes, including irrigation, fish and wildlife, hydropower production, etc. The FEIS addresses the continued operation and maintenance of the Willamette Valley System; new water storage options are not within the scope of continuation of operations and maintenance under existing Congressional authorized purposes (Chapter 1, Introduction, Section 1.10, Congressionally Authorized Purposes).

LONG TOM WATERSHED COUNCIL (DEDRICK, DANA)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_LongTomWatershedCouncil_Dana Dedrick_Attachment.pdf

Comment: References and Data-43

For the Monroe drop structure, we have been fortunate to work with the Corps in the 1135 Ecosystem Restoration Feasibility Study for the Long Tom River at Monroe, Oregon, as the NGO partner to the project in partnership with co-sponsors City of Monroe and Confederated Tribes of Siletz Indians. That Feasibility Study will conclude in 2023. Products will be available from that Study for other considerations. Long Tom Watershed Council also has a fair amount of data and studies regarding the Long Tom River system.

Response:

Comment noted.

Comment: Alternatives-55

We request that measure #639 “Restore Upstream and Downstream Passage at Drop Structures” (#639) be included in the preferred alternative. This measure is not currently included in the preferred alternative but is included in alternatives 1 and 4. There are multiple reasons to request this from our perspective - these structures slow water flow, impede or block fish migration to habitat for multiple life stages for native ESA listed and important but unlisted species, including species of concern to our watershed community and to the Federally recognized Tribes in our area. These structures decrease water quality by slowing flow and increasing algal growth, and present a hazard to recreation and boating safety as evidenced by another set of drownings of young people in Spring of 2022 at the middle structure…

One caveat for your consideration - If their inclusion in the preferred alternative results in the drop structures being categorized as a “required action” this could actually eliminate realistic

opportunities to address fish passage and other issues at those structures in any timely manner because they would face competing situation - they'd be lower in priority to the high-head dams, and yet could face a potentially insurmountable situation in which their "required status" made them ineligible for partnership, key Corps programs, and cost-share grant funds could be clouded or eliminated. We understand that grantors we regularly work with would follow Corps lead on this - in other words if the drop structures can get basic-level staff capacity and are eligible for 1135-type voluntary programs (not required, mitigation, etc), the grantors would also find them to be nonrequired and thus eligible for voluntary grant programs. This would enable us to work with communities and partners to bring funding to the table such that we could address priorities of importance to our local communities, even if they weren't high on the Corps' current list.

Response:

Measure 639 (Restore Upstream and Downstream Passage at Drop Structures) was not included in the Preferred Alternative because this measure is not seen as limiting to ESA-listed species as passage at the other Willamette Valley System dams. The Long Tom River provides habitat for juvenile salmon for a portion of the year but is not seen as a large contributor to UWR Chinook salmon within the Willamette River Basin. However, from an ecosystem restoration perspective, which is not the objective of this EIS, it is an important question.

The Corps is currently working with non-Federal sponsors and the Siletz Tribe for a WRDA Section 1135 (restoration) action at the Monroe Drop Structure to provide access to upstream habitat for fish. Identifying future Section 1135 projects is not within the scope of this programmatic EIS but could result in future site-specific NEPA analyses.

Comment: Water Supply-23

We would like to comment in support of ensuring a 50 cfs low flow at Monroe gauging station on the Long Tom River. This is especially important given the very likely removal project of the dam at Monroe, where otherwise the water backs up, and can help the newly planned drinking water inflow intake work under more conditions. We also support prioritizing the municipal use of water more highly, after instream flow, since the amount the municipality withdraws is so small (their withdrawal is under 1cfs). It's also essential that the multiple benefits of this partnership project are realized by ensuring City water to the best of our ability.

Response:

Comment noted.

Comment: Revetments-5

Another area of interest for LTWC in the EIS is the management of Corps revetments along the Long Tom and Willamette Rivers. In 2016-2018, we worked closely with Corps operations staff to

identify and prioritize opportunities to increase floodplain connectivity along the floodplain of the Long Tom River. We analyzed nearly 50 sites, within the Corps' maintenance easement and on private property, where opportunities exist to modify the revetment along the Long Tom to improve floodplain connectivity and provide fish passage into off-channel habitats. We would like to see projects on this list developed further, which would best be done by a Corps-LTWC partnership. Pathways to complete this work could be through Corps Ecosystem Restoration Authorities with LTWC securing additional state and federal grant funds.

Response:

The FEIS has been updated to include information on revetments in Section 1.7.2, Revetments and Other Structures for Bank Protection.

The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley. The revetments converted to private sponsors to own and maintain are discussed in the FEIS in Section 1.7.2, Revetments and Other Structures for Bank Protection. Projects that propose to alter privately owned revetments, although they are no longer Federally owned and operated, are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Changes to the Rivers and Harbors Act Section 408 statutory program are outside the scope of this EIS.

The Corps would continue to maintain Corps-constructed revetments under all alternatives including the No-action Alternative. In contrast to the No-action Alternative, revetments could be modified to incorporate fish-friendly improvements under the action alternatives such as adding natural materials but must continue to provide the same level of protection as when originally authorized. The Corps is also proposing to secure a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These restoration authorities would allow for a potential change in the protectiveness level of revetments studied. However, this collaboration is not part of the scope of this EIS because it has not been initiated.

Comment: Out of Scope-15

LTWC also works to improve riverine and floodplain habitat along the mainstem Willamette River in our service area. Since 2015 we have partnered with the U.S. Fish and Wildlife Service and the Oregon Parks and Recreation Department to restore floodplain connectivity, floodplain forests, and increase habitat complexity. There are opportunities to connect many of these pieces and we would greatly appreciate increasing support in general and streamlined 408 approval or other avenues for getting that work done, as it directly addresses our community and watershed missions.

We request the 408 permitting process be more streamlined for restoration action, especially through recognized partners like ourselves that are bringing partners, funding and community support together to help address and balance the multiple missions of the Corps.

Response:

A River and Harbors Section 408 permission from the Corps is required if a private, public, tribal, or other governmental entity proposes to alter, or temporarily or permanently occupy or use any Corps Federally authorized civil works project. The EIS is limited in scope to the actions that the Corps itself is taking is to continue to operate and maintain the existing Willamette Valley System. Consequently, Corps administration of the regulatory program codified in Section 408 of the Rivers and Harbors act is outside of the scope of this NEPA review.

MARION COUNTY BOARD OF COMMISSIONERS (WILLIS, COLM)

Comment Document: 2023-02-22_PublicComment_WV_DEIS_Marion County_Lari Rupp_Attachment.pdf

Comment: Cumulative Impacts-1

To support the post-wildfire economic recovery effort of the North Santiam Canyon, Marion County is delivering a major investment into recreation at Detroit Reservoir - The Detroit Marinas Excavation and Resiliency Project… The project consists of the strategic excavation of 162,000 cubic yards of sediment underneath the existing boat docks during the winter reservoir draw down period(s). Through the excavation of the sediment underneath the existing docks and boat slips, the marinas will be able to operate down to 1,525 feet. The project is to provide viability and stability for these anchor businesses that are vital to the regional economy.

Response:

The FEIS includes information on wildfire in several sections including Section 3.14, Recreation Resources; Section 3.11, Socioeconomics; and Section 3.6, Vegetation, regarding fine fuels. All climate change analyses address wildfire where applicable to the resource.

Comment: Water Supply-12

Question for Army Corps: Would this measure increase the rate of drawdown prior to reaching the previous conservation pool or just continue drawdown once the reservoir reaches that conservation pool elevation? In other words, would this measure by itself quicken drawdown below all usable boat ramps?

Response:

The Corps owns and operates the boat ramps at the 13 Willamette Valley System dams and would close the ramps when the WSE reaches a level whereby ramps are unusable under each alternative. As discussed in FEIS Section 3.14.3.1, Recreation Resources, Methodology, the quantitative analyses included an estimation of the average annual number of days that boat ramps would be usable using water surface elevation (WSE)

data from the HEC-ResSim model and boat ramp elevations at each reservoir (See also FEIS Appendix K, Recreation Analysis). The number of days in each season that the bottom of a given boat ramp elevation would be lower than the WSE were counted as usable days, with the remaining days counted as unusable.

The FEIS has been updated to clarify that Measure 304 would only be implemented when there is not enough water in the conservation pool to augment downstream flows for fish (See FEIS Chapter 2, Alternatives, Section 2.8.1.3, Augment Instream Flows using the Power Pool, and Appendix A, Alternatives Development). This measure would not quicken the drawdown from current operations.

Comment: Hydrology-11

Question for Army Corps: Would pumped attractor flows be returned to the reservoir or discharged downstream?

For Detroit Lake, if flows are discharged downstream and the structure is operated in late summer/fall, it is likely that this 1000 cfs pumped flow (warm from the surface of the reservoir) would need to be augmented by cooler water from below. This would result in higher flows downstream than the minimum flow limits and quicker reservoir drawdown. Has this pumped attractor flow been accounted for in your reservoir modeling?

Response:

Pumped flow would be recirculated to the forebay where pumps are used for operation of fish collectors (Measure 392). Temperature effects downstream were modeled for all alternatives. In some situations, it would be necessary to mix surface and water from lower depths to meet temperature targets.

Monitoring and adaptive management would be used to determine if it is necessary to prioritize different operating objectives. Pumps potentially could be added to the Detroit Dam floating screen structure to augment inflows when mixing from lower elevations is needed for temperature management. This information can be found in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses.

MCKENZIE FLYFISHERS (THOMASON, ARLEN)

Comment Document: 2023-02-21_PublicComment_WV_DEIS_McKenzieFlyfishers_Arlene Thomason_Attachment.pdf

Comment: Fish-44

A sizable share of that reduction can be attributed to dams that cut off access to prime spawning habitat. The Corps is therefore in a unique position to reverse a substantial portion of the decline by modifications to its dams that will allow effective upstream and downstream fish

passage. We are encouraged that the Corps is now proposing large and meaningful changes in operations that should make a big difference towards population recoveries.

We also understand that many in the Corps share our concerns, and that neither they nor we want to let these threatened iconic fauna go extinct on our watch. None of us want coming generations to look back and say that we were the ones who allowed these keystone species, after having survived for millennia in this landscape, to disappear forever.

Response:

Comment noted.

Comment: Proposed Action-25

Nevertheless, the PEIS timelines for completion of the projects and the beginning of fish passage are alarmingly long—at least 20 to 25 years, or more in some cases. They stand out head and shoulders above everything else as the major drawback to the entire plan. Simply put, if trends continue, the fish these projects are intended to help may well be gone by then. Moreover, the timing of funding that the Corps will receive for these projects will be linked to the timelines. Longer planned timelines in the final PEIS and other documents will surely lead to delayed funding. We strongly urge you to make every effort to reduce these times as much as possible.

Response:

The Corps set realistic timeframes for execution in its DEIS example Implementation Plan considering major dam modifications structural solutions present (Appendix N, Implementation and Adaptive Management Plan). As stated in DEIS Chapter 5, Preferred Alternative, a specific Implementation Plan would be developed for the alternative is ultimately selected in the Record of Decision.

The draft Implementation Plan was provided as reference to help inform the public about the realities involved in designing and executing such large construction projects and dam modifications. For example, a one-time intensive effort is the proper evaluation of dam safety concerns that would result from modifications to the dams. This is especially true of the conversion of the diversional tunnel to an outlet that would be regularly used. Other time constraints were discussed in detail in DEIS Chapter 5, Preferred Alternative.

Structural solutions for passage and survival will require long lead times for execution. Consequently, the Corps developed the Interim Operations to continue focus on improving volitional passage and water quality conditions until long-term solutions are in place (FEIS Chapter 2, Alternatives, Section 2.8.5, Interim Operations).

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives including the Preferred Alternative. Additionally, the Corps has

prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

The temporal scope of the analysis of alternatives in the EIS was 30 years from the signing of the Record of Decision, except for the socioeconomic-related resource analyses. A 30-year implementation timeframe was determined appropriate due to the dynamic nature of the Willamette Valley System and the current and future needs of the communities that rely on the system. The Corps recognizes the 30-year implementation timeframe used to evaluate the alternatives can greatly influence some predictions, especially estimations of extinction risk for Chinook salmon and steelhead populations assessed using the IPA. However, consistency in predicted outcomes from different models increases confidence in the assessments.

The NOAA LCM, which used a 100-year period of analysis for assessing extinction risk, resulted in similar rankings of alternatives to those resulting from the UBC IPA model extinction risk estimates (DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses). The best available information was applied in the life cycle models used to assess alternatives in the EIS. The fish models used were analyzed by the ISAB.

Comment: Proposed Action-26

One project that should be prioritized includes the measures and operations aimed at halting the steep slide in the winter steelhead population, which is in particularly dire straits and in danger of near-term extirpation. The other project deserving a top priority is completion of the work at Cougar Dam. The reason is that—as documented in the latest National Marine Fisheries Service 5-year assessment of threatened fish species in the Upper Willamette Basin--only the McKenzie River Chinook salmon population remains large and genetically intact enough to be considered by fishery managers as a “legacy” or “stronghold” population. As such, it should be able to quickly take advantage of new spawning territory, and potentially be capable of seeding recovery within the entire Upper Willamette basin.

Response:

Comment noted.

Comment: Proposed Action-27

One of the ways that the long timelines here may be substantially compressed is by performing some essentially administrative steps in the process concurrently, rather than sequentially. Using downstream passage at Cougar Dam as an example, the first step in the proposed timeline (Appendix N, Figure 2-4) is continuing the in-progress, 6-year RO modification work (itself consisting of 4.5 years of administrative tasks) for 5 years from 2023 to 2028; followed by a 2-year period of “Check-ins” and assessment; followed by 1.5 years of preparing the

Engineering Design Report (EDR); followed by 2 years of preparing the Detailed Design Report (DDR); followed by 2 years to prepare Plans and Specifications (P&S). That adds up to about 11.5 years of administrative work between now and actual Diversion Tunnel Construction—estimated to take another 5 years—will even start. Surely many of these tasks can begin well before the prior ones in the sequence are completed,

Response:

The Corps set realistic timeframes for execution in its DEIS example Implementation Plan considering major dam modifications structural solutions present (DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan). As stated in appendix A, Alternatives Development, Attachment 4, a specific Implementation Plan would be developed for the alternative is ultimately selected in the Record of Decision.

The draft Implementation Plan was provided as reference to help inform the public about the realities involved in designing and executing such large construction projects and dam modifications. For example, a one-time intensive effort is the proper evaluation of dam safety concerns that would result from modifications to the dams. This is especially true of the conversion of the diversional tunnel to an outlet that would be regularly used. Other time constraints were discussed in detail in Chapter 5, Preferred Alternative. Structural solutions for passage and survival will require long lead times for execution. Consequently, the Corps developed the Interim Operations to continue focus on improving volitional passage and water quality conditions until long-term solutions are in place.

Comment: Water Quality-10

Finally, for the Cougar Dam project, some words need to be said about potential sediment release into the McKenzie River. If the draft PEIS Preferred Alternative 5 is ultimately selected for Cougar Dam, which we support, we urge the Corps to take all prudent steps— incorporating lessons learned at Cougar Dam during the 2002-2004 deep drawdown, at nearby Fall Creek Dam in recent years, and at other dams in the Pacific Northwest that have been breached or otherwise faced a similar situation—to minimize the impact of released sediment into the mainstem McKenzie River. If done correctly it should be possible to avoid potential harm to the river's biota, as well as bolster acceptance of the operations by local communities.

Response:

Sediment release and its effects were assessed under all alternatives in FEIS Section 3.5, Water Quality. The FEIS has been updated to include information on sediment effects related to the McKenzie River dams and all subbasins under Alternative 5. The Corps will continue to consult with Oregon Department of Environmental Quality and coordinate with water management organizations as part of any plans for construction or operational activities when site-specific information is made available to inform such

consultations. Sediment release will be analyzed in the site-specific NEPA and environmental compliance for the Cougar Dam diversion tunnel operation.

MCKENZIE RIVER GUIDES ASSOCIATION (MEALEY, STEVE)

Comment Document: 2023-02-17_PublicComment_WV_DEIS_McKenzie River Guides Association_Steve Mealey_Attachment.pdf

Comment: Alternatives-7

1. MRGA strongly supports the inclusion of the "Suite of Near-term Operations" (Table 2.2-11) in all alternatives.

We recommend that USACE work with U.S. District Judge Hernandez to develop the "suite" into a complete Alternative to be considered in a supplemental DPEIS to DPEIS-0540.

Response:

Interim Operations were not developed as a complete, stand-alone, alternative because these measures would not contain sufficient fish survival and passage rates as demonstrated from modeling results under Alternative 3A and Alternative 3B. Operational passage and survival measures, such as deep drawdowns and fish collection and transport, were incorporated into the range of reasonable alternatives based on modeling results, which presents a more realistic implementation scenario targeting fish impact issues than would occur under an alternative comprised solely of Interim Operations.

Comment: Water Quality-3

2. Deep Fall and Spring Reservoir Drawdown to the Diversion Tunnel (DT) at Cougar Dam (Final measures 2.2.3.1 and 2.2.3.3) as called for in Alternatives 2B, 3B, and 5-the Preferred-would result in pool levels of 1,330' (Tables 2.2-7, and 2.2-8), 120' lower than the "1,450 pool" established by the USACE as the minimum pool level to prevent high turbidity levels and high rates of sediment transport downstream… Pools of 1,330' could easily conflict with the Oregon Turbidity Rule: OAR 340-041-0036 which states in part "No more than a 10% cumulative increase in natural stream turbidities may be allowed", with some exceptions. High possibility or probability of violating the turbidity rule by implementing alternatives 2B, 3B, and 5 (Table 3.3-4) would call into serious question stated environmental consequences of these Alternatives in Chapter 3 (Tables 3.2-4, and 3.1.6). This would cast doubt on the overall sufficiency of the DPEIS-0540.

Response:

The purpose and need for the Proposed Action include compliance with the ESA (See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives). To the extent that turbidity

impacts ESA-listed species, such impacts will be addressed through the ESA consultation process.

The Oregon Department of Environmental Quality is a Cooperating Agency integrally involved in the development of this EIS. As such, the Corps has conducted targeted consultations with the Department of Environmental Quality in preparation of its analyses for each of the alternatives. The Corps would continue to consult with Department of Environmental Quality as part of any plans for construction or operational activities when site-specific information is made available to inform such consultations.

Comment: Water Quality-4

At a minimum, USACE and ODEQ should meet immediately on the matter of deep drawdowns to DT to clarify likely compliance or non- compliance with the Turbidity Rule and implications for CWA 404 permitting.

If the turbidity issue raised here is valid, then Alternatives 2B, 3B and 5 are unlikely to meet Objective 6 (page 2-6). Further, paragraph 3, page ES-35 states: "Without detailed investigation and designs, the dam safety and operational feasibility of drawing down to the diversion tunnel annually for fish passage is uncertain". With high uncertainty about Alternatives 2B, 3B, and 5 meeting turbidity standards and fish passage requirements, their usefulness in this DPEIS appears deeply suspect. That in turn would jeopardize the integrity of the entire DPEIS process.

Response:

The DEIS Executive Summary has been revised in the FEIS; this statement has been deleted. The water quality analysis is provided at a programmatic level in this EIS and has been updated in Section 3.5, Water Quality. Site specific analysis would be conducted after the ROD is signed.

Comment: Fish Passage-8

We believe USACE should fully exhaust every feasible option for using the regulating outlet (RO) at 1,505' (1,517'? -page 2-29) for successful fish passage. If successful fish passage using the RO appears reasonable and uncertainties about drawdown to the DT remain, then Alternative 3 A should receive much deeper consideration as the basis for a Preferred Alternative.

Response:

Comment noted.

Comment: Recreation-16

3. Recreation in the DPEIS is considered mostly in and around reservoirs, neglecting specifically the long-established river guiding and outfitting industry MRGA represents which operates

mostly on the McKenzie, Middle Willamette, and North and South Santiam, rivers. Non-MRGA river-based recreation activities are relevant as well. These activities including raft-based summer float trips and multi-season river-boat based fishing for trout, salmon and steelhead are heavily influenced by (mostly unannounced) fluctuating river levels resulting from USACE reservoir/dam management decisions. DPEIS alternatives all have different effects on river flow levels, hydrologic processes and river infrastructure as indicated in Table 3.1-6. Due to the programmatic level of analysis, this listing of environmental effects is generally qualitative and of limited value in determining effects on boating and river- boat guided fishing.

Response:

FEIS Section 3.14, Recreation, Subsection 3.14.2.7, River-based Recreation, has been updated from the DEIS. This section describes river-based activities and explains the limitations on analysis of effects at the programmatic level. The description of direct effects has been revised in the FEIS to include river-based recreation opportunities in Section 3.14.3, Environmental Consequences. The analysis approach is described in Section 3.14.3, Environmental Consequences, Subsection River-based Recreation Opportunities Quantitative Methodology. The analysis of effects on river-based recreation opportunities is addressed in Subsection River-based Recreation Opportunities under All Alternatives.

Appendix K, Recreation, has been updated to include additional river-based activities impacted by river flows as data and images allow. These updates include, but are not limited to, impacts to kayaking and riverboat-guided fishing.

Comment: Recreation-17

We believe a supplemental DPEIS is necessary that fully discloses the effects (environmental consequences) of the alternatives (including but not limited to economic, and river flow data at points relevant to river recreation users) on “below-dam” river guiding and outfitting and other river-based recreation. This is based on the fact that such necessary and sufficient information is lacking in Chapter 3., and relevant material claimed by USACE to be in Appendix B, Hydrologic Processes Technical Information has not been available after several requests.

Response:

The Corps makes determinations on the need for supplemental DEIS publication and public comment based on 1978 Council on Environmental Quality regulations at 40 CFR 1502.9(c)(1) (note that this EIS was prepared under the former 1978 regulations). The Corps is unaware of requests for information related to Appendix B, Hydrologic Processes and Technical Information.

NATIVE FISH SOCIETY (FAIRBROTHER, JENNIFER)

Comment Document: 2022-11-23_PublicComment_WV_DEIS_Native Fish Society_Jennifer Fairbrother.pdf

Comment: Deadline Extension Requests-1

I'm requesting a hard copy of the DEIS and associated documents. Please mail them as soon as possible to:

Response:

A print version of the DEIS was provided to the Native Fish Society. Additionally, print versions were made available to the public in eight libraries in the project area, which was posted on the Corps Willamette Valley System EIS webpage. The FEIS has been updated to include DEIS public notification in Chapter 6, Public Involvement.

NATIVE FISH SOCIETY (FAIRBROTHER, JENNIFER)

Comment Document: 2022-12-16_PublicComment_WV_DEIS_Native Fish Society_Jennifer Fairbrother.pdf

Comment: NEPA Process-2

Given the magnitude and time scale that this programmatic plan will have on the system and the wide-ranging public and political interest in this topic, I am requesting an extension of the comment deadline beyond January 19th for the following reasons:

Scale: This EIS covers operations at thirteen dams in the largest watershed contained within the boundaries of the state of Oregon covering three fish species listed under the Endangered Species Act. Implementation of programmatic actions will cover several decades of work and operations by the Army Corps.

Size of the analysis: The DEIS is highly technical and includes extensive references. The document and associated appendices comprise thousands of pages.

Holidays: The comment period extends over numerous federal holidays and other cultural/religious holidays. Many individuals had already scheduled personal time off during this time period. In combination with weekends, the comment period for such an extensive document is short.

Past engagement: Many groups, including Native Fish Society, Northwest Environmental Defense Center, and WildEarth Guardians have dedicated extensive staff capacity over the past five years on issues pertaining to WVS operations and fish recovery. We would like to be able to undertake an adequate review of the DEIS given our longstanding interest in engaging on these

issues. I believe that other individuals and organizations would also appreciate and benefit from and extended comment period.

Response:

The Draft EIS published on November 25, 2022, initiated a 55-day comment period to close on January 19, 2023 (87 FR 72482). Based on public requests to extend the comment period, the Corps announced a 35-day extension in the Federal Register on January 13, 2023 (Federal Register: Environmental Impact Statements; Notice of Availability 88 FR 2357). The Corps also provided the extension information to contacts on its public distribution list. The full 90-day comment period closed on February 23, 2023.

NATIVE FISH SOCIETY (FAIRBROTHER, JENNIFER)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_NativeFishSociety_Jennifer Fairbrother_Attachment2.pdf

Comment: Alternatives-56

1. The need to consider a broader range of measures, including those which would require Congressional deauthorization of hydropower. Such measures should include:

a. Year-round deep drawdowns;

b. Improving fish passage survival at existing facilities;

c. Additional operations and project modifications to reduce Total Dissolved Gas (TDG) production;

d. Additional measures that implement improvements to regulating outlets to improve their effectiveness as passage routes.

e. Earlier initiation of spill at Detroit Dam for downstream passage;

f. Removal, modification, and run-of-river operations of non-flood control reregulation dams (Big Cliff and Dexter);

g. Reassessment of downstream passage and water quality measures at Detroit Dam, Hills Creek Dam, and Lookout Point Dam in the context of removal, modification, and/or run-of-river operations at Big Cliff and Dexter dams.

h. More robust passage measures for Hills Creek dam, including measures that support movement of bull trout.

Response:

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action. The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional direction to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. See also Appendix A, Alternatives Development, Attachment 1. Because of this requirement, all eight purposes are addressed in the EIS.

Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the Proposed Action and alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on all eight authorized purposes.

Comment: Alternatives-57

2. A commitment to continuing, funding, and making adaptive management changes to the near-term and operational measures until there is reasonable confidence that their performance can be equaled or exceeded by new structural measures.

Response:

The Corps set realistic timeframes for execution in its DEIS example Implementation Plan considering major dam modifications structural solutions present (DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan). As stated in appendix A, Alternatives Development, Attachment 4, a specific Implementation Plan would be developed for the alternative is ultimately selected in the Record of Decision.

The draft Implementation Plan was provided as reference to help inform the public about the realities involved in designing and executing such large construction projects and dam modifications. For example, a one-time intensive effort is the proper evaluation of dam safety concerns that would result from modifications to the dams. This is especially true of the conversion of the diversional tunnel to an outlet that would be

regularly used. Other time constraints were discussed in detail in Chapter 5, Preferred Alternative. Structural solutions for passage and survival will require long lead times for execution. Consequently, the Corps developed the Interim Operations to continue focus on improving volitional passage and water quality conditions until long-term solutions are in place.

Comment: Fish Passage-18

3. A prioritization at all projects for volitional downstream passage.

Response:

Several operational measures in the DEIS and FEIS provide for volitional downstream passage through existing routes in the dams. Measure 392 for structural downstream passage would include future efforts to complete designs; volitional downstream passage would be further considered during the design phase and prior to construction. For structural measures, there is currently limited evidence that volitional downstream fish passage is feasible, safe, or effective at WVS high head dams with substantial fluctuations in reservoir volume and water surface elevations. Furthermore, any change to a passage implementation approach would require additional monitoring of at least one or more generations of Chinook salmon and/or winter steelhead (estimating a minimum of 4 years).

Comment: Revetments-6

4. A program of revetment removal, relocation, and modification to increase floodplain connectivity and side-channel habitat in the tributaries and mainstem Willamette River.

Response:

Revetments and levees do not have the same function or impact. Revetments are made of materials placed on the slope of a channel to prevent erosion. Generally, revetements do not prevent flow into adjacent areas; however, revetments can limit connectivity to side channel habitat.

The FEIS has been updated to include information on revetments in Appendix S, USACE-managed Dams, Reservoirs, and Band Protection Structures. The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley. The revetments converted to private sponsors to own and maintain are discussed in the FEIS in Section 1.7.2, Revetements and Other Structures for Bank Protection.

Projects that propose to alter privately owned revetments, although they are no longer Federally owned and operated, are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Changes to the Rivers and Harbors Act Section 408 statutory program are outside the scope of this EIS.

The Corps would continue to maintain Corps-constructed revetments under all alternatives including the No-action Alternative. In contrast to the No-action Alternative, revetments could be modified to incorporate fish-friendly improvements under the action alternatives such as adding natural materials, but must continue to provide the same level of protection as when originally authorized.

The Corps is also proposing to secure a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These restoration authorities would allow for a potential change in the protectiveness level of revetments studied. However, this collaboration is not part of the scope of this EIS because it has not been initiated.

Comment: Wildlife-6

5. Dam operations should be designed to improve degraded habitat conditions below the dams.

Response:

Comment noted.

Comment: References and Data-44

6. More thorough disclosure of the limitations of the models used to assess proposed measures. Specifically:

a. Model parameters are based on limited data, outdated data or data that may no longer represent current and future conditions, and qualitative opinion.

b. Given the weaknesses and biases of the Fish Benefit Workbook model, the results of the life cycle modeling should be viewed with caution.

c. The Fish Benefit Workbook model biases passage efficiency and survival in favor of structural measures based on limited data and untested assumptions.

Response:

Fish models applied for analyzing the effects of alternatives in the DEIS was the best available information. The key model assumptions are described in the analytical methodology as bulleted lists under each model description in Chapter 3 of the DEIS (Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Methodology). Full model parameters and documentation are included in DEIS Appendix E, Fish and Aquatic Habitat Analyses.

The Corps disagrees that data are too few to draw relationships. To the contrary, the modeling teams relied on multiple data sources. In cases where data were sparse, an assumption was used and subsequently added to the methodology description. The

Corps disagrees that data are outdated. Retrospective analyses require historic time series data, which drives trends in prospective analyses. The Fish Benefit Workbook accepts outputs from the Kock et al. 2019 model for collectors (Appendix E, Fish and Aquatic Habitat Analyses). The Fish Benefit Workbook does not calculate the structural efficiency.

Comment: Alternatives-58

7. More robust Research, Monitoring, and Evaluation (RM&E) and adaptive management plans that include a broader range of evaluation and performance metrics to ensure that operation of the WVS does not continue to jeopardize listed species or adversely affect their critical habitats. The RM&E plan:

a. Should be based on the plan developed under the Injunctive Order in Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al., Court case No. 3:18-cv-00437-HZ; Document 240-1, Willamette Project Interim Injunction Measures - Research Monitoring and Evaluation Plan.

b. Needs to address the full range of life histories and fish sizes, as well as long-term juvenile survival that encompasses smolt migrants leaving the Willamette River as outlined in Document 240-1.

c. Should include methods such as the use of PIT tags and tag detection infrastructure within subbasins and at Willamette Falls.

8. More aggressive implementation, evaluation, and adaptive management timelines and a firm commitment to timely completion of work that should have been done a decade ago.

Response:

Monitoring and evaluation is included in the Adaptive Management Plan (DEIS Appendix N, Implementation and Adaptive Management Plan). An updated version of the Adaptive Management Plan has been included in the FEIS.

Metrics, criteria, and an approach to assess Interim fish passage Operations have been revised to identify success. Metrics include assessing population-level performance by monitoring cohort replacement rates; metrics directly related to assessing the effects of measures on ESA-listed fish are defined. Methods for assessing these metrics are not included to allow for the latest scientific approaches and advancements to be applied in the future. Methods for assessing metrics would be developed with input from Federal, state, and tribal partners via the WATER Forum.

The scope of the EIS is based on extensive analysis of a range of measures combined and assessed as part of multiple alternatives. The Plan includes metrics, criteria, and decision-making processes for implementation of the draft Preferred Alternative and includes assessments and decision timing and processes for both near-term and long-

term measures. The Research, Monitoring, and Evaluation program being conducted under court case No. 3:18-cv-00437-HZ was developed by technical representatives for the parties in this case for specific operational actions to address that court case, and does not cover the same measures, or adaptive management activities for monitoring and decision-making that are addressed in the EIS.

Comment: Endangered Species Act-9

The Corps' DPEIS for operations and maintenance of the Willamette Valley Project (WVP) does not fully address one of its primary stated goals of "meeting obligations under the ESA to avoid jeopardizing the continued existence of ESA-listed species." [page ES-9] Alternatives developed to provide fish benefits that would help to conserve and recover listed species do not encompass the full suite of feasible options.

Response:

The alternatives analyzed in the DEIS comply with 1978 Council on Environmental Quality regulations to develop a range of reasonable alternatives (40 CFR 1502.14(a)). Reasonable alternatives are those that meet the purpose and need for action which, in this case, includes compliance with ESA requirements. As such, all alternatives were developed to include measures to meet ESA requirements and compliance.

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: Alternatives-59

The Corps rejected any measure that would eliminate or abandon hydropower based on their interpretation that this secondary purpose of the WVP was inviolable; even if the primary purpose of flood control was not jeopardized. Therefore, options that might remove some hydropower capacity while still allowing flood control and providing a high likelihood of recovering populations were not considered, developed, or evaluated. For example, the Middle Fork Willamette has the greatest potential for salmon population recovery (and bull trout) because it contains a large area of high quality habitat that currently lacks upstream and downstream access. Removal of Dexter Dam, modification of Lookout Point Dam to allow evacuation of the reservoir and passive passage of juvenile and adult fish, and modification of Hills Creek Dam to provide upstream and downstream passage would have a high likelihood of meeting fish conservation and recovery objectives. Other measures that were not addressed in the DPEIS include deep, extended drawdowns at several reservoirs, modification to regulating outlets (ROs) to provide safe passage through the route, and modification to RO outlets and stilling basins.

Response:

The Corps analyzed potential impacts to hydropower production under each of the alternatives. Impacts to hydropower production have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

The Corps does not propose, address, or analyze elimination of a Congressionally authorized purpose like hydropower in its EIS because this action is not within the scope of the Proposed Action (FEIS Appendix A, Alternatives Development, Attachment 1). However, impacts to all of the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects under the alternatives on fish, hydropower, water supply, flood risk management, etc.

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: Alternatives-60

The effectiveness of measures and alternatives in meeting objectives for listed fish species was evaluated by a suite of models and model outputs were used to compare the effectiveness among alternatives in comparison to a no action alternative (NAA). The models and parameters used to populate the models are based on very limited data, flawed assumptions, and parameters based on opinion (qualitative in nature). In addition, data and assumptions about existing baseline conditions are outdated and do not reflect current conditions. Outputs of life cycle models used to compare and assess alternatives were largely driven by the Fish Benefits Workbook (FBW) results. Parameters used in FBW were often based on very limited data, data from hatchery fish, and assumptions unsupported by empirical data. In particular, FBW assumed high efficiency of structural fish collectors and almost no mortality through trapping, handling, and transporting captured juvenile fish downstream of dams. These assumptions biased the FBW outputs in favor of structural passage measures over operational measures.

Although DPEIS acknowledges that paucity of data hampered the development of models for assessing effects of alternatives (at both site-specific and fish population levels), DPEIS includes no RM&E to address this weakness. Nor does the DPEIS propose RM&E to fully evaluate the long term passage survival of juvenile salmonids. RM&E for measures proposed in the DPEIS should be based on the RM&E plan developed under the Injunction by an expert panel that included Corps members (Willamette Project Interim Injunction Measures Research Monitoring and Evaluation Plan; Document 240-1).

Response:

There is not enough information or specificity to respond to generalized references about "limited data, flawed assumptions, and parameters based on opinion." Similarly, no specific DEIS information regarding "data and assumptions about existing baseline conditions are outdated and do not reflect current conditions" is stated. The commenter does not provide specifics on what conditions are outdated, nor suggest current data to consider.

Regarding analyses of spring Chinook salmon and winter steelhead, the Corps used a combination of modeling techniques, results from pertinent field studies, and professional judgement in making its assessments of possible effects over the 30-year implementation timeframe. Numerous studies, as cited, informed the analysis of ESA-listed fish effects under each alternative. Selection of measure and development of the alternatives considered many nuances of each data source in comparing it with other models or information.

The Independent Science Advisory Board (ISAB) recently completed a review of the models used to assess ESA-listed fish effects in this DEIS (https://www.nwcouncil.org/reports/isab2023-1/), which stated "In summary, the four primary models are scientifically sound, and the multi-model approach used by the Corps to date is an excellent approach for assessing alternatives in the EIS process for the WVS." The ISAB review is currently available on the ISAB website; the FEIS has been updated with a citation to the report in Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Methodology.

The Fish Benefit Workbook provides downstream fish passage survival estimates to lifecycle models used in the analysis. An overview of the Fish Benefit Workbook model structure and assumptions, and biological inputs (with associated scientific references) applied under each alternative are included in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses. Biological inputs reflect the best available scientific information on downstream passage of juvenile Chinook salmon and steelhead.

The Fish Benefit Workbook estimates that downstream dam passage survival with a floating collector (Measure 392) is higher than operational fish passage measures due to the assumptions made, uncertainty in those assumptions, and limitations of the current model structure for assessing dynamic operational conditions.

Comment: Alternatives-61

Volitional downstream passage measures should have the highest priority over measures that require trapping, handling, and transporting juvenile salmon and steelhead.

Response:

Several operational measures in the EIS for downstream passage provide for volitional downstream fish passage through existing routes in the dams. Measure 392 for structural downstream passage would involve future efforts to complete designs, and volitional downstream passage would be further considered during the design phase prior to construction.

For structural measures, it is not clear that volitional downstream fish passage is feasible, safe, or effective at Willamette Valley System high head dams, which have substantial fluctuations in reservoir volume and water surface elevations.

Furthermore, any change to a passage implementation approach would require additional monitoring of at least one or more generations. There is considerably more risk about untested volitional solutions than there is about collectors, which have been reviewed and evaluated in the literature.

Comment: References and Data-45

Flow and temperature models and metrics are flawed and based on assumptions not supported by empirical data or that acknowledge the lack of data and information. The primary assumption used by the Corps is that water temperature in summer is higher than "historic" and "disrupts" life stages. From that assumption, the focus for establishing flow and temperatures is narrowed down to one species and life stage (adult spring Chinook salmon), and largely focuses on one attribute (pre-spawning mortality). This simplistic approach is counter to that of the underlying models being cited as the basis for developing metrics that recommends a broader approach and consideration of other species and life stages. Metrics should include thermal exposure and accumulation for juvenile salmon and steelhead rearing within reaches.

Response:

The description provided in the comment regarding the developed measures for flow and water temperature management and the analysis included in the DEIS are inaccurate and incomplete. The Corps assumes the comment relates primarily to Measure 30. The approach applied by the Corps for developing Measure 30 was based on habitat needs of fish and fish survival as affected by habitat and water temperatures. Two minimum flow schedules were developed for tributaries to be applied in real time according to actual reservoir storage accrued.

For mainstem flows, a minimum flow schedule was developed that was applied according to the current water year's percentage of the Northwest River Forecast Center's rolling 30-year average, April-September water supply forecast. Tributary minimum flow schedules (included in DEIS and FEIS Appendix A, Alternatives Development, Table 2-1 and Table 2-2), increase above the lowest minimum value

according to optimal hydrograph shapes determined by Peterson et al. (2022 cited in Chapter 10, References). Their work indicates that water temperature is likely driving the shape of the optimal flow regimes they identified for survival of Chinook salmon and winter steelhead, and the best candidate minimum flow.

After defining Measure 30, the Corps then assessed the effects on fish habitat and fish survival when applying Measure 30 minimum flow values, in combination with other measures included under each alternative on multiple life stages of Chinook salmon and steelhead. The survival modeling was completed by J. Peterson USGS/OSU applying the model documented in (Peterson et al. 2022; DeWeber and Peterson 2020 cited in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses, References) (DEIS Section 3.8.2.1.6, Support Model 2: Flow-Survival Relationships). Details of the analysis are included in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses.

The analysis was completed for representative years (hot/dry, warm/moderate, and cold/wet) covering 2011, 2015, and 2016. The fish habitat and survival analysis results were updated to reflect the Final Biological Assessment and have been incorporated into the FEIS (Section 3.8.3, Fish and Aquatic Habitat, Environmental Consequences, Alternative 5).

The Adaptive Management Plan was also updated in the FEIS to incorporate the final Biological Assessment. This update describes how daily monitoring of flow and temperature would be summarized annually, along with re-assessment of fish habitat and survival every 5 to 10 years, depending on available data (Appendix N, Implementation and Adaptive Management Plan). The Plan monitoring and decision processes would allow for adjustments in flow management, including minimum flow values, if new information supports.

Climate change effects on flows are assessed in Appendix F1, Qualitative Assessment of Climate Change Impacts, and Appendix F2, Supplemental Climate Change Information. Climate change assessment results for Chinook salmon and steelhead are presented in FEIS Section 3.8.5, Climate Change Effects under All Alternatives.

Comment: Climate Change-7

Additional analysis of climate change scenarios should be conducted to evaluate potential shifts in timing of flow (peak and low) and temperature (seasonal).

Response:

The Corps conducted a comprehensive climate change assessment outlining possible climate change scenarios. This information was considered when developing EIS alternatives. The Corps will continue to comply with all ESA-listed species requirements.

Through that process, many of the proposed EIS measures would likely benefit salmon in a climate changing environment; however, direct and indirect impacts on salmon and steelhead from changing hydrologic conditions are best assessed at the site-specific level. There is evidence of changes in the hydrologic cycle (e.g., rainfall, snowpack patterns, etc.). Extreme changes are identified in the EIS, Appendix F1, Qualitative Assessment of Climate Change Impacts, as potential risk drivers in the future.

The Corps includes analyses considering different climate change scenarios, for example RCP 4.5 and RCP 8.5 emission scenarios. Different future timeframes were evaluated, for example the 2030s (WYs 2020 thru 2049) and the 2070s (WYs 2060 through 2089). These analyses address future shifts in runoff timing of flow (peak and low). Projections for seasonal and annual ambient air temperature change were also noted. These analyses were used to provide an indication of how resilient a proposed measure might be under a given alternative.

Understanding climate change impacts is important for alternatives that propose large and expensive structures. More detail is contained in DEIS and FEIS Appendix F1, Qualitative Assessment of Climate Change Impacts, and DEIS and FEIS Appendix F2, Additional Climate Change Information. It is Corps policy to continually improve climate change analyses with the best available information.

Comment: Revetments-7

The DPEIS fails to acknowledge that lack of action regarding revetment modification, relocation, or removal will continue to negatively affect salmonid populations and other native fish species.

Response:

The Corps is proposing to continue maintenance of the revetments it owns and maintains under all alternatives as Measure 9. As a part of Measure 9, the Corps would also seek a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These authorities would allow for a potential change in the protectiveness level of a given revetment studied.

Revetment modifications under Measure 9 would be on a very local scale; such locations have not been identified in this programmatic EIS, but effects on floodplain habitat overall have been addressed in the FEIS. Existing conditions of revetments are discussed in FEIS Section 1.7.2, Revetments and Other Structures for Bank Protection. Applicable resource effects are provided in FEIS Section 3.9.3, Vegetation, Environmental Consequences; FEIS Section 3.7.2, Wetlands, Affected Environment, FEIS Section 3.7.3, Wetlands, Environmental Consequences, and FEIS Section 3.8.2, Fish and Aquatic Habitat, Affected Environment.

The FEIS has been updated to include additional analyses of the impacts to fish from the management of revetments in FEIS Section 3.8.3, Fish and Aquatic Habitat,

Environmental Consequences. Fish habitat availability in river reaches downstream from WVS dams for Chinook salmon and winter steelhead was accounted for in models estimating survival of these species under all alternatives (DEIS Section 3.8.2.1.6, Supporting Model 2: Flow-Survival Relationships). The analysis is at a reach scale. Effects for fish would be more specifically assessed when any specific activities are planned and implemented to address Measure 9.

Comment: Revetments-8

In addition, the DPEIS needs to clearly identify significant steps to address the negative effects of revetments, including securing funding as was identified in the 2008 BiOp and was to have been completed by the end of 2010.

Response:

The FEIS has been updated to include information on revetments in Section 1.7.2, Revetments and Other Structures for Bank Protection.

The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley. The revetments converted to private sponsors to own and maintain are discussed in the FEIS in Section 1.7.2, Revetments and Other Structures for Bank Protection. Projects that propose to alter privately owned revetments, although they are no longer Federally owned and operated, are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Changes to the Rivers and Harbors Act Section 408 statutory program are outside the scope of this EIS.

The Corps would continue to maintain Corps-constructed revetments under all alternatives including the No-action Alternative. In contrast to the No-action Alternative, revetments could be modified to incorporate fish-friendly improvements under the action alternatives such as adding natural materials but must continue to provide the same level of protection as when originally authorized. The Corps is also proposing to secure a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These restoration authorities would allow for a potential change in the protectiveness level of revetments studied. However, this collaboration is not part of the scope of this EIS because it has not been initiated.

Comment: Climate Change-8

Assessment of climate change is qualitative and cursory in the DPEIS in terms of effects on water supply, air temperature, water temperature, flow, habitat suitability, and the associated effects on species populations. The DPEIS relied on the life cycle models to assess water temperature effects on listed species downstream of dams but as was noted by NOAA, “we did not include any estimates of future temperature changes under a climate change scenario.” The DPEIS should have developed some specific climate change scenarios (moderate to severe) to

project potential effects on flow and temperature. These scenarios should then be incorporated into existing or new models to specifically assess the potential effects of climate change on species populations and viability under current conditions as the baseline, and then an assessment of the effectiveness of proposed measures and alternatives in meeting biological objectives.

Response:

The DEIS and FEIS alternatives and measures are focused on crafting measures that would be more resilient to climate change consistent with Corps guidance and policies. Appendix F1, Qualitative Assessment of Climate Change Impacts, describes the climate change analysis. The Corps relied on that analysis to then qualitatively evaluate potential effects on ESA-listed species and on all other resources analyzed in the FEIS (see FEIS Section 3.8.5, Fish and Aquatic Habitat, Climate Change Effects under All Alternatives).

Comment: Fish-60

The DPEIS is deficient in assessing risk to bull trout. Under near-term operations water releases at Hills Creek Dam are prioritized for nighttime RO releases, specifically to increase downstream passage for juvenile spring Chinook salmon. Bull trout will pass downstream as a result, therefore upstream passage must be provided, and a temporary facility should be put in operation soon.

Response:

The near-term action at Hills Creek Dam under DEIS and FEIS Alternative 5 would be the same as the action currently being implemented under the injunction order: nighttime regulating outlet prioritization for improved downstream fish passage from approximately November to March when reservoir water surface elevation is less than 1,460 feet. The minimum conservation pool elevation is at 1,448 feet, the regulating outlet invert (bottom) is at 1,406 feet, and penstock invert (bottom) is at 1,384 feet. To pass through the regulating outlets or penstock when the reservoir is at its lowest managed elevation of 1,448 feet, bull trout have to swim at least 42 feet in depth.

These operations are designed to increase use of the regulating outlet instead of the turbine penstock for fish passing downstream. The injunction/Interim Operations prioritizing use of the regulating outlet at night would not change reservoir elevations or total discharge rates when compared to the No-action Alternative. As the commentor has indicated, bull trout are surface-oriented and, therefore, passage rates for bull trout are not expected to change in comparison to the No-action Alternative.

The FEIS has been updated to include a bull trout effects analysis with revised scores (FEIS, Section 3.8, Fish and Aquatic Habitat, Affected Environment and Environmental Consequences). This FEIS information includes review of habitat conditions below Hills Creek Dam, angling risk, and other factors further assessed using the best available

information reported on bull trout in the Middle Fork Willamette River at the time the alternatives were analyzed.

The FEIS also includes an updated version of the Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan). The Plan would include an assessment and decision triggers for construction and operation of a fish trap at the base of Hills Creek Dam for collection and transport of any bull trout that have moved downstream of the dam to access available spawning habitat.

Comment: Fish-61

The DPEIS overstates the effect of hatchery fish on naturally produced fish primarily based largely on the presence of hatchery fish as measured by proportion of hatchery origin spawners (pHOS). This metric can be a function of the abundance of either hatchery or natural origin fish. Emphasis should be on increasing the abundance of wild fish because hatchery programs are tied to mitigation requirements. Hatchery salmon will also be the source for several reintroduction measures, therefore hatchery production levels should be tied to the establishment of self-sustaining populations and natural production numbers adequate to support limited sport fishing. Instead, the DPEIS has tied decisions about hatchery production to increased accessible habitat (no guarantee this would result in increased natural production) or "improved fish passage" —this is an inadequate metric because fish passage is generally poor or even nonexistent so any positive change could be considered an improvement even if numbers of wild fish did not improve.

Response:

The summary of hatchery effects included in the DEIS and FEIS is supported with citations to peer-reviewed literature. The DEIS and FEIS documents the expect changes in pHOS above and below dams from the alternatives (Section 3.8, Fish and Aquatic Habitat). pHOS levels would remain high and there would continue to be negative hatchery effects in the Willamette River Basin under all alternatives.

Consistent with the ODFW and NMFS 2011 Recovery Plan, the Corps acknowledges in the DEIS and FEIS that additional actions may, therefore, be necessary to address below-dam hatchery effects even after improvements are made (DEIS and FEIS Section 3.8, Fish and Aquatic Habitat). The FEIS has been updated to include a revised description of hatchery effects as documented in the Final Biological Assessment.

Comment: Recreation-21

The DPEIS evaluates only the effects the various measures and alternatives would have on reservoir recreation. As noted, with hatchery reductions tied to metrics other than increased wild fish abundance, such reductions could occur with "improved fish passage" even if wild fish numbers do not substantially increase. Reductions in the hatchery programs without being offset by increases in wild fish abundance would impact sport and commercial fisheries. A

benefit of increased wild fish abundance as a result of measures taken in the DPEIS could provide increased recreational opportunities in sport fisheries. However, the DPEIS does not include any assessment of this potential benefit in their analyses, which would likely have been addressed if the Corps was confident about effectiveness of proposed measures and alternatives to increase wild fish abundance.

Response:

The FEIS has been revised to include information on gamefish in Section 3.8, Fish and Aquatic Habitat. Recreation (i.e., sport) fishing opportunities are management by the Oregon Department of Fish and Wildlife (ODFW) and not by the Corps. Stocking practices by ODFW are identified in the analyses of resident fish in Section 3.8.3, Fish and Aquatic Habitat, Environmental Consequences. Effects of sport fishing on fish abundance under each alternative are also addressed.

Comment: BiOp-11

The 2008 BiOp clearly stated that the Corps was "required to seek funds to carry out projects [restoration or removal] at high priority sites". The DPEIS should identify how the Corps will finally address its inadequate implementation of BiOp requirements (see additional comments on revetments; see also general comment below)

Response:

The Biological Opinions associated with the Proposed Action will supersede the 2008 Biological Opinions requirements. As such, the Proposed Action and range of alternatives address ESA compliance from date of Record of Decision issuance. USACE continues to appropriately request funding for Corps owned and operated revetments, despite not receiving any funding for the maintenance in over a decade. If and when funding is received the Corps would carry out the Revetment Measure as described in Chapter 2 the FEIS and as modified by the RPA, as legally appropriate.

Comment: Endangered Species Act-10

Objective 4 - states that the objective is to increase fish passage survival compared to current conditions. This is a wholly inadequate objective in terms of ESA-listed fish species. The reality is that current conditions result in no to very low survival at many projects, thus almost any increase in survival would meet this objective, whereas the survival necessary for self-sustaining populations upstream of the dams is likely to be much higher.

A more appropriate objective would be to take actions that will result in the establishment of self-sustaining population by providing effective upstream and downstream passage at dams (or wording to that effect). This objective should be to provide significant improvement of ESA-listed fish species with an ultimate goal of recovering the species.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats. Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: Fish-62

Objective 7 – reduce spawning and rearing competition caused by hatchery fish. The objective should be reworded to recognize this is secondary to other higher priority objectives. First, this objective assumes direct competition and negative effects caused by the presence of hatchery adults and juveniles, and further assumes spawning and rearing habitat are limiting factors. Data are limited to draw such a conclusion. The mere presence of hatchery fish overlapping with naturally produced fish does not prove competition. Second, within the context of recovery achieving this objective would have limited effect on the recovery of wild populations WITHOUT other effective measures. Hatchery fish are not the primary limiting factor for the listed species. Obvious steps to achieve this objective would be to immediately reduce or eliminate hatchery fish programs. Yet, reduction or elimination of hatchery programs would likely achieve little in terms of recovering wild fish populations without taking meaningful actions on the primary limiting factors such as degraded habitat downstream of dams and lack of access to habitat upstream of dams. In addition, the Chinook salmon within the hatchery programs of the individual subbasins are closely related to the native populations, therefore they represent the genetic legacy of the subbasin populations and will be critical for re-establishing populations.

Response:

The comment is inconsistent with peer reviewed scientific literature regarding the range and magnitude of effects that hatchery programs cause on wild fish productivity and fitness. The comment seems to suggest that if local studies have not been completed, then peer reviewed science on the same species in other Pacific Northwest populations are not relevant.

Hatchery production, releases to the wild, and out planting to support reintroduction will continue under all alternatives as described in Hatchery Genetic Management Plans and the NMFS 2019 Biological Opinion on those (HGMPs). Under the DEIS hatchery adaptation Measure 719 developed with input from NMFS, no changes in hatchery production would be considered until after fish passage metrics are achieved, and subsequent consultations with NMFS and ODFW are conducted to determine what levels of production should be changed, if warranted, as defined in DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan (Measure 719). This approach is consistent with the HGMPs, NMFS 2019 Biological Opinion, and the ODFW and NMFS 2011 Recovery Plan for Upper Willamette River Chinook Salmon and Steelhead, which seeks to reduce effects of hatcheries as wild production is improved.

Comment: Scope-4

General – An objective should be developed to improve habitat downstream of dams through direct action and through water and temperature management. The DPEIS states in several places that habitat downstream of dams has been degraded, at least partially because of dam operations, but does not include an objective to address how the Corps will take meaningful actions either directly (such as through operation measures) or through funding and partnerships.

Response:

The Corps evaluated alternatives for the continued operation and maintenance of the Willamette Valley System that would address habitat features, including measures for water management flexibility, temperature management, and flow regimes on tributaries to, and in the mainstem of, the Willamette River (Section 3.5, Water Quality and Section 3.8, Fish and Aquatic Habitat). Additionally, the Corps included a measure for gravel augmentation downstream of certain dams under each of the action alternatives to improve habitat connectivity (Section 3.6, Vegetation, Section 3.6, Wetlands, and Section 3.8, Fish and Aquatic Habitat).

Comment: Alternatives-62

The Corps did not consider removal of hydropower from ANY dam because it " eliminates or abandons one or more of the Congressionally authorized project purposes". By this rationale, all identified project purposes would carry the same weight and thus could not be abandoned, even if conditions changed such that a purpose designated many decades ago was no longer feasible or viable, either economically or environmentally.

Response:

Impacts to all of the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects under the alternatives on fish, hydropower, water supply, flood risk management, etc. When making its decision based on analyses in an EIS, Council on

Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Hydropower-15

The hydropower cost is likely to increase as additional fish protection is implemented. Does the Corps contend that Congress wanted to impose an undue burden on taxpayers by disallowing the Corps to make rational decisions about the economic viability of hydropower production? Does the Corps also contend that Congress would not have allowed the Corps to incorporate new information in planning a 30-year operations plan that is intended to improve fish populations? By refusing to consider the removal of hydropower at some (not all) dams, the Corps has not evaluated the full suite of measures to effectively provide fish passage.

Response:

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies. Addressing Congressional intent in an EIS is not consistent with Council on Environmental Policy Act or Corps NEPA Implementing Regulations. Analyses of the cost of hydropower under each alternative is provided in FEIS Section 3.12 and Appendix G, Power Generation and Transmission.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: Dam Removal-3

the Corps would not consider the removal of any dams. However, removal of Dexter and Big Cliff dams would not affect flood control, the primary purpose of the WVP, because the dams are only for re-regulating flow. The Corps rejects the removal of any dam on the basis that it would eliminate hydropower or other authorized purposes. If considered separately, the production of hydropower from these two dams is a very small fraction of the overall regional production at a significantly higher cost than that of WVP as a whole. It is unlikely that the intent of Congress was to consider the purpose of each dam in isolation rather than in the context of the overall purpose of the WVP.

Response:

The re-regulating dams were authorized by Congress for other purposes besides flood control. The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action (i.e., continued operations and maintenance of the Willamette Valley System) because the Corps does not have this authority.

Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS. However, impacts to all the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects under the alternatives on fish, hydropower, water supply, flood risk management, etc.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Alternatives-63

Because the Corps did not consider measures that would benefit listed fish species if they included elimination of some hydropower or removal of dams, they failed to fully develop and evaluate alternatives that would likely result in benefit to listed species populations. The Corps' approach means that they did not take a basin wide approach to the effects of the WVP, did not evaluate true economic and environmental costs and benefits, and did not develop alternatives that would maximize benefits to fish. A multiobjective approach would evaluate options such as how much flood control or hydropower capacity would be lost with removal of some dams and/or elimination of hydropower at some dams versus benefits achieved for fish recovery (e.g., Kuby et al. 2005). The DPEIS should include such analyses to provide a complete picture of costs and benefits, and provide a framework for evaluating a full suite of alternatives

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority.

Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS. Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA.

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the

level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: Alternatives-64

It follows from the previous discussion that the DPEIS should include an alternative that would have a higher probability of increasing Chinook salmon populations in the Middle Fork Willamette subbasin than those proposed. Recovery of salmon in the Middle Fork Willamette subbasin is critical for the viability and persistence of salmon in the UWR, and historically the population in this subbasin was one of the most abundant. This alternative should include removal of Dexter Dam and operation of Lookout Point and Hills Creek reservoirs as strictly run-of-river (particularly LOP). This alternative should include identifying modifications to Lookout Point Dam that would allow for almost complete evacuation of the reservoir and would provide volitional passage of juvenile and adult salmon. The dam could still be used as temporary flood control with release of stored water timed to facilitate natural, volitional migration of juvenile salmon. Temporary adult collection could be incorporated into volitional adult passage at the dam until such a time that homing of hatchery salmon to Willamette Hatchery is shown to provide adequate broodstock for reintroduction and mitigation purposes (with ultimate goal of restoring self-sustaining populations that provide ecological and recreational benefits). Modifications of Hills Creek Dam should be developed to provide volitional passage, including, but not limited to, removal of the powerhouse to provide more flexibility in developing operational options for juvenile fish passage and/or modifications to allow evacuation of the reservoir. Improved upstream and downstream passage at Hills Creek Dam would also benefit bull trout, thus further elevating the importance and priority of providing full access for the Middle Fork Willamette subbasin. A temporary trapping facility should be designed and installed at Hills Creek Dam in the very near future to provide upstream passage for bull trout, especially considering that operational changes have been made at the dam to increase downstream passage (see Bull Trout section).

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats. Further, the Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: Alternatives-65

Alternatives should be developed or modified to implement full drawdown similar to Fall Creek Dam at other dams of the WVP. Full drawdown has been shown to be an effective volitional passage measures and should be implemented at other dams. Modifications may be required at dams to facilitate drawdown. Therefore, alternatives should be modified to include consideration of deep drawdowns and actions that would be required to implement the measure so that this measure can be evaluated.

Response:

The analysis of drawdown effects on fish is provided in FEIS Section 3.8, Fish and Aquatic Habitat and in Appendix E, Fish and Aquatic Habitat Analyses. When evaluating the type of operation that can be implemented for volitional passage there are two main considerations, (1) the structure itself including its available outlets and (2) the Corps authorizing legislation (Chapter 1, Section 1.10, Congressionally Authorized Purposes). Fall Creek Dam, for example, has several outlets at varying locations, and it was not authorized for hydropower.

These considerations made Fall Creek Dam an obvious choice for implementing deep drawdowns. The two necessary conditions do not exist for all the dams; therefore, the Corps could not develop alternatives that would implement similar deep drawdowns at all Willamette Valley System dams. With input from Cooperating Agencies, the Corps designed operations under the alternatives that would utilize the lowest outlets and would not eliminate an authorized purpose at any dam.

Comment: Alternatives-66

Alternatives should be developed or modified to implement improvements to regulating outlet (RO) passage routes. Measures to achieve more effective and safe passage may include lining RO routes, modifying ingress and egress routes, extending RO outlets, modifying stilling basins, etc.

Response:

The primary purpose of this EIS is for operations and maintenance of the Willamette Valley System while meeting ESA obligations; new structures for purposes other than meeting ESA obligations were considered out of scope. Regulating outlet improvements

are considered as part of the regulating outlet operation at Cougar Dam under Alternative 2A and Alternative 3A. Success from regulating outlet improvements are unproven; therefore, improvements were not evaluated at other Willamette Valley System dams.

Comment: Fish Passage-19

Priority at all projects should be for volitional passage, whether through operational changes or structures. If operations prove to be insufficiently effective for juvenile fish passage, then structural options should be explored to provide volitional passage at or close to the dam. Options that require handling and transporting juvenile fish could result in extra stress and mortality to juvenile salmon and steelhead. In addition, such capture techniques would have to be highly effective over a range of flow/reservoir conditions and over a range of variable sizes of juvenile fish entering the reservoirs, including fry.

For example, under natural conditions some newly emerged fry begin to volitionally migrate long distances downstream. Migration does not appear to be driven solely by displacement through competition for space, but is likely an inherent dispersal behavior that results in an overall increase in carrying capacity because fish are using multiple habitats throughout the watershed. This behavior should be considered in development of measures, operational alternatives, and structural passage facilities.

Among the structural considerations, the floating fish collector and bypass pipe used for juvenile salmonid passage at North Fork Dam on the Clackamas River should be considered for juvenile fish passage at some of the upper Willamette dams. The bypass pipe passively transports juvenile salmonids downstream past the tailrace of the last of three dams in the Clackamas complex. This option, including use of a bypass pipe, would likely require a change in reservoir management but should be evaluated in terms of costs and benefits.

Response:

Chinook and steelhead spawn below Willamette Valley System (WVS) dams and will continue to do so after proposed fish passage improvements are implemented. Their offspring move downstream and may occupy habitat or migrate as a result of displacement as described in the comment. Offspring spawned above dams are affected by the dam and reservoir systems.

Scientific information on the Willamette River is inadequate to conclude that enough juveniles would pass as fry and meaningfully contribute to population viability. Reservoirs support greater growth rates compared to streams for juveniles (e.g., Monzyk et al. 2014 in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses, WVS EIS Bull Trout Assessment, References). Size at emigration has been positively related to adult abundance (e.g., Claibourne et al. 2020 found at https://doi.org/10.1080/00028487.2011.607050).

Several operational measures in the DEIS and FEIS for downstream passage would provide for volitional passage through existing routes in the dams. Measure 392 for structural downstream passage would include future efforts to complete designs; volitional downstream passage would be further considered during the design phase prior to construction.

For structural measures, there is currently limited evidence that volitional downstream fish passage is feasible, safe, or effective at WVS high-head dams, which have substantial fluctuations in reservoir volume and water surface elevations. Furthermore, any change to a passage implementation approach would require additional monitoring of at least one or more generations.

Comment: References and Data-46

The primary tool of evaluating the effectiveness of alternatives on fish populations was through various models. General comments follow and comments on specific models and model parameters are presented later.

In general, the DPEIS oversells the models as an “quantitative framework” for evaluating the effectiveness of alternatives in meeting ESA-specific objectives. First, the models are not wholly quantitative because some of the parameters are not derived from data but rather from professional opinion (i.e., qualitative). Many of the parameters in all models, including the Fish Benefits Workbook (FBW), are based on limited data with considerable uncertainty in the values used for the parameters. Assumptions of the models are often based on old river or reservoir conditions and untested structural or operational measures; again, with limited acknowledgement or estimates of uncertainties about the assumptions or effects of assumptions on results. It is beyond the scope of this DPEIS review to thoroughly assess the models, the numerous parameters and values, or the analytical frameworks. Reviews of both the FBW and the NOAA Life Cycle Model were conducted in 2014 by the Independent Scientific Advisory Board (ISAB). In contrast, Integrated Passage Assessment model (IPA) has not been peer-reviewed or published and should be considered preliminary and used with caution.

Response:

Due to the complexity of the alternatives and the many resources affected, modeling was necessary to assess the outcomes and effects of different proposed measures and alternatives, and to document assumptions about the alternatives and their effects. The analytical approach relies on the latest and best available information. Models used to assess fish effects from the alternatives in the Willamette Valley System EIS were reviewed by the Independent Science Advisory Board (ISAB) (See https://www.nwcouncil.org/reports/isab2023-1/). The review states that "The ISAB determined that the models for spring Chinook salmon and steelhead developed by the four modeling groups include the major processes influencing spring Chinook salmon and steelhead life histories and are scientifically sound."

The models reviewed by the ISAB included those used to assess the effects of changes in flows below Willamette Valley System dams associated with the alternatives in the EIS on ESA-listed salmon and steelhead. The methods used are documented in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses.

Comment: References and Data-47

The DPEIS contends that because major factors outside the alternative measures are the same, that the model outputs "inform the level of effects each alternative would have on the species at a population level." (page 5.4). This is not completely true. First, this assumes that the models comprehensively capture aggregate effects of factors such as hydrology, river geomorphology, etc. As will be discussed below, the parameters used to populate various models are rife with uncertainty. Thus, the models may not accurately describe the effects of either alternative measures or other major factors in the basin. That is, if there is a disparate effect of a shared major factor on a life stage that is compounded by a particular alternative measure, then effects may be different depending on the alternative even in a shared environment. This, in turn, could have population effects that partially reflect watershed factors and partially reflect factors related to alternatives. Carryover effects can result in differing survival within the same, shared environment such as the mainstem Willamette River, and may be influenced by factors such as the body length or life stage of individual fish. Therefore, the population-level effect may differ within the context of shared major factors (water temperature, flow, etc.). The DPEIS overstates the robustness of various models and/or the model capacities for capturing aggregate effects.

The Corps has spent considerable time and money funding iterations of models based on data that is 5 years old and sometimes much older, rather than adequately funding or supporting studies that would produce new data to populate models with data-derived parameters and to address uncertainty within parameters. In addition, data used to develop parameters may be outdated or may have been collected under conditions that no longer represent current conditions.

Although simplification of models can increase their effectiveness for comparing among specific measures, there is also an inherent weakness in not capturing the complexity of life histories. For example, assumption that spring Chinook salmon migrate as smolts in their second year (yearling) may provide one level of comparison among measures but may result in mistakenly identifying a measure(s) as having greater benefits to fish. In this case, research has shown the importance of the subyearling life history in adult returns, many of which rear as juvenile fish in late winter and spring in mainstem reaches. Although a model might show that a measure(s) is more beneficial for yearlings, it might mask the jeopardy that the same measure(s) might have on other life histories, with a potential net negative effect when considering the cumulative contribution of all life histories.

Response:

Due to the complexity of the alternatives and the many resources affected, modeling was necessary to assess the outcomes and effects of different proposed measures and

alternatives, and to document assumptions about the alternatives and their effects. The analytical approach relies on the latest and best available information.

Models used to assess fish effects from the alternatives in the Willamette Valley System EIS were reviewed by the Independent Science Advisory Board (ISAB) (See https://www.nwcouncil.org/reports/isab2023-1/). The review states that "The ISAB determined that the models for spring Chinook salmon and steelhead developed by the four modeling groups include the major processes influencing spring Chinook salmon and steelhead life histories and are scientifically sound."

The models reviewed by the ISAB included those used to assess the effects of changes in flows below Willamette Valley System dams associated with the alternatives in the EIS on ESA-listed salmon and steelhead. The methods used are documented in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses.

Comment: Fish Passage-20

The FBW is the primary model used to evaluate passage effectiveness of operations in passing juvenile fish and relies on the ResSim hydrological model for reservoir level, outflow, and route distribution. Results are then used in the Life Cycle Model (LCM) and Integrated Passage Assessment model (IPA) to evaluate the effectiveness of measures and alternatives on species populations. The 2014 review of the FBW by ISAB noted several weaknesses:

- Lack of dam-specific and fish-specific (e.g., life history, size, behavior) data for parameter estimates.
- Related to the above is use of surrogate data either from other dams, other fish, or other studies outside the basin with little justification for why values were chosen and inconsistency in what data were used. Heavy reliance on studies at Cougar and Detroit dams applied to other dams.
- Large data gaps and parameters are used without an assessment of accuracy or uncertainty.
- Questions about reliability of survival estimates with lack of robust data.
- FBW assumes that juvenile fish have to pass at certain times within their life stage or they must wait until a later life stage. Thus, the fish that arrive at the forebay in a certain time window are assumed to pass even if reservoir conditions are unfavorable rather than that the fish might hold in the reservoir and pass as soon as conditions are favorable within the same life stage period as when they entered the reservoir. Effect would be that some operations would be assumed to be ineffective and result in poor survival.
- ResSim is based on historical record, which may not effectively describe conditions under recent conditions and those anticipated to occur with climate change.

- It is unclear from the DPEIS and associated appendices how many, if any, of these weaknesses have been addressed or accounted for in the FBW. Obviously, any problems with parameters used in FBW would be compounded when applied to life cycle models to estimate the composite effects and/or benefits of alternatives on species populations.

  Response:

  To assess alternatives in the DEIS, the Fish Benefit Workbook fish parameter estimates were updated using the best available information (See Appendix E, Fish and Aquatic Habitat Analyses). The model documentation, parameter estimates and data sources were reviewed by WVS EIS Cooperating Agencies. Responses were provided from ODFW and NMFS. No alternative models have been recommended.

  As with all ecological models, simplifying assumptions are necessary and acknowledged when reviewing results to support decision-making. The Independent Science Advisory Board (ISAB) completed a review of fish models used in the WVS DEIS in February 2023. It included comments on the Fish Benefit Workbook and noted the updates in the Fish Benefit Workbook parameter estimates and data sources used for those updates. The final ISAB review has been referenced in the FEIS in Section 3.8, Fish and Aquatic Habitat.

Comment: References and Data-48

Parameter inputs (such as dam passage efficiency and route survival) are point estimates, whereas existing studies indicate a wide range of results. Therefore, although an input such as survival has a wide range of uncertainty, that uncertainty is not captured in FBW. Nor does the FBW attempt to capture how change in operations that affect reservoir level might affect fish behavior and distribution within the reservoir, thus affecting arrival timing to forebays and size of fish. The model assumes fish behavior and distribution based on studies that were largely conducted under different reservoir conditions.

Response:

Hydrology is input into the Fish Benefit Workbook using inflows from a period of record from 1936 to 2019. Operational hydrology using these inflows, are modeled in RES-SIM to determine reservoir volumes and dam discharges according to the dam operations assumed, in this case as defined by the alternatives in the DEIS.

Because the Fish Benefit Workbook model is run on this large range of hydrologic conditions, it well captures hydrologic variability that occurs in reservoir and dam operating conditions. The comment correctly states that the parameter inputs relating to fish availability and passage are entered as point estimates and, therefore, do not directly account for uncertainty and variability in these instances.

Sensitivity analyses were completed for the Fish Benefit Workbook and are documented in Alden (2014) as referenced in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses, to help describe how the Fish Benefit Workbook responds to a range of different fish parameter input assumptions.

Parameter estimations required assumptions for specific conditions where local data were not available. Assumptions were documented in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses.

Comment: References and Data-49

Parameter values are generally based on tagging studies. Some of the cited studies used large hatchery fish (and even other surrogates such as hatchery rainbow trout) and were often conducted under operating conditions that are different than those being proposed. In addition, there are no studies for fish <60 mm. FBW does not account for delayed or latent mortality as a result of dam passage (nor do the life cycle models adequately address latent mortality from dam passage).

Response:

The data and studies used for defining the fish parameters are documented in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses1, and include a range of information developed from studies applying a variety of field methods. Information for all fish sizes under all operating conditions is not available and, therefore, inferences were made, which are also documented in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses.

The scope of the Fish Benefit Workbook model is from the forebay to the tailrace of a given dam. Life cycle models used as part of the assessment of effects under alternatives in the FEIS account for survival both upstream and downstream from WVS dams.

Comment: References and Data-50

FBW assumes high efficiency of juvenile fish collectors at the dams based on data from a limited number of sites and years. The downstream passage efficiency for alternatives that included fish collectors was derived from a logistic regression equation of Kock et al. 2019 developed from 7 sites. This equation was based on measures of collection efficiency from tagging studies and factors (covariates) that affected collection efficiency (forebay area, depth, temperature, etc.).

Collection efficiencies used in the DPEIS were generally higher than most of the efficiencies reported in Kock et al. 2019. Chinook efficiency presented in the main FBW text of Appendix E ranged from 0.54 to 0.82 for Alternative 1 and 0.59 to 0.96 for Alternative 4. Additional estimates were reported in table footnotes in the Chinook and steelhead supplements of FBW appendix, but it was unclear if these included use of guidance nets. These estimates ranged from 0.53 to 0.80 (mean = 0.69 for 5 dams) for Alternative 1 and 0.53 to 0.96 (mean = 0.81) for

Alternative 4. Estimated efficiencies were 0.90 to 0.94 for steelhead. In contrast, the highest efficiency in Kock et al. 2019 was reported as a composite 0.93 for North Fork and River Mill dams on Clackamas (but just 0.60 for Chinook at North Fork Dam), and 0.75 to 0.88 for Baker dams in Washington, but those were for coho and sockeye and a single life stage. Collection efficiencies for other sites were generally around 0.30 or much lower. It should be noted that North Fork and River Mill dams do not fluctuate much (1 m or less), have relatively small reservoirs, are run-of-river, which provides current through the reservoirs, and the North Fork system uses a lead net. Because collectors in the Baker dams are operated to capture two species and a single life stage, they can target operations for a limited seasonal migration period. In addition, these systems use extensive netting to reduce the effective size of the forebay, guide fish to the collector, and prevent fish from accessing alternative routes. In summary, the FBW assumes a high efficiency of the structural fish collectors that appears unsupported by existing data from other sites.

Response:

This comment is a slight mischaracterization of the Kock et al. (2019 in Chapter 10, References) model. These collector performances observed will occasionally result in values slightly greater than 1.0 because the model is predicting along the higher end of the logistic regression due to the parameters of interest (entrance size, flow, forebay size) estimated for the proposed collectors.

While the Corps recognizes this is an artifact of the model, there is currently little information to more precisely estimate DPE at the highest end of the curve. There is not enough information to know if or when the curve reaches an asymptote.

The proposed collectors would be of unprecedented size. For this reason, performance would be improved over other regional collectors that measured the same, exchangeable collector characteristics (inflow, entrance size, and forebay size). While the hierarchical analysis includes "7 data points" that is a nuance of hierarchical analyses in general. Each "data point" (in this case, the individual collector) is treated as a single data point recognizing that each datapoint is a "population sample" for that collector. This is a strength of hierarchical modeling such that the information from these seven collectors is leveraged to provide more precise predictions based on the behavior of the sample data for each of the seven collectors.

In summary, the Corps recognizes that while values greater than 1.0 are imprecise, these values represent the best possible passage improvement outcomes under structural collector design.

Comment: References and Data-51

FBW assumes high efficiency of juvenile fish collectors at the dams based on data from a limited number of sites and years. The downstream passage efficiency for alternatives that included fish collectors was derived from a logistic regression equation of Kock et al. 2019 developed from 7

sites. This equation was based on measures of collection efficiency from tagging studies and factors (covariates) that affected collection efficiency (forebay area, depth, temperature, etc.).

Collection efficiencies used in the DPEIS were generally higher than most of the efficiencies reported in Kock et al. 2019. Chinook efficiency presented in the main FBW text of Appendix E ranged from 0.54 to 0.82 for Alternative 1 and 0.59 to 0.96 for Alternative 4. Additional estimates were reported in table footnotes in the Chinook and steelhead supplements of FBW appendix, but it was unclear if these included use of guidance nets. These estimates ranged from 0.53to 0.80 (mean = 0.69 for 5 dams) for Alternative 1 and 0.53 to 0.96 (mean = 0.81) for Alternative 4. Estimated efficiencies were 0.90 to 0.94 for steelhead. In contrast, the highest efficiency in Kock et al. 2019 was reported as a composite 0.93 for North Fork and River Mill dams on Clackamas (but just 0.60 for Chinook at North Fork Dam), and 0.75 to 0.88 for Baker dams in Washington, but those were for coho and sockeye and a single life stage. Collection efficiencies for other sites were generally around 0.30 or much lower. It should be noted that North Fork and River Mill dams do not fluctuate much (1 m or less), have relatively small reservoirs, are run-of-river, which provides current through the reservoirs, and the North Fork system uses a lead net. Because collectors in the Baker dams are operated to capture two species and a single life stage, they can target operations for a limited seasonal migration period. In addition, these systems use extensive netting to reduce the effective size of the forebay, guide fish to the collector, and prevent fish from accessing alternative routes. In summary, the FBW assumes a high efficiency of the structural fish collectors that appears unsupported by existing data from other sites.

Response:

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While the Corps recognizes this is an artifact of the model, there is currently little information to more precisely estimate DPE at the highest end of the curve.

There is not enough information to know if or when the curve reaches an asymptote. The proposed collectors would be of unprecedented size. For this reason, performance would be improved over other regional collectors that measured the same, exchangeable collector characteristics (inflow, entrance size, and forebay size). While the hierarchical analysis includes "7 data points" that is a nuance of hierarchical analyses in general. Each "data point" (in this case, the individual collector) is treated as a single data point recognizing that each datapoint is actually a "population sample" for that collector. This is a strength of hierarchical modeling such that the information from these seven collectors is leveraged to provide more precise predictions based on the behavior of the sample data for each of the seven collectors.

In summary, the Corps recognizes that while values greater than 1.0 are imprecise, these values represent the best possible passage improvement outcomes under structural collector design.

Comment: Fish Passage-21

In addition, FBW assumes a 98% route passage survival. It is not clear if this assumption is for all fish that enter the collector system or only those that survive; nor is it clear if this high survival accounts for stress of handling, transporting, and releasing juvenile fish or delayed mortality after release. This high survival assumes almost no effects of capture, handling (likely including tagging and genetic sampling), transportation, and release of juvenile salmon and steelhead.

Response:

The assumption assumes a very high survival rate for those that enter floating collection facilities. Based on available information, fish collected in similar existing systems built using current design standards have experienced greater than 98% collection survival (e.g., NMFS 2022). In addition, juvenile fish transported by truck after collection also experience high survival rates.

NMFS (National Marine Fisheries Service). 2022. NOAA Fisheries West Coast Region Anadromous Salmonid Passage Design Manual, NMFS, West Coast Region, Portland, Oregon.

Comment: Fish Passage-22

In general, FBW biases passage efficiency and survival in favor of structural measures based on limited data and untested assumptions; and assumes that characteristics of the small number of successful collectors used in the Northwest can be duplicated at WVP dams despite physical differences (reservoir size and fluctuations), operations (run of river vs flood control), and target species and life stages. It should be noted that the Corps was also optimistic about the efficiency of an experimental floating fish collector that was very expensive and was an almost total failure in attracting and collecting juvenile salmon.

Response:

There are important uncertainties and model assumptions to account for when assessing downstream passage options at WVS dams and model results. Modeling fish passage survival for operational fish passage measures (i.e., those that apply the existing dam conditions under new reservoir and dam operational assumptions) is more complicated than modeling fish passage assuming a floating collector that is available at shallow depths under a wide range of reservoir and dam operating conditions. These limitations have been considered by the Corps when reviewing model results and during the alternative comparison.

The results from the Cougar Dam experimental collector was included in the Kock et al. (2019 in Chapter 10, References) hierarchical analysis and still informs the dimensional criteria needed for predicting DPE. In this respect, it provided information that informed the lower end of the Kock et al. (2019) regression.

Comment: References and Data-52

Life cycle modeling attempts to estimate the overall survival of juvenile fish under varying measures and alternatives and provide estimates of population viability. These models attempt to track the full life cycle of salmon and steelhead using various age-structured demographic parameters based on factors such as survival and productivity. Results of FBW are incorporated into the models with the intent of comparing the overall effect of measures and alternatives on the viability of salmon and steelhead populations.

In general, the DPEIS overstates the robustness of various models and/or the model capacities for capturing aggregate effects. All models must be populated with parameters or values. Much of the data used in the DPEIS models is based on limited information, thus each parameter used to populate the models has an error factor, including some which are quite large. Most of the parameters are based on limited data, sometimes outdated data, and data from other basins. Some of the parameters are not based on data and represent a best guess, thus have no measure of uncertainty and are more accurately qualitative than quantitative.

Response:

All models were reviewed by the Independent Science Advisory Board (ISAB) and determined to be scientifically sound and useful, with helpful comments for further refinement. The ISAB's final review is discussed in FEIS Section 3.8, Environmental Consequences, Methodology. Furthermore, where outputs are uncertain, the uncertainty is explicitly quantified with suggestions of how to improve precision (Appendix E, Fish and Aquatic Habitat Analyses).

These models are not qualitative. Where assumptions were made, they are explicitly listed under each model in DEIS Section 3.8, Fish and Aquatic Habitat. Alternative approaches for assessing fish responses to complex environmental conditions occurring under each alternative in the DEIS have not been recommended by Cooperating Agencies or others commenting on the DEIS (Appendix L, Cooperating Agencies).

Comment: References and Data-53

Overall, data for spring Chinook salmon (adult spawners and life histories, juvenile rearing, migration, life histories) is more complete than for winter steelhead, where few data exist. However, data for Chinook salmon are incomplete or missing for all life stages, especially fry. Both species have complex freshwater life histories and associated behaviors (little is known about winter steelhead) that cannot be adequately captured with models and this uncertainty should be highlighted throughout the DPEIS.

A key model parameter for the life cycle model is spawning and incubation habitat, but NOAA notes that this is largely unknown so they used surrogate information about spawning based on historic and recent habitat surveys that assessed spawning capacity by quantifying suitable gravel size, depth, and gradient [page E-432]. Based on my extensive experience of surveying spring Chinook salmon and steelhead spawning, it is difficult to accurately assess where these fish will spawn just based on physical stream surveys. These fish can spawn in small, isolated patches of gravel that would likely be missed during surveys of physical characteristics. Regardless, the lack of empirical data on a key model parameter highlights the inherent uncertainty of model outputs.

Uncertainty is acknowledged in Appendix E. NOAA notes in several places the uncertainty about model parameters and outputs; e.g., "The underlying uncertainty in many of the parameters used in developing this life cycle model contributes to the overall uncertainty in the estimates of abundance and viability." [page E-412] The section on the Integrated Passage Assessment model concludes: "There remains considerable uncertainty in all of these parameters. Should the priors formulated for them poorly represent the true values, the PMs [performance measures] computed for the EIS alternatives could deviate considerably from what they should be and even the actual rankings of the EIS alternatives in terms of the PMs could be quite different from results found in this report." [page E-761] Although uncertainty about model parameters and outputs was emphasized in several places in Appendix E, the main body of the DPEIS makes no mention of uncertainty and treats model outputs as more or less a definitive "quantitative framework".

Response:

Both historic and substantial recent information is available on Upper Willamette Chinook salmon and steelhead. The best available information was applied in the life cycle models used to assess alternatives in the DEIS and FEIS, as cited by Appendix E, Fish and Aquatic Habitat Analyses.

The Independent Science Advisory Board (ISAB) reviewed the multimode approach and concluded "Multiple models can characterize uncertainty more accurately than single models and lead to more informed decision-making. By design and as implemented appropriately by the Corps for the WVS EIS process, the predictions of the different models offer alternative plausible representations of system response and are not completely independent from each other" (See ISAB URL: https://www.nwcouncil.org/reports/isab2023-1/). This is accounted for in a variety of ways, as documented in results found in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses.

DEIS and FEIS Appendix E, Fish and Habitat Analyses, contains graphical representations of uncertainty for each of the alternatives. Considerable overlap between alternatives and in some cases, with the No-action Alternative, are identified.

Regarding spawning habitat, NMFS completed an assessment as reported by Bond et al. in 2017 and Zabel et al. 2018 (cited in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses, References).

Comment: Alternatives-67

Despite the amount of effort in modeling various scenarios and their effects on fish populations, the main driver of outputs differentiating effects of alternatives was the FBW input: "The FBW was the major source of differentiation between alternatives." [E-530] Given the weaknesses and biases of the FBW, the results of the life cycle modeling should be viewed with caution.

Because alternatives are measured against the no action alternative (NAA), the baseline that accurately describes existing conditions is critical. However, data to develop and fit models under the NAA state were very limited (e.g., lack of data on juvenile abundance and survival) and relied on redd counts to estimate adult production for both Chinook salmon and steelhead (steelhead data are particularly problematic). In addition, time series were relatively short.

NOAA also noted that "the NAA alternative does not necessarily capture the recent dam configuration and operations." [page E-423] Thus, comparing among alternatives and benefits accrued by enacting measures under various alternatives as compared to NAA may unduly overstate benefits of the alternatives.

Response:

The best available scientific information was used to assess the effects of the alternatives in the WVS EIS. The Independent Science Advisory Board (ISAB) recently completed a review of the models used to assess ESA-listed fish effects in this DEIS (https://www.nwcouncil.org/reports/isab2023-1/), which stated, "In summary, the four primary models are scientifically sound, and the multi-model approach used by the Corps to date is an excellent approach for assessing alternatives in the EIS process for the Willamette Valley System."

The ISAB review is currently available on the ISAB website; the FEIS has been updated with a citation to the report in Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Methodology. Models are necessary to assess the potential effects of fish populations from each alternative because the changes to habitat conditions from these proposed alternatives cannot be directly observed.

Comment: References and Data-54

Problems with the NOAA life cycle model are similar or compounded in the IPA model. These include:

- Analysis and use of data from five and more years ago with little or no new data to reflect recent conditions.

- Reliance on parameters that are set by the model developers using assumptions about factors such as fish survival, fish migration, growth, life stage transitions, etc.
- Parameters based on flawed assumptions is a major issue that weakens the life cycle modeling. Model parameters drive the results, therefore errors in setting parameters using flawed assumptions become compounded throughout the model and affect the outputs.
- Many of the base assumptions are based on expert opinion and parameters are developed with little empirical data from the Willamette.
- IPA model is Bayesian, which "borrows" information from other sources or studies through prior probability distributions for a parameter being estimated for which there is no or limited data. However, much of the information is set by the users which can greatly affect the results.
- These types of models require large data inputs to work. However, none of the models used in the Willamette have anywhere near the appropriate data inputs; therefore, they rely heavily on inputs from limited data, numbers set by expert panels, or data from other basins/studies.
- All these issues are even more problematic for winter steelhead because data and knowledge are much more limited than for Chinook salmon.
- As an example, freshwater survival is a key parameter for life cycle models.
- The IPA uses release and detection data from releases of PIT-tagged hatchery Chinook salmon. Generally, two or more detection sites or events within freshwater are used to estimate freshwater survival. IPA used detection of returning adults (small numbers) at the Willamette Falls fish ladder as the second detection site. This requires estimates and assumptions about estuarine and ocean survival that are largely derived from hatchery salmon.
- The IPA starts with detection at Willamette Falls of juvenile PIT-tagged hatchery Chinook salmon as the first detection point. The hatchery salmon were released below dams as part of a paired release study to estimate dam passage survival. As mentioned, the detection of a limited number of returning adults from these releases was used in the estimate of freshwater survival.
- Because of these limited data statistical 're-parameterization" is required to account for factors such as first ocean mortality, ocean harvest, terminal net and recreational fisheries harvest and incidental mortality of wild fish, etc. (but note that the model apparently did not attempt to account for pinniped mortality known to occur at Willamette Falls). Data often originates with hatchery fish, which requires additional "adjustments".
- Additional development of informative priors is required because of limited available data for factors such as river-smolt and smolt-adult survivals, tag detection probabilities,

tag loss and mortality, and difference between hatchery fish (source data) and wild fish as it affects parameters such as survival.

- It should be noted that in some cases data were available, such as age composition of returning wild fish, but instead input values were set by an expert panel without explanation.

Response:

Both historic and substantial recent information is available on Upper Willamette Chinook salmon and steelhead. The best available information was applied in the life cycle models used to assess alternatives in the FEIS, as cited by Appendix E, Fish and Aquatic Habitat Analyses. The fish models were analyzed by the ISAB; the Final Independent Science Advisory Board (ISAB) review has been referenced in the FEIS (FEIS Chapter 10, References).

The comments are only partially accurate. The IPA in particular used multiple lines of evidence, particularly where data in one dataset were lacking. The IPA takes these issues a step further. First, it allows fishing mortality at sea to be age-specific and dynamic based on CTC records. Second, the research team did investigate whether or not there was a statistical signal from ongoing pinniped controls (there was not). Therefore, pinniped mortality is necessarily part of reach mortality without explicit attribution to pinniped effects. Tag effects were considered and simulated to verify that the model could recover those parameters of interest given assumptions and formulation of the priors.

With respect to low return numbers, the Bayesian approach was implemented because it can address data-poor datasets. A good example of this is the Middle Fork Willamette River where fewer natural-origin fish return below Dexter Dam. Both the NMFS LCM and IPA were fit to these sparse data and performed well based on the model diagnostics. Age distributions were also determined using multiple lines of evidence (i.e., scales, reported surveys of spawning, otolith calibrations, tagged fish of known brood years).

Comment: Fish-63

Extinction risks were calculated in the IPA for the 30-year span of the operations plan. Because the IPA model is “specifically for the population components that spawn above the dams” [page E-598], the evaluated extinction risk is only for this component of the population so it is of limited use in evaluating the effects of alternatives on subbasin populations. In addition, salmon upstream of most dams will be supplemented with hatchery fish for a number of years. It really makes little sense to estimate extinction risks for this subset of the population.

Response:

Both historic and substantial recent information is available on UWR Chinook salmon and steelhead. The best available information was applied in the life cycle models used

to assess alternatives in the FEIS, as cited in Appendix E, Fish and Aquatic Habitat Analyses. The fish models used were analyzed by the Independent Science Advisory Board (ISAB); the FEIS has been updated to include a reference to the final review in Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Methodology.

While ESUs and DPSs described "populations," biologically and for purposes of modeling, a population is considered any closed group of interbreeding individuals with a near net 0 gene flow rate. This is consistent with the ecological definition rather than the policy definition. The Corps balanced the management definition with the biological/technical definition to highlight aspects upon which the Corps' action would be evaluated. In this case, the Corps relied on two dynamic models (LCM and IPA). One evaluated the ESU/DPS on a 100-year timeline. The other (IPA) evaluated the above-dam components on a 30-year timeline (i.e., the timeline the Corps expects to implement an action before that action needs to be updated).

This is particularly nuanced for future projections, which necessarily assume no information updating. It is unlikely that a management action would continue to be implemented unchanged for 100 years; however, it is included in the analysis to evaluate the management definition of "populations."

The 30-year timeline was included in the IPA to account for at least some anticipated management changes in the future. For the FEIS, the effects of alternatives on UWR Chinook salmon and steelhead were assessed with a focus on the IPA model, since 1) the timeframe of the analysis completed using this model matched the 30-year timeframe for analysis and 2) the IPA model is focused on assessing the largest effect of dams on fish as cited in the UWR Chinook salmon and steelhead recovery plan (ODFW and NMFS 2011, referenced in Chapter 10, References). The largest effect is blocked access to above-dam habitat. Other analyses were used to assess below-dam effects in FEIS Chapter 3.8, Fish and Aquatic Habitat, Environmental Consequences, Methodology.

Comment: Scope-5

the analysis covered an inadequate period to be of any use. Extinction risks in the IPA model were evaluated for just the 30-year span of the operations plan at the direction of the Corps: “The extinction risk PM [performance measure] was calculated by determining the 4-year moving mean NOR abundance across years 16-30 of each simulation run, with the population deemed to go extinct if this mean abundance fell below a quasi-extinction threshold (QET) in those 15 years.” [page E-605] The standard for assessing extinction risk is for 100 years. Given the generation time of salmon and steelhead of 3-6 years and age-structured populations, this time frame provides little useful information to evaluate the effect of implemented measures on risk, especially considering the long lead time (and probable delays) in implementing some measures. Regardless, it is of little use to assess extinction risk for only the salmon and steelhead upstream of the dams. It would be more informative to assess the contribution of salmon and steelhead upstream of the dams to the overall population in terms of biological metrics.

Response:

The temporal scope of the analysis of alternatives in the EIS was 30 years from the signing of the Record of Decision. A 30-year implementation timeframe for the EIS was determined appropriate due to the dynamic nature of the Willamette Valley System and the current and future needs of the communities that rely on the system.

The Corps recognizes the 30-year implementation timeframe used to evaluate the alternatives can greatly influence some predictions, especially estimations of extinction risk for Chinook salmon and steelhead populations assessed using the IPA. However, consistency in predicted outcomes from different models increases confidence in the assessments. The NMFS LCM, which used a 100-year period of analysis for assessing extinction risk, resulted in similar rankings of alternatives to those resulting from the UBC IPA model extinction risk estimates (See FEIS Appendix E, Fish and Aquatic Habitat Analyses).

The best available information was applied in the life cycle models used to assess alternatives in the EIS. The fish models used were analyzed by the ISAB. Additionally, the Corps set realistic timeframes for execution of major dam modifications in its example Implementation Plan (Appendix N). A specific Implementation Plan will be developed for the alternative is ultimately selected. The draft Implementation Plan was provided as reference to help inform about the realities involved in designing and executing such large construction projects and dam modifications. For example, a one-time intensive effort is the proper evaluation of dam safety concerns that would result from modifications to the dams (Appendix H, Dam Safety).

Other time constraints were discussed in detail in DEIS Chapter 5, Preferred Alternative (FEIS Appendix A, Alternatives Development, Attachment 4). Structural solutions for passage and survival will require long lead times for execution. Consequently, the Corps developed the Interim Operations to continue focus on improving volitional passage and water quality conditions until long-term solutions are in place.

The Corps also identified an alternative that includes a mixture of longer-term operations that would be immediately implementable with long-term structural solutions to improve fish passage and survival overall.

Comment: References and Data-55

Although these models can be used as one tool for developing options, the Corps has presented results of the model as a given with little discussion of uncertainties associated with the outputs. SWIFT was designed to be used as a structured decision model with inputs from experts and stakeholders (DeWeber and Peterson 2020; Peterson et al. 2022). The Willamette model was designed to show managers how to make real-time decisions (thus it is a structured decision model) and to set priorities for future research, such as targeting uncertainties illustrated by the model. It was not intended to be a static, measure-driven model.

Implementing decision structured models is an iterative and long-term process that requires input and feedback from a spectrum of managers, with additional data inputs to fill identified gaps (DeWeber and Peterson 2020).

Response:

The best available information was applied in the models used for assessing effects under the FEIS alternatives, as documented in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses. Dr. James Peterson is the primary author of the SWIFT models (aka OSU-fish survival models). His report to the Corps used the SWIFT models to assess survival of Chinook salmon and steelhead below WVS dams relating to changes in flow management under the DEIS alternatives (See DEIS Chapter 5, Preferred Alternative Selection and Implementation and DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses).

The SWIFT model is an optimization routine, and uncertainty is described in FEIS Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Methodology, and DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses. The fish models used for the FEIS, including SWIFT, were reviewed by the Independent Science Advisory Board (ISAB). The ISAB review is referenced in the FEIS (See Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Methodology).

Comment: Fish-64

Although effect of flow on two species and life stages were modeled (Peterson et al. 2022), the Corps focused on a single species and life stage: “The adult UWR spring chinook salmon species and life stage were chosen as the priority in the development of the fish flows.” [page A-21] Decisions about flow and temperature management need to be more holistic, and to consider other species and life stages, and to identify data needs to more accurately assess the biological effects. More research is needed on habitat use, occupancy, and capacity by juvenile Chinook and steelhead specific to the Willamette Basin. Without these data, flow management focused solely on adult Chinook salmon with an intent to reduce pre-spawning mortality may negatively affect rearing and migration of salmon and steelhead juveniles. One potential consequence is negative effects on certain life histories, some of which may become more important in a warming environment even if they are a relatively minor component under present conditions (e.g., Cordoleani et al. 2021). RM&E should be targeted to collect pertinent information on habitat use and limitations of juvenile salmon and steelhead. Depending on the model used, assumptions, and ability to populate models with empirical data on life stages, results could indicate more sensitivity of fish to either flow or temperature. For example, results in Crozier et al. (2021) suggested that carrying capacity of smolts was limited by flow more than temperature.

Response:

The comment mis-interprets the approach taken for development and subsequent analyses of the effects of flows below WVS dams under the DEIS alternatives. The Corps documents the approach for developing the flow regimes in the DEIS (Appendix A, Alternatives Development, Measure 30).

Chinook salmon and steelhead life stages each have different aquatic habitat needs, and the availability of habitat in any single river reach relates to flow. Flow management cannot be optimized for all species and life stages simultaneously.

For purposes of designing the minimum flow thresholds used in developing Measure 30, a prioritization approach was applied as documented in the DEIS and FEIS, which resulted in an emphasis on adult Chinook salmon. However, the flow regime analysis then was applied to assess all life stages of Chinook salmon and steelhead under each DEIS alternative. Analysis results demonstrate an assessment of habitat availability and survival of juvenile and adult Chinook salmon and steelhead under each flow regime and under each alternative.

Note that flow management under each alternative reflects not just the minimum flow regime but management of reservoirs and downstream flows to meet the range of objectives inherent under the alternatives. As expected, results demonstrate that flows below WVS dam are usually above the minimum flow thresholds.

Comment: Fish-65

DPEIS suggested that effects of water temperatures on spring Chinook and winter steelhead "are generally understood" [page N-42]. This may be generally true in terms of thermal tolerance and physiological effects that are tied to laboratory studies, but it would be foolish to broadly assume that juvenile salmonid habitat use, for insistence, can be determined with temperature modeling based on data from a few river gages. Other geomorphic features such as gravel bar development, floodplain area and inundation time, ground water exchange, and hyporheic flow may influence temperatures (e.g., Burkholder et al. 2008), which may then provide suitable habitats that could be discounted in simplistic models and limited field data. Therefore, updating flow-survival models with recent data on habitat needs for juvenile salmon and steelhead and collecting new data could lead to different results than the present focus on just adult Chinook salmon and pre-spawning mortality.

As an example, the model assumes a sequential occupancy of habitat by juvenile fish; i.e., as habitat is filled then fish move downstream to the next available habitat space. This greatly simplifies what we know about Chinook salmon movement and habitat use. Research has shown that newly emerged fry begin to volitionally migrate long distances downstream. This migration may be influenced by density displacement or physical displacement from high flows, but it may also be an inherent dispersal behavior that results in morphological differences between migrant types (Billman et al 2014; Unrein et al. 2018; Cogliati 2018). Dispersal of fry

from spawning areas that were historically in the upper parts of watersheds would result in an overall increase in carrying capacity because fish could use multiple habitats throughout the watershed. Additional research is needed to relate flows more directly to biological responses of salmon and steelhead, to complement the use of surrogate metrics (means objectives) such as cumulative thermal exposure, estimated habitat capacity affected by flow changes, etc. (DeWeber and Peterson 2020). Although the DPEIS mentions the need for additional study and research, it does not specifically commit to RM&E, but rather leaves it to WATER and other processes, which has not worked well for implementing RM&E under the 2008 BiOp.

Response:

This comment refers to the Appendix N, Section 5.1.4, (Implementation and Adaptive Management Plan). The intent of this information is to identify potential areas of future research that may be needed to reduce uncertainty relating to flow management. Although some potential areas of research are identified in the Plan, it is not the Corps' intent to provide an exhaustive list of research information; as monitoring and other data become available, research to address specific uncertainties to inform management decisions will evolve.

As documented in Section 5.1.4, " Consideration of additional research will be raised through the WATER Technical and Steering teams. Prioritization of any new research needs proposed should consider information needs, which reduce uncertainty for those attributes that are likely to have substantial influence on the fundamental biological objectives targeted by the management actions." To the extent the comment may be referring to the analysis of flow management on fish, the comment is a mischaracterization of the analysis.

The Corps did not rely solely on temperature to inform use; many of the functional relationships that the commenter describes were included (Appendix E, Fish and Aquatic Habitat Analyses). The FEIS includes an updated version of the Plan. The WATER Forum organizational structure and processes have been revised in part to integrate a more formal adaptive management process with a defined framework for monitoring and research to be reviewed annually to inform management decisions.

Comment: Hydrology-15

Measure 30Flow targets should be based on a frequency distribution of sufficient and deficit water years from recent data instead of a full historic record to more accurately reflect prevailing conditions. In addition, a specific analysis of how climate change is likely to change this frequency is needed based on a range of probable scenarios encompassing moderate and severe climate change scenarios. Frequency distributions should also be analyzed for other intermediate conditions than just “wet” and “dry”. Flow targets as affected by difference between wet and dry year classifications is 40% overall but can be as high as over 110%. These high differences in magnitude of flow can result in negative changes to fish abundance and population demographics (Poff and Zimmerman 2010). Mismatches between flow and life

history traits/migration can affect survival of juvenile salmonids. Additional metrics are needed for flow and temperature relative to adaptive management needs. The DPEIS presents just percentage of days below flow target and contribution of dam releases to flow, and 7-day mean daily maximums as percentage of days below reach targets and percent change from pulse releases [Table 5-1, page N-41]. DeWeber and Peterson (2020) presented additional metrics to assess the thermal exposure and accumulation for juvenile salmon and steelhead rearing within reaches. These included proportion of juvenile Chinook salmon migrants exposed to temperatures >18° C and adult salmon accumulated degree days as well, and juvenile steelhead exposed to temperatures >15° C in April-May. As mentioned earlier, studies should be conducted to relate flow and temperature more directly to biological responses of salmon and steelhead. Flow and temperature metrics should also be evaluated in relation to climate change scenarios in terms of effects on thermal exposure and accumulation, and on annual and monthly changes in magnitude, timing, and frequency of flow metrics.

Response:

The comment recommends basing flow targets for fish on the "frequency distribution of sufficient and deficit water years from recent data instead of a full historic record." Information provided in the comment is not adequate for application of this recommendation in the FEIS for determine flow targets. As written, this recommendation would not account for the habitat needs of fish in relation to flow but focusses solely on the frequency of flows regardless of the habitat conditions.

The approach applied by the Corps for developing minimum flow values included in Measure 30 was based on the best available information developed for the SWIFT process that evaluated flow and habitat needs of fish and fish survival as affected by habitat and water temperatures.

Two minimum flow schedules were developed for tributaries to be applied in real time according to actual reservoir storage accrued, and a minimum flow schedule for the mainstem Willamette River applied according to the current water year’s percentage of the Northwest River Forecast Center’s rolling 30-year average April-September water supply forecast.

The tributary minimum flow schedule included in DEIS Appendix A, Table 2-1 and Table 2-2, increases above the lowest minimum value according to optimal hydrograph shapes determined by Peterson et al. (2022 in Chapter 10, References). Their work indicates that water temperature is likely driving the shape of the optimal flow regimes they identified, and the best candidate minimum flow.

After defining Measure 30, the Corps then assessed the effects on fish habitat and fish survival when applying Measure 30 minimum flow values, in combination with other measures included under each alternative, on multiple life stages of Chinook salmon and steelhead. The survival modeling was completed by J. Peterson USGS/OSU applying the model documented in Peterson et al. (2022) (See also DeWeber and Peterson 2020 in

Appendix E, Fish and Aquatic Habitat, Chapter 5, References, and added to the FEIS Section 3.8, Fish and Aquatic Habitat, Supporting Model 2: Flow-Survival Relationships) (See also DEIS Section 3.8.2.1.6, Supporting Model 2: Flow-Survival Relationships). Details of the analysis are included in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses.

The analyses were completed for 3 recent representative years (hot/dry, warm/moderate, and cold/wet) covering 2011, 2015, and 2016. The fish habitat and survival analysis results were updated to reflect the Final Biological Assessment and have been incorporated into the FEIS in Section 3.8, Fish and Aquatic Habitat, Alternative 5.

The Adaptive Management Plan was also updated in the FEIS to incorporate the Biological Assessment and describes how daily monitoring of flow and temperature would be summarized annually, along with re-assessment of fish habitat and survival every 5 to10 years, depending on available data (Appendix N, Implementation and Adaptive Management Plan).

The monitoring and decision process described in the Adaptive Management Plan would allow for adjustments in flow management, including minimum flow values, if new information supports these decisions.

Climate change effects on flows are assessed in FEIS Section 3.8.5, Climate Change; Appendix F1, Qualitative Assessment of Climate Change Impacts; and Appendix F2, Supplemental Climate Change Information.

Comment: Climate Change-9

Additional analysis of climate change scenarios should be conducted to evaluate potential shifts in timing of flow (peak and low) and temperature (seasonal). These analyses should be projected beyond the 30-year time period as a measure of whether or not proposed measures and alternatives would be sufficient to meet climate change challenges. This may be especially important for alternatives that propose large and expensive structures.

Response:

The Corps conducted a comprehensive climate change assessment outlining possible climate change scenarios. This information was considered when developing EIS alternatives. The Corps will continue to comply with all ESA-listed species requirements.

Through that process, many of the proposed EIS measures would likely benefit salmon in a climate changing environment; however, direct and indirect impacts on salmon and steelhead from changing hydrologic conditions are best assessed at the site-specific level. There is evidence of changes in the hydrologic cycle (e.g., rainfall, snowpack patterns, etc.). Extreme changes are identified in the EIS, Appendix F1, Qualitative Assessment of Climate Change Impacts, as potential risk drivers in the future.

The Corps includes analyses considering different climate change scenarios, for example RCP 4.5 and RCP 8.5 emission scenarios. Different future timeframes were evaluated, for example the 2030s (WYs 2020 thru 2049) and the 2070s (WYs 2060 through 2089). These analyses address future shifts in runoff timing of flow (peak and low).

Projections for seasonal and annual ambient air temperature change were also noted. These analyses were used to provide an indication of how resilient a proposed measure might be under a given alternative.

Understanding climate change impacts is important for alternatives that propose large and expensive structures. More detail is contained in DEIS and FEIS Appendix F1, Qualitative Assessment of Climate Change Impacts, and DEIS and FEIS Appendix F2, Additional Climate Change Information. It is Corps policy to continually improve climate change analyses with the best available information.

Comment: Water Quality-36

Water temperature

"WRB rivers have been historically warmer in the summer than under current conditions. Fish adapted to the historical, warm summer conditions; therefore, the unseasonably cool water released from the reservoirs disrupts their life stages in summer." [Page 2-15]

This is an underlying assumption that serves as a basis for developing and choosing flow and temperature measures, but there is so much wrong with the way these sentences are written:

1. Truly historic data on water temperature do not exist. Attempts have been made to estimate water temperature during early European settlement for the lower Willamette River, but these are based on limited water temperature measurements and extrapolations, and are for the lowest reach of river (Talke et al. 2022).

2. Available data (which is limited) indicate that mid to late summer water temperature is likely lower because of the release of cool water from reservoirs, but the effect is most pronounced in reaches close to the dams. Moreover, these data do not reflect conditions during pre-European settlement history under which native fish would have evolved.

3. Data do exist on how development of the river basin has resulted in the loss of channel complexity, channel length, loss of riparian forests, loss of connectivity to floodplains, loss of side channels and alcoves, etc. In addition, conversion of floodplains to agriculture (including widespread drainage of seasonally flooded land) would have affected the quantity and quality of groundwater and subsequently hyporheic flow into river channels. It is wholly conceivable that summer water temperatures in the historic Willamette River and the lower reaches of the eastside tributaries were similar (or possibly lower) that of the presently augmented river, at least in the upper Willamette Basin river reaches. The historic river conditions would have consisted of multiple channels with borders of mature riparian forests, numerous side channels

and alcoves, and groundwater input via hyporheic flow that would have been replenished each winter with a vast network of flooded prairies and seasonal streams.

4. If the attempt here is to explain how cool water may slow the upstream migration of adult Chinook salmon to fish traps and hatcheries, one must put this in the context of the likely historic migratory behavior before dams. When unimpeded by dams, spring Chinook salmon tend to migrate quickly to reach holding areas in upper river reaches by late spring to early summer. Because of dams, Chinook salmon can no longer access the upper reaches of the watersheds and must hold in the lower reaches. Thus, the true “disruption” to this life stage is the presence of dams that block access rather than changes in water temperature (which are also an effect of dams).

5. To the extent that some native fish species have adapted to warm summer water conditions as contended, it is unlikely that the limited cooling by dam releases would truly “disrupt” the life stage of native fishes. For example, during late summer and early fall, thermal refugia were probably much more abundant in the historic lower eastside tributaries and Willamette River than during pre-dam (post-European) and post-dam periods. The likely behavior of native fish in summer would be to seek out cool water, including possible upstream migration into higher reaches of eastside tributaries.

6. Release of water from dams that is relatively cool would not disrupt the juvenile life stage of native fishes such as salmon and steelhead. Cool water from dam releases is unlikely to be outside the range of summer temperature variability in which the native species evolved.

7. In addition to blocked access to upper watersheds (resulting in high pre-spawn mortality of adult spring Chinook), a major disruption of life stages via release of water from dams is the early emergence of Chinook fry because the released water is warmer than normal incubation temperatures from dam releases. Another effect of dam releases are effects of flow fluctuation and total dissolved gasses on spawning adults, eggs, and newly emergent juveniles.

Response:

The system as it exists today generally releases cold water in the summer and warm water in fall when compared to unregulated conditions. According to the best available science and input from the Corps' Cooperating Agencies for development of this EIS, including NMFS and ODFW, temperature targets for water released from WVS dams should be more "normative" and more in line with those that would occur without dams (i.e., warmer water should be released during summer and cooler water released in the fall). Specific responses to each comment point are provided below.

(1) The Corps recognizes the uncertainty that exists due to lack of data on river water temperatures prior to construction and operation of Willamette Valley System (WVS) dams and revetments. Reference to historical conditions have been deleted from the FEIS.

(2) The Corps agrees that in the system as it exists today, the WVS dams generally release cold water in the summer and warm water in fall, and the contribution to thermal conditions in the river from the dams dissipates moving downstream.

(3) The Corps recognizes the changes in channel and riparian conditions, reduced peak flows, and floodplain inundation. However, the Corps is not aware of studies documenting how conversion of floodplains to agriculture land would have affected the quantity and quality of groundwater and, subsequently, hyporheic flow into river channels in the Willamette River Basin.

(4) The Corps is not aware of data on migration rates prior to WVS dam construction, or evaluation of factors prior to dam construction that influence their timing and migration rates. Studies since completion of the dams well document the effects of water temperature on migration rates of spring Chinook salmon in the Willamette River. Such studies generally indicate upstream migration is limited when water temperatures are below about 52 degrees F; migration rates increase with water temperatures above this level.

Water temperature management at WVS dams is well documented as important for migration and collection of adult spring Chinook salmon below WVS dams. Holding below dams increases when water temperatures are too cold and adult spring Chinook salmon upstream migration rates are low. For example, the temperature tower at Cougar Dam was built to allow warm water to be released from the dam, addressing the issue created by the cold-water discharge, which effectively blocked upstream migration of adult Chinook salmon in the South Fork McKenzie River.

A similar issue is currently being addressed at Foster Dam where cool water releases are negatively affecting collection rates of adult Chinook salmon at the Foster Adult Fish Facility.

(5) The natural hydrology of the Willamette River Basin annually results in peak flows in winter and very low flow levels in later summer and early fall annually in unregulated streams, resulting in warming stream conditions. The Corps assumes native fish were adapted to these hydrologic and water quality patterns and the associated habitat conditions created. Discharges from dams augment stream flows and can reduce stress and mortality associated with warm summer water temperatures. However, when releases from dams are too cold, there are clearly disruptions that occur for native fish and the aquatic ecosystem in general.

(6) The Corps disagrees with this statement. Please note the example from Cougar Dam included above.

(7) The Corps recognizes the effects of warm water releases in the fall on incubating salmon eggs, and effects of TDG on emergent fry in particular. The alternatives in the WVS EIS include measures to reduce these affects. To reduce warm water releases in fall

affecting eggs and emergence timing, it is necessary to release warmer water in the summer, which also reduces migration delays for adult Chinook salmon where temperature releases are currently too cold.

Comment: Water Supply-24

Release of water from dams to increase water temperatures for attracting adult salmon upstream to fish traps and hatcheries. Such releases must balance the increase in water temperature to draw fish upstream and an increase in water temperature that could increase pre-spawning mortality.

Release of water in fall with objective of preventing redd dewatering. [page 2-10].

Releases must balance between providing enough water to access primary spawning areas and flows that may encourage fish to spawn in shallow water and side channels at the higher flows that may then become dewatered later after fall drawdowns are achieved. Spawning surveys to determine dates of peak and late spawning (and proportions of spawners within time periods) should be conducted and these data used with water temperature data to estimate development and hatch timing of eggs in redds downstream of dams. These data would be used to adaptively manage flow and prevent dewatering during incubation.

To the extent that operations are insufficient to achieve temperature objectives, and structural temperature control is considered, the structures should be developed to incorporate juvenile fish passage to the extent possible. That is, construct one multi-purpose structure rather than two stand-alone structures.

Response:

The Corps must manage its operations for several authorized purposes that may, at times, conflict with temperature management for fish (FEIS Chapter 1, Introduction, Section 1.10.1, Congressionally Authorized Purposes). Where water temperatures can be manipulated, either temperature control towers are prescribed (i.e., Detroit Dam) or temperatures would be managed with flows (i.e., South Santiam River Subbasin). In other cases, effective temperature control is limited and cannot be overcome with flow management or temperature control towers (i.e., Middle Fork Willamette River). To the extent possible, the Corps proposes temperature management measures while balancing other Congressional authorities.

Comment: Hydrology-16

Flow relative to Alternative 5The alternative would generally lower spring flow in dry years, shifting water from spring (Apr-Jun) to summer, with higher summer flow in almost all years (July-Oct). Assessment is needed on the potential effect on rearing for subyearling and yearling Chinook smolts, and juvenile steelhead in areas downstream of dams, including the Willamette River. For example, a large component of McKenzie spring Chinook migrate to the lower reaches

as fry, rear through spring and migrate in May- mid July as subyearling smolts (Schroeder et al. 2016). Similar migratory patterns were observed in the Santiam subbasin for Chinook salmon spawning downstream of the dams. Subyearlings contribute to adult returns, with proportions varying within annual returns and among brood years. Other life histories migrate from natal areas in fall and early winter, rear, and migrate to ocean in March-May, thus also rear in mainstem habitats in the spring. Data collected on juvenile Chinook salmon rearing in the Willamette River indicated that high spring flow resulted in higher survival to Willamette Falls. In years when flow remained high and water temperature was lower than average (e.g., 2008 with late snowmelt and 2010 with late heavy rains), juvenile spring Chinook salmon generally grew slower than in average years and migrated as subyearling smolts later, but their survival to Willamette Falls was higher. Increased flexibility for reservoir and flow management should be incorporated in dry years with priority for storage rather than flood control starting in mid to late winter, depending on other objectives for fish passage measures in individual dams/reservoirs such as drawdowns. Available information on snow pack, precipitation, trend data, and precipitation forecasting models should be used to determine the probability of dry conditions in late winter and spring. These data would be used real-time to increase storage and decrease the probability of avoidable water shortage for flow management. In the past, the Corps has often released runoff from late winter and spring rains/snowmelt to adhere to their rule curve, even when all data and on-the-ground conditions indicated the prevalence of overall drought conditions. Thus, water that could have been stored was released, resulting in water shortages later that were needed for critical fish needs such as spawning. Flexible water management decisions are currently being implemented for Cougar Reservoir based on guidance in the injunction RM&E plan, Document 240-1. The Corps and NOAA are using hydrologic data from April and May to provide a delayed refill of Cougar Reservoir after the early spring drawdown to facilitate juvenile salmon passage. Data on snowpack, average weekly flow, extended water supply forecasts, and real-time fish migration data from trapping upstream and downstream of the project are all being used to decide when to begin refill in order to delay as long as possible, yet still reach summer reservoir level targets. In addition, summer flow should be a lower priority than spring flows in dry years. Mainstem Willamette flow targets were initially developed for river transportation and later were used for pollution control by providing adequate “diluting” flows. Therefore, lower mainstem minimum flows should be considered during deficit water years.

Response:

In dry years, water is not available to optimize for all fish needs in all locations. Minimum flow schedules for tributaries included in DEIS Appendix A, Alternatives Development, Table 2-1 and Table 2-2 increase above the lowest minimum value according to optimal hydrograph shapes determined by Peterson et al. (2022 in Chapter 10, References) for survival of Chinook salmon and winter steelhead.

Their work indicates that water temperature is likely driving the shape of the optimal flow regimes they identified for fish survival, and the best candidate minimum flow schedule. As part of Measure 30, two minimum flow schedules were developed for

tributaries to be applied in real time according to actual reservoir storage accrued, and a minimum flow schedule for the mainstem Willamette River applied according to the current water year's percentage of the Northwest River Forecast Center's rolling 30-year average April-September water supply forecast.

After defining Measure 30, the Corps then assessed the effects on fish habitat and fish survival when applying Measure 30 minimum flow values, in combination with other measures included in each alternative, on multiple life stages of Chinook salmon and steelhead.

The survival modeling was completed by J. Peterson USGS/OSU applying the model documented in (Peterson et al. 2022; DeWeber and Peterson 2020 in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses, References). The models included assessment of habitat availability for juvenile Chinook salmon developed based on the best available information (See DEIS Section 3.8.2.1.6, Supporting Model 2: Flow-Survival Relationships). Details of the analysis are included in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses.

The DEIS and FEIS include an Adaptive Management Plan, which defines monitoring activities and application on new information for decisions on refining measures implemented, including those relating to flow management (Appendix N, Implementation and Adaptive Management Plan). Uncertainty in juvenile habitat and juvenile survival relating to flow management is identified as an area that may be prioritized for further assessment. Uncertainty research would be determined through input from the WATER Forum during implementation, as described in the Adaptive Management Plan. The Plan has been updated in the FEIS.

While the Corps continues to assess ways to improve forecasting capabilities, the hydrology of the Willamette Basin is highly variable in the near term because atmospheric rivers typically drive flood flows. As such, a major portion of the runoff during November through March occurs as a direct result of rainfall.

Flood risk continues after the Corps begins to refill the Willamette Valley System reservoirs, as demonstrated by the April 2019 event, and detailed forecasts are not quantitatively predictable beyond 24 to 48 hours (See FEIS Section 1.11, Willamette Valley System Operations and Annual Operations Planning and FEIS Section 1.12, Ongoing U.S. Army Corps of Engineers Planning and Environmental Reviews in the Willamette River Basin).

Comment: BiOp-12

The 2008 BiOp set a date of December 31, 2010 to complete an assessment of revetments and identify sites with potential for modification, and also directed that agencies be "required to seek funds to carry out projects at high priority sites." Yet, the DPEIS continues to make excuses such as citing Continuing Authority Program requirements for funding and need for non-federal

sponsors, or lack of funding, or need for additional technical analyses (DPEIS 2-55). First, one needs to question the Corps' interpretation of what is or is not "required" under Continuing Authority. As demonstrated by the court ruling in Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al., No. 3:18-cv-00437-HZ, the Corps may narrowly interpret their authority in order to avoid taking actions. Thus, their interpretation may be faulty and overly narrow. Second, even if one accepts the limitations, it is incumbent on the Corps to more actively seek funding and sponsors in order to make progress on revetments and subsequently habitat improvements. Because some work has been done to identify potential habitat improvements from modification or removal of revetments, the Corps needs to explicitly identify measures and timelines in the DPEIS for completing the work that was supposed to have been done under the 2008 BiOp, including securing necessary funding.

The 2008 BiOp clearly stated that the effect of keeping revetments in place without any modification would "continue to diminish habitat suitability for multiple life stages of UWR Chinook and UWR steelhead, and to limit the habitat's capacity to support larger and more productive salmonid populations." The DPEIS fails to acknowledge that lack of action will continue to negatively affect salmonid populations and other native fish species. In addition, the DPEIS needs to clearly identify significant steps to address the negative effects of revetments beyond the vague wording of "considering Nature-based [sic] engineering" (2-54), or a vague and excuse-ridden discussion of altering revetments (2-55). The DPEIS needs to include a firm commitment and timeline to complete work that should have been done over a decade ago. The DPEIS should more explicitly identify steps to implement the measures and should include measures such as complete removal of revetments and re-location of revetments away from river banks to allow more flooding, movement of river channels, and increasing hyporheic flow paths and exchange between surface and groundwater (e.g., Singh et al. 2018). These actions would necessitate associated conservation agreements with landowners that could be mediated with the help of groups currently working in the basin such as McKenzie River Trust and Greenbelt Land Trust. As was identified in the 2008 BiOp, these actions would improve habitat for endangered fish species.

Response:

Comment noted.

Comment: Hydrology-17

In addition, the Corps should investigate the feasibility of constructing flood bypasses at certain control points (such as Harrisburg) that would allow for higher flows without flooding towns. The effect of this action would be to allow more flooding of off-channel (temporal and spatial), increasing rearing habitat for listed fish species and providing refuge from high velocity mainstem flows. Note that increasing floodplain area in the upper Willamette River would also act as temporary "storage" and allow for more active flood releases from the dams to facilitate river processes such as development of gravel bars, which are integral as rearing habitat for juvenile salmonids and other native species. Flow management in winter that allows increased flooding and access to floodplains can recharge groundwater that can supplement flows, help

buffer water temperatures, and provide thermal refuges; all of which will increase in importance with climate change.

Response:

This comment requests information that is out of scope for the EIS analyses. The Corps does not have the authority to construct flood control bypasses in the Willamette Valley. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives, for descriptions of the scope of analyses, purpose and need statement, Proposed Action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives. Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record.

Comment: Hydrology-18

In addition to removal or re-location of revetments, other measures that would increase rearing capacity for juvenile salmon and steelhead should include development of side channels andre-connection of side channels and alcoves. These measures would increase hyporheic exchange, improve riparian shading, and increase cold water refuges. Increasing cold water refuges is more efficient within side channels and alcoves compared to larger main channels (e.g., Gombert et al. 2022). The Willamette River and lower reaches of eastside tributaries have been simplified through loss of dynamic river processes, connectivity with floodplains, and development of gravel bars and side channels; all are at least partially an effect of dam operations or Corps revetments.

Response:

Under all alternatives, the Corps would continue to maintain Corps-constructed revetments. In contrast to the No-action Alternative, revetments could be modified to incorporate fish-friendly improvements under the action alternatives such as natural materials but must continue to provide the same level of protection as when originally authorized.

The Corps is also proposing to look for a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These restoration authorities would allow for a potential change in the protectiveness level of revetments studied under any action alternative. However, this collaboration is not part of the scope of this EIS because it has not been initiated.

The Corps owns and maintains only a portion of federally constructed revetments in the Willamette Valley (FEIS Chapter 2, Alternatives, Table 2.10-2, Mainstem Willamette Flow Objectives). The FEIS has been updated to include additional information on the revetments converted to private sponsors to own and maintain in Chapter 1, Section 1.7.2, Revetments and Other Structures for Bank Protection. Projects that propose to

alter these revetments, although they are no longer Federally owned and operated are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress.

Comment: BiOp-13

Under the 2008 BiOp, RM&E has failed to establish and maintain long-term monitoring necessary for evaluating measures intended to aid fish recovery. Funding for RM&E has been inconsistent and multiple entities have been involved in collecting data, which has also contributed to inconsistency in data quality. The DPEIS does not address this ongoing weakness in RM&E. Indeed, what little information is presented on RM&E suggests continued lack of long-term monitoring. Despite acknowledging in the DPEIS that overall paucity of data is a weakness in model development and limits informed decisions about the effect of operations and measures on fish populations, the DPEIS proposes no RM&E to collect the necessary data, even for dam-specific questions.

Response:

The best available information was applied to assess effects on fish under the DEIS and FEIS alternatives. The Corps disagrees that the paucity of data is a weakness of model formulation.

Numerous studies assessing the effects of the WVS dams and reservoirs on Chinook salmon and steelhead have been completed over the last 15 years (e.g., see https://pweb.crohms.org/tmt/documents/FPOM/2010/Willamette_Coordination/WFSR/). Each model relied on several lines of evidence. Where data were weak, justified prior distributions were used and subsequently tested. With respect to plans for Research, Monitoring, and Evaluation during future implementation of the Preferred Alternative, this is a mischaracterization of the research described in the Adaptive Management Plan (DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan). An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N).

Metrics, criteria, and an approach to assess Interim fish passage Operations have been revised to identify success. Metrics include assessing population-level performance by monitoring cohort replacement rates. The Plan further includes the decision framework for how monitoring results would be applied and used to determine if/what changes are needed to achieve objectives and criteria.

Comment: Alternatives-68

RM&E for measures proposed in the DPEIS should be based on the RM&E plan developed under the Injunction by an expert panel that included Corps members (court case No. 3:18-cv-00437-HZ; Document 240-1, Willamette Project Interim Injunction Measures Research Monitoring and Evaluation Plan). This 70-page document details RM&E for many of the measures being

proposed in the DPEIS and provides a template for developing RM&E. The document details RM&E activities for each subbasin as well as guidance for estimating long-term survival to Willamette Falls. In addition, detailed information about monitoring is given for North Santiam, Middle Fork Willamette, and McKenzie rivers. The DPEIS should be using this document to guide RM&E because it provides specific guidance for measures in the DPEIS, was developed by an expert panel that included federal biologists, and was accepted by the court as a guiding document. The principles underlying the RM&E document provide overall guidance for developing and implementing RM&E to estimate passage effectiveness. It is derelict that the Corps has not incorporated this RM&E document and associated template in the DPEIS, especially because the Corps helped to develop it.

Response:

Comment noted.

Comment: Fish Passage-23

What little detail the DPEIS presents on planned RM&E indicates a continuation of using active tagging to assess passage measures, rather than methods that would be more suitable for smaller fish and/or would allow for a larger number of fish within test releases. Although details would be included later in the development of RM&E, the lack of some basics in the DPEIS such as inclusion of control groups for helping to assess passage effectiveness is a weakness.

Response:

Monitoring plans associated with alternative implementation is included in DEIS Appendix N, Implementation and Adaptive Management Plan. Methods are intestinally not explicitly defined in the DEIS for implementation monitoring to allow for the best available technology to be applied in the future. The Corps has focused on defining the metrics and performance targets for monitoring and adaptive management.

There would be trade-offs and biases associated with selection of any methods. Appropriate methods would be employed considering such biases, and the best available techniques and tools, to address the level of precision within the identified timeframe. The WATER Forum process has been revised to place more emphasis on developing science and applying results to support decisions within an adaptive management framework, where metrics and performance targets are pre-defined.

The commentor is making assumptions about use of active tag methodology not proposed under any alternative.

An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N). Metrics, criteria, and an approach to assess Interim fish passage Operations have been revised to identify success. Metrics include assessing population-level performance by monitoring cohort replacement rates.

Comment: Fish Passage-24

RM&E for some passage measures, such as fish collectors, appears to be limited to two separate years, which is inadequate for long-term assessments of passage and adult returns over several generations, especially because of the complexity of life histories present. For example, collecting information for just two years would likely be inadequate for assessing passage under "typical" conditions, which could vary within each migratory season and could have varying effects on different life histories.

Response:

The comment only partially accounts for the monitoring plans for downstream passage measures, including for 'fish collectors'. The Corps is not proposing only 2 years of monitoring. The Adaptive Management Plan includes downstream passage assessments by evaluating downstream passage survival. At least 2 years of data would be needed to change a management course for downstream passage.

The Plan also includes monitoring of cohort replacement rates, which takes, at a minimum, 5 years to evaluate one generation. If monitoring indicates performance criteria are not achieved, then additional monitoring would occur as described in Appendix N (Implementation and Adaptive Management Plan). The Plan has been revised in the FEIS to clarify that cohort replacement rate would continue to be monitored after criteria are initially achieved.

Comment: Fish-66

RM&E needs to address the full range of life histories and fish sizes, as well as long-term juvenile survival that encompasses smolt migrants leaving the Willamette River as outlined in RM&E Document 240-1. As noted earlier, RM&E as presented in the DPEIS suggest a reliance on active tag studies to assess passage and survival. Although one metric is estimating survival to the confluence of the Willamette River, most of the locations where an array would be located are well upstream of the confluence, which may not adequately assess the effects of delayed mortality. In addition, some life histories passing the dam may rear for extended periods downstream of the dam and in the Willamette River.

Response:

The Adaptive Management Plan focused on defining the metrics and performance targets for monitoring if measures implemented have achieved criteria, and if not, the process for decision-making to address improvements. An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N, Implementation and Adaptive Management Plan). Metrics, criteria, and an approach to assess Interim fish passage Operations have been revised to identify success. Metrics include assessing population-level performance by monitoring cohort replacement rates.

The comment makes assumptions regarding methodology that are not supported by the Corps' EIS information. Intentionally, methods are to be determined during implementation as described in Appendix N. Limitations, trade-offs, and biases associated with selection of any particular method must be recognized and incorporated into adaptive management. Appropriate methods would be employed considering such issues, and the best available techniques and tools, to address the level of precision in the timeframe sought.

As included in Appendix N, the WATER Forum process has been revised to place more emphasis on developing science and applying results to support decisions within an adaptive management framework, where metrics and performance targets are pre-defined.

Comment: Fish Passage-25

Long-term survival of juvenile fish passing the dams should be assessed as survival to Willamette Falls, as was noted for steelhead smolts in Figure 5-1 (page N-43), as was used as a metric in life cycle models, and as outlined in RM&E Document 240-1. One method for assessing this would be to use PIT tags and to invest in tag detection infrastructure within subbasins and at Willamette Falls. Estimating survival to Willamette Falls provides a complete picture of passage effectiveness and provides agencies more immediate feedback for adaptive management than waiting for cohort returns years later. The DPEIS should recognize the limitations of assessing overall passage effectiveness using cohort replacement data because of the time lag for adults to return 3-5 years later. A more robust RM&E framework is needed to provide comprehensive monitoring of juvenile survival to Willamette Falls, and should be based on specifics and guidance provided in RM&E Document 240-1.

As noted in RM&E document 240-1, numbers and/or survival of juvenile fish should be estimated at multiple points along their migratory pathway: entry into reservoir (initial measure of outplanting success, coupled with spawning surveys and fish/habitat surveys upstream of dam), survival through reservoir (predation, disease, copepods), passage at dams, delayed mortality of fish passed at dams, downstream rearing and survival of fish that pass dams. Reach survival would require multiple points of monitoring fish; e.g., if fish are PIT-tagged then detection infrastructure should be installed and/or maintained at several points downstream of dams and at Willamette Falls.

The need for PIT tag infrastructure is critical for monitoring survival and abundance of juvenile salmon and steelhead. These data are sorely lacking for the Willamette as reflected in the difficulty in developing model parameters based on empirical data. These data are also needed to fully evaluate the life cycle effects of measures and alternatives on species populations. Data would also provide critical information on number and survival of smolts that could be related to implementation of measures and alternatives and would provide early estimation of effectiveness rather than waiting for adults to return. The advantages of PIT tag technology in monitoring juvenile salmon and steelhead include ability to tag smaller fish than with active tags, ability to tag large numbers of fish (lower cost) either in field studies or for large-scale

controlled experiments, and ability to detect returning adult fish (no battery life). However, the detection system at Willamette Falls needs to be updated or replaced with other systems. The Corps should work with federal agencies, state agencies, and Portland General Electric to explore detection options and funding.

Response:

Monitoring plans associated with alternative implementation is included in DEIS Appendix N, Implementation and Adaptive Management Plan. Methods are intestinally not explicitly defined in the DEIS for implementation monitoring to allow for the best available technology to be applied in the future. The Corps has focused on defining the metrics and performance targets for monitoring and adaptive management.

There would be tradeoffs and biases associated with selection of any methods. Appropriate methods would be employed considering such biases, and the best available techniques and tools, to address the level of precision within the identified timeframe. The WATER Forum process has been revised to place more emphasis on developing science and applying results to support decisions within an adaptive management framework, where metrics and performance targets are pre-defined. The comment assumptions about use of active tag methodology not proposed under any alternative.

An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N). Metrics, criteria, and an approach to assess Interim fish passage Operations have been revised to identify success. Metrics include assessing population-level performance by monitoring cohort replacement rates.

Comment: Climate Change-10

Thus, evaluation of alternatives with a more comprehensive assessment of climate change is needed for informed decisions about the effectiveness of the proposed alternatives and whether or not additional, more aggressive measures might be needed to achieve objectives for fish species populations. The DPEIS should have developed some specific climate change scenarios (moderate to severe) to project potential effects on flow and temperature. These scenarios should then be incorporated into existing or new models to specifically assess the potential effects of climate change on species populations and viability using current conditions as the baseline. Each subbasin should be modeled separately and a composite model for the Willamette Basin should be assessed.

Models and assessments have been used to estimate effects of climate change on salmon and steelhead at small and large scales. These could be adapted for smaller scale assessment, such as for subbasin populations. Crozier et al. (2021) assessed effects of climate change on Chinook salmon and included evaluation of carryover effects that could be affected by climate change; and in the abstract noted that a dramatic increase in smolt survival would be needed to overcome the negative impacts of climate change. Beechie et al. (2023) evaluated the potential

for habitat restoration to increase resilience of salmon populations in the face of climate change. Wade et al (2013) assessed the vulnerability of steelhead over a large geographic range and suggested connectivity to headwater areas to increase resilience and help ameliorate effects of climate change. Assessment can also include thermal exposure of different Chinook salmon migrant types (FitzGerald et al. 2021) to assess the effects of climate change on juvenile salmon and steelhead, and aid in assessing effectiveness of measures and alternatives in achieving biological metrics.

An assessment of climate change should also include effects such as increase in water temperature on potential increased susceptibility of salmon and steelhead to disease and parasites (e.g., Ceratonova shasta [formerly Ceratomyxa]; Chiaramonte 2013), to increased predation caused by increase in predator abundance and shifts in predator activity or avoidance behavior (e.g., Kuenhe et al. 2012; McInturf et al. 2022), and to increased effects from pesticide exposure (e.g., Magnuson et al. 2023). Each of these effects could be exacerbated or lessened by measures implemented in the alternatives, particularly in reaches downstream of the dams, and should be evaluated.

Response:

The Corps includes analyses considering different climate change scenarios, for example analyses incorporating Representative Concentration Pathway (RPC) 4.5 and RCP 8.5 emission scenarios in Appendix F1, Qualitative Assessment of Climate Change Impacts. Varying future timeframes were evaluated, for example projected conditions in the 2030s (Water Years 2020 through 2049) and projected conditions in the 2070s (Water Years 2060 through 2089). Results of these analyses did point to future shifts in runoff timing of flow (peak and low flows).

Projections for seasonal and annual ambient air temperature change were also noted. These analyses were used to provide an indication of how resilient a proposed measure might be under a given alternative. More detail is contained in Appendix F1, Qualitative Assessment of Climate Change Impacts, and Appendix F2, Supplemental Climate Change Information.

It is Corps policy to continually improve climate change analyses with the best available information, which was incorporated into the analyses for this EIS. The FEIS has been updated to clarify that the Corps will implement adaptive management measures to address continually changing conditions in the basin, including climate change (Chapter 3, Affected Environment and Environmental Consequences and Chapter 4, Cumulative Effects). Additional information has been added to the appendices including information on noxious weed growth in relation to climate change (Appendix F2, Supplemental Climate Change Information).

All resources in Chapter 4, Cumulative Effects, address impacts to specific resources from climate change, supported by the best available science used in the appendices. For

example, Section 4.16, Hazardous Materials, addresses climate change impacts on pesticide use.

Comment: Fish-67

Analysis of bull trout benefits and risk relative to downstream passage is flawed.

- DPEIS assumes that providing any downstream passage would result in loss of recruitment to the population upstream of the dam and therefore should not be considered.
- Operations have recently changed at Hills Creek Dam following the court injunction. Under near-term operations the priority is for nighttime RO water releases [page 2-39], specifically to increase downstream passage for juvenile spring Chinook salmon. This operation provides access to any species moving downstream, especially when instream flow is peaking. Because juvenile bull trout are surface oriented (similar to juvenile salmon) they may pass downstream. One subadult bull trout was caught in the Hills Creek RO trap in late December indicating that some fish are already passing downstream.
- Therefore, the DPEIS is deficient in rejecting upstream passage at Hills Creek Dam; i.e., not identifying measure #722 in the preferred alternative.
- By rejecting upstream passage at Hills Creek Dam, the Corps appears to be increasing the very demographic risk to bull trout that they cite in contending that bull trout should not be passed downstream.
- DPEIS must consider that increased downstream fish passage measures at Hills Creek Dam will result in the passage of bull trout and take measures (such as #722) to pass bull trout upstream and minimize the risks and impacts of downstream passage.
- Downstream passage by itself is not the risk, nor is the lack of spawning habitat or higher temperatures downstream of the dam. Bull trout have a migratory life history in that they actively migrate downstream for overwinter foraging and rear in downstream reaches as subadults. Bull trout require pathways between overwintering downstream habitats and upstream spawning habitats.
- DPEIS discounts habitat downstream of Hills Creek Dam because spawning habitat is limited and water temperatures increase [page 3-660]. However, habitat downstream of the dam is suitable for overwintering, foraging, and migration. Bull trout that pass downstream may rear and forage before migrating upstream to spawn IF upstream passage was provided. They originated from areas upstream of the dam, are part of the same population, and are necessary to maintain the upstream population.

The DPEIS states that “Even without passage, the population above Hills Creek has increased…indicates that this population performs reasonably well under the NAA” [page 3-712]. This statement is misleading and largely irrelevant, because it does not acknowledge that the NAA does not describe current operating conditions, as described above.

Changes in operating conditions to provide downstream passage for juvenile Chinook salmon are recent and there has been insufficient time or monitoring to determine that the population "performs reasonably well" or will continue to remain stable or improve in the near term or over the life of the operations plan.

Response:

The FEIS has been updated to include a revised bull trout analysis and Adaptive Management Plan updates in FEIS Section 3.8.3, Fish and Aquatic Habitat, Environmental Consequences and in Appendix N, Implementation and Adaptive Management Plan. The updates include an assessment for upstream passage at Hills Creek Dam to be conducted for bull trout, with a decision process for design, construction, and operation. Assessment of the near-term action for downstream fish passage has also been included.

Comment: Fish Passage-26

A near-term passage solution must be implemented until a permanent solution is in place. A temporary facility should be designed that could attract adult bull trout, but does not need to be built to handle large numbers of fish. An upstream migrant trap needs to be functional in the near term to assist long-term bull trout recovery. Allowing for effective upstream and downstream passage at Hills Creek Dam is in agreement with the 2015 USFWS Bull Trout Recovery Plan.

Response:

The FEIS has been updated to include a revised bull trout analysis and Adaptive Management Plan updates in FEIS Section 3.8.3, Fish and Aquatic Habitat, Environmental Consequences and in Appendix N, Implementation and Adaptive Management Plan. The updates include an assessment for upstream passage at Hills Creek Dam to be conducted for bull trout, with a decision process for design, construction, and operation. Assessment of the near-term action for downstream fish passage has also been included.

Comment: Fish-68

DPEIS seems to devote more space to discussing potential effects of hatchery fish on wild fish than they do on other more direct effects from presence and operations of dams. It is wholly conceivable that hatchery fish could be eliminated and wild fish populations would remain at their extremely low levels because other factors have a much larger, and more direct, effect on wild fish (e.g., blocked access, accelerated incubation temperatures, high TDG).

Response:

Updated hatchery effects information has been included in FEIS. The Corps recognizes there are different goals and objectives represented among the public and resource

agencies, with some seeking to maintain hatcheries due to fishing and harvest benefits, which can be in conflict with conservation goals.

Hatchery effects are well documented as described in the DEIS and FEIS; therefore, changes would be necessary to reduce effects on ESA-listed salmon and steelhead (See FEIS Section 3.8.2.3, Fish and Aquatic Habitat, Willamette Hatchery Mitigation Program and effects under each alternative in Section 3.8.3, Environmental Consequences).

The best available science strongly supports that supplementation should be reduced where it constrains wild production (HSRG 2000; Paquet et al. 2011). The DEIS and FEIS includes Measure 719 that defines the process to reduce hatchery supplementation as criteria for fish passage and natural adult returns. The Corps proposes triggers to modify supplementation when downstream passage is shown to be safe and effective in accordance with the pre-defined criteria (See FEIS Section 3.8.2.3, Fish and Aquatic Habitat, Willamette Hatchery Mitigation Program and effects under each alternative in Section 3.8.3, Environmental Consequences.).

Below dams, the proportion of Chinook salmon hatchery origin spawners (pHOS) is extremely high. High pHOS relates to high pre-spawn mortality for Upper Willamette Spring Chinook salmon (Keefer et al. 2017 in Chapter 10, References). Although the Corps is not proposing changes to hatchery production until after passage metrics at the dams are achieved (consistent with the NMFS 2019 Biological Opinion on the Hatchery Genetic Management Plans and the ODFW and NMFS 2011 Recovery Plan), consistently high pHOS is likely negatively affecting natural production below dams in the Willamette River Basin where spawning is occurring (FEIS Section 3.8, Fish and Aquatic Habitat, Affected Environment).

Hatchery summer-run steelhead occur in the Willamette River Basin but are an out-of-basin stock that are not included as part of the winter steelhead Distinct Population Segment (71 FR 834). Both current and legacy negative effects on native winter steelhead from hatchery summer steelhead releases are documented in published literature, including interbreeding of summer steelhead with native winter steelhead reducing natural fitness and productivity.

Current and future plans include funding from the Corps for summer steelhead production in the McKenzie River and Middle Fork Willamette River Subbasins. ODFW funds summer steelhead production in the Santiam River Subbasin (FEIS Section 3.8, Fish and Aquatic Habitat, Affected Environment).

Comment: Fish-69

In addition, the metric for reduction of hatchery production is inadequate:

"Hatchery production levels would be decreased as the amount of accessible fish habitat resulting from fish passage measures increases. Hatchery levels would not be decreased until improved fish passage is observed, so effects would be long term." [page 3-1087]

Because hatchery programs are tied to mitigation requirements, and because hatchery salmon will be the source for several reintroduction measures, the hatchery production levels should be tied to the establishment of self-sustaining populations and natural production numbers adequate to support sport fishing. Hatchery production should not be tied to increased accessible habitat because there is no guarantee this would result in increased natural production, or "improved fish passage" because passage is generally poor or even nonexistent so this is not a good metric for gauging the reduction of hatchery production.

Response:

The sentence quoted in the comment is taken out of context. The paragraph from which the sentence is included begins with "Hatchery production levels would be adjusted based on the efficacy of fish passage measures." When read in its entirety, Measure 719 documents the process, metrics, and criteria for any Chinook salmon hatchery production changes. Hatchery production changes would not occur until achieving recruit/spawning ratios of 1 or more, as suggested by the comment, and in consultation with NMFS and ODFW.

Comment: Fish-70

DPEIS should also identify other release strategies such as targeted off-site releases downstream of spawning areas to reduce the number of hatchery fish that remain in the river.

"USACE's hatchery program in the Middle Fork Willamette River affects natural origin UWR spring Chinook to varying degrees primarily through increased pHOS at low elevation, increased risk of pre-spawn mortality, and increased fish transport delays." [section 3.8.19.4, page 3-681]. Nothing in the rest of this section supports this opening statement, and in fact generally refutes it. The primary problem is the extremely low (functionally extinct) population of natural origin salmon. Modifying or even eliminating the hatchery program would do absolutely nothing to improve production of natural origin fish, and are actually needed to provide a source for re-establishing populations.

Response:

The sentence quoted in the comment is taken out of context with the remainder of DEIS Section 3.8.19.4, Hatcheries and Wild Chinook Salmon in the Middle Fork, which further discusses that high levels of hatchery fish returning to the Middle Fork Willamette River are known to positively relate to pre-spawn mortality in both wild spring Chinook salmon and in hatchery Chinook salmon out planted to spawn in the wild.

The comment is also not acknowledging the previous sections documenting hatchery effects (DEIS Section 3.8.1.4, Fish and Aquatic Habitat, Affected Environment; Hatcheries, Wild Salmon, and Steelhead and FEIS Section 3.8, Fish and Aquatic Habitat, Section 3.8.2.3, Willamette Hatchery Mitigation Program, and hatchery effects analyses under each alternative).

The comment incorrectly implies the Corps is proposing elimination of the hatchery. The Corps is proposing triggers for hatchery management actions after passage is implemented and associated performance criteria are met under Alternative 2B.

Comment: Recreation-22

The DPEIS evaluates only the effects the various measures and alternatives would have on reservoir recreation. One potential effect is reduction of hatchery programs on recreational and commercial fisheries.

Response:

The overall goal of Measure 719 is to adjust production of Willamette Valley System (WVS) hatcheries for mitigation obligations and conservation needs after demonstrated improvements to fish access to habitat above WVS dams.

Additional information has been added in the FEIS, Chapter 2, Alternatives, to clarify that Measure 719, Adapt Willamette Hatchery Mitigation Program, would only be implemented if passage provides increased access to habitat and that any potential reductions in hatchery production under this measure were not analyzed (FEIS Section 2.10.4.1, Measures Common to All Action Alternatives, Adapt Willamette Hatchery Mitigation Program (719)).

Methods and protocols to implement this measure would require that production of hatchery spring Chinook salmon and out planting of returning hatchery adult Chinook salmon above WVS dams will continue in accordance with the Hatchery Genetic Management Plans for Chinook salmon, steelhead and trout, and in compliance with the NMFS 2019 Biological Opinion.

The Measure further describes that (1) production may be reduced if downstream fish passage improvements achieve specified targets for natural-origin adult return rates, and (2) that reduced levels of hatchery production will be developed with the State of Oregon and NMFS.

It is not possible to assess effects on recreational and commercial fisheries at this time because the production levels or a possible reduction have not been determined. Further, a reduction in hatchery production does not equate to a reduction in abundance because reductions would occur only if return rate targets are achieved from passage improvements.

There is currently no available information on how fishing regulations administered by state and Federal authorities may change if, and after, natural-origin adult returns increase. Fishing regulations determine allowable harvest both commercially and in sport fisheries and are predicated on fish abundance. At the time the alternatives were analyzed, it would be speculative to assume a reduction in either fishery from the Hatchery Mitigation Program under Measure 719.

Comment: Recreation-23

A goal of recovering salmon and steelhead populations is to provide a full suite of environmental, ecological, and economic benefits. These benefits would include recovering populations to allow at least limited recreational sport fisheries in the Willamette River and in tributaries. The failure of the DPEIS to acknowledge this as an objective may speak to the Corps' lack of confidence that the proposed measures and alternatives will result in the establishment of sustaining populations upstream of dams and recovery of populations within subbasins (including those spawning and rearing downstream of dams). If the Corps was confident about the success of the alternatives, it seems like they would identify and evaluate increased sport fishing opportunities downstream of the dams as a benefit.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats. Further, the Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: Fish-71

Page 3-652: "more recently, the number of wild returns has been just over 10,000." This overstates the true status of wild fish. The count of unclipped Chinook salmon in 2016-2022 was 6,520, with a preliminary estimate of about 6,000 wild fish (some hatchery adult fish do not have a fin clip). Historic estimates of the wild salmon population were 300,000-450,000 fish based on estimated harvest and egg take numbers (Myers et al. 2003). Estimated number of natural salmon in the Willamette Falls counts has been possible since the 2002 returns; Figure 3.8-2 of the DPEIS should include these data for natural salmon abundance in falls counts.

Response:

The quoted statement is consistent with the information cited in DEIS Section 3.8.1.1, Affected Environment, Anadromous and Migratory Fish, regarding estimates of wild returns to Willamette Falls in recent years. DEIS Section 3.8.1.1 includes Figure 3.8-2 illustrating UWR Chinook spring salmon adult counts at Willamette Falls and population spawning abundance as evident from the ODFW Willamette Falls Escapement records (https://www.dfw.state.or.us/fish/fish_counts/willamette%20falls.asp).

The comment overstates the differences in abundance from the past by citing historic estimates from decades before the construction of the WVS dams neglecting to identify the onset of a downward trend that began prior to construction due to a variety of land use practices, industrialization and overfishing. The historical abundance numbers in the comment citing Myers et al. (2003) are from the 1880s and early 1900s, and are rough estimates developed from indirect indices (e.g., hatchery egg take, canning records, etc.).

There is also considerable uncertainty in these estimates depending on which habitat surveys and egg rack information was used. As noted by Myers et al. (2003), historical documentation on abundance of populations prior to 1940 is extremely limited. Prior to the start of WVS dam construction, the count of wild spring Chinook salmon returning to Willamette Falls was 45,000 in 1947 (Myers et al. 2003).

In other words, the majority of the decline of Upper Willamette Chinook salmon from historic levels occurred prior to WVS dam construction. Section 3.8, Fish and Aquatic Habitat, Affected Environment, Anadromous and Migratory Fish, has been updated in the FEIS to include the Myers et al. (2003) citation to support this pre-dam context.

Comment: Fish-72

Page 3-675 and 679-680: populations upstream of Foster considered self-sustaining and populations upstream of Fall Creek considered sustaining. These statements are not true because populations have not replaced themselves in some years. To be considered as self-sustaining, the number of returning adults should at least replace those that were released in respective brood years, and replacement should occur over many generations. In addition to basic replacement demographics, a self-sustaining population would also meet VSP requirements such as diversity (e.g., range of life histories represented in returning adults, high effective population size [Ne] in breeding populations), spatial distribution within areas upstream of the dams, etc. These population characteristics are necessary to avoid population declines from stochastic events. For example, if few spawners are successful (low Ne) and confined to limited spawning areas, the population would be at risk. Low Ne can occur from attrition of outplanted adults through pre-spawning mortality and poaching leaving few adults available to spawn, or from successful spawning by a small number of adults because of factors such as limited high quality spawning habitat or loss of redds/emergent fry from flooding or

other disturbance, or from high mortality of juvenile fish because of poor incubation or rearing habitat.

Response:

Data from additional generations will improve the confidence that the subject populations will maintain (sustain) themselves. Available data indicate Chinook salmon above Foster and Fall Creek Dams have achieved replacement; however, ocean conditions and other factors result in variability. Poor ocean conditions in the mid to late 2000s appear to have affected replacement rates in these populations in recent years.

As occurs for wild salmon populations in pristine watersheds, it is expected that abundance of adult Chinook salmon returning to Foster Dam will continue to vary both above and below replacement levels due to environmental variability in fresh and marine environments. Note that replacement should equal 1 on average over multiple cohorts.

FEIS Appendix E, Fish and Aquatic Habitat Analyses, Integrated Passage Assessment Report, illustrates how this occurs in practice (see QET plots). Most of these population exhibit high variability in performance. It is rare that a population is always at or above 1; therefore, the long-term average or median must be assessed. The historical population size is of less consequence than the performance of the population immediately prior to construction.

The Corps mitigates for the effect of the dams; it does not mitigate for performance declines prior to dam construction and does not have this authority.

Comment: Fish Passage-27

Page 3-679: “[dams] in the Middle Fork affects ESA-listed spring Chinook salmon and bull trout and has blocked passage along several reaches.” This is an interesting, albeit misleading way to describe the fact the Middle Fork Willamette dams have actually blocked passage to almost all historic salmon and bull trout habitat. In fact, in a previous paragraph on the same page, DPEIS lists that 92% of usable spawning habitat is upstream of the dams, more than just “several reaches”.

Response:

The commenter has quoted the passage that describes the percentage of quality habitat blocked by the project. The commenter is assuming that habitat quality and quantity are proportionate. It is accurate to state that several physical reaches are blocked. However, it remains accurate to conclude that, historically, these were also high quality and capacity reaches.

Comment: Fish Passage-28

DPEIS proposed a new weir design at Foster Dam (measure #392) or dedicated passage pipe. In several places, the DPEIS notes the fish passage actions already taken to improve downstream passage included the use of a fish weir [page 3-666, E-38]. However, the DPEIS also notes that the fish weir was redesigned in 2018 from an original design, but that one resulted in "higher injury rates" [page 3-675]. Therefore, it is unclear exactly what improvements are being considered that would make the third attempt more successful at effectively passing juvenile salmon and steelhead and steelhead kelts with low injury and mortality (perhaps the Corps is relying on "third time is a charm" maxim).

Response:

The 2018 weir modification at Foster Dam increased passage efficiency; however, survival rates either did not change or decreased when compared to the previous weir. The Corps will consider the 2018 weir modification outcomes, outcomes from the original design, and information from successful weir designs in the region when designing future weir modifications for Foster Dam under Measure 392.

The exact design and site-specific analyses for structural improvements for downstream fish passage at Foster Dam would be completed when project-specific details are made available.

Comment: Purpose and Need-10

DPEIS Section 4.1 fails to identify the Corps' intent to use the preferred alternative as the proposed action in the ESA Section 7 consultation taking place between the Action Agencies (Corps, BPA, and the Bureau of Reclamation) and NMFS and FWS under court order (No. 2:18-cv-00437-HZ), to be completed and a remanded Biological Opinion issued by December 31,2024. Currently, this purpose is not described until Appendix A, Section 2.8.

Response:

The Corps does not intend to "use" any alternative as its Proposed Action. The Proposed Action is not a specific alternative; it is a programmatic action to continue the operation and maintenance of the WVS while adhering to ESA requirements and to all other applicable laws and regulations (FEIS Chapter 2, Alternatives, Proposed Action and Purpose and Need).

Section 7(a)(2) of the ESA requires every Federal agency, in consultation with and with the assistance of the Secretary, to ensure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or results in the destruction or adverse modification of critical habitat. Congress did not specify that an "action" under the ESA equates to a "Proposed Action" under NEPA. In a programmatic NEPA review, a Proposed Action can

be a broadly defined management implementation. In these cases, the Federal lead agency under NEPA consults on a Preferred Alternative.

The Preferred Alternative described in the EIS may or may not be the Corps' selected alternative in the Record of Decision. The injunction requirements for Interim Operations are described in Chapter 1, Introduction, Section 1.12.3, Court-ordered Injunction Measures). This information clarifies that Interim Operations are included under each alternative. Therefore, any alternative selected in the Record of Decision will include the injunction-related measures and compliance with the completed ESA consultation.

Comment: Willamette Basin Review-6

It appears that the Corps is also attempting to resolve the causes for NMFS' Jeopardy finding (June 28, 2019) regarding the Willamette River Basin Review Feasibility Study with this PEIS. According to Appendix J, the Corps anticipates a 2050 level of development in its modeling (Res-Sim) of all alternatives considered, increasing water use for irrigated agriculture from the current 50,000 acre-feet of contracted Corps storage to over 250,000 acre-feet. By including the 2050 build-out in all alternatives, it is not possible to identify the streamflow and fish habitat effects of this action. Flow diminishment is not the only effect of issuing water service contracts. The Corps would attempt to store the water needed to meet water service contracts, thereby limiting efforts to reduce storage to improve fish passage survival.

Response:

The 2050-level of irrigation was selected based on the 30-year timeframe for implementation of any alternative under this programmatic EIS, which addressed the continued operations and maintenance of the Willamette Valley System (WVS).The FEIS has been updated to include additional information on the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes in Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008.

The 2008 Biological Opinion included a Reasonable and Prudent Alternative (RPA) that required the U.S. Bureau of Reclamation and Corps to work through legal and administrative processes necessary to protect instream flows for ESA-listed species under state law. In compliance with that RPA, the Willamette Basin Review Feasibility Study was formally initiated in 2016.

The goal of this study was to seek Congressional approval to reallocate WVS conservation storage for the benefit of fish and wildlife, agricultural irrigation, and municipal and industrial water supply over a 50-year analysis period, while continuing to fulfill other WVS purposes. The study examined different ratios of storage allocations for fish and wildlife, irrigation, and municipal and industrial uses based on projected demand for irrigation and municipal and industrial uses in 2070 and mainstream flow requirements for fish.

The Willamette Basin Review Feasibility Study addressed the initial step in the process to secure protection of instream flows under state law. In 2019, the Corps initiated its programmatic review of WVS operations and maintenance with a Notice of Intent to prepare an EIS. Unlike the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes, the WVS EIS NEPA review is related to operations and maintenance of the WVS, not water storage allocation.

While the WVS EIS Notice of Intent was published in 2019 just prior to the Willamette Basin Review Feasibility Study Finding of No Significant Impact (FONSI), the two NEPA actions are only related in that operations and maintenance under each alternative may directly, indirectly, or cumulatively impact water storage needed for various uses.

All alternatives analyzed in the WVS EIS propose measures to operate and maintain the WVS; they do not address modifications to water supply allocation. If at some point operations change to where allocations could not be met in normal to wet years, a subsequent feasibility study to revisit allocations would be initiated.

The Adaptive Management Plan addresses an overarching governance framework that includes implementation of the WVS operations and maintenance ESA consultation, the 2019 Willamette Basin Review Feasibility Study Biological Opinion, 2019 Hatcheries Biological Opinion, and other activities in the region. For example, the Corps would continue in-season adaptive management to meet downstream flow targets, while considering input from the WATER Forum Flow Management and Water Quality Team. The Team is also the group working with the state to establish a science-based approach for managing the WVS in dry years. This process is ongoing.

Comment: Endangered Species Act-11

The DPEIS underplays the role of the WVS in the statuses and potentials for recovery of species listed under the Endangered Species Act, particularly Upper Willamette River (UW) Chinook salmon and steelhead. The DPEIS should be revised to clearly demonstrate that the preferred alternative does not appreciably reduce the species likelihood of survival and potential for recovery, does not adversely modify the species designated critical habitat, and minimizes the take of listed species. As presented, the preferred alternative is inadequate to achieve this goal. To measure success, the Corps proposes to use a single metric, recruits per spawner, with a goal of achieving R/S greater than one. A broader range of performance metrics should be adopted and fish passage success evaluated in accordance with NMFS' fish passage criteria. Because the WVS is a major contributor to these fishes' current statuses, the Corps should clearly state its intent to manage the project to improve their statuses and likelihood for recovery and adopt metrics to measure such improvement.

Response:

The Corps analyzed potential effects to fish and other threatened species under each of the alternatives documented in the FEIS. FEIS Section 3.8.3, Fish and Aquatic Habitat,

Environmental Consequences, describes the analytical approaches used to evaluate UWR spring Chinook salmon and winter steelhead.

The ESA process requires consultation with NMFS and the USFWS on the actions proposed to assess impacts to listed fish, and if necessary alternative actions to avoid jeopardizing listed species or adversely modifying designated critical habitat. The ESA consultation has been used to address needs of listed species based on Biological Opinions prepared by NMFS and USFWS. An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N, Implementation and Adaptive Management Plan). Metrics, criteria, and an approach to assess near-term fish passage operations have been revised to identify success. Metrics include assessing population-level performance by monitoring cohort replacement rates.

Comment: Fish Passage-29

The DPEIS claims to focus on fish passage, yet expanded operational measures, such as longer term and deeper drawdowns and improving regulating outlet fish passage and total dissolved gas performance, are not considered. The rationales for the proposed floating fish collectors and their construction schedules are poorly defined. Juvenile collectors at high-head dams typically show low fish collection efficiency. Life-cycle models used to estimate the likely population trajectories following implementation of each alternative use favorable assumptions for collector effectiveness (e.g. dam passage efficiency >50%) which are unlikely to be achieved. Currently, non-structural juvenile passage measures are being evaluated throughout the system. Until these and other operational measures are fully evaluated it would be unwise to design and install juvenile collectors.

Response:

Seven action alternatives and the No-action Alternative were analyzed in the DEIS and FEIS. The alternatives are comprised of various combinations of fish passage measures (structural and operational), including deep drawdowns to use the regulating outlets, structural and operational measures for temperature and TDG management, and flow management.

Operations under the Interim Operations would be evaluated for multiple years, as described in DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, prior to construction of any proposed collector.

Comment: Alternatives-69

Because the Corps has chosen not to consider alternatives that might require changes in the WVS' Congressional authorization, the potential benefits of such changes have not been analyzed. This limits the potential for avoiding jeopardizing and adverse modification of the UW Chinook salmon and steelhead critical habitats, and other potential benefits of project operations.

Response:

Operations that would wholly eliminate a Congressionally authorized purpose were not analyzed.

Congress requires the Corps to operate the Willamette Valley System substantially in accordance with the authorization purposes such as hydropower, irrigation, water supply, etc. The diversion tunnel operation would only allow the Corps to operate for the authorized purposes served by the conservation pool and hydropower pool for a few days in 1 or 2 years in the hydrologic periodic of record.

Because authorized purposes were not wholly eliminated, the diversion tunnel operation was analyzed. A broad approach to alternatives development allowed the Corps to consider measures outside of its current authorities to provide a broad range of alternatives that meet the purpose and need for the Proposed Action. However, these types of measures would necessitate Congressional approval prior to implementation. See FEIS Chapter 1, Section 1.10, Congressionally Authorized Purposes and Appendix A, Alternatives Development, Attachment 1.

Comment: Alternatives-70

The DPEIS presents a series of actions, crafted and modeled to meet specific objectives, but there is a general lack of defined RM&E and no defined check-ins during which measure implementation and performance are evaluated, and changes developed as needed to meet performance objectives. Because the Corps proposes that this DPEIS guide operations and maintenance for the next 30 years, a set of fish population viability criteria should be adopted and the project's performance periodically reviewed every 5 years.

Response:

The Adaptive Management Plan included as Appendix N describes the monitoring metrics, criteria, and decision process for application of monitoring results. An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N, Implementation and Adaptive Management Plan).

Metrics, criteria, and an approach to assess Interim fish passage Operations have been revised to identify success. Metrics include assessing population level performance by monitoring cohort replacement rates. Metrics are defined consistent with the type of measures being implemented. These metrics are consistent with how NMFS currently measures population viability. The Adaptive Management Plan, likewise, includes these metrics with parameters to adapt to updated information.

Comment: Climate Change-11

The DPEIS presents extensive data on ongoing climate change including modeling work done by the Corps for this DPEIS, identifies a series of risks, including unusual and unseasonal flood and

drought risk, yet offers no change in project operations to better manage such risks. This lack of proposed adaptations to changing hydrologic conditions also has implications for UW Chinook salmon and steelhead. (See Addendum)

Response:

The data presented in the EIS were used by the Corps to also present extensive analyses assessing projected climate change in the Willamette River Basin. More detail is contained in Appendix F1, Qualitative Assessment of Climate Change Impacts, and Appendix F2, Supplemental Climate Change Information.

It is Corps policy to continually improve climate change analyses with the best available information and to incorporate updated information into system planning. Alternatives with measures that can be adapted would be more resilient to climate change risks and would provide better management for such risks than those measures that are not easily adaptable to changing climate conditions.

The FEIS has been updated to clarify that the Corps will implement adaptive management measures to address continually changing conditions in the basin in Chapter 3, Affected Environment and Environmental Consequences and in Chapter 4, Cumulative Effects Analyses.

Comment: Water Quality-37

The only interim measures considered to reduce adverse total dissolved gas concentrations downstream from project dams is spreading spills across multiple spillway bays. This is insufficient.

This issue is most acute in the North Santiam River downstream from Detroit and Big Cliff Dams where both UW Chinook salmon and steelhead spawn and rear and where high rates of spill can generate harmfully high concentrations of TDG. During the fall and winter of 2021-22 the Corps operated Detroit reservoir in an effort to reduce the magnitude of spills to the extent practical. This effort was mostly successful at maintaining episodic TDG concentrations downstream below 120% throughout the winter. 2 This interim measure should be continued as completion and evaluation of structural TDG reduction is at least 5 years away. The Corps should also commit to managing refills in a manner that reduces the potential for adverse fill and spill operations in the spring.

There is a general lack of discussion of spill operations to manage reservoir surcharges. As spills have an array of effects downstream, from contributing to the Corps' Environmental Flow program, to generating harmful concentrations of TDG downstream, a detailed discussion of surcharge and spill management is needed.

Response:

The Corps would continue to optimize operations to the greatest extent possible to reduce TDG production, using the spread spill concept, as well as other operational strategies. Balancing operations that support downstream fish passage and water quality while refilling reservoirs (such as Detroit) for water supply and recreation is inherently difficult.

The Corps would continue to utilize water supply forecasts and state-of-the-art numerical modeling to make inter-seasonal adjustments to operations that minimize TDG when possible.

Comment: BiOp-14

The Corps proposes that the DPEIS and subsequent Biological Opinion to be issued to cover it have a 30-year life with construction projects conducted through 2044. As the statuses of the fish, notably their abundances, are in decline, and the climate continues to change, a 30-year planning horizon is unrealistic. A better approach would be to view the process as iterative, 5 to 10-year time steps during which measures are implemented, their effects monitored, and the need to revise or add measures evaluated.

Response:

The DEIS and FEIS include an Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan). A component of that Plan is research, monitoring, and evaluation to assess measure effectiveness over the 30-year implementation timeframe. If there is uncertainty regarding measure effectiveness during this timeframe, this would be identified and prioritized for evaluation as part of the adaptive management planning process. Findings would be used to determine if and what actions will be taken to address adverse impacts. Any evaluation would also contemplate effects of any proposed changes on drafting rates or other changes on ESA-listed fish.

Comment: Scope-6

The Corps proposes that the DPEIS and subsequent Biological Opinion to be issued to cover it have a 30-year life with construction projects conducted through 2044. As the statuses of the fish, notably their abundances, are in decline, and the climate continues to change, a 30-year planning horizon is unrealistic. A better approach would be to view the process as iterative, 5 to 10-year time steps during which measures are implemented, their effects monitored, and the need to revise or add measures evaluated.

Response:

The DEIS and FEIS include an Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan). A component of that Plan is research, monitoring, and evaluation to assess measure effectiveness over the 30-year implementation timeframe.

If there is uncertainty regarding measure effectiveness during this timeframe, this would be identified and prioritized for evaluation as part of the adaptive management planning process.

Findings would be used to determine if and what actions will be taken to address adverse impacts. Any evaluation would also contemplate effects of any proposed changes on drafting rates or other changes on ESA-listed fish.

Comment: Alternatives-71

In large measure, the lack of an emphasis on species recovery and an excessive reliance on existing operations, limits the range of measures considered, thereby rendering the DPEIS insufficient. The preferred alternative includes only minor operational changes, choosing instead to solve fish passage limits imposed by the dams and reservoirs through structural measures, mostly floating surface collectors located at the dams. These would take decades to complete, with the last scheduled to be completed in 2044. They are bewilderingly expensive (c. $400 million, each) and the likely success of such measures is arguable. A recent survey of such systems at high-head dams (Kock et al. 2019) found a wide range of success, from very low to high. While there has been considerable technological advancement in the design of such structures, such as the use of computational fluid dynamics to site and models to size floating surface collectors, success cannot be assured.

Response:

The Corps analyzed potential effects to fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA process requires consultation with NMFS and the USFWS on impacts to listed fish and measures to avoid jeopardizing the continued existence of listed species.

The Corps had not received a draft Biological Opinion from either agency prior to publication of the DEIS for public comment. The Preferred Alternative in the Final EIS is consistent with the Final Biological Opinions.

Comment: Fish-73

It is important to recognize that fish collection efficiency (FCE), a measure of fish collection success (number captured in the collector/number released), has been measured differently by different studies, depending on the purpose of the study. To evaluate the potential effectiveness of floating surface collectors at the WVP, FCEres, the ratio of fish captured at the floating surface collector to those released at or above the head of reservoir is the metric of interest. It is unclear whether the Corps life-cycle modeling used FCEres or other measures of FCE. FCE also varies by species. For example, the fixed surface collector at North Fork Dam on the Clackamas River that collected over 90% of the steelhead and coho salmon juveniles released at the head of the reservoir, collected only 60% of the Chinook salmon juveniles released (reported in Kock

et al. 2019). As other, less successful collection systems show similar low FCEres for Chinook salmon, it is reasonable to assume that Chinook are harder to collect than steelhead or coho. Review of life-cycle modeling conducted for this DPEIS (Appendix E) shows that overly optimistic FCE values were used, particularly where Chinook salmon were the target species.

An issue missing in the evaluation is the importance of reservoir travel time to FCE and juvenile passage survival in general. In brief, the longer juvenile salmon and steelhead reside in a reservoir the lower their likelihood to pass successfully. Reservoir residence exposes juveniles to impaired water quality, disease, predation, residualism, and competition limits on successful dam passage. The longer juveniles remain in the reservoirs, the lower their likelihood of successfully passing the dams. Juvenile residence time is lower when reservoir storage is lower and when flows are high (Kock et al. 2015). Minimizing reservoir residence time should be an objective to achieve high passage survival.

Response:

The Corps used the Kock et al. 2019 (Chapter 10, References) hierarchical model to predict downstream fish passage efficiency for fish collectors (Measure 392) based on the performance of other collectors regionally. The proposed collectors in the Willamette River would be far larger in scale than any other previously designed collector. The large size would impact the variables that contribute to better efficiency: larger entrance, greater flow, limited turbine ops, larger forebay size.

The Corps references the Detroit DDR in the DEIS, which incorporates lessons learned at other dams. It also details the design the Corps would likely implement. The Fish Benefit Workbook also describes the dimensions and flow required to implement a collector.

Operational measures under the Interim Operations would be evaluated for multiple years, as described in DEIS and FEIS Appendix N (Implementation and Adaptive Management Plan), prior to construction of any proposed collector. Data are conflicting with respect to the commentor's recommendation that "Minimizing reservoir residence time should be an objective to achieve high passage survival."

The opinion that the longer juvenile salmon and steelhead reside in a reservoir, the lower their likelihood to pass successfully, is made without scientific support. Survival rates increase as juvenile Chinook salmon grow. Growth rates for juvenile Chinook salmon are high in reservoirs (e.g., Monzyk et al. 2012, 2013, 2014 in Appendix E, Fish and Aquatic Habitat Analyses, References) and survival rates for young-of-year Chinook salmon in WVS reservoirs increases with time (Kock et al. 2019).

Inherent in the commentor's recommendations, but not considered, are the survival and growth rates that would be experienced by juveniles if they were passed earlier in their lifecycle downstream of WVS dams, before they smolt and are ready to emigrate to the ocean.

Pre-smolt Chinook salmon passed below WVS dams will rear in the Willamette River Basin before emigrating downstream to the ocean. Habitat and growth opportunities are not the same below each WVS dam in the major tributaries to the Willamette River, and in some cases are extremely limited (i.e., below WVS dams in the Middle Fork Willamette River). For those juveniles that then must rear in the mainstem Willamette River, predation risks should be considered given that predatory non-native fishes exist in high abundance (e.g., smallmouth bass) as well as habitat conditions that become limiting every summer in much of the mainstem Willamette River when water temperatures exceed tolerable levels due to ambient heating (e.g., White et al. 2022 in Appendix E, Fish and Aquatic Habitat Analyses, References).

Naturally produced juvenile Chinook salmon above Fall Creek Dam rear in the Fall Creek Reservoir for nearly a full year (until November annually), and then move below the dam at a large size with the full drawdown of the reservoir. Adult return rates appear to be among the highest for this local population in the Upper Willamette River (e.g., O'Malley and Bohn 2018 in Chapter 10, References). Metrics for assessing downstream fish passage performance are defined consistent with those used regionally, developed in consultation with NMFS.

Comment: Alternatives-72

Due to the inherent uncertainty in estimating juvenile passage survival and the potential benefits of large, expensive, structural measures such as FSCs, the preferred alternative should be one of experimental design. Initially, this experiment should focus on modifying existing facilities (e.g. TDG control, juvenile passage survival improvement) and operations (spills to pass fish and temporary powerhouse shutdowns to limit entrainment). An intensive RM&E program, such as that developed to evaluate ongoing interim measures, is needed to determine if such measures are adequate to support species recovery. If not, additional measures, such as FSSs may be needed. This could reasonably be accomplished within 7 years of ROD issuance.

Response:

Development of the range of alternatives was informed by an extensive research, monitoring, and evaluation program that has been conducted by the Corps since receipt of the 2008 NMFS Biological Opinion. Continued research, monitoring, and evaluation is included in the Implementation and Adaptive Management Plan (Appendix N) and will inform how operations continue into the future as well as any modifications to implementation plans for constructed measures.

Comment: Fish Passage-30

a. Year-round deep drawdown. At present, operational measures using existing project facilities to pass fish are underway. These include deep drafts and the use of regulating outlets to pass fish from the fall through winter, and spilling water over project spillways to pass fish in the spring and summer. Data collected during these operations and evidence from the Fall Creek

reservoir drawdown as well as other high-head flood-control reservoirs in the region (e.g. Mud Mountain Dam) show year-round deep drawdown can provide safe and effective juvenile passage, reduce heat storage and subsequent water temperature issues, and provide more normative flows downstream. By comparison, juvenile collectors at high head dams often have low FCE, limiting the fraction of incoming juveniles that successfully pass the dam (Kock et al. 2019). Among the alternatives considered should be deep, permanent drafts at several reservoirs – Green Peter, Cougar, and Lookout Point. Year-round drawdowns at these reservoirs should be analyzed both independently and collectively.

Response:

Year-round deep drawdowns were screened from further consideration as alternative elements because they would increase flood risk. The Corps must capture high water events in reservoirs by raising water levels behind dams. Further, the Corps does not currently have authority to conduct a year-round drawdown at the WVS dams.

By not refilling reservoirs (i.e., a year-round deep draft), the Corps would be limited in its ability to manage and operate for the other seven Congressional authorities and, therefore, a year-round drawdown is out of scope. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, Proposed Action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record.

Comment: Alternatives-73

As the Corps has been authorized to evaluate de-authorization of power generation at the WVS, such operations should be evaluated as part of that effort as well. The possibility that such substantial changes in project operations would require Congressional authorization prior to implementation is insufficient cause not to evaluate them.

i. This would mean permanently lowering the reservoirs to within 20 feet of their lowest outlet, storing additional water only when needed to reduce downstream flood risk, and managing the release of such surcharges to minimize adverse TDG conditions downstream to the extent practical.

ii. As the regulating outlets would be the primary route of discharge and fish passage, outlet modifications should be considered at all ROs to reduce TDG production and improve fish passage survival. Approaches such as spillway flip-lips and modification of RO outfalls to broaden the impact area of the discharge stream to reduce plunge depth and thereby reduce gas saturation should be considered.

iii. Reservoir residence time would be minimized, increasing survival to the dam and dam passage efficiency (non-turbine passage) would dramatically increase. Successful passage would primarily be dependent on performance of the ROs, which should be improved as necessary.

iv. This would substantially reduce the stored water available to augment downstream flows and limit flat-water recreation during the summer and fall.

v. Hydroelectric power generation would only occur when surcharges raised the reservoirs above the minimum power pool. Generation and dependable capacity of the system would decline.

vi. By not refilling the reservoirs, such measures would increase spring flows in both the affected tributaries and the mainstem Willamette River. Flows in the affected tributaries and the mainstem Willamette River would be less modified by project operations, returning the rivers to more normative conditions.

vii. Permanently lowering the pools would also increase available flood storage, thereby reducing downstream flood risk and increasing climate resilience.

viii. At Cougar Dam the regulating outlet channel would need to be redirected into the river channel upstream from the adult trap. Design and construction would likely take at least five years, delaying potential implementation.

ix. These and other likely effects should be analyzed in detail.

x. The preferred alternative should adopt year-round minimum pool operations for at least one of these reservoirs for five years. Given the physical plant modifications necessary to provide year-round minimum pool operations at Cougar Dam, either Green Peter Dam, or Lookout Point Dam should be chosen as the test bed. Data collected during this operation would inform future decisions regarding operations and the need for new passage systems throughout the WVS.

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority.

Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS. Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA.

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: Fish Passage-31

b. Improving fish passage survival at existing facilities. Preliminary evidence from the interim operations has shown that fish are often injured passing through project regulating outlets and channels and going over spillways. Where DPE is high but injury rates are too high, efforts should be made to identify the causes of injury and remedial action taken. This could include measures from smoothing spillways and regulating outlet channels, to modifying RO mouths to spread the spill stream which would dissipate impact energy.

Response:

Operational measures for downstream fish passage will be monitored and reviewed, with any decisions on modification completed as part of the Adaptive Management Plan (DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan). Existing studies document common sources of injury and mortality at Willamette Valley System dams, as summarized in DEIS and FEIS Section 3.8, Fish and Aquatic Habitat.

Fish passage efficiency is often low due to reservoir elevation and dam outlet availability. In some years, reservoirs do not fill above spillway crest and, therefore, these outlets would not be available. If reservoirs are not refilled in spring when inflows are high and

held at elevations near regulating outlets, then reservoir storage would not be available to augment downstream river flows and to manage water temperatures.

Survival also varies depending on hydraulic head pressure relating to reservoir elevation. Although it may be possible to reduce certainty types of injuries or risk of mortality for fish associated with abrasions on spillway or regulating outlet surfaces, there are no solutions to sheer stress and strikes for fish under certain conditions. Therefore, different combinations of downstream fish passage measures (operational and structural) were evaluated in the EIS.

The Adaptive Management Plan is included to monitor and assess where modifications may be needed to meet the objectives and criteria for fish passage at each location after implementation. The Plan has been updated in the FEIS in Appendix N, Implementation and Adaptive Management Plan.

Comment: Water Quality-38

c. Project modifications to reduce TDG production. The high rate of TDG production at several WVS dams limits the range of operations that are safe for fish. The preferred alternative only considered modifications to reduce TDG at the Detroit/Big Cliff complex. As regulating outlets and spillways are the preferred routes for fish passage, measures should be developed to reduce TDG production throughout the system, from reducing spill rates when possible, to modifying spillways and ROs to reduce TDG production.

Response:

As stated in the Section 3.5, Water Quality, a substantial way to reduce TDG is to utilize the turbines. Under the Preferred Alternative, the Corps would utilize a mixture of structural improvements and operations to provide necessary fish passage. Where structural solutions are recommended and hydropower facilities exist, turbines would continue to be the primary means for reducing TDG in these reaches.

Comment: Water Quality-39

d. Petition ODEQ for a waiver from the state standard for TDG. The state standard for TDG is 110% of the saturation concentration. This standard is unobtainable during spill at WVS dams, particularly during floods and post-flood surcharge reduction operations. Further, efforts to meet this standard during spill operations for fish passage can limit the hours of operation, reducing effectiveness. For voluntary spill operations to facilitate fish passage the TDG limit should be increased to 120% of saturation. Such a waiver could be viewed as experimental and of a limited duration, say 5 years, to allow for monitoring and evaluation. There is precedent for such waivers (letter of January 13, 2020 from Richard Whitman, ODEQ Director, to Oregon Environmental Quality Commission; 85 FR 63834). Hopefully ODEQ and EPA would agree to expedite the process.

Response:

Comment noted.

Comment: Fish Passage-32

e. Detroit and Big Cliff Dams. Operating Detroit reservoir at a long-term low water surface elevation is unlikely to be feasible due to socio-economic concerns and the value of stored water. Hence, operational fish passage measures are limited to using the dam's regulating outlets and the spillway with limited changes to reservoir storage. Spring operation of the spillway has shown promise and is adopted in the preferred alternative. However, the approximate date when the Corps would open the Detroit Dam spillway in the spring and the hours of operation to provide fish passage are unclear. "Late spring" is indicated, suggesting June. This is inadequate as it would increase reservoir residence time for earlier arrivals which begin arriving in February. Continuous spill over the surface spillway should occur as soon as practical after the reservoir water surface elevation is 1.5 feet or more over the spillway crest (el 1541), which generally occurs in mid-April and continues spilling for the next 30 days. In 2022, the highest number of juvenile salmon collected in the rotary screw trap situated downstream from Big Cliff Dam occurred during the last two weeks of April, immediately after the spillway had been opened. Large numbers likely also passed in early May, but the trap was not fished for much of this time due to high flows.

Spilling water over the spillway or through the ROs, the outfalls of which are situated in the spillway, produces high levels of TDG and efforts to meet the state standard downstream can limit the hours of operation of both for fish passage purposes. Further, high TDG concentrations in the Big Cliff forebay is likely more harmful to juvenile Chinook salmon and steelhead because residence time in the forebay lasts for days while exposure to harmful TDG concentrations downstream from Big Cliff would affect actively migrating juveniles for a few hours as high concentrations of TDG monitored immediately downstream from Big Cliff Dam have been shown to dissipate by the time the water reaches the Minto trap, about 4 miles downstream. Hence, reducing juvenile exposure to adverse TDG conditions should include modification of Detroit Dam's spillway and regulating outlets to reduce TDG production.

Response:

Measure 714 (pass water over spillway in spring for downstream fish passage) and Measure 721 (use spillway to release warm surface water in summer) were included in the draft Preferred Alternative as Interim Operations. Measure 392 (floating surface screen) and Measure 105 (Water Temperature Control Tower) are included as long-term measures.

Under Measure 714, use of the spillway would begin May 1 or as soon as the pool elevation allows. Under Measure 721, use of the spillway would begin each year as soon as the water surface elevation is above the spillway crest after April 15. Implementing

these measures together would result in use of the spillway beginning April 15 or as soon as the water surface elevation is above spillway crest.

The Corps is actively designing and implementing court-ordered actions to reduce TDG below Big Cliff Dam. Long-term Measure 392 and Measure 105 would reduce TDG generated at Detroit Dam. The Corps is actively designing and implementing court-ordered actions to reduce TDG below Big Cliff Dam (see FEIS Chapter 1, Introduction, Table 1.12-1, Court-ordered Structural Improvements and Modifications, which was Table 1.9-1 in the DEIS). Measure 392 and Measure 105 would reduce TDG generated at Detroit Dam in the long term.

Comment: Alternatives-74

1. Section 2.2.6. Should be revised to state that adopted interim operations will continue until structural measures and associated operations have been shown to provide at least as much benefit to the species as the interim operations, at which point they should be employed when structural measures are out of service.

Response:

The term "near-term operations" has been changed to "Interim Operations" in the FEIS. Interim Operations will continue until long-term measures are implemented. The Adaptive Management Plan (DEIS and FEIS Appendix N) defines the metrics and performance targets for monitoring if measures implemented have achieved criteria, and if not the process for decision making for making improvements. This process allows the consideration for further application of the near-term measures when or if the long-term measures are not meeting criteria or when out of service.

Comment: Water Quality-40

2. Table 2.2-11. Detroit/Big Cliff. Should include discretionary operations aimed at controlling the magnitude of spills. This measure proved beneficial but insufficient to avoid project-generated harmful concentrations of total dissolved gas (TDG) downstream. In testing conducted during 2021-22 this measure mostly maintained TDG below 120% while storage was available. In keeping with its flood risk management objective, the Corps should continue to use its discretion in an effort to limit the magnitude and duration of spills to limit the production of TDG in concentrations known to be harmful to fish (>120%). This measure should continue until structural TDG abatement is in place and shown capable of limiting TDG production.

By adopting Interim Risk Reduction Measures (IRRM) that limited available summer flood storage while maintaining the previous refill trajectory, the Corps has increased the risk of fill and spill at project dams. Fill and spill events at the Detroit/Big Cliff complex have caused toxic TDG conditions in the past. See Addendum

a. Appendix D, 2.2 TDG. This analysis is focused on the frequency that operations under each alternative would result in TDG concentrations of 110% or more, the current state standard. No discussion of fish effects, tolerances, seasonal changes in fish health risk, or operational measures to reduce those risks is presented. The duration analysis of project-caused TDG risk (Appendix D, Figure 2-38) would be improved by presenting monthly analyses as fish harms vary seasonally.

Response:

The Corps is actively designing and implementing court-ordered actions to reduce TDG below Big Cliff Dam (see FEIS Chapter 1, Introduction, Table 1.12-1, Court-ordered Structural Improvements and Modifications, which was Table 1.9-1 in the DEIS). Long-term Measure 392 and Measure 105 would reduce TDG generated at Detroit Dam. The Corps' flood control mission is not discretionary.

There are no Willamette River Basin-specific data on fish effects from TDG. Modeling teams are currently assessing functional relationships from laboratory studies and studies completed in other basins to help determine what the fish response may be with respect to depth compensation (Parkinson et al. April 6, 2023. Corvallis, Oregon. How Should Juvenile Salmonid Mortality Rate Responses to Tailrace TDG be Assessed in Evaluation of Dam Passage Options? Conference presentation available online at https://pweb.crohms.org/tmt/documents/FPOM/2010/Willamette_Coordination/WFSR/).

Comment: Alternatives-75

3. 2.2.3.1 Deeper Fall Reservoir Drawdown for Downstream Fish Passage (#40). The minimum duration of deep drawdowns should be 30 days for at least the first 5 years of operation and data collection. Changing the duration of deep drawdowns could be considered through the adaptive management program and that program should be revised to include NMFS and FWS in an advisory role. Notes of all such meetings should be taken and made available on a publicly accessible website.

Response:

FEIS Appendix A provides the full description for Measure 40 (See FEIS Appendix A, Alternative Development, Section 2.4.1, Downstream Fish Passage Measures, Measure 40). The target water surface elevations would be achieved for up to 21 days beginning at the earliest November 15, and the latest December 15. This is based on repeated observations that juvenile Chinook salmon pass downstream quickly (typically within a few days) once elevations are declining in the fall, while many do so before lower target elevations are achieved (e.g., Nesbit et al. 2014 in FEIS Appendix E, Fish and Aquatic Habitat Analyses, Spring Chinook References).

Maintaining the target elevation in any single year would depend on inflow rates to the reservoir. Ending the deep drawdown on December 15 supports reservoir refill up to the

water control diagram, thereby reducing potential impacts to storage for achieving other water management objectives for fish passage, water quality, and instream flows during the following calendar year.

Adaptive management would allow the Corps to continue to optimize operations (Appendix N, Implementation and Adaptive Management Plan). Adaptive management would include coordination with the WATER Forum, which includes NMFS and USFWS. Notes of government meetings are not published but can be requested.

Comment: Alternatives-76

4. Table 2.2.11. Lookout Point deep drawdown. The table states that the target drawdown elevation would be 750 ft, but Table 2.2-7 lists el 762 as the target. Please explain. As the analysis for this action specified 750 ft., that should be the draft target. Also, as this measure has not yet been implemented, detailed evaluation should be conducted over the first 5-years of operation prior to defining long-term operations.

Response:

FEIS Chapter 2, Alternatives, Table 2.8-6, Interim Operations, identifies the elevations used for Interim Operations. FEIS Chapter 2, Alternatives, Table 2.8-3, Fall Reservoir Drawdown Target Elevations, identifies the elevations for the long-term drawdown operations.

Based on lessons learned from the Fall Creek Reservoir drawdown operation the past 10+ years, the Corps proposed drawing down the reservoir to only 25 feet above the top of the regulating outlet instead of the 25 feet above the centerline of the regulating outlet as is part of the near-term operation. This drawdown would be sufficient to provide the hydrologic signal for fish to find the outlet.

The injunction identified a defined monitoring plan for injunction operations. The measures in the EIS have been informed by the injunction operations. The operations incorporated into the Interim Operations would be monitored and optimized as described through the Adaptive Management Plan if included in the selected alternative (Appendix N, Implementation and Adaptive Management Plan).

Comment: Alternatives-77

5. Section 2.2.5 Suite of Near-term Operations. Page 2-39. The statement: “These operations are designed to improve fish passage and water quality until the structural measures under an alternative can be implemented,” is insufficient. The Corps should commit to continuing these interim measures until their performance is equaled or exceeded by new measures and NMFS and FWS agree with that assessment. Similarly, if a measure isn’t effective, or causes unacceptable adverse effects, the same decision process should be used to modify or discontinue it.

Response:

The term "near-term operations" has been changed to "Interim Operations" in the FEIS. The Corps is committed to continued implementation of the goals the Interim Operations. NMFS and USFWS contemplated the Interim Operations during development of their respective Biological Opinions.

Interim Operations would continue to be optimized through adaptive management (DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan). The Plan has been updated in the FEIS.

Comment: Mitigation-2

6. Section 2.2.6. The Corps should ensure that its contractors conform to EPA's menu of current best management practices (BMPs) to protect water and soil resources.

Response:

This comment requests additional EIS information on contractor selection that is out of scope for the EIS analyses. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, Proposed Action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record.

Comment: Alternatives-78

7. Section 2.2.6.1. Detroit Selective Withdrawal Tower. This is a good idea as the benefit to Chinook reproduction would extend downstream past Mehama. However, the proposed in-the-wet construction would be difficult and environmentally risky. Sediment and anaerobic water liberated during dredging could adversely affect downstream water quality during the construction period. Construction in the dry, using a coffer dam would be simpler and less environmentally risky but would require a narrower and lower reservoir operating range during construction. The Corps should reconsider the method of construction. Also, the design and operation should consider and work to limit juvenile attraction and entrainment, particularly during spring and summer when the spillway should be used as much as possible to pass fish and manage discharge temperatures.

Response:

Structural measures would require comprehensive design and engineering efforts and additional, site-specific environmental compliance that would tier from the programmatic EIS. The FEIS has been updated to include additional information on

tiering in Section 1.3.1.1, Programmatic Reviews and Subsequent Tiering under the National Environmental Policy Act.

Comment: Alternatives-79

8. Section 2.2.6.2 Foster Fish Ladder Temperature Improvement (#479). Available evidence shows that this measure would likely be effective. This measure should be implemented as soon as possible. The time-line for this action is not shown on the construction schedule for the preferred alternative Figure 5.4

Response:

Comment noted.

Comment: Fish Passage-33

9. Section 2.2.6.6 Construct Structural Downstream Fish Passage (#392). This section assumes that FSCs or FSSs would provide safe and effective fish passage at WVS's high-head dams. Given the sizes of project reservoirs in relation to their inflows, reservoir residence time would likely remain very high (weeks to months). In general, the higher the juvenile residence time in the reservoirs, the lower their survival. Hence, prior to making the decision to build juvenile collectors, thorough evaluation of operational passage measures, including deep drawdowns, should be conducted. It will likely take another 5-7 years to develop sufficient data to make this determination. Where it is determined that operational measures are infeasible, or insufficient to support a viable salmonid population upstream, juvenile collection systems may be warranted. As handling stress reduces juvenile survival, systems to avoid or minimize handling, such as juvenile bypass systems, should also be considered.

Response:

Operations would be implemented prior to construction of structural downstream passage per Measure 392. Monitoring of these operations is described in the Adaptive Management Plan (DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan).

The comment provides no evidence that "the higher the juvenile residence time in the reservoirs, the lower their survival." Kock et al. (2019 in Chapter 10, References) estimated survival of juvenile Chinook salmon in Lookout Point Reservoir between April and October. Results indicate that most mortality occurred early in the study period when juvenile Chinook salmon were small; survival rates increased monthly. Juvenile Chinook salmon also experience high growth rates in reservoirs (e.g., Monzyk et al. 2014 in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses), and size at ocean entry has been positively related to ocean survival and adult rates (e.g., Claiborne et al. 2011) suggesting high juvenile Chinook salmon reservoir growth rates observed in Willamette Valley System reservoirs can positively contribute to smolt-to-adult return rates.

While the Corps acknowledges uncertainty about collectors that have yet to be built. Available modeling tools indicate good collection efficiency for fish present in the forebay, based on the dimensions of, and flow through, these structures (See Fish Benefit Workbook model results and parameter estimate in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses). Operations generally are low in collection efficiency particularly if there are operational constraints, in part due to the inability to maintain consistently safe and effective fish passage conditions.

Operational constraints were compared in the DEIS and FEIS in Appendix A, Alternatives Development, Measure 392 and Appendix E, Fish and Aquatic Habitat Analyses. Fish Benefits Workbook). Furthermore, the Adaptive Management Plan (DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan) would include continued investigation and triggers for management changes.

References: Claiborne, A. M., Fisher, J. P., Hayes, S. A., & Emmett, R. L. 2011. Size at Release, Size-selective Mortality, and Age of Maturity of Willamette River Hatchery Yearling Chinook Salmon. Transactions of the American Fisheries Society, 140(4), 1135-1144.

Comment: Climate Change-12

10. Section 2.2. Response to Climate Change

a. Very little is presented in regard to the Corps' program to improve the project's resilience in the face of climate change, though substantial gate and other structural improvements are underway improving the resilience of project dams.

b. The Corps' reluctance to consider measures that would alter current Flood Risk Management limits the WVS's potential benefits during prolonged drought or other climate emergencies. As presented in Appendix F, climate-related risks are increasing. See Addendum.

Response:

It is Corps' policy to integrate climate change preparedness and resilience planning and actions for all operations and maintenance activities. This is an important policy implemented for the purposes of enhancing community resilience from Corps water-resource projects and for reducing potential vulnerabilities of those communities and Corps' operations to the effects of climate change and variability. The Corps, however, does not design measures to address a single future scenario that may work for one eventuality, but that would fail under other scenarios.

The resource areas analyzed in Chapter 3, Affected Environment and Environmental Consequences, include a climate change effects analyses under each alternative, based on the foundational climate change analysis detailed in Appendix F1, Qualitative Assessment of Climate Change Impacts, and Appendix F2, Supplemental Climate Change

Information. Climate change impacts anticipated under each resource were qualifiedly assessed and assigned a numeric value that was incorporated into the Preferred Alternative identification evaluation matrix. Each resource in Chapter 4, Cumulative Effects, in the FEIS has been updated in the FEIS to clarify that the Corps will continue to consider climate change effects applying adaptive management planning.

Comment: Revetments-9

11. Section 2.4.2.3 Maintain Revetments considering Nature-based Engineering or Alter revetments for Aquatic Ecosystem Restoration. This section is inadequate and incomplete. The Recovery Plan (ODFW, NMFS 2011) identifies the loss of floodplain connectivity and side channel habitat as limiting factors. Backwater and side-channels are prime juvenile salmon habitat. Floodplain and side channel connections are a focus of work being done under the auspices of the Oregon Watershed Enhancement Board (OWEB) and its Willamette Special Investment Partnership. Over half of the mainstem Willamette is cut off from its historical floodplain. Although Corps constructed and maintained revetments are only partly responsible for this lost habitat, absent a clear commitment to increase floodplain connectivity and side-channel habitat lost due to Corps-constructed and maintained revetments, the primary adverse effect of the program would remain unmitigated. The Corps should either propose specific floodplain restoration projects, set specific floodplain/side-channel connection length goals within specified intervals, or commit to contributing funding to OWEB's SIP program throughout the life of its proposed action. The Corps mentions the need to obtain local sponsors to cost-share ecosystem restoration projects as limiting its ability to mitigate revetment effects. Addressing Corps-caused adverse effects on species limiting factors is necessary and cannot be restricted by the actions of third parties. The Corps should place such projects or OWEB contributions in its annual budget submittals with or without local commitment.

Response:

Revetments and levees do not have the same function or impact. Revetments are made of materials placed on the slope of a channel to prevent erosion. Generally, revetements do not prevent flow into adjacent areas; however, revetments can limit connectivity to side channel habitat.

The FEIS has been updated to include information on revetments in Appendix S, USACE-managed Dams, Reservoirs, and Band Protection Structures.

The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley. The revetments converted to private sponsors to own and maintain are discussed in the FEIS in Section 1.7.2, Revetements and Other Structures for Bank Protection. Projects that propose to alter privately owned revetments, although they are no longer Federally owned and operated, are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Changes to the Rivers and Harbors Act Section 408 statutory program are outside the scope of this EIS.

The Corps would continue to maintain Corps-constructed revetments under all alternatives including the No-action Alternative. In contrast to the No-action Alternative, revetments could be modified to incorporate fish-friendly improvements under the action alternatives such as adding natural materials but must continue to provide the same level of protection as when originally authorized.

The Corps is also proposing to secure a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These restoration authorities would allow for a potential change in the protectiveness level of revetments studied. However, this collaboration is not part of the scope of this EIS because it has not been initiated.

Comment: Alternatives-80

It is difficult to fully assess the preferred alternative because descriptions of the actions are scattered among the previous alternatives and its effects are analyzed in DPEIS Sections 3 and 5 and several appendices. Section 2.4 would be improved by providing a full list of measures included and then analyzed in Section 3.

Response:

Refer to FEIS Section 2.10.4.9 that identifies all the measures and dam locations for each proposed measure under Alternative 5, the Preferred Alternative. Summaries of effects under each resource by alternative are provided throughout Chapter 3, Affected Environment and Environmental Consequences. Section 3.25 provides all summary tables.

Summary tables describe impacts anticipated to each resource when measures are applied under each alternative. Providing an analysis of the impact of each measure itself would be irrelevant; the anticipated outcome of how a measure would affect a resource is the more pertinent information to make an informed decision about potential impacts on resources.

Comment: Alternatives-81

12. Section 2.4.11. Alternative 5. Neither the referenced section 2.3.1.1 or section 2.3.1.2 exist.

Response:

The FEIS has been updated to address editing errors.

Comment: Alternatives-82

13. Appendix A. Page A-21-22. Water management during the conservation season under the preferred alternative is unclear. The concept of managing operations to meet both downstream flow and temperature goals is laudable, perhaps workable, but it is unclear how it would be

implemented. Does the Corps intend to provide weekly modeled flow, temperature, and reservoir storage alternatives to the WATER team to inform its decisions? What weight would the WATER team's recommendations have as compared to model-driven operations? To be clear, modeled outcomes of alternative operations are very valuable to conservation season water management, but cannot replicate the 'expert system' provided by the WATER team which should make flow management decisions.

a. WUA is weighted usable area, not wetted usable area.

b. Although the analyses presented are voluminous, it isn't clear why the 2008 BiOp targets as therein described are not desired. Does modeling show a substantial decrease in available summer storage to meet summer and fall tributary flows following the existing regime? Please explain.

Response:

The WATER Forum Flow Management and Water Quality Team would continue to be the appropriate forum for annual conservation season planning and discussions, regardless of the alternative selected in the Record of Decision. DEIS Section 5.4, Implementation, and Appendix N, Implementation and Adaptive Management Plan, have been updated in the FEIS to reference the WATER Forum, specifically the Flow Management and Water Quality Team, for interagency discussions on annual water management.

The Corps will maintain its authority to operate the system, balancing the multiple purposes of the Willamette Valley System. The WATER Forum does not make decisions on behalf of the Corps, rather it advises and informs the decisions the agency makes.

(a) The FEIS has been updated to address editing errors.

(b) The 2008 Biological Opinion, RPA 2.4.2 - 2.4.4, directed the Corps to complete instream flow studies and to propose, if appropriate, revised minimum flow objectives. The Corps completed the studies and worked with a multi-agency group to to develop the framework on which the revised targets in the EIS are based instead. See FEIS Chapter 1, Introduction, Section 1.3.2, Endangered Species Act, and Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History Since 2008.

Comment: Alternatives-83

14. Appendix A, Page A-22 "Where feasible and funding is available, monitoring activities will be recommended and implemented to assess the stated benefits and inform future flow management." This is inadequate. Spawning surveys downstream from project dams should be conducted annually, as part of a RM&E program, fully funded by the Corps.

Response:

The Adaptive Management Plan (DEIS Appendix N) includes the metrices and process for monitoring activities. This sentence has been removed from Appendix A, Alternatives Development, to avoid confusion or inconsistency with DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan.

Comment: Water Supply-25

16. Appendix A. Table 2-2. Reducing tributary minimum flows during low-water, low-storage years, particularly during the summer, may be necessary to maintain sufficient water to meet Chinook salmon spawning flow needs in the fall and to avoid severe water temperature conditions. However, the proposal to substantially reduce tributary minimum flows when storage falls below 90% of the storage rule curve would result in very frequent reductions in minimum flows. Even in average water years, reservoir storage is often below 90% of the rule curve due to depletions to meet downstream needs, including minimum flows. Both the severity and the frequency of these minimum tributary flow reductions should be reduced, particularly during the spawning seasons for UW Chinook salmon (Sept – Oct) and steelhead (Mar – May).

Instream flow studies conducted by the Corps show that summer flow augmentation (July – August) does not provide a fish habitat benefit and could be reduced.

Response:

The results of the EIS analyses do not indicate that tributary minimum flows would be substantially reduced compared to the No-action Alternative when Measure 30a or Measure 30b are implemented. Measure 30a and Measure 30b include two minimum flow schedules that would be implemented based on reservoir storage accrual in spring. The higher minimum flow schedule provides for flows providing 90 percent or more of the weighted usable spawning habitat below each dam. The lower minimum flow schedule provides 80 percent or more of the weighted usable spawning habitat below each dam.

Every 2 weeks between February 1 and June 1, Corps managers working with WATER Forum teams (principally the Flow Management and Water Quality Team) would review forecast and reservoir conditions make appropriate adjustments to the minimum flow values and apply either the higher or lower minimum flow schedule. When storage is below 90 percent of the storage rule curve before June 1, the lower minimum flow values would be chosen.

There is not enough water to maintain the higher minimum flows below any of the dams in years when the reservoir does not fill. This real-time management approach would allow for adjustments to flows based on the actual accrual of storage and, therefore, would be less dependent on uncertainty in weather and runoff forecasts.

After June 1, the minimum flow schedule would be maintained for the remainder of the conservation season according to that applied on June 1. This approach reflects the fact that substantial contributions to stream flows from precipitation and snowmelt have resided by June and substantial reservoir refill rarely occurs again until fall (See FEIS Section 3.2, Hydrologic Processes, and Appendix B, Hydrologic Process Technical Information).

Comment: Alternatives-84

16. Appendix A. Table 2-2. Reducing tributary minimum flows during low-water, low-storage years, particularly during the summer, may be necessary to maintain sufficient water to meet Chinook salmon spawning flow needs in the fall and to avoid severe water temperature conditions. However, the proposal to substantially reduce tributary minimum flows when storage falls below 90% of the storage rule curve would result in very frequent reductions in minimum flows. Even in average water years, reservoir storage is often below 90% of the rule curve due to depletions to meet downstream needs, including minimum flows. Both the severity and the frequency of these minimum tributary flow reductions should be reduced, particularly during the spawning seasons for UW Chinook salmon (Sept – Oct) and steelhead (Mar – May).

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Response:

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There is not enough water to maintain the higher minimum flows below any of the dams in years when the reservoir does not fill. This real-time management approach would allow for adjustments to flows based on the actual accrual of storage and, therefore, would be less dependent on uncertainty in weather and runoff forecasts.

After June 1, the minimum flow schedule would be maintained for the remainder of the conservation season according to that applied on June 1. This approach reflects the fact that substantial contributions to stream flows from precipitation and snowmelt have resided by June and substantial reservoir refill rarely occurs again until fall. See DEIS Section 3.2.1.2, Hydrologic Processes, Basin Climate; Section 3.2.1.3, Hydrologic Processes, River System; and Appendix B, Hydrologic Process Technical Information. See also corresponding information in FEIS Section 3.2, Hydrologic Processes.

Comment: Alternatives-85

17. Appendix A. Section 2.7.3.1 Scheduled/Routine Maintenance. The Corps should commit to revising each of the operations manuals listed in this section as needed to conform with final actions taken under the consultation within 18 months of ROD issuance. Similarly, following construction project completion and testing (e.g. Detroit temperature tower), operating manuals should be developed and project personnel trained in their operation.

Response:

After the Record of Decision is signed, the Corps will follow its engineering regulations required for proper documentation of operational changes. The Corps will update the water control manuals for each individual dam and reservoir as applicable. Operation and maintenance plans for adult fish facilities will be developed at the time of construction; these plans are subsequently updated as necessary.

Comment: Proposed Action-29

18. Appendix A. Section 2.8.1 Overview 2021 Court Ordered Interim Injunction. This clear commitment to continue measures adopted under court order until replaced by measures adopted under the preferred alternative should occur in the body of the DPEIS, not just this Appendix. Also, the Corps should commit to continuing effective interim measures until new measures implemented under the proposed action have been shown to be at least as effective.

Response:

The term "near-term operations" has been changed to "Interim Operations" in the FEIS.

Interim Operations are described in Section 2.8.5. Structural solutions for passage and survival will require long lead times for execution. Consequently, the Corps developed the Interim Operations to continue focus on improving volitional passage and water quality conditions until long-term solutions are in place. The Interim Operations are based on the inunction operations ordered in *NEDC v. USACE* as optimized under adaptive management. These measures are common to all action alternatives and would continue to be optimized under the Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan).

Comment: Water Quality-41

19. Appendix B Page B-62. "The downstream maximum rules are in effect year-round, but typically only govern the ResSim program decision making during a winter flood event. Smaller flood events may occur during the spring refill season or late in the drafting season as well and need some regulation to manage. …" Emphasis added.

How does the Corps intend to manage spring and summer surcharge and high TDG risk? (See Addendum).

Response:

Strategies used to mitigate TDG include increasing turbine outflows to dilute elevated TDG from other outflow routes, spreading spill across multiple spillways to avoid plunging flows and the entrainment of gases, or increasing available reservoir storage to reduce the amount and rate of outflow from a given dam during high flow events (e.g., delayed reservoir refill operations or forecast-informed reservoir management operations).

While the Corps has implemented many of these strategies over the years, delayed refill operations or forecast-informed water management strategies have not been adopted primarily because such strategies are inherently difficult to implement due to the uncertainty and variability in weather and water supply forecasts. Specifically, weather conditions remain uncertain when forecasting from 3 days to 10+ days into the future.

In some cases, experience and forecast skill may be useful for predicting weather scenarios. However, maintaining safe conditions at, and downstream of, the dams while also meeting water conservation targets, requires precise weather skill estimates for forecast lead times that are scenario-, project-, and watershed-specific. These factors have not yet been studied in the Willamette River Basin.

Comment: Fish-74

20. Section 3.8.1.6.1 "Passage for ESA-listed salmonids and steelhead at Detroit Dam/Big Cliff Dam Complex. Only adult hatchery origin UWR Chinook salmon are outplanted above Detroit Dam." Elsewhere, this section supports the Recovery Plan's (ODFW and NMFS 2011) a split-basin approach to managing the fishery, in which hatchery origin adults provide the bases for fisheries downstream from the dams where they may also spawn, while only wild fish would be transported upstream, preserving their genetic integrity. The current management scheme is at odds with the genetic isolation provided by the split-basin approach. This approach is also an affront to the idea of providing wild fish access to their natal streams as any unmarked progeny from upstream returning as an adult would be unclipped and therefore prevented from returning to its natal stream. Even if hatchery stock is frequently supplanted with infusions of wild fish, and there is not a measurable loss of fitness among hatchery origin spawners, measuring success, in terms of cohort replacement rate would be difficult.

To be consistent with the Recovery Plan, all unclipped adult steelhead and Chinook salmon that arrive at Corps adult traps at Minto, Foster, Cougar and Dexter dams should be transported to sites upstream from their respective reservoirs.

Due to a limited number of individuals imprinted on upstream habitats, re-establishing self-sustaining (CRR ≥ 1) populations may require several generations as fish imprinted on downstream habitats placed upstream may leave without spawning, following their imprinting downstream.

Modifying fishery management would require developing a consensus among the Corps, ODFW, NMFS, and FWS. As such, the Corps should demonstrate its support for fishery management that comports with species Recovery Plans in this DPEIS.

Response:

The recommendation to spill water through the upper regulating outlets in the fall and over the spillway in the spring was included in the DEIS alternatives and analyses, including the DEIS Preferred Alternative as part of the Near-term Operations Measures (See DEIS Chapter 5, Preferred Alternative Selection and Implementation). Disposition of hatchery Chinook salmon and wild Chinook salmon and winter steelhead above Willamette Valley System dams would continue in accordance with Hatchery Genetic Management Plans approved by NMFS in 2019 under all alternatives.

The ODFW and NMFS 2011 Recovery Plan for Upper Willamette River Chinook Salmon and Steelhead describes a "split basin" approach. However, until downstream passage is improved, hatchery supplementation above dams would continue to initiate reintroduction under all alternatives, supplement natural production, and encourage local adaptation. Once successful downstream passage is implemented, above dam supplementation strategies would change (depending on consultations with NMFS and ODFW), with the goal of ending hatchery supplementation above dams once natural returns have adequately increased to maintain replacement levels (i.e., CRR greater than 1). This evaluation would not take place until a minimum of three cohorts demonstrated CRR greater than 1 on average. See FEIS Section 3.8, Fish and Aquatic Habitat.

Comment: Fish Passage-34A

21. Section 5.4.1 Implementation of the Preferred Alternative. Overall, implementation of the proposed fish passage and water quality improvement structures is too slow and the rationale for the priorities displayed in the schedule (Figure 5.4.1) unexplained.

a. No timeline for construction of the permanent temperature matching system at the Foster trap is presented. As the need for this structure has been demonstrated, final design and construction should be expedited.

Response:

DEIS and FEIS Section 5.4, Implementation Plan, states that the Implementation Plan is a companion document to the Willamette Valley System EIS (Appendix N, Implementation and Adaptive Management Plan). It describes implementation sequencing of measures under the draft Preferred Alternative.

This Plan links immediate operations to improve fish passage and water quality (i.e., Interim Operations) to the longer-term structural measures, such as the downstream fish passage construction projects, and identifies check-ins, or points along the implementation timeline where course correction (i.e., “on-ramps/off-ramps”) may be necessary based on research, monitoring, and evaluation.

The Implementation Plan is considered a roadmap or high level, tentative schedule that describes a strategy and plan for implementation of the measures developed through the term of the EIS. Considerations such as basin-wide priorities; risk and uncertainty; research and development; and research, monitoring; and evaluation of data gaps and other factors have been used to develop this Plan and to develop a schedule that is both reasonable and implementable given the information available to the Corps at present.

A timeline under the best-case scenario for Measure 479 is included in DEIS and FEIS Figure 5.4-1 (See FFLIP).

Comment: Fish Passage-34B

b. Appendix N, Section 2.1. “While these (court-ordered) actions are tracked in this Implementation Plan, the structural injunction measure will undergo a separate NEPA process that will assess the direct, indirect, and cumulative impacts of their effects on the human environment.” To expedite implementation of these measures, compliance with NEPA should be provided by way of Categorial Exclusions if possible, or brief EAs if not.

Response:

The FEIS has been updated to include "run of river dams" in the Glossary, Chapter 8, and as a footnote after first use. The FEIS has been updated to include "run of river dams" in the Glossary, Chapter 8, and as a footnote after first use.

Comment: Fish Passage-34C

c. Appendix N, Page N-52. The proposed performance metrics are inadequate and call into question the life-cycle modeling performed to evaluate effects. The Corps intends to measure dam passage survival (DPS) of only juveniles detected in the dam forebay (Figure 5-3). This measure of success would ignore fish losses that occur within the body of the reservoir. The Corps should adopt measures of DPS that measure survival from reservoir entry to the unimpounded river, including all of the reservoir and the downstream re-regulating pool and dam.

Response:

Specific metrics commonly applied in the region for assessing fish passage performance are included in DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, Dam Passage Survival and Cohort Replacement Rate (CRR). CRR accounts for effects of reservoir survival among other effects. The life cycle models are not specified for assessing fish passage measures following implementation.

Comment: Fish Passage-34D

Adult fish collection at the base of Green Peter Dam isn't currently needed. Adult fish needed to seed habitat upstream are being collected at the Foster trap and that could continue. Ongoing monitoring could determine if a new trap is needed within 5 years of ROD signing.

Response:

A new adult fish facility at the base of Green Peter Dam will be needed once natural origin adult Chinook salmon and winter steelhead return. These natural-origin fish would have originated from adult fish out planted above Green Peter Dam in previous years.

Genetic sorting was deemed infeasible based on the best available information due to the exceptionally long handling times needed to wait for results to be returned. While this method has been effective for small populations, the number of fish that return to Foster Dam substantially exceeds the 24-hour turnaround time. Therefore, fish would be required to self-sort to their natal streams. In this case, fish returning to the tailrace of Green Peter Dam would need safe and effective passage, which would include an adult fish facility.

The Implementation Plan describes when actions would come online (Appendix N, Implementation and Adaptive Management Plan). The Green Peter Dam Adult Fish Facility would be evaluated when site-specific project designs are prepared.

Comment: Fish Passage-34E

d. Juvenile fish passage using existing dam facilities and modified operations is currently being implemented. Until the effectiveness of those measures is known, planning to develop juvenile collection systems (FSSs and FSCs) at Detroit, Cougar and Lookout Point dams at this time is premature.

Response:

Operational measures are proposed for implementation prior to completing design and construction of structural downstream passage at the dams as described in DEIS Section 3.8.2.5.5, Near-term Operations Measure for Alternatives 2A, 2B, 3A, 3B, 4, 5. The DEIS

and FEIS Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan) includes operational monitoring to assess performance.

Comment: Fish Passage-34F

Within 7 years of ROD issuance, and following at least 5 years of implementing aggressive operational measures, the Corps, in consultation with NMFS and FWS, should determine if operational measures are sufficient to support species recovery and, if needed, initiate design/construct projects to meet juvenile passage needs.

Response:

The Implementation Plan is intended to be read in context with the entire Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan). Operational measures are proposed for implementation prior to completing design and construction of structural downstream passage at the dams indicated.

The Adaptive Management Plan includes that these operations would be monitored to assess their performance and reviewed with WATER to determine if changes to the Implementation Plan should be proposed. The Adaptive Management Plan has been updated in the FEIS (Appendix N, Implementation and Adaptive Management Plan).

The WATER Forum includes NMFS and USFWS.

Comment: Proposed Action-30

22. Section 5.5 Adaptive Management Plan. This plan is incomplete. Both performance evaluation and the development of remedial action should engage the regulatory agencies (NMFS and FWS) and interested parties (e.g. municipalities). The Corps should commit to periodic check-ins at predetermined intervals to track measure implementation and performance.

Response:

Both performance evaluation and development of remedial actions are included in the DEIS and FEIS Implementation and Adaptive Management Plan (Appendix N). The Plan includes regional coordination and input to the Corps for decision making via the WATER Forum. NMFS and USFWS are a part of the WATER Forum. The implementation schedule includes periodic check-ins at pre-determined intervals to measure implementation and performance.

Comment: Hydrology-19

23. Appendix E. Life Cycle Modeling. Alternative 5, the preferred alternative, was not modeled. This was likely due to time constraints as the preferred alternative was developed late in the process. Given the overly high fish passage efficiency attributed to floating screen structures

(FSS) and floating surface collectors (FSC), it is likely that life cycle modeling of Alternative 5 would provide similar results to that for Alternative 4, which presented a high species viability (VSP) scores. For reasons given below, these modeling results are unreliable.

Response:

While Alternative 5 was not modeled with respect to fish, it was modeled with respect to hydrology. It was determined that Alternative 5 would not be substantially different in terms of fish outcomes, than Alternative 2B. Therefore, the Corps relied on the analysis under Alternative 2B to inform population-level performance. This is stated in the effects analysis (FEIS Section 3.8.3, Fish and Aquatic Habitat, Environmental Consequences).

The Corps disagrees that the model results are unreliable based on the very minor differences between Alternative 2B and Alternative 5. While the performance of Alternatives 2B, 4, and 5 may be similar, note that each alternative would achieve specific objectives using, in some cases, different approaches or combinations of approaches.

While Alternative 4 and Alternative 5 would produce similar outcomes, the hydrology and water management approaches differ substantially. For example, Alternative 4 incorporates primarily structure-based downstream passage while Alternative 2B and Alternative 5 incorporate a combination of structural and operational passage. However, to demonstrate this model behavior, the FEIS has been updated to include model outputs for Alternative 5 (FEIS Section 3.8.3, Fish and Aquatic Habitat, Environmental Consequence, Alternative 5).

Comment: Hydrology-20

25. Appendix E, Table 1-42. The FCE values presented are unlikely to be achieved and should not be used in life-cycle modeling. The referenced Kock et al. (2019) study presented FCE values for head of reservoir releases, forebay releases, and near collector entrance releases. This is clearly not a single population of data and it is unsurprising that the results of using Kock et al.'s regression equation to obtain FCE estimates for proposed FSSs are unrealistic. For example, the value given for steelhead in Table 1-42 is greater than 1, an impossibility. The value given for Chinook salmon is a negative value, which is also impossible. The Kock et al. study likely has value in sizing fish collectors, but the regression for FCE should not be used in life-cycle modeling.

Response:

Kock et al. (2019 in Chapter 10, References) published a hierarchical model and assumes collector features such as entrance size and flow are exchangeable. When the fish collection efficiency (FCE) passage efficiency values (i.e., collection efficiency values for collectors) were applied in the Fish Benefit Workbook model, it was also assumed that

inflows were at an average level where Measure 392 is included under an alternative (See DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses).

While the Corps acknowledges uncertainty in these assumptions, the model is the most complete and represents the best available information. When consulting fish biologists in the region, it was determined that these values were the most reliable given exchangeable physical features.

The issues noted in the comment with FCE occurs because of the size of the collectors being proposed. There are no data to indicate what happens at the upper end of the curves included in Kock et al. 2019. The Corps recognizes that values of greater than 1 are not plausible; however, this is an artifact of the lack of hierarchical data on fish collection efficiencies on the upper end of the logistic curve for a collector of large size. In future iterations, it could be useful to bound/constrain values below 1.0. This is not a feature of the current model framework.

Comment: Alternatives-86

26. Appendix E, Page E-411. "Alternatives that relied solely on operational passage, 3a and 3b, did poorly compared to the other alternatives. It is beyond the scope of this report to detail differences between structural and operational passage at high head dams; however, it appears much of the inefficiency inherent in operational passage (as expressed in the FBW) comes from periods of time when the reservoir elevations are not ideal for passage through regulating outlets or via spill." This statement assumes that operational passage would be constrained to follow existing reservoir storage rule curves. Year-round deep drawdowns were not considered. As described above, reservoir and dam passage survival would be greatly improved by deep, year-round drawdowns, which were not analyzed.

Response:

The Corps disclosed the tradeoffs and performance of operational versus structural passage in the EIS. This comment currently states that year-round deep drawdowns were not considered. Year-round deep drawdowns were considered out of scope for this EIS analyses, because such drawdowns would result in increases to flood risk and the elimination of certain Congressionally authorized purposes (e.g., water supply, hydropower).

See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, Proposed Action, and range of alternatives. Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes.

Comment: Alternatives-87

27. Appendix J. The flow duration analyses presented is not very useful in identifying and comparing the streamflow related fish habitat effects of the alternatives. Either fish-use seasonal evaluations, or monthly analyses would provide a better opportunity to evaluate fish habitat effects. Side-by-side comparisons would be more useful than displaying each alternative separately.

Response:

Models used to assess Chinook salmon and steelhead survival below Willamette Valley System dams accounted for habitat availability relating to daily flows by reach. Methods and results are documented in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses. Additional habitat availability information relating to flow below WVS dams was developed for the Final Biological Assessment, which has been included in the FEIS in Section 3.8, Fish and Aquatic Habitat.

Comment: Purpose and Need-11

The DPEIS is inadequate.

It fails to fully disclose the purpose of the action (e.g. storage reallocation). The range of operational measures considered was truncated by extensive reliance on existing operating criteria.

Response:

The purpose of this EIS to continue to operate and maintain the Willamette Valley System in accordance with the Corps' Congressionally authorized purposes. The Willamette Basin Review Feasibility Study was a separate effort that evaluated the reallocation of storage in the reservoirs amongst irrigation, municipal and industrial water supply, and fish and wildlife.

The FEIS has been updated to include more information on distinctions between the operations and maintenance NEPA review and the Willamette River Basin Review of storage allocation in Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008.

The Corps took a broad approach to designing operational measures, as reflected under Alternatives 2B, 3A, 3B, and 5, including but not limited the Cougar Dam diversion tunnel operation where operations would only provide water for irrigation, fish and wildlife, municipal and Industrial water supply, and hydropower for a few days in the hydrologic period of record. The screening criteria of not eliminating a project purpose or increasing flood risk allowed the Corps to properly develop a reasonable range of alternatives for consideration (Appendix A, Alternatives Development).

Comment: Fish Passage-35

Very little evidence was provided to demonstrate that operational measures to pass juvenile UW Chinook salmon and steelhead would be inadequate, largely because a limited range of operational measures were considered.

Response:

The alternatives demonstrate a wide range of potential operational and structural passage solutions; the environmental consequences analyses for each resource demonstrate anticipated effects or benefits. Measures to improve downstream fish passage that would draw down reservoirs below rule curves and to pass fish over the surface spillways are included in the FEIS (Measure 40 and Measure 720) (See FEIS Chapter 2, Alternatives, and Appendix A, Alternatives Development).

Under the Preferred Alternative, an extreme drawdown near to streambed would occur at Cougar Dam. Implementation of this drawdown would depend on results of further site-specific study and Congressional approval. Much of the evidence used to inform analyses of fish passage included in the EIS comes from site-specific studies or comparable species and systems referenced in in DEIS Appendix E, Fish and Aquatic Habitat Analyses.

Comment: Scope-7

The proposed duration of the action is too long. It focuses on measure implementation goals rather than fish passage success metrics. In doing so it fails to recognize the experimental/iterative nature of achieving successful fish passage at high head dams.

Response:

Comment noted.

Comment: Alternatives-88

The preferred alternative should be incremental, implementing actions, evaluating their effects, and revising or replacing the action as shown to be needed.

Response:

The selected alternative would include an Adaptive Management Plan to analyze the success and potential for operations and maintenance improvements at any dam and reservoir. However, as identified in the Implementation and Adaptive Management Plan, replacement of a full alternative that has been reviewed under NEPA through the agency decision process would require additional NEPA compliance for additional decision making (Appendix N).

Comment: Alternatives-89

The life-cycle model used to compare the likely success of those alternatives that were evaluated is unreliable. It assumes very high fish collection efficiencies for proposed floating screen structures that are unlikely to be achieved.

Response:

Life cycle models used inputs from the Fish Benefit Workbook, a model to estimate downstream fish passage survival at WVS dams. For estimating fish passage performance for floating screen structures (Measure 392), the Corps applied the logistic regression from Kock et al. (2019 in Chapter 10, References).

The collection efficiency estimates used in Fish Benefits Workbook were predicted from the Kock et al. (2019 in Chapter 10, References) logistic regression, which predicts along the higher end of the regression for the proposed collectors under Measure 392. This is due to the inflows, guidance structures, collector entrance area, and the relative size of the dam forebays at the WVS dams. For this reason, performance was predicted to improve over other regional collectors.

Methods and fish passage results for the Fish Benefit Workbook are included in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses. USGS is working to update the fish collector efficiency model, which in some cases could result in slightly more negative regression outcomes. However, these model updates have not been peer reviewed, and this product is not available for use in the FEIS. As such, the Corps relies on the 2019 model as the best available science, recognizing that there are limitations to this model per USGS.

Comment: Purpose and Need-12

It fails to focus on the Corps' obligation to further species recovery efforts.

Response:

The Corps is legally obligated to operate and maintain the Willamette Valley System to meet multiple statutory purposes (FEIS Chapter 1, Introduction, Section 1.10, Congressionally Authorized Purposes). The Corps is also required to ensure that operation of the system complies with other laws.

Under the ESA, in particular, operation of the Willamette Valley System may not appreciably reduce the likelihood of listed species survival and recovery, or adversely modify or destroy designated critical habitat. The ESA does not, however, require the Corps to take affirmative actions to recover ESA-listed species. Recovery is a broader regional goal and is above and beyond the Corps' and Action Agency obligations under Section 7(a)(2) of the ESA for the effects of operation and maintenance of the system. Recovery is ultimately the role of NMFS and the USFWS. Recovery efforts will need to

continue to involve parties across the region that have an influence and effect on ESA-listed species.

Comment: Alternatives-90

The preferred alternative's reliance on extensive structural measures (temperature towers, TDG abatement, floating screen structures and floating surface collectors) that would be very costly and require Congressional approval, makes it both expensive and uncertain to occur.

Response:

Comment noted.

Comment: Fish Passage-36

Deep drafts, a less expensive and potentially highly effective juvenile passage measure, were not thoroughly investigated.

Response:

The alternatives demonstrate a wide range of potential operational and structural passage solutions; the environmental consequences analyses for each resource demonstrate anticipated effects or benefits. Measures to improve downstream fish passage that would draw down reservoirs below rule curves and to pass fish over the surface spillways are included in the FEIS (Measure 40 and Measure 720) (See FEIS Chapter 2, Alternatives, and Appendix A, Alternatives Development).

Under the Preferred Alternative, an extreme drawdown near to streambed would occur at Cougar Dam. Implementation of this drawdown would depend on results of further site-specific study and Congressional approval. Much of the evidence used to inform analyses of fish passage included in the EIS comes from site-specific studies or comparable species and systems referenced in in DEIS Appendix E, Fish and Aquatic Habitat Analyses.

Comment: Hydrology-21

The Corps has chosen not to consider actions that might modify operations in a manner that it considers could potentially affect its FRM actions. While it is reasonable for the Corps to reject actions likely to limit its ability to manage flood risk absent detailed investigation, hydrologic work presented in the DPEIS makes it clear that such changes could provide meaningful benefits (e.g. Appendix B, Table 7-2). Further, the changing climate shows that there are risks not considered when operations were originally devised. There are beneficial operational measures the Corps could adopt now without any additional flood risk, such as delaying refill when appropriate. Others, such as extending the duration that surcharges (storage above the minimum conservation pool (rule curve)) is allowed to persist to improve the likelihood of refill in dry years, require additional study. Given the scope and scale of the analyses presented in

support of the DPEIS, the Corps clearly has the expertise to conduct detailed flood risk assessments of alternative operations. These measures should be further evaluated for flood risk and adopted when appropriate.

Response:

The Corps does not have the authority to limit its ability to manage flood risk; flood risk management is the primary Congressionally authorized purpose for the Willamette Valley System. See FEIS Chapter 1, Introduction, Section 1.10, Congressionally Authorized Purposes.

Flood risk management was not analyzed in the EIS because the level of flood risk under any alternative would not increase when compared to current operations and management levels of flood risk (See Appendix B, Hydrologic Processes).

Comment: Water Quality-42

The Corps should either allow surcharge above the IRRM limit, if dam-safety permits, or delay refill until the risk of fill and spill has substantially declined to reduce downstream high TDG events.

Such a refill delay decision would consider forecasted inflows (e.g. NOAA River Forecast Center's (RFC) 10-day forecast), prevailing climatic conditions, and probability of refill estimates. The existing WATER process as described on page 3-43 would seem well-suited to this task.

Not all high TDG-generating events can be avoided, but thoughtful refill management could reduce their occurrence during steelhead spawning. To be clear, delaying refill to reduce the risk of fill and spill operations would not in any way increase flood risk, but would reduce it.

While I have only taken the time to review operating limit changes through time at Detroit reservoir, all projects operating under IRRM likely also have a somewhat increased probability of fill and spill operations due to the loss of available summer flood storage. But the issue is perhaps most acute at Detroit because refill is a high priority and the need to avoid fill and spill is high due to high TDG production and the presence of listed fish.

Response:

The Corps would continue to optimize operations to the greatest extent possible to reduce TDG production, using the spread spill concept, as well as other operational strategies. Balancing operations that support downstream fish passage and TDG management while refilling reservoirs (such as Detroit Reservoir) for water temperature, supply, and recreation is inherently difficult. The Corps would continue to utilize water supply forecasts and state-of-the-art numerical modeling to make inter-seasonal adjustments to operations that minimize TDG when possible.

The Interim Risk Reduction Measures (IRRMs) are excluded from the EIS modeling because they are temporary, awaiting permanent resolution. Interim Risk Reduction Measures are currently implemented so that the Corps has maximum operational and maintenance capabilities for the WVS dams and reservoirs within dam safety tolerable risk guidelines. As such, the Corps does not currently operate outside the Interim Risk Reduction Measures limits while the measures are implemented.

The Corps uses available forecasts for Willamette Valley System regulation decisions on a routine basis, balancing all WVS authorized purposes. Thus, they were not considered for analysis purposes for the long-term Proposed Action.

Comment: Climate Change-13

The lingering snowpack and atmospheric river events of May and June 2022 were unusual events when viewed through the lens of the historical record. However, over the past 43 years in North America, the frequency of unusual heat and precipitation events is increasing rapidly: "The yearly trends of the risk of a 100-y high-temperature event show an average 2.1-fold increase over the last 41 y of data across all months, with a 2.6-fold increase for the months of July through October. The risk of high rainfall extremes increases in December and January 1.4-fold, but declines by 22% for the spring and summer months (PNAS 2022).

Over the past 30 years (1986-2016), mean annual temperatures have increased by 1 to 2° F throughout the Pacific Northwest and precipitation in the Willamette Valley has increased by about 5% (Appendix F, Figures 3-2 and 3-3). Also, "… the Pacific Northwest has experienced a moderate increase in the precipitation falling during extreme events. This indicates that extreme events have been becoming increasingly intense over the past decades. The observed trends in heavy precipitation are supported by well-established physical relationships between temperature and humidity. These increases in annual and extreme precipitation depths and volumes have various implications for reservoirs, particularly those intended for flood risk management." Page F1-12.

The Corps' CHAT model and vulnerability assessment (VA) (Appendix F, Chapter 7) suggest possible higher runoff volumes and peak flows during the winter and spring with less change from current norms during the summer with prolonged drought as a vulnerability.

The VA also suggests physical plant modifications to allow a greater range of safe operation to increase WVS resiliency in the face of an uncertain hydrologic future. The Corps has undertaken gate improvements in recent years that have improved climate resilience. By increasing structural resilience such measures benefit all project purposes.

However, improving physical system performance is not the only mechanism available to increase WVS resilience in the face of climate risks. Increasing operational flexibility, using real-time and forecasted climate and hydrology data to inform operations, particularly during refill, would improve WVS response to changing hydrologic conditions at low cost.

The Corps should also seek to improve refill-season runoff forecasting to better manage refill for all project purposes. Operations evaluations should take place every 5-7 years throughout the 30-year life of the preferred alternative to incorporate new information, forecasting improvements, and lessons learned. It would benefit the WVS's climate resilience to adopt more flexible operations as forecasting skill allows.

Response:

It is likely that future improvements of real-time forecasting will improve system planning and management response to climate change extremes. The Corps continues to investigate methods to improve the operations of the Willamette Valley System reservoirs. For example, water management is studying forecast-informed reservoir operations (FIRO), though the Corps cannot - and Council on Environmental Quality NEPA regulations do not require that agencies - speculate on the study outcome or implementation within the EIS.

However, it is Corps policy to continually improve climate change analyses with the best available information and to modify system planning and management if warranted and practicable. Alternatives with measures that can be adapted would be more resilient to climate change risks and would provide better management for such risks than those measures that are not easily adaptable to changing climate conditions.

Comment: Purpose and Need-13

The DPEIS details two components of the purpose and need:

1) Manage for the Congressionally authorized purposes;

2) Meet the requirements under the ESA.

The purpose and need statement also acknowledges the need to be responsive "to changes in WRB conditions and new information related to system operations and technology, the affected environment, policies, and regulations such as the ESA" (DPEIS, p. 2-1). We suggest that this statement be amended to include specific acknowledgement that authorized purposes may change during the time horizon of the plan.

The DPEIS should also acknowledge that ESA obligations supersede desires to balance or maximize achieving the other authorized purposes except in the case of meeting flood control objectives and maintaining human health and safety. As explicated in Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al., court case No.

3:18-cv-00437-HZ, the Corps has the discretion to implement operations that benefit listed fish at the expense, but not complete elimination, of the other authorized purposes.

We recommend that the Corps better articulate the purpose and need by amending point two to read: “Meet the requirements under the ESA to ensure the survival and recovery of ESA-listed species” (suggested edits in bold).

Response:

The quoted text is not part of the purpose and need statement for the Proposed Action, but rather management context for implementation of any alternative that meets the purpose and need for action. The requested modifications to the purpose and need statement are not necessary because they would not further the scope of EIS review by modifying the range of alternatives and would not serve any analysis purpose under a programmatic review because future conditions, both regulatory and ecological, are always subject to modification but were speculative at the time the alternatives were analyzed.

There would be no EIS analysis utility in incorporation of statements regarding which regulatory laws supersede others, nor is such a legal interpretation appropriate in the scope of an EIS, which is to address potential effects on the human environment for a Proposed Action. Such acknowledgement would not help to define the range of alternatives and would not alter the analysis of potentially significant effects on the human environment.

Moreover, potential operational management modifications based on conflicts between environmental laws is speculative and not reasonably foreseeable (40 CFR 1502.22). Agencies are not required to analyze outcomes based on speculation (Council on Environmental Quality 40 Most Asked Questions at 18). Adding "to ensure the survival and recovery of ESA-listed species" is not necessary because this, and several other ESA requirements, are inherent in "compliance with the ESA."

Comment: Purpose and Need-14

We recommend that Objective 3 be amended as follows: “Allow greater flexibility or potential elimination of hydropower production” (suggested edits in bold).

We agree that at present the Army Corps must be “flexible” in producing hydropower. Flexibility in hydropower production enables consideration of a host of alternatives that would otherwise be constrained, less effective, or incompatible with a continued focus on maximizing hydropower production on the system. However, the Corps should be analyzing alternatives that consider the elimination of hydropower altogether. Failing to do so eliminates potentially effective alternatives from consideration and may change the efficacy of some of the existing proposed alternatives.

Response:

The Corps analyzed potential impacts to hydropower production, including economic impacts, under each of the alternatives in Section 3.12 and Appendix G, Power Generation and Transmission. Economic impacts to hydropower production from the measures proposed to comply with ESA requirements and their tradeoffs have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation. The Corps also analyzed potential effects to listed fish and other threatened species under each of the alternatives.

When making its decision based on analyses in an EIS, Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional direction to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives.

The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative. Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Alternatives-91

- Elimination of hydropower production: The Corps should assess operational measures that would be feasible if hydropower were eliminated at all projects or select projects. This should include:
    - Modification or removal of non-flood control dams: Dexter and Big Cliff are hydropower reregulation dams that do not serve any flood control purposes. As such, the Corps must produce and evaluate measures which include modification or removal of these dams to support the recovery of listed species. For example, measures that should be incorporated for consideration include operating these dams as run-of-the-river without hydropower operations or removing them completely.
    - Re-evaluate effectiveness of existing alternative downstream passage measures at Detroit, Hills Creek, and Lookout Point dams: Operating the reregulation dams as run-of-the-river without hydropower operations, or removing them completely, will enable the Corps to more fully evaluate operational changes to Lookout Point, Hills Creek and Detroit dams that are currently constrained by the presence and operation of the reregulation dams. For instance, establishing more effective

volitional juvenile downstream passage (or passage without dams) at the reregulating dams may substantially improve the effectiveness of Detroit and Lookout Point volitional juvenile downstream passage alternatives analyzed in the DPEIS. Temperature impacts of a water temperature control tower at Hills Creek should also be re-evaluated in a scenario in which Dexter Dam has been removed and Lookout Point Dam is operated with longer drawdowns or run-of-river operations.

- Additional volitional downstream passage operations: The Corps should evaluate measures to modify dams to allow run-of-river operations for most or all of the year (except when flood control storage is necessary), extended drawdowns, and measures evaluating passage opportunities through reconfiguring powerhouse routes from hydropower to non-hydropower producing outlets at all projects. Operational passage measures similar to those at Cougar dam should be evaluated at Hills Creek Dam.

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority. Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA. Impacts to all the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects under the alternatives on fish and wildlife, hydropower, water supply, flood risk management, etc.

Comment: Alternatives-92

These legislative directives indicate a Congressional interest in pursuing hydropower deauthorization. As such, the DPEIS should consider new and existing alternatives through the lens of hydropower elimination at specific dams and across the WVS as a whole. By undertaking this work in the DPEIS, the Army Corps will be able to meet the Congressional timeline of completing the study by July 2024 (as opposed to the Corps' proposed completion of 2028).

Response:

The seven action alternatives provide a reasonable range of alternatives and include an analysis of operations outside of the Corps' current authorities such as the Cougar Dam

diversion tunnel under Alternatives 2B, 3B, and 5. The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1).

Although deauthorization of hydropower is outside of the Corps' authority, the possibility of deauthorization of the hydropower purpose is being considered in other on-going studies following Corps and Congressional protocols. These studies and a report to Congress are the appropriate methods for addressing hydropower deauthorization issues in the Willamette Valley with Congress.

Meanwhile, the Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS.

Further, impacts to all Corps' Congressionally mandated purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes. Impacts from the drawdown operation at Cougar Dam will be analyzed in a site-specific analysis; coordination with applicable governmental agencies and tribes will occur during that process.

Comment: Alternatives-93

To ensure informed, environmentally sound decision making, agencies should identify and analyze a reasonable range of alternatives, even if an alternative extends beyond the lead agency's authority. Under NEPA, agencies are to provide decision makers, as well as the public, with a reasonable range of alternatives, including those which are beyond the agency's jurisdiction, as this practice promotes informed decision making. If an alternative is readily identifiable, it is reasonable, and it must be explored and objectively evaluated. California v. Block, 690 F.2d 753, 766 (9th Cir. 1982). Courts apply a "rule of reason" to determine what is reasonable or feasible. Citizens Against Burlington v. Busey, 938 F.2d 190, 195-196 (D.C. Cir. 1991). This determination is made by reference to the purpose of the proposed action rather than the agency's statutory authority. Id. While an agency need not consider every possible

alternative, it must consider alternatives that are consistent with basic policy objectives. Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 814 (9th Cir. 1999). A failure to analyze a reasonable alternative that encapsulates the policy objectives of the proposed action is counter to the objectives of NEPA.

Response:

The Corps intentionally analyzed operational measures outside of its current authority under numerous alternatives. For example, the Preferred Alternative includes an operation at Cougar Dam of the diversion tunnel that would require further Congressional approval as the operation would substantially deviate from current operations and would have major adverse impacts to the other Congressionally designated authorized purposes.

Comment: Endangered Species Act-12

The agencies must consider alternatives like extended drawdowns and year-round drafting of reservoirs that prioritize ESA-listed fish above other project purposes. The Ninth Circuit and U.S. District Court of Oregon have recognized the Corps' discretion to manage dams on the Columbia River for the benefit of threatened fish. Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al., Case No. 3:18-cv-00437-HZ; NWF v. NMFS, 524 F.3d at 928-29; Nat'l Wildlife Fed'n v Nat'l Marine Fisheries Serv., 2005 WL 1278878, at *9-10 (D. Or. May 26, 2005).

Response:

Comment noted.

Comment: Endangered Species Act-13

Even if the Corps lacked authority to conduct operations or make improvements to operations to protect ESA-listed fish, the Corps should seek authorization from Congress to do so. Indeed, the 2008 Biological Opinion RPA required the Corps to identify where the agency lacks the authority to accomplish the required measures and to seek Congressional authorization where necessary to complete the mandated actions (RPA 4.8 (Interim Downstream Fish Passage through Reservoirs and Dams); 4.12 (Long-term fish passage solutions); 5.1.3 (Complex Interim Water Quality Measures) 5.2 (Water Temperature Control Facilities and Operations) 5.3.4 (Protecting Water Quality during Emergency and Unusual Events or Conditions)).

Response:

The Corps analyzed operational measures outside of its current authority under several alternatives. For example, the Preferred Alternative includes an operation measure at Cougar Dam for the diversion tunnel that would require further Congressional approval. This potential operation would substantially deviate from current operations, under Alternatives, 2B, 3B, and 5.

Furthermore, this measure would create substantial adverse impacts to other Congressionally authorized purposes. However, the Corps would seek Congressional authorization to operate the Cougar Dam to accommodate this measure if an alternative incorporating this measure were selected in the Record of Decision.

Comment: Fish Passage-37

The Corps "preferred alternative" fails to acknowledge the region wide problems with fish collectors for downstream passage including:

Low confidence in potential success of juvenile fish collection facilities

The parameterization and results in the Fish Benefit Workbook (Appendix E) for fish collection facilities relies on very limited data gathered from the handful of collectors in operation (as provided in Kock et al. 2019). As a result, we have low confidence in the accuracy of the results that suggest fish collection facilities will have a high rate of dam passage efficiency for both spring Chinook and winter steelhead. It is unclear if and how the Army Corps accounted for additional available information and science in assessing the potential success of Measure #392 (Construct Structural Downstream Fish Passage), particularly in relation to the use of fish collection facilities (described as Floating Screen Structures or Floating Surface Collectors in the DPEIS).

Response:

The DEIS has been revised to acknowledges the uncertainty in improvements that can be achieved with different downstream fish passage measures included under each EIS alternative in the FEIS (Section 3.8, Fish and Aquatic Habitat, and Appendix E, Fish and Aquatic Habitat Analyses).

The comment slightly mis-characterizes Kock et al. 2019 (Chapter 10, References). The authors compiled information on environmental, structural, and performance characteristics of seven existing forebay collectors to quantify factors affecting their performance based on a meta-analysis using a data set containing 52 separate collection estimates. As described by Kock et al. (2019), covariates included species type, collector inflow, collector entrance area, relative size of the dam forebay, and whether nets were used to enhance collection. They found that inflow, the use of lead nets, the size of the collector entrance area, the relative size of the dam forebay, and the interaction between collector entrance and forebay areas were significant predictors of collection performance. Chinook salmon exhibited the lowest collection rates among the dams.

The Corps applied the logistic regression from Kock et al. (2019), using the inflows, guidance structures, collector entrance area, and the relative size of the dam forebay for Measure 392 at respective Willamette Valley System dams where the measure was included under an alternative. These collector performances (included collection efficiencies) result because the model is predicting along the higher end of the logistic

regression. The proposed collectors are of unprecedented sizes and flows. For this reason, estimated performance is improved overestimates based on field studies at existing regional collectors.

While the hierarchical analysis includes "7 data points," that is a nuance of hierarchical analyses in general; the analysis includes more than a point estimate from each collector. The model also accounts for the number of observations of fish collection efficiency at each collector as well as the variance. Each "data point" (in this case, the individual collector) is treated as a single data point recognizing that each datapoint is actually a "population sample" or a collection of data points for that collector. This is a strength of hierarchical modeling such that the information from this handful of collectors is leveraged to provide more precise predictions based on the behavior of the sample data for each collector.

Comment: Fish Passage-38

However, the DPEIS fails to provide any references to the reintroduction and recovery efforts at the PRB project. Such information may be useful in determining the potential efficacy of the proposed action in meeting recovery goals in the North Santiam and Middle Fork Willamette rivers. For instance, after more than ten years of operation, juvenile collection efficiency for spring Chinook salmon and summer steelhead remains far below the goal of 75%. Adult returns have been dismal. In 2018, only five adult spring Chinook salmon that had migrated downstream through the fish collection facility as juveniles returned as adults to the Pelton Trap. Even in the best collection year, spring Chinook returns to the Pelton Trap barely surpass 50 fish.5 A large body of research has been conducted around the PRB reintroduction program with results showing that flows, flow timing, hatchery practices, smolt acclimation, water quality, and a number of other factors impact reintroduction outcomes. We encourage the Corps to review this information, reach out to PGE, ODFW, and Confederated Tribes of Warm Springs Indians, and incorporate the knowledge gained and lessons learned into the modeling and analysis for structural downstream passage measures.

Response:

Upstream passage by trap and haul has been a shown to be an effective approach. Numerous field studies have documented the ability of Chinook salmon to spawn after collection and transport upstream of Willamette Valley System (WVS dams). Pre-spawn mortality is relatively high for Willamette Spring Chinook salmon populations and continues to be a major issue in some locations in some years relating to factors including water temperature exposure, hatchery fish densities, and poaching.

The Corps references Kock et. al (2019 in Chapter 10, References) to assess downstream passage efficiency at WVS dams through surface collectors (Measure 392) (DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses). Kock et. al (2019) compiled information on environmental, structural, and performance characteristics at seven existing forebay collectors that quantified factors affecting fish collector performance. This information

was based on a meta-analysis using a data set containing 52 separate collection estimates. Covariates included species type, collector inflow, collector entrance area, relative size of the dam forebay, and whether or not nets were used to enhance collection.

The authors found that inflow, the use of lead nets, the size of the collector entrance area, the relative size of the dam forebay, and the interaction between collector entrance and forebay areas were substantial predictors of collection performance. Kock et al. (2019) qualitatively included PGE Pelton Round Butte because:

(1) PGE Pelton Round Butte previously experienced reduced Fish Collection Efficiency due to power peaking/non-constant flows delivered to the collector. This resulted in lower than predicted Fish Collection Efficiency. The Corps has adjusted for this outcome by proposing turbine operations under Measure 392 (turbine operations during daytime hours only).

(2) The zone of influence for assessing fish collection from the forebay is not clearly defined in the case of PGE Pelton Round Butte or in some cases, the entire reservoir is included. The recovery goals themselves are not indicative of what is biologically possible to achieve with downstream passage structures in the Willamette River Basin.

(3) The analysis in both life cycle models (UBC and NMFS) concluded that downstream passage rates were at times inconsistent with the rankings (i.e., the relative order of population metrics performance of the alternatives) of the WVS EIS alternatives at the population level. This is because passage performance at some dams can be lower than others and still achieve good population-level performance. There are several factors that drive this outcome, including distance to the ocean, age-specific ocean survival, pinniped predation, and fishing mortality among other factors.

Comment: Fish-75

Delayed mortality does not appear to be considered in the Army Corps' analysis and should be factored in. Like many of the factors contributing to the overall success of non-volitional collection facilities, delayed mortality has been studied at a limited number of similar locations. Other projects like those at PRB and Swift have built or upgraded juvenile acclimation facilities where collected fish are given time to recover after transport but before release into downstream waters. However, limited data exist on delayed mortality post-release. It is unclear whether such facilities are being considered for the passage projects at Detroit and Lookout Point Dams and how the presence, absence, use, and design of such structures may impact overall passage mortality.

Response:

Mortality for juvenile salmon after passing downstream of dams that could have been caused by passing the dam (i.e., delayed mortality) is a hypothesis often cited for poor

ocean survival of smolts and poor adult return performance. No mechanism for delayed mortality as it relates to passage have been clearly identified in the scientific peer reviewed literature. Monitoring of downstream fish passage as described in the Adaptive Management Plan (Appendix N) will include measuring concrete survival.

Concrete survival will be measured as the number of fish that survive from the dam to the downstream concrete survival measurement boundary divided by the total number of fish that pass downstream. The concrete survival downstream measurement boundary will be located near the river confluence with the mainstem Willamette River (or nearest feasible location upstream of the confluence for assessing survival).

Measuring concrete survival lower in each tributary below Willamette Valley System (WVS) dams will allow for mortality associated with dam passage to manifest, however study designs will need to account for other sources of mortality occurring below WVS dams to separate out that caused by the dams and that caused by other sources, both related to the WVS and non-WVS factors.

Comment: Fish-76

How does the Army Corps' analysis account for aquatic and terrestrial predation in reservoirs before fish are collected and at downstream release sites? Fish collection facilities around the region have experienced negative impacts to collection rates from predation. For instance, at both the PRB and Swift downstream collection facilities, juvenile fish tend to congregate and mill about the area in front of the collection entrance. As a result, bull trout and other piscivorous fish have been observed congregating around the collector entrance while piscivorous birds have similarly congregated on nearby floats and booms, increasing predation on juvenile fish in the reservoir. Predation at downstream release sites has also been a common problem observed in other trap and haul systems.

Response:

Estimates of survival rates in reservoirs and in below-dam reaches are accounted for at the reach scale in the analyses. Ocean survival rates are also assessed (Appendix E, Fish and Aquatic Habitat Analyses).

Comment: Fish-77

The DPEIS fails to incorporate a robust adaptive management strategy

The DPEIS explains the concept of adaptive management, including the need for key aspects to be well defined including: monitoring, decision criteria, performance metrics, targets, evaluation, and decision triggers. The DPEIS and associated Appendix N: Implementation and Adaptive Management Plan, outline how these key components of adaptive management will be formulated to inform refinement and change of individual proposed measures. However, we encourage the Corps to ensure that targets are well defined and associated with specific

timeframes. For example, for Detroit near-term operations performance targets (DPEIS Appendix N, pg. N-48), key indicators of fish passage success use a general target of "Increase in the number of juveniles passing" and "Increase in the distribution of fish lengths passing downstream." The Corps should outline what degree of increase and over what time period will be adequate to consider the measure a success. Otherwise, any amount of increase could be considered a success, but may not support species recovery or avoid continued jeopardy.

The Corps should also outline what metrics will be used to evaluate whether the plan as a whole is adequately contributing to the conservation and recovery of the species at the Evolutionarily Significant Unit (ESU) and Distinct Population Segment (DPS) level for UWR Chinook salmon and winter steelhead respectively. Without a population-wide perspective, the Corps will not know if the sum of the individual management measures is having the intended effect of preventing jeopardy to the species or contributing to the overall recovery of ESA-listed populations.

Response:

An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N, Implementation and Adaptive Management Plan). Metrics, criteria, and an approach to assess near-term fish passage operations have been revised in the Plan to identify success. Metrics include assessing population-level performance by monitoring cohort replacement rates. The Plan also includes schedules for implementation of each measure.

The Plan includes continued coordination with regional partners in the WATER Forum, with additional specificity such as conducting annual meetings to review new information, proposals for changes to specific measures in the Plan, and development of annual updates to the Plan.

Comment: Fish-78

The plan should outline a process to make real-time decisions on trade-offs between water conditions, flows, and fish passage.

Adaptive management success will also depend on having adequate monitoring and data collection. The DPEIS and associated Appendix N indicate that "Study designs and methodology to assess the defined metrics will be determined during implementation so that the best available scientific approach and methods can be applied." At present, many of the interim downstream passage injunctive measures (many of which are proposed to continue as near term measures under the plan), are being monitored via screw trap collection of juvenile fish. We encourage the Corps to include the use of more descriptive data collection measures via tagging and tag arrays in tributaries and at Willamette Falls. RM&E plans should be developed now so that monitoring can be deployed immediately upon plan execution. Monitoring should also include more robust data collection of adult fish returns, distribution, pre-spawn mortality, and spawning.

Response:

Additional information on the concept of adaptive management has been added to FEIS Chapter 1, Section 1.9.4, Research, Monitoring, and Evaluation, and a definition provided in Chapter 8, Glossary.

Further, the DEIS and FEIS explain the concept of adaptive management and defines key aspects of monitoring performance metrics and decision criteria triggers for measures, including those affecting river flows, water quality, fish passage, and fish habitat in Appendix N, Implementation and Adaptive Management Plan. The Plan has been revised in the FEIS to reflect the Final Biological Assessment (See Section 3.1.2.10, Alternative 5). The current Research, Monitoring, and Evaluation program would continue until the Record of Decision is finalized (Appendix N, Implementation and Adaptive Management Plan).

Comment: Proposed Action-31

Implementation timelines need to be accelerated

The Corps proposed timeline for key operational measures puts salmon and steelhead at increasing risk of extinction. The Corps needs to accelerate timelines for implementation of key measures.

Response:

The temporal scope of the analysis of alternatives in the EIS was 30 years from the signing of the Record of Decision. A 30-year implementation timeframe for the EIS was determined appropriate due to the dynamic nature of the Willamette Valley System and the current and future needs of the communities that rely on the system.

The Corps recognizes the 30-year implementation timeframe used to evaluate the alternatives can greatly influence some predictions, especially estimations of extinction risk for Chinook salmon and steelhead populations assessed using the IPA. However, consistency in predicted outcomes from different models increases confidence in the assessments. The NMFS LCM, which used a 100-year period of analysis for assessing extinction risk, resulted in similar rankings of alternatives to those resulting from the UBC IPA model extinction risk estimates (See FEIS Appendix E, Fish and Aquatic Habitat Analyses).

The best available information was applied in the life cycle models used to assess alternatives in the EIS. The fish models used were analyzed by the ISAB. Additionally, the Corps set realistic timeframes for execution of major dam modifications in its example Implementation Plan (Appendix N). A specific Implementation Plan will be developed for the alternative is ultimately selected. The draft Implementation Plan was provided as reference to help inform about the realities involved in designing and executing such

large construction projects and dam modifications. For example, a one-time intensive effort is the proper evaluation of dam safety concerns that would result from modifications to the dams (Appendix H, Dam Safety).

Other time constraints were discussed in detail in DEIS Chapter 5, Preferred Alternative (FEIS Appendix A, Alternatives Development, Attachment 4). Structural solutions for passage and survival will require long lead times for execution. Consequently, the Corps developed the Interim Operations to continue focus on improving volitional passage and water quality conditions until long-term solutions are in place.

The Corps also identified an alternative that includes a mixture of longer-term operations that would be immediately implementable with long-term structural solutions to improve fish passage and survival overall.

Comment: Fish Passage-39

The Corps' failure to substantively address fish passage and water quality needs has directly contributed to the decline of the species. As such, the Corps needs to pursue even more aggressive measures and timelines to turn the tide and help begin species recovery. The Corps does not have a thirty year time horizon to fully implement the measures that the agency hopes will stop jeopardizing listed species.

The Corps cannot make implementation of measures, especially key measures like downstream passage, contingent on funding. The ESA obligates the Corps to stop jeopardizing the species; it's the Corps' responsibility to appropriately manage their budget and make adequate appropriations requests to meet these obligations. Outlining a "best case" timeline in the DPEIS is not adequate or acceptable.

Response:

Constraints associated with implementation, which led to the Corps proposing reasonable timelines for execution, are detailed in Appendix N, Implementation and Adaptive Management Plan. The Corps will complete consultation with NMFS and USFWS under Section 7 of the ESA on the Proposed Action.

The Proposed Action analyzes the implementation plan and timeline as well as the continuation of Interim Operations. Interim Operations were specifically included in the Plan and analyses of alternatives to provide immediate improvements to fish passage and water quality until longer term solutions in a selected alternative are in place (Chapter 2, Alternatives). Interim Operations will continue to be evaluated and optimized through the Adaptive Management Plan process (Appendix N, Implementation and Adaptive Management Plan).

Comment: Proposed Action-32

We strongly encourage the Corps to accelerate timelines for the hydropower disposition study as well as Cougar Diversion Tunnel Construction. The diversion tunnel project is currently outlined for completion in 2040. It includes nearly 5.5 years for engineering and design before construction is predicted to commence. We urge the Corps to begin this project immediately upon the start of the planning horizon. Further, the Corps should take actions to accelerate planning, design, and construction timelines for Cougar RO modifications, Cougar Diversion Tunnel Construction, the Detroit Selective Water Withdrawal Structure, Big Cliff TDG Abatement, and the Foster Downstream Fish Passage Structure projects.

The plan should also include contingencies for accelerating completion of the above listed projects if monitoring indicates populations become at greater risk for extinction or local extirpation or if project implementation timelines are not being rigorously met and adhered to.

Response:

The temporal scope of the analysis of alternatives in the EIS was 30 years from the signing of the Record of Decision. A 30-year implementation timeframe for the EIS was determined appropriate due to the dynamic nature of the Willamette Valley System and the current and future needs of the communities that rely on the system.

The Corps recognizes the 30-year implementation timeframe used to evaluate the alternatives can greatly influence some predictions, especially estimations of extinction risk for Chinook salmon and steelhead populations assessed using the IPA. However, consistency in predicted outcomes from different models increases confidence in the assessments. The NMFS LCM, which used a 100-year period of analysis for assessing extinction risk, resulted in similar rankings of alternatives to those resulting from the UBC IPA model extinction risk estimates (See FEIS Appendix E, Fish and Aquatic Habitat Analyses).

The best available information was applied in the life cycle models used to assess alternatives in the EIS. The fish models used were analyzed by the ISAB. Additionally, the Corps set realistic timeframes for execution of major dam modifications in its example Implementation Plan (Appendix N). A specific Implementation Plan will be developed for the alternative is ultimately selected.

The draft Implementation Plan was provided as reference to help inform about the realities involved in designing and executing such large construction projects and dam modifications. For example, a one-time intensive effort is the proper evaluation of dam safety concerns that would result from modifications to the dams (Appendix H, Dam Safety).

Other time constraints were discussed in detail in DEIS Chapter 5, Preferred Alternative (FEIS Appendix A, Alternatives Development, Attachment 4). Structural solutions for

passage and survival will require long lead times for execution. Consequently, the Corps developed the Interim Operations to continue focus on improving volitional passage and water quality conditions until long-term solutions are in place. The Corps also identified an alternative that includes a mixture of longer-term operations that would be immediately implementable with long-term structural solutions to improve fish passage and survival overall.

NOAA NMFS WEST COAST REGION (KRATZ, KIM)

Comment Document: 2023-02-22_PublicComment_WV_DEIS_NMFSComments_WVSAppendixN.pdf

Comment: Fish-46

1) While the Corps has provided targets (the quantitative metrics that define success) for many of the Preferred Alternative actions, the targets do not track or respond to effects on fish. For example:

- Changes in flows are evaluated by whether they are above or below the new target for minimum flows. Some effects on fish would be missed given warming trends in the Willamette, likely exacerbated by lower flows during spawner migration. Other effects from shifting migration cues are also missed.
- Changes in temperature from the proposed pulses are measured by the % change in temperature, which doesn't capture the risk of temperatures over thresholds, leading to higher mortality.
- Passage measures are evaluated based on lower survival and dam passage efficiency than those in NMFS' fish passage guidelines.

Response:

The comment does not accurately or fully account for the metrics included in the Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan). This Plan includes metrics for both physical attributes (e.g., flows and water quality) that effect fish habitat conditions, and metrics relating directly to assessing fish responses to measures implemented.

The Adaptive Management Plan was further developed and submitted with the Biological Assessment. The FEIS has been updated to reflect the Final Biological Opinion in Appendix N. Metrics and criteria specifically for temperature and passage have been revised.

The Corps has reviewed the latest version of NOAA Fisheries West Coast Region Anadromous Salmonid Passage Design Manual (NMFS 2022 in FEIS Chapter 10,

References). This document recommends specific biological performance criteria for surface collectors (95 percent Fish Collection Efficiency and 98 percent concrete survival), however not for other forms of passage, and does not account for how criteria would be developed except for the case of nature-like fishways stating that "Depending on project-specific considerations, monitoring may include an assessment of passage efficiency via fish tagging or fish counts. This monitoring criterion will be identified by NMFS on a project-by-project basis."

The 95 percent Fish Collection Efficiency for surface collectors has not been achieved at high head dams for Chinook salmon and steelhead; however, population replacement (indicative of a population able to sustain itself) has been achieved at lower Fish Collection Efficiency and survival levels. NMFS has accepted different standards at different dams. The Corps has included performance metrics and criteria directly relatable to NMFS jeopardy analytical approach found in its Biological Opinions relating to spawner abundance, population productivity, diversity, and spatial structure (Appendix N, Implementation and Adaptive Management Plan).

Comment: Fish-47

2) The timing to review the effects, under the adaptive management plan as described, is often too lengthy to capture effects, for which modified actions would be needed.

- After passage changes are made, two years of review is followed by several years in which genetic pedigree data are collected, so that modifications to improve fish passage would not be introduced until seven years later.
- During the periods of changing minimum flows in the tributaries, additional actions to modify flow will lag, while fish incur risks during many life history stages.

Response:

The Adaptive Management Plan has been revised and included in the FEIS (Appendix N, Implementation and Adaptive Management Plan). Revisions include metrics and criteria specifically for temperature and passage. For fish passage, monitoring of downstream passage survival would occur for 2 representative years within 5 years of operation, recognizing it is not uncommon for some years to not be representative for completing testing due to unforeseen conditions (e.g., environmental variability or system outages), or maintenance activities.

If data from downstream passage survival studies indicate an issue that can be addressed without additional funding requirements (e.g., for design and construction), the Corps anticipates these types of changes would be made unless there are operational constraints, or critical conflicts with other operating objectives. Chinook salmon population cohort replacement rate (CRR) would be assessed in Years 5, 6, and 7, and then in subsequent years as documented in the Plan.

The length of the CRR analysis was constrained by the average generation time of salmon and steelhead. Seven years represents a minimum - 1.5 generations. The Corps cannot propose an improvement requiring additional requests for funding, without knowing how that improvement affects population-level performance.

Regarding effects of flow management below WVS dams, fish survival relating to flow would be assessed every 5 to 10 years based on data adequacy. Five to 10 years is proposed due to variability in hydrology and other aquatic conditions, which are partially affected by the WVS downstream of dams, and partially by natural environmental conditions (e.g., precipitation, snowpack, air temperatures). Multiple years of data are needed to assess the effects of WVS management separately from the influence of natural environmental conditions or other effects on fish occurring below WVS dams.

The adaptive management process would allow for proposals for Research, Monitoring, and Evaluation and analyses to support decision-making to meet objectives of implemented measures and, therefore, for additional or more frequent assessments where warranted. However, for both fish passage and flow management, it will be important for decision makers to weigh the risks of inadequate information, which can stem from lack of monitoring data covering the typical range of environmental and WVS operating conditions.

Comment: Fish-48

The adaptive management plan is associated with a high degree of uncertainty regarding potential impacts on NMFS trust resources due to the amount of time that would be allowed to pass before taking corrective action for some triggers. Furthermore, lag times intrinsic to the operation of the WVS, prevent some corrective responses to be implemented in enough time to ameliorate adverse effects. This uncertainty forces NMFS to make more conservative assumptions regarding potential adverse effects of the adaptive management plan when conducting our analysis.

Response:

Comment noted.

OREGON BEE SANCTUARY (SCHELL-ENGDAHL, DIANE)

Comment Document: 2023-01-07_PublicComment_WV_DEIS_OR Bee Sanctuary_Diane Schell-Engdahl.pdf

Comment: Dam Safety-4

If you are planning lower water levels for these dams, it doesn't seem like planning would make much difference, because we have more frequent unplanned, unexpected and extreme weather events. If combined with even moderate earthquakes.

Is liquification of a dam bank possible? I think any likelihood of this needs to be reconsidered because old risk points are probably out of date and fall well behind the predictions defining the extreme end of events, due to the latest factors found to be greatly accelerating climate change and the impact that has to our weather systems.

Response:

The Corps conducts routine risk assessments a minimum of every 10 years for all its dams. Risk assessments consider the most up-to-date flood and earthquake hazard data available. The dam safety risk characterization is updated and revised as needed to consider the most current understanding of flood and earthquake hazard evaluated during these risk assessments.

Earthquake-related risks at the Willamette Valley dams are characterized as a combination of the high population of communities downstream of the dams, but the unlikely occurrence of an earthquake during sustained summer conservation pools, as discussed in Chapter 3 of Appendix H, Dam Safety. High pools that are due to extreme weather and floods are of short duration and do not generally contribute to the overall earthquake-related risks.

Comment: Climate Change-2

An enormous amount of energy is being unleashed much earlier than expected from the Greenland ice melt, impacting the weather patterns and THAT data should become integrated into your data modeling for potential record / catastrophic rainfall, erosion and packed earth dam tolerances.

I wouldn't think any data sets for dam tolerances created using previous historic regional rainfall would be very valid without some acknowledgement of this extreme process taking place and the potential impact it may have. There needs to be new risk management modeling based on the most recent data from the latest extreme weather events, for an understanding of the variables affecting dam structures, and earthen packed dams, not from data gathered earlier than 2000, 2001.

If new research has been done I would like to read it, can you forward a link please?

Response:

The FEIS includes analyses of climate change-related effects under each resource in Chapter 3, Affected Environment and Environmental Consequences and in Chapter 4, Cumulative Effects. There is evidence of changes in the hydrologic cycle (e.g., rainfall, snowpack patterns, etc.). Extreme changes are identified in Appendix F1, Qualitative Assessment of Climate Change Impacts, as potential risk drivers in the future. The Oregon Climate Change Research Institute (OCCRI) has published its 2023 sixth Oregon Assessment Report - https://blogs.oregonstate.edu/occri/oregon-climate-assessments/.

Comment: Dam Safety-5

What is the likely scenario for LOP Dam If our area receives a storm like CA is experiencing now, in early January and the water breaches the top of lookout dam, is it projected to fail?

I've read that packed earth dams can then fail/erode within one hour of water breaching the top.

Response:

All dams are currently managed primarily for flood risk (FEIS Section 1.10, Congressionally Authorized Purposes). A major constraint of any alternative implementation is that no measure would lead to an increase in flood risk (FEIS Section 2.6, Alternatives Development Overview). Consequently, the proposed measures would not increase the likelihood of overtopping at Lookout Point Dam during an extreme storm.

The Corps performs enhanced monitoring of all dams during flood extreme weather events. The Corps also updates and regularly exercises emergency response procedures. The enhanced monitoring and routine exercising of emergency procedures ensures the Corps' ability to respond in a timely manner to a potential safety issue at one of the dams resulting from flood or other extreme event.

Comment: Public Health and Safety-3

Can you please tell me if my property is at risk should a breach occur on the packed earth dam at LOP? My address is 82237 Rattlesnake Rd Dexter Oregon. … I've been learning about how weak these dams are, and at risk with even mid sized earthquakes, record saturation events and how fast they fail.

My other question is, would Hwy 58/ route of escape from rattlesnake rd remain intact?

Response:

While an analysis of site-specific property risk is not within the scope of this programmatic EIS review, all dams are currently managed primarily for flood risk. A major constraint of any alternative is that no measure would lead to an increase in flood risk.

The proposed measures do not increase the likelihood of Lookout Point Dam overtopping during an extreme storm. Performs-enhanced monitoring of all dams will continue during flood extreme weather events under all alternatives. The Corps also updates and regularly exercises emergency response procedures. The enhanced monitoring and routine exercising of emergency procedures ensures the Corps' ability to respond in a timely manner to a potential safety issue at one of the dams resulting from flood or another extreme event.

The Corps conducts routine risk assessments a minimum of every 10 years for all its dams. Risk assessments consider the most up-to-date flood and earthquake hazard data available. The dam safety risk characterization is updated and revised as needed to consider the most current understanding of flood and earthquake hazard evaluated during these risk assessments.

Earthquake-related risks at the Willamette Valley System dams are characterized as a combination of the high population of communities downstream of the dams, but also the unlikely occurrence of an earthquake during sustained summer conservation pool revelations, as discussed in Chapter 2 of Appendix H, Dam Safety. High pools that are due to extreme weather and floods are of short duration and do not generally contribute to overall earthquake-related risks.

None of the alternatives propose impacts to any highway or road system in the Willamette River Basin. Any impacts on transportation would be related to construction activities under the action alternatives and would be temporary. Possible impacts on transportation are not within the scope of this programmatic review but would be assessed in subsequent NEPA analyses when site-specific information is available for public review and comment.

Comment: Out of Scope-6

It seems to me, despite the salmon project and upgrades, that ALL the people in Lowell, Dexter, Jasper, Springfield, Eugene, Glenwood, Goshen will be quickly inundated if LOP fails, could these areas evacuate in time, if we got a record rain event like CA is getting now and how does the new plan relate to this possibility?

Response:

This comment requests information about evacuation plans and procedures that is out of scope for the EIS analyses. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, Proposed Action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record. The Corps does not develop or oversee evacuation planning; evacuation plans are developed by local emergency entities/agencies.

All dams are currently managed primarily for flood risk, which would continue under all alternatives. A major constraint of any alternative is that no measure would lead to an increase in flood risk.

The proposed measures do not increase the likelihood of Lookout Point Dam overtopping during an extreme storm. Performs-enhanced monitoring of all dams will continue during flood extreme weather events under all alternatives.

The Corps also updates and regularly exercises emergency response procedures. The enhanced monitoring and routine exercising of emergency procedures ensures the Corps' ability to respond in a timely manner to a potential safety issue at one of the dams resulting from flood or another extreme event.

The Corps conducts routine risk assessments a minimum of every 10 years for all its dams. Risk assessments consider the most up-to-date flood and earthquake hazard data available. The dam safety risk characterization is updated and revised as needed to consider the most current understanding of flood and earthquake hazard evaluated during these risk assessments.

Earthquake-related risks at the Willamette Valley System dams are characterized as a combination of the high population of communities downstream of the dams, but also the unlikely occurrence of an earthquake during sustained summer conservation pool revelations, as discussed in Chapter 2 of Appendix H, Dam Safety. High pools that are due to extreme weather and floods are of short duration and do not generally contribute to overall earthquake-related risks.

OREGON CHAPTER OF BACKCOUNTRY HUNTERS AND ANGLERS (MAHER, STEPHEN)

Comment Document: 2023-02-14_PublicComment_WV_DEIS_ORBHA_Stephen Maher_ATT.pdf

Comment: Fish-34

The Upper Willamette Basin Chinook salmon, winter-run steelhead, and bull trout populations have been hit hard over the last century—particularly over the last few decades. Populations in some tributaries have become virtually extinct. A sizable share of that reduction can be attributed to dams that cut off access to significant spawning habitat. The Corps is in a unique position to address this specific barrier with modifications to its dams that will allow effective upstream and downstream fish passage. We are encouraged that the Corps is now proposing meaningful changes in operations that should be a real benefit towards population recoveries.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: Proposed Action-15

The PEIS timelines for completion of the projects—and the beginning of fish passage—seem to be quite long considering the urgency of the issues (20 or more years, in some cases). If current trends continue, the fish that these projects are intended to help may well be gone. Furthermore, funding for the projects will be linked to the timelines. In other words, longer timelines will likely lead to delayed funding. The ORBHA urges the Corps to reduce these times as much as reasonably possible to successfully complete the projects.

Response:

Programmatic reviews of operations and maintenance measures require a long timeframe for implementation to monitor and adaptively manage for measure success. Some measures, including structural fish passage improvements, would take years to assess success. To implement more immediate actions for the species as these structures are built, the Corps it is proposing to continue changes to its usual operations as part of its Interim Operations (Chapter 1, Introduction, Section 1.12.3, Court-ordered Injunction Measures).

As site-specific projects are implemented or as other actions not in this document are identified, the Corps will tier to this programmatic analysis within the 30-year timeframe (FEIS Section 1.3.1.1, Programmatic Reviews and Subsequent Tiering under the National Environmental Policy Act). Without this NEPA tiering ability, the Corps would spend more funding and staffing resources to complete programmatic NEPA reviews as compared to the more targeted NEPA processes related to a specific analysis.

Per Council on Environmental Quality, "The tiering process would make each EIS of greater use and meaning to the public as the plan or program develops, without duplication of the analysis prepared for the previous impact statement" (Council on Environmental Quality. 1981. 40 Most Asked Questions at 24c). In this regard, the Corps is applying NEPA for its true planning intent (40 CFR 1500.2(c), 1501.1(a), 1501.2, CEQ 40 Most Asked Questions at 24b). However, the Corps retains the flexibility to update the Programmatic EIS if needed within the 30-year implementation timeframe (Council on Environmental Quality 40 Most Asked Questions at 32).

Comment: Fish-35

ORBHA strongly encourages the Corps to prioritize the projects targeting the severely declining winter steelhead population. Completion of the work at Cougar Dam is another worthwhile endeavor.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in

support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: Water Quality-2

There remains potential for sediment release into the McKenzie River. ORBHA supports Alternative 5. If this option is selected, we urge the Corps to take all prudent steps to minimize the impact of released sediment into the mainstem McKenzie River.

Response:

Comment noted.

OREGON DEPARTMENT OF FISH AND WILDLIFE (COUTURE, RYAN)

Comment Document: 2022-12-14_PublicComment_WV_DEIS_ODFW_Ryan Couture.pdf

Comment: Wildlife-1

An OSU group doing surveys in the M. F. Willamette recently found New Zealand Mud Snails (NZMS) below Dexter at the Jasper Boat Ramp…. ODFW is working on additional sampling (eDNA) throughout the watershed.

Response:

Comment noted.

Comment: Wildlife-2

ODFW is working on additional sampling (eDNA) throughout the watershed. I can keep you posted on the results of that work. Let me know if you have any info I can pass along to our AIS folks

Response:

Comment noted.

OREGON DEPARTMENT OF FISH AND WILDLIFE (HENDERSON, LAUREN)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_OregonDepartmentofFishWildlife_Kelly Reis_Attachment.pdf

Comment: Fish-79

However, the agencies are united in expressing concern for the fate of the listed salmon, steelhead, and bull trout in the Willamette Basin and the urgent need for the USACE to take actions to secure their future. The long-term persistence of these populations is vital to the social, cultural, and economic health of the State. That persistence continues to be threatened by the ongoing operation of the Willamette Valley System.

Response:

Comment noted.

Comment: BiOp-16

USACE has largely failed to implement the most significant actions (downstream passage) from the 2008 BiOp that are necessary to halt the decline of these populations. Continued inaction or delayed action is not acceptable.

Response:

Comment noted.

Comment: NEPA Process-26

In the following comments, the agencies document their concerns with the draft EIS. Our overarching request is that the USACE engage in a collaborative fashion with the agencies (and others) and work with a sense of urgency that is not currently reflected in the timelines outlined in the draft EIS. Given the many uncertainties and assumptions underpinning the various alternatives we support the USACE taking near-term actions, including those ordered by the court, such as deep drawdowns, that provide near term relief to fish populations.

Response:

The Corps will continue to work with its cooperators and the WATER Forum on its implementation of a selected alternative and application of adaptive management as stated in DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan.

Comment: Proposed Action-37

In addition, we strongly encourage the USACE to pair these actions with improved basin- wide monitoring. This step is critical to understanding the impact of these measures on lifetime survival and for informing adaptive management, especially with considerable uncertainty surrounding the USACE's ability to fund and construct the infrastructure currently prioritized under the preferred alternative.

Response:

The DEIS and FEIS Implementation and Adaptive Management Plan (Appendix N) includes plans to assess lifetime fish survival by the calculating cohort replacement rate as part of metrics to evaluate long-term fish passage measures.

Further, the Corps will continue to actively collaborate with regional partners to identify data needs. These data sets will be collected by multiple agencies and shared as part of this regional collaboration.

Comment: Fish Passage-40

Lack of access to habitat via safe and effective passage at Willamette Valley Project dams is a key limiting factor for salmon and steelhead recovery in the Willamette Basin (ODFW & NMFS, 2011).1 Unlisted native migratory fish species, including lamprey, are also impacted by lack of passage at WVS dams. Passage solutions should benefit all native migratory species. The draft EIS Preferred Alternative includes both structural and operational fish passage solutions to benefit ESA-listed fish but fails to include adequate passage solutions at Hills Creek Dam. Safe and effective fish passage at Hills Creek Dam must be a part of the Preferred Alternative to avoid risking the long-term persistence of the local bull trout population.

Response:

Fish passage measures included under the Preferred Alternative provide for up and downstream fish passage at Fall Creek and Lookout Point/Dexter Dams. These measures would provide access for Chinook salmon to a majority of the available habitat.

Analysis indicates little change in Chinook salmon population performance with the addition of fish passage at Hills Creek Dam (DEIS Section 3.8.2.6.4, Middle Fork (Chinook) and DEIS Section 3.8.9.2.4, Middle Fork, Chinook). The bull trout population in the Middle Fork Willamette River resides above Hills Creek Dam; the abundance of this population has been steadily increasing over the last decade under existing conditions (DEIS Section 3.8.1.2, Non-anadromous Fish, Bull Trout). These analyses are also in the FEIS, Section 3.8, Fish and Aquatic Habitat.

An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N, Implementation and Adaptive Management Plan). The update includes an assessment and decision triggers for construction and operation of a fish trap at the base of Hills Creek Dam for collection and transport of any bull trout that have moved downstream of the dam to re-access available spawning habitat upstream of Hills Creek Dam.

Comment: Fish Passage-41

A) Volitional Fish Passage. Although there are different and substantial challenges for providing passage at the Willamette Project dams, the Clackamas Basin and to a lesser extent, the annual

drawdown at Fall Creek Dam, both provide examples of what can be achieved when volitional passage is provided. Oregon is optimistic that evaluations (if properly designed) will demonstrate sufficient and successful operational passage through Cougar Dam when reservoir elevations are managed to provide reliable access to safe passage outlets. Depending on the results of the Disposition Study, additional options for providing volitional downstream passage through the dams may become available using other existing or new outlets and should be evaluated.

Response:

Volitional fish passage at dams refers to passage conditions that allow fish to move upstream or downstream at will without requiring trapping and hauling. The alternatives in the EIS provide a comparison of volitional passage operational measures and structural modification measures designed for improve fish passage and survival. Additionally, Cooperating Agencies in development of this EIS requested analyses of two volitional passage routes via separate outlets at Cougar Reservoir.

The analyses of these passage routes at Cougar Reservoir were reasonable because of dam configuration, effects to system operations, and impacts to authorized purposes like water supply, irrigation, hydropower, water quality, recreation, and fish and wildlife. Volitional passage is effective when water surface elevations over outlets are within about 50 feet. Operational passage measures were designed to reduce water surface elevation to within 25 feet of the outlets.

Targeting outlets at lower reservoir elevations is accomplished via delayed refills or deep drawdowns that can reduce the amount of storage annually available, adversely impacting several authorized purposes. These impacts are shown in the analysis of Alternative 3A and Alternative 3B in FEIS Section 3.8.3, Fish and Aquatic Habitat, Environmental Consequence (See also Appendix B, Hydrologic Processes Technical Information).

However, the fish collection efficiency of structures for downstream passage at high head dams with larger reservoir pool fluctuations includes uncertainty, are substantially more expensive, and have long-term maintenance costs. For these reasons, amongst the others described in DEIS Chapter 5, the draft Preferred Alternative includes volitional passage where a particular dam configuration made it possible and where resultant hydrology and storage within the system did not prevent the Corps from meeting its authorized purpose requirements. Oregon Water Resources Department also provided several comments in support of continued storage for irrigation and water supply.

Comment: Fish Passage-42

Oregon urges the USACE to include passage at Hills Creek Dam as part of the Preferred Alternative. Safe and reliable up and downstream fish passage at Hills Creek Dam for all native migratory fish, including ESA-listed spring Chinook and bull trout, is needed to re-establish

connectivity among historically connected populations and habitats. Passage is required to avoid extirpation of bull trout, facilitate Chinook salmon recovery, and reconnect other native fish populations in the mainstem Middle Fork Willamette with those upstream of Hills Creek Dam. Access to these connected habitats will become more important as Oregon experiences the adverse environmental effects of climate change.

Response:

Two ESA-listed species are affected by Willamette Valley System dams in the Middle Fork Willamette River Subbasin: spring Chinook salmon and bull trout. Fish passage measures included under the Preferred Alternative (Alternative 5) would provide for up and downstream fish passage at Fall Creek and Lookout Point/Dexter Dams (FEIS Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Alternative 5). These actions would provide access for Chinook salmon to a majority of the available habitat in the Middle Fork Willamette River Subbasin.

Analyses included in the DEIS and FEIS demonstrate little change in Chinook salmon population performance with the addition of fish passage at Hills Creek Dam (DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses). The bull trout population in the Middle Fork Willamette River Subbasin primarily resides above Hills Creek Dam; the abundance of this population has been steadily increasing over the last decade under existing conditions (FEIS Section 3.8, Fish and Aquatic Habitat bull trout information). No evidence from the commentor is provided to support that passage at Hills Creek Dam is needed to "avoid extirpation of bull trout."

The FEIS includes an updated version of the bull trout effects analyses under each alternative in Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, including factors assessed using best available information on bull trout in the Middle Fork Willamette River Subbasin. The Adaptive Management Plan has also been updated in the FEIS to include assessment and decision triggers for construction and operation of a fish trap at the base of Hills Creek Dam for collection and transport of any bull trout that have moved downstream of the dam to access available spawning habitat (Appendix N, Implementation and Adaptive Management Plan).

Comment: Fish-80

The draft EIS analysis is significantly flawed with respect to inadequately identifying the demographic risk to the bull trout population above and below Hills Creek Dam. The analysis fails to consider the impact of providing court-ordered operational downstream passage without providing upstream passage for those fish that migrate downstream. It mischaracterizes habitat suitability for bull trout below Hills Creek Dam and general bull trout life history. The analysis must be corrected in the final EIS to more transparently justify the scoring used in the assessment model and to reflect the impacts of the court-ordered operational downstream passage. The Upper Willamette Bull Trout Working Group should have opportunities to provide

input on the scoring process and risk assessment given its familiarity with the local bull trout population, its behavior, and habitat conditions and use.

The draft EIS analysis assumes that the bull trout population above Hills Creek Dam has been steadily increasing in abundance without upstream and downstream passage. However, a significant operational change to provide downstream fish passage was implemented in the fall of 2021 at Hills Creek Dam and is scheduled to continue until the adaptive management check-in scheduled in 2047. The draft EIS did not address the impact of this significant operational change on bull trout at Hills Creek Dam.

Response:

The bull trout population in the Middle Fork Willamette River primarily resides above Hills Creek Dam and the abundance of this population has been steadily increasing over the last decade under existing conditions (FEIS Section 3.8, Fish and Aquatic Habitat). The Corps considered the importance of access to spawning habitat with appropriate cold water for incubation as critical for population maintenance, and the increased risks for bull trout moving downstream in the watershed from increased exposure to anthropogenic factors, and the future effects of climate change.

The FEIS includes an updated version of the bull trout effects analysis with revised scores, additional review of habitat conditions below Hills Creek Dam, angling risk, and other factors further assessed. These updated assessments applied the latest information reported on bull trout in the Middle Fork Willamette River.

The FEIS also includes an updated version of Adaptive Management Plan, which includes an assessment and decision triggers for construction and operation of a fish trap at the base of Hills Creek Dam for collection and transport of any bull trout that have moved downstream of the dam so they can access available spawning habitat (Appendix N, Implementation and Adaptive Management Plan).

The Interim Operations at Hills Creek Dam under DEIS Alternative 5 would be the same as the action currently being implemented for the injunction order: nighttime regulating outlet prioritization for improved downstream fish passage from approximately November to March when reservoir water surface elevation is less than 1,460 feet. The minimum conservation pool elevation is at 1,448 feet, the regulating outlet invert (bottom) is at 1,406 feet, and penstock invert (bottom) is at 1,384 feet.

To pass through the regulating outlets or penstock when the reservoir is at its lowest managed elevation of 1,448 feet, bull trout must swim at least 42 feet depth. These operations are designed to increase use of the regulating outlet instead of the turbine penstock for fish passing downstream.

The injunction/near-term operation prioritizing use of the regulating outlet at night would not change reservoir elevations or total discharge rates when compared to the

No-action Alternative. As the commentor has indicated, bull trout are surface-oriented and, therefore, passage rates for bull trout are not expected to change in comparison to the No-action Alternative.

Comment: Fish Passage-43

Under the injunction, special near-term operational measures at Hills Creek Dam were implemented to prioritize night-time spill through the Hills Creek Dam Regulating Outlet (RO) specifically to increase downstream fish passage for juvenile spring Chinook salmon. This measure will provide access to all species seeking to move downstream when instream flows are peaking, and at a time when natural fish emigration is anticipated. Like Chinook, bull trout are surface-oriented and unlikely to dive in search of passage through deep outlets. Bull trout exhibit a migratory life history, actively moving downstream for overwinter foraging and subadult rearing. This behavior requires intact migratory pathways between downstream overwintering habitats and upstream spawning habitats. Providing safe passage to suitable habitats below Hills Creek Dam for foraging and rearing can be beneficial for bull trout, but only if upstream passage is available to access spawning habitat.

Response:

The near-term action at Hills Creek Dam under DEIS and FEIS Alternative 5 would be the same as the action currently being implemented under the injunction order: nighttime regulating outlet prioritization for improved downstream fish passage from approximately November to March when reservoir water surface elevation is less than 1,460 feet.

The minimum conservation pool elevation is at 1,448 feet, the regulating outlet invert (bottom) is at 1,406 feet, and penstock invert (bottom) is at 1,384 feet. To pass through the regulating outlets or penstock when the reservoir is at its lowest managed elevation of 1,448 feet, bull trout must swim at least 42 feet in depth.

These operations are designed to increase use of the regulating outlet instead of the turbine penstock for fish passing downstream. The injunction/Interim Operations prioritizing use of the regulating outlet at night would not change reservoir elevations or total discharge rates when compared to the No-action Alternative. As the commentor has indicated, bull trout are surface-oriented and, therefore, passage rates for bull trout are not expected to change in comparison to the No-action Alternative.

The FEIS has been updated to include a bull trout effects analysis with revised scores (FEIS, Section 3.8, Fish and Aquatic Habitat, Affected Environment and Environmental Consequences). This FEIS information includes review of habitat conditions below Hills Creek Dam, angling risk, and other factors further assessed using the best available information reported on bull trout in the Middle Fork Willamette River at the time the alternatives were analyzed.

The FEIS also includes an updated version of the Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan). The Plan would include an assessment and decision triggers for construction and operation of a fish trap at the base of Hills Creek Dam for collection and transport of any bull trout that have moved downstream of the dam to access available spawning habitat.

Comment: Mitigation-3

The draft EIS acknowledges that risk of mortality is high for emigrants passing below dams and risk is high for increased downstream passage. The final EIS should include additional required steps necessary to reduce the risk and severity of downstream passage injury at Hills Creek Dam. Such mitigation measures should include screening the penstock intake as has been done at Cougar Dam, and making modifications to the intake tower, RO tunnel, and exit through the RO (currently a free-fall exit onto boulders) to improve outcomes for fish passing downstream.

Response:

The Corps considered the importance of access to spawning habitat with appropriate cold water for incubation as critical for population maintenance, and the increased risks for bull trout moving downstream in the Willamette River Basin from increased exposure to anthropogenic factors, and the future effects of climate change.

The FEIS includes an updated version of the bull trout effects analysis with revised scores with further review of habitat conditions below Hills Creek Dam (Section 3.8, Fish and Aquatic Habitat, Environmental Consequences Summary).

The FEIS has also been updated to include information on angling risk and other factors further assessed using the latest information reported on bull trout in the Middle Fork Willamette River (Section 3.8, Fish and Aquatic Habitat). An updated version of the Adaptive Management Plan is included in the FEIS, Appendix N, Implementation and Adaptive Management Plan, with an assessment and decision triggers for construction and operation of a fish trap at the base of Hills Creek Dam for collection and transport of any bull trout that have moved downstream of the dam so they can access available spawning habitat.

Comment: Cumulative Impacts-2

The cumulative impact of the court-ordered operational downstream passage at Hills Creek Dam was not part of the analysis nor has sufficient time passed for any impact to be detected in the bull trout population. This is especially important given the time needed for bull trout to reach sexual maturity and iterative (iteroparous) contributions of sexually mature bull trout to the upstream spawning population (i.e., individual females may spawn up to eight consecutive years). In fact, the impact of the injunction actions on fish populations above and below Hills Creek Dam will be extremely difficult to monitor and assess and will remain a source of considerable uncertainty for the foreseeable future.

Response:

The FEIS has been updated to include additional bull trout analyses in Section 3.8, Fish and Aquatic Habitat.

The bull trout population in the Middle Fork Willamette River resides above Hills Creek Dam; the abundance of this population has been steadily increasing over the last decade under existing conditions (Section 3.8., Fish and Aquatic Habitat, Bull Trout).

An updated version of the Adaptive Management Plan has been included in the FEIS in Appendix N, Implementation and Adaptive Management Plan. The update includes an assessment and decision triggers for construction and operation of a fish trap at the base of Hills Creek Dam for collection and transport of any bull trout that have moved downstream of the dam to access available spawning habitat. The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives.

Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: References and Data-58

The fundamental basis for any logical assessment must consider that with increased downstream fish passage, reasonable measures must be taken to minimize the impact of that passage. If bull trout survive passage downstream, there is additional real risk in failing to recover individual bull trout that pass downstream to maintain the above-dam population. In other words, given the current suite of operating conditions to increase downstream passage, failing to provide upstream fish passage is a significant risk. Downstream movement is not maladaptive and poor habitat below the dam is not a risk or justification for not providing upstream passage. Bull trout migrating below Hills Creek Dam are not part of a separate population at this location. These individuals are necessary to maintain the population above the dam. Any suggestion otherwise is intentionally misleading and prevents informed decision-making – contrary to NEPA requirements.

Increased opportunities for downstream passage will logically lead to increased migration below the dam. Habitat conditions below Hills Creek Dam are suitable for overwintering, foraging, and migration. While the normative water temperature regime below Hills Creek Dam is severely altered by the impoundment of water and management of flow by the dam, these conditions are not so severe as to be detrimental to the survival and recovery of adult bull trout residing below Hills Creek Dam. Bull trout residing below Hills Creek Dam originated from above the dam and are necessary to maintain the population above the dam.

Response:

The bull trout population in the Middle Fork Willamette River primarily resides above Hills Creek Dam and the abundance of this population has been steadily increasing over the last decade under existing conditions (FEIS Section 3.8, Fish and Aquatic Habitat). The Corps considered the importance of access to spawning habitat with appropriate cold water for incubation as critical for population maintenance, and the increased risks for bull trout moving downstream in the watershed from increased exposure to anthropogenic factors, and the future effects of climate change.

The FEIS includes an updated version of the bull trout effects analysis with revised scores, additional review of habitat conditions below Hills Creek Dam, angling risk, and other factors further assessed. These updated assessments applied the latest information reported on bull trout in the Middle Fork Willamette River. The FEIS also includes an updated version of Adaptive Management Plan, which includes an assessment and decision triggers for construction and operation of a fish trap at the base of Hills Creek Dam for collection and transport of any bull trout that have moved downstream of the dam so they can access available spawning habitat (Appendix N, Implementation and Adaptive Management Plan).

The Interim Operations at Hills Creek Dam under DEIS Alternative 5 would be the same as the action currently being implemented for the injunction order: nighttime regulating outlet prioritization for improved downstream fish passage from approximately November to March when reservoir water surface elevation is less than 1,460 feet. The minimum conservation pool elevation is at 1,448 feet, the regulating outlet invert (bottom) is at 1,406 feet, and penstock invert (bottom) is at 1,384 feet.

To pass through the regulating outlets or penstock when the reservoir is at its lowest managed elevation of 1,448 feet, bull trout must swim at least 42 feet depth. These operations are designed to increase use of the regulating outlet instead of the turbine penstock for fish passing downstream.

The injunction/near-term operation prioritizing use of the regulating outlet at night would not change reservoir elevations or total discharge rates when compared to the No-action Alternative. As the commentor has indicated, bull trout are surface-oriented and, therefore, passage rates for bull trout are not expected to change in comparison to the No-action Alternative.

Comment: References and Data-59

The statement that, “Even without passage, the population above Hills Creek has increased…indicates that this population performs reasonably well under the NAA” is not accurate because the court- ordered downstream passage measure has created a significant change in operating conditions that is not accounted for in the NAA.

Instead, the final EIS must explain that, in the absence of upstream passage, the Hills Creek Dam Near- Term Operation Preferred Alternative Measure, specifically the nighttime RO prioritization for improved downstream fish passage, may lead to bull trout population (above and below Hills Creek Dam) extirpation or viability failure prior to the 2047 check-in. Furthermore, under the Preferred Alternative, reduced storage at Cougar Reservoir will require the release of water from other reservoirs, notably in the Middle Fork subbasin, to meet the mainstem Willamette River flow targets.

Additional water released through Hills Creek Dam will result in more bull trout moving downstream and a loss to the spawning population above the dam if upstream passage is not provided.

The successful reintroduction of this extirpated population upstream of Hills Creek Dam was more than thirty years of investment of resources from cooperators. This population represents an aquatic resource of economic, ecological, and aquatic and terrestrial ecosystem functional significance.

Because this population was sourced directly from wild bull trout in the adjacent upper McKenzie River subbasin it serves to mitigate risk of catastrophic events in the entire upper Willamette Basin. The upper McKenzie River meta-population is the only upper Willamette bull trout population to persist to the present day, following the local extirpation events in the Clackamas, Santiam, Middle Fork Willamette subbasins.

Response:

The bull trout effects analysis has been updated in the FEIS with revised scores and additional review of habitat conditions below Hills Creek Dam, angling risk, and other factors further assessed. These updates apply the latest information reported on bull trout in the Middle Fork Willamette River, and an updated version of Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan), which includes an assessment and decision triggers for construction and operation of a fish trap at the base of Hills Creek Dam for collection and transport of any bull trout that have move downstream of the dam so they can access available spawning habitat.

The Corps disagrees that the rate of bull trout downstream passage would increase under the Interim Operations action at Hills Creek Dam included under Alternative 5, which is the same as actions currently being implemented for the injunction order: nighttime regulating outlet prioritization for improved downstream fish passage from approximately November to March when reservoir water surface elevation is less than 1,460 feet. The minimum conservation pool elevation is at 1,448 feet, the regulating outlet invert (bottom) is at 1,406 feet, and the penstock invert (bottom) is at 1,384 feet.

To pass through the regulating outlets or penstock when the reservoir is at its lowest managed elevation of 1,448 feet, bull trout must swim at least 42 feet in depth. These

operations are designed to increase use of the regulating outlet instead of the turbine penstock for fish passing downstream.

The Interim Operations prioritizing use of the regulating outlet at night would not change reservoir elevations or total discharge rates when compared to the No-action Alternative. As the commentor has indicated, bull trout are surface-oriented and, therefore, passage rates for bull trout are not expected to change in comparison to the No-action Alternative.

No supporting information is provided for the opinion that "the nighttime RO prioritization for improved downstream fish passage, may lead to bull trout population (above and below Hills Creek Dam) extirpation or viability failure prior to the 2047 check-in." Meeting downstream flow objectives would be accomplished by managing all WVS reservoirs as a system and, therefore, it is not accurate to assume lack of storage availability in one reservoir (e.g., Cougar Reservoir) would result in specific impacts to any other single reservoir (e.g., Hill Creek Reservoir).

Comment: Fish Passage-44

The final EIS must identify implementation of a near-term passage solution until a permanent solution is in place in order to avoid significant adverse environmental impacts. An upstream migrant facility at this location does not need to accommodate large numbers of fish, however it must be functional soon to assist bull trout recovery. Excluding upstream migrants to prevent turbine blade-strike at the base of the dam should be part of the solution. Oregon would like to work with USACE to develop a feasible passage solution. Oregon has previously noted that safe and reliable passage is needed at Hills Creek Dam (see comments provided by ODFW to USACE on November 19, 2021, as well as comments provided by USFWS and NMFS, when asked to comment on the biological need for passage at Hills Creek Dam). Providing safe and effective upstream and downstream passage for bull trout at Hills Creek Dam aligns with the 2015 USFWS Bull Trout Recovery Plan and should be part of the overall passage solution for spring Chinook and other native migratory species.

Significant gains for ESA-listed and unlisted fish populations are possible by providing passage at Hills Creek Dam. Like Green Peter Dam, where passage is proposed as part of the Preferred Alternative, Hills Creek Dam has limited passage opportunities currently and excellent underutilized habitat available upstream that will become more important as adverse environmental impacts associated with climate change occur. Providing passage at one dam or the other is a false choice. Both Hills Creek and Green Peter dams should have upstream and downstream fish passage as part of the Preferred Alternative.

Response:

Two ESA-listed species are affected by Willamette Valley System dams in the Middle Fork Willamette River Subbasin: spring Chinook salmon and bull trout. Fish passage measures included under the Preferred Alternative (Alternative 5) would provide for up and

downstream fish passage at Fall Creek and Lookout Point/Dexter Dams (FEIS Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Alternative 5). These actions would provide access for Chinook salmon to a majority of the available habitat in the Middle Fork Willamette River Subbasin.

Analyses included in the DEIS and FEIS demonstrate little change in Chinook salmon population performance with the addition of fish passage at Hills Creek Dam (DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses). The bull trout population in the Middle Fork Willamette River Subbasin primarily resides above Hills Creek Dam; the abundance of this population has been steadily increasing over the last decade under existing conditions (FEIS Section 3.8, Fish and Aquatic Habitat bull trout information). No evidence from the commentor is provided to support that passage at Hills Creek Dam is needed to "avoid extirpation of bull trout."

The FEIS includes an updated version of the bull trout effects analyses under each alternative in Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, including factors assessed using best available information on bull trout in the Middle Fork Willamette River Subbasin. The Adaptive Management Plan has also been updated in the FEIS to include assessment and decision triggers for construction and operation of a fish trap at the base of Hills Creek Dam for collection and transport of any bull trout that have moved downstream of the dam to access available spawning habitat (Appendix N, Implementation and Adaptive Management Plan).

Comment: Fish-81

Pacific lamprey have been significantly impacted by the construction and operation of the Willamette Valley System. Specific measures (outlined below) are needed in the Preferred Alternative to provide lamprey passage and address impacted habitat with the eventual goal of increasing population size to a sustainable level that can support tribal harvest opportunities at Willamette Falls. Oregon acknowledges the cultural importance of these ancient fish to several Indigenous tribes and encourages the USACE to work closely with them, ODFW, and other federal partners to proactively address project impacts to lamprey.

Pacific lamprey are a Sensitive species in the state of Oregon and the species is part of a significant conservation effort, the Pacific Lamprey Conservation Initiative.

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any FEIS alternative. Further, the Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW. The Corps is prepared to work on a prioritization framework with the Tribe and other partners that seek to reintroduce this species above WVS dams. Such coordination is necessarily separate from development

of this EIS because reintroduction is not within the scope of this programmatic NEPA review.

Comment: Mitigation-4

In addition to providing lamprey passage, the final EIS should incorporate mitigation measures to improve translocation for lamprey as soon as possible, particularly as climate change is expected to reduce the carrying capacity of the species. Implementation should include funding for tribes, ODFW, and other federal partners to monitor success of lamprey passage improvements and translocation efforts to inform adaptive management. Evaluation and adaptive management must be part of a transparent and collaborative process where regional input is considered.

Response:

Measure 52 has been revised in the FEIS to remove information on lamprey passage structures (FEIS Chapter 2, Alternatives, Section 2.8, Final Measures Developed for Action Alternatives). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the Willamette Valley System while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species (Section 2.3, Purpose of and Need for the Proposed Action). The Corps appreciates the interest of Tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Further, the Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW.

Comment: Willamette Basin Review-7

The draft EIS lacks information regarding how existing water management requirements and processes (Willamette Basin Review (WBR) Study and 2020 Water Resources Development Act and 2019 WBR BiOp) will affect implementation and expected outcomes of the alternatives. The final EIS should include a clear framework for how these documents interrelate, and it should clearly describe how stored water will be managed during dry years.

Response:

DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, describes how the Corps would continue to work with the WATER Forum so that its members may inform the Corps' decisions during implementation of the 2019 Willamette Basin Review Feasibility Study and resolution of the ongoing Willamette Valley System operations and maintenance consultation.

The WATER Forum includes a Flow Management and Water Quality Team, which provides advice to the Corps' Water Management group on in-season adaptive management. This group was identified to advise the Corps and U.S. Bureau of Reclamation on how to establish a framework to implement the Willamette Basin Review Feasibility Study.

Advisory input also includes establishing the framework for curtailing irrigation and municipal and industrial contracts in very dry years. This process is ongoing. Further stakeholder engagement by the State of Oregon with the support of the Federal agencies is planned in the next few years.

Comment: References and Data-60

In addition to the lack of clarity regarding integration with other water management processes, the draft EIS generally lacks adequate information to evaluate how the proposed flows will impact the viability of listed species or other beneficial uses of water, including water rights. Additionally, there is insufficient detail provided to assess whether the proposed flows adequately account for the expected impacts of climate change. We offer more detail regarding these omissions below.

Response:

The analysis of effects includes population-level responses for ESA-listed Chinook salmon and steelhead supporting assessments of population viability. Reach-scale analyses of the effects of flows on habitat and survival of these species are also included (See DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analysis). River flows below WVS dams at multiple locations are estimated under each alternative.

The analyses were based on 84 years (1935 to 2019) of hydrologic inflow data, which includes a wide variation in hydrologic conditions. The output of the analyses demonstrates how different hydrologic and weather patterns would affect river conditions under a range hydrologic conditions (very dry and hot years, intermediate years, and cool and wet years), and by extension, the effects on other beneficial uses of water downstream of WVS dams.

The Corps does not analyze effects to specific water rights but instead analyzes effects to consumptive uses (municipal and industrial water supply and irrigation). These effects

analyses are based on relative changes in flows at control points downstream of Corps dams (See DEIS and FEIS Section 3.13.3, Water Supply, Environmental Consequences). Climate change effects are assessed qualitatively based on the climate change trends detailed in Appendix F1, Qualitative Assessment of Climate Change Impacts, and Appendix F2, Supplemental Climate Change Information.

Comment: BiOp-17

There is a strong interest and desire among agencies, basin stakeholders, and others to contribute to a longer-term water management plan that optimizes the use of a shared resource for all uses of water, both instream and out-of-stream.

As the USACE plans operations and maintenance of the Willamette Valley Project Reservoirs, the allocations and the requirement to comply with the 2019 WBR BiOp must be integrated into water management decisions. The final EIS should include information clarifying how the WBR and the 2019 WBR BiOp measures will affect the amount of stored water available each year for fish and wildlife, municipal and industrial uses, and agricultural irrigation uses.

Oregon supports implementation of a science-based decision-making process developed with stakeholder input for how available water will be distributed during dry years that complies with the ESA. A transparent and well-understood decision-making process will allow stakeholders to make informed choices in years of anticipated shortfalls and help those that rely on stored water or may be considering the costs of purchasing storage space to determine the reliability of this source of water.

Response:

DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, describes how the Corps would continue to work with the WATER Forum so that its members may inform the Corps' decisions during implementation of the 2019 Willamette Basin Review Feasibility Study and resolution of the ongoing Willamette Valley System operations and maintenance consultation.

The WATER Forum includes a Flow Management and Water Quality Team, which provides advice to the Corps' Water Management group on in-season adaptive management. This group was identified to advise the Corps and U.S. Bureau of Reclamation on how to establish a framework to implement the Willamette Basin Review Feasibility Study.

Advisory input also includes establishing the framework for curtailing irrigation and municipal and industrial contracts in very dry years. This process is ongoing. Further stakeholder engagement by the State of Oregon with the support of the Federal agencies is planned in the next few years.

Comment: Willamette Basin Review-8

The draft EIS references an additional 62,050 acre-feet of stored water would be needed for existing users whose water right would be junior to instream water rights as a backup water source (pg. J-9, 175 PDF). It is important to note that this amount represented a conservative analysis conducted for the Willamette Basin Review study and represents a potential scenario involving the conversion of the 1964 minimum perennial streamflows to instream water rights. The amount of supplemental water needed by irrigators will depend on how frequent those instream water rights are met during different water years at various locations. Section 3.3.4 (pg. 93) of the Willamette Basin Review feasibility study describes 62,050 acre-feet as a worst-case scenario and assumes the instream water rights are not being met. Referencing the language used in the WBR Study in the draft EIS will provide additional context and better explain the potential for increased water demand for agriculture.

Response:

The FEIS has been updated to provide more information on The Willamette Basin Review Feasibility Study (Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008).

Comment: Alternatives-97

Compared to other alternatives, Preferred Alternative 5 performed better at minimizing impacts to the conservation storage capacity, reducing stored water by 98,536 acre-feet. Oregon has concerns with any alternative that will result in significant loss of existing storage available for all uses of water. For example, Alternative 3A results in a loss of 590,000 acre-feet of stored water and Alternative 3B represents an even greater loss of 669,000 acre-feet.

Response:

Comment noted.

Comment: Water Supply-26

Access to sufficient stored water is critical for supporting new appropriations for both instream and out-of-stream uses.

Oregon strongly recommends that any alternative selected as part of a final EIS consider the importance of sufficiently filling and operating these multi-purpose reservoirs to meet current and future water needs in the basin, not only for fish and wildlife but for the continued long-term economic viability of our communities and industries, and consistent with the goals of the Willamette Basin Review efforts.

Response:

An analysis of future water supply demands is provided in FEIS Section 3.13, Water Supply. When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative. Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes, including those served by conservation storage, and their importance to the future water supply planning of the Willamette Basin Review Feasibility Study.

The FEIS has been updated to add additional information on the Willamette Basin Review in Chapter 1, Introduction, Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008.

Comment: BiOp-18

The draft EIS includes several flow-related measures to aid with downstream passage and to reduce thermal stress on ESA-listed fish. In the continued operations of the WVP reservoirs, it is important to recognize that the amount of water that the projects release to achieve the 2008 BiOp flow objectives, including passed inflow, exceeds the maximum conservation storage of the system. This means that reservoir storage alone will never be enough to meet the BiOp flow needs. The final EIS should account for how much stored water is needed to meet the previously established or revised flow objectives, or various spill operations. The Willamette Basin Review study allocated more than 1.1 million acre-feet, or 69 percent of the stored water to fish and wildlife purposes. The final EIS should specifically describe how the USACE intends to utilize this allocation to meet ESA objectives.

Response:

While it is correct that the amount of the storage in the system would never be enough to sufficiently meet all flow targets in a given year, as described in FEIS Section 3.13, Water Supply, the Willamette Valley System (WVS) was not intended to function for that goal. The amount of water stored by the System is substantially less than the amount of water naturally passing through the System on an annual basis.

The 2008 Biological Opinion flow objectives constitute a set rate of flow at points downstream of the reservoirs that are met with ever-changing combinations of live flow and stored water. Because hydrologic, basin-wide, and subbasin conditions differ each year, the Corps cannot specify how much water is needed to meet flow objectives in any given year or within a particular subbasin. The Corps would continue managing the WVS to meet its multiple, authorized purposes, including ESA flow objectives, under any alternative (See FEIS Chapter 1, Introduction, Section 1.10, Congressionally Authorized Purposes).

The Corps' annual planning process, which would continue into the future under any alternative, is described in FEIS Chapter 1, Introduction, Section 1.12.1, Master Plans and Operational Management Plans. Under this process, stored water, allocated for fish and wildlife under the Willamette Basin Review Feasibility Study, and live flow would continue to be combined to meet flow targets downstream for fish and wildlife.

Comment: References and Data-61

The draft EIS briefly touches upon the conversion of minimum perennial streamflows (MPSFs) to instream water rights, an RPA from the 2008 Biological Opinion. The draft EIS does not discuss the connection between the use of storage, minimum perennial streamflows, and secondary instream water rights. This should be addressed by identifying that the fish and wildlife storage allocation could be used to support legal instream protections downstream of the dams. It is important for partners and stakeholders to understand that the amount of water needed to satisfy the MPSFs is uncertain. Upon adoption of MPSF rules in 1964, not all dams had been constructed and others were later deauthorized. A specific storage volume was not included in the state's administrative rules. Instead, the rules describe an instantaneous release of stored water up to a certain amount, with measurement locations in all major sub-basins, including four locations on the mainstem. Conversion to instream water rights is further complicated by the 2008 Biological Opinion flow objectives that do not align with the MPSFs in the release amounts and locations. Although considered a state-led administrative action, conversion of the MPSFs to instream water rights will depend upon sustained commitment and participation from federal agencies that oversee dam operations and set biological flow objectives for ESA needs.

The State of Oregon has a responsibility to plan for future instream and out-of-stream water needs. The USACE must undertake a science-based decision-making process, developed with input from partners, for how available water will be distributed during dry years. A transparent and well-understood process will allow all parties to make informed choices in years of anticipated shortfalls.

Response:

Appendix N, Implementation and Adaptive Management Plan, describes how the Corps would continue to work with the WATER Forum so that its members may inform the Corps' decisions during implementation of the 2019 Willamette Basin Review Feasibility Study and resolution of the ongoing Willamette Valley System operations and

maintenance consultation. Information has been added to the FEIS regarding continued work with the WATER Forum in Chapter 1, Section 1.11.1, Reservoir Pools and Water Control, Conservation Pool Allocation.

The WATER Forum includes a Flow Management and Water Quality Team, which provides advice to the Corps' Water Management group on in-season adaptive management. This group was identified to advise the Corps and U.S. Bureau of Reclamation on how to establish a framework to implement the Willamette Basin Review Feasibility Study.

Advisory input also includes establishing the framework for curtailing irrigation and municipal and industrial contracts in very dry years. This process is ongoing. Further stakeholder engagement by the State of Oregon with the support of the Federal agencies is planned in the next few years.

Comment: Alternatives-98

Oregon has repeatedly voiced concern about the lack of detail provided to assess how the Preferred Alternative (or any of the alternatives) will impact water availability for multiple fish populations and consumptive uses (see comments requesting additional information dated October 27, 2021 and September 28, 2022). This is especially important in the context of the duration, magnitude, and timing of low flows. The draft EIS does not address those concerns. Additional information is needed in the final EIS to determine whether the water released to augment streamflows and decrease temperature will be sufficient to achieve ESA obligations under historical or future climate conditions.

The Preferred Alternative proposes biweekly additions to stream discharge based on wet/dry flow targets in tributaries and flow targets on the Willamette, at Salem and Albany, based on NOAA's water supply forecast with augmented pulse releases of water to meet instream temperature criteria. The final EIS should be amended to include more rationale for the approach taken to determine proposed flows, as well as more clarity for how pulse flows will be released to meet different temperature and flow targets in tributaries and on the mainstem throughout the season and under a range of environmental conditions, including prolonged drought. Information about whether or how early releases of stored water would affect later availability of water for other uses, including how temperature pulses would be delivered (from which reservoirs), is necessary. A review of how releases are optimized to meet multiple flow target criteria and a description of potential trade-offs, including impacts and benefits to fish and wildlife, municipal, industrial, and agricultural irrigation uses, must be included in the final EIS to foster informed decision-making.

Response:

The Corps has addressed the concerns raised in the comment, and other comments referenced, by including a detailed analysis of flows occurring below Willamette Valley System (WVS) dams and further downstream in the mainstem Willamette River. As such,

the Corps has documented the expected flows and exceedance levels evaluated using a period of record covering 1935 to 2019 in the DEIS, and effects of those flows on stream temperatures and fish survival (DEIS and FEIS Appendix B, Hydrologic Processes Technical Information; Appendix D, Water Temperature and Total Dissolved Gas Methodology; and DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses).

The period of record includes a wide diversity of inflows among the seasons and years, allowing for a thorough characterization of flow conditions daily, monthly, and seasonally in specific river reaches. These inflows were applied in a hydrologic model to assess how each alternative (and the specific measures included under each alternative) are estimated to affect river flow conditions below WVS dams, and water temperature below dams for 3 years in cool, moderate, and hot weather conditions.

The combination of flow and water temperature conditions, and quantitative models of fish habitat below WVS dams, were applied to assess Chinook salmon and steelhead survival. The collective analyses include the requested information to assess how measures included under the alternatives for meeting specified flow and temperature objectives would affect later availability for other uses and assess tradeoffs among resources and management objectives.

Additional details on fish effects from flow management under each alternative have been included in the FEIS in Section 3.8, Fish and Aquatic Habitat, Supporting Model 2: Flow-Survival Relationships, and Section 3.8.3, Environmental Consequences. Appendix N, Adaptive Management and Implementation Plan, has been revised to included major species and life stage prioritization, water management trade-offs among management actions, and a framework for managing those priorities and trade-offs with variability in water conditions and as new scientific information becomes available.

The Corps will comply with the 2019 Willamette Basin Review Feasibility Study, which requires the Corps to determine availability of stored water for consumptive uses on an annual basis. This compliance also requires coordination with regional agencies, particularly when there is not enough water to meet instream targets for fish. This Annual Conservation Plan process, and details within it, as part of the legal obligation under the 2008 and 2019 Willamette Basin Review Feasibility Study Biological Opinions, will continue development under the WATER Forum.

Comment: Proposed Action-38

Under this draft EIS, two flow targets were developed for tributaries below Detroit/Big Cliff, Green Peter/Foster, Cougar, and Lookout Point/Dexter according to the storage achieved and whether operations are less than or greater than 90 percent of the rule curve. The difference in these two flow targets for the Preferred Alternative (Measure 30b) can be substantial. Evaluating differences in flow targets is essential for understanding the potential effects on fish and wildlife and other users. Climate projections predict warmer, more rain-driven winters and hotter/drier summers resulting in changes in the amount and timing of when water is available.

Additionally, climate modeling suggests the region will experience more intense and prolonged droughts. These climate projections will impact the potential to achieve the higher flow targets set for WVP tributaries and the Willamette at Salem and Albany.

Response:

Regulated hydrology under each alternative is compared to anticipated No-action Alternative conditions. Alternative 2B and Alternative 5 would have the same reservoir regulation set except for the flow measures noted; Alternative 2B includes Measure 30 and Alternative 5 includes Measure 30b. The Corps has provided comparison charts of these two alternatives in DEIS and FEIS Appendix B, Hydrologic Processes, Section 5.8, because the two alternatives are uniquely closely related.

The Corps agrees that climate change will have notable effects on the operation of the WVS. As such, the EIS contains analysis of anticipated climate change effects for each resource under each alternative, including flows across the Willamette River Basin. Each alternative is analyzed individually, with the broadly expected changes across seasons. Furth more, climate change is included as part of the Cumulative Effects analyses in Chapter 4 of the EIS.

Comment: References and Data-62

Understanding the frequency of a wet/dry year classification system under current and future conditions can help set expectations of water availability when developing procedures and guidelines for flow releases and water withdrawals and will help agencies prepare for future conditions.

Frequency distributions for different classification schemes (other than wet/dry) are presented in the 2019 WBR BiOp (Table 2.5-2 pg. 72). Please provide frequency distributions like those in the 2019 WBR BiOp using the wet/dry classifications under current and expected future conditions at all WVP projects to facilitate the evaluation of alternatives and associated impacts to mainstem and tributary flows. Analyses and comparisons should include the Preferred Alternative proposed flows (Measure 30b) and reservoir elevations, as well as actual flows and reservoir elevations from the modeled years (2011, 2015 and 2016). In the absence of additional information needed to evaluate the frequency of anticipated flow conditions and the corresponding biological responses, as well as a more thorough understanding of water availability trade-offs of providing pulse flows, we have significant concerns with Measure 30b.

Response:

The frequency distributions listed in the referenced table from the Willamette Basin Review Feasibility Study 2019 Biological Opinion are based on water year classifications from the 2007 Willamette Project Biological Assessment as revised by the NMFS 2008 Biological Opinion Reasonable and Prudent Alternative (RPA) (2008 RPA flow protocols). The 2008 RPA flow protocols characterize available flow and water storage during each

flow year as “abundant,” “adequate,” “insufficient,” or “deficit” based on the forecasted system-wide storage available by mid-May.

The Willamette Valley System (WVS) EIS No-action Alternative includes the 2008 RPA flow protocols (e.g., water classification protocols, minimum and maximum flow objectives, ramping rates). These flow protocols, along with other measures affecting flows below WVS dams included under the No-action Alternative, were assessed in a hydrological model using an 84-year period of record inflow dataset. Detailed model documentation and results are in Appendix B, Hydrologic Processes Technical Information.

Exceedance plots of the No-action Alternative compared to each alternative are included in FEIS Appendix B, Chapter 5, Alternative Non-exceedance Plots. The Corps is proposing different flow protocols and objectives under the alternatives included in the WVS EIS from 2008 RPA flow protocols. Exceedance plots in FEIS Appendix B, Chapter 5, reflect the flow management and measures included under each alternative. Consequently, the frequency distributions from the referenced Willamette Basin Review Feasibility Study 2019 Biological Opinion are not relevant to the WVS EIS alternatives.

Comment: Proposed Action-39

Lastly, the final EIS should clarify how decisions related to flow releases will be determined (for example, based on a formalized procedure utilizing an interagency adaptive management workgroup or some other mechanism).

Response:

DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, describes how the Corps would continue to work with the WATER Forum so that its members may inform the Corps' decisions during implementation of the 2019 Willamette Basin Review Feasibility Study and resolution of the ongoing Willamette Valley System operations and maintenance consultation.

The WATER Forum includes a Flow Management and Water Quality Team, which provides advice to the Corps' Water Management group on in-season adaptive management. This group was identified to advise the Corps and U.S. Bureau of Reclamation on how to establish a framework to implement the Willamette Basin Review Feasibility Study. Advisory input also includes establishing the framework for curtailing irrigation and municipal and industrial contracts in very dry years. This process is ongoing. Further stakeholder engagement by the State of Oregon with the support of the Federal agencies is planned in the next few years.

Comment: Water Quality-43

The draft EIS lacks an explanation for how and when impacts to water quality will be assessed and prioritized to avoid impacts to listed fish. Summer releases from the dams are typically cooler than pre-dam conditions, with the reverse (warmer than pre-dam conditions) occurring in autumn. This temperature regime has been detrimental to the habitat of threatened Upper Willamette River (UWR) Chinook salmon (Oncorhynchus tshawytscha) and UWR winter steelhead (O. mykiss) throughout multiple life stages.

Response:

The analysis of alternatives accounted for changes in water quality and included summaries of the frequency that key thresholds are exceeded, as commonly used to assess effects in ESA-listed fish (DEIS Section 3.8.2, Fish and Aquatic Habitat, Environmental Consequences). Detailed results are included in DEIS Appendix D, Water Temperature and Total Dissolved Gas Methodology.

An updated version of the Adaptive Management Plan reflecting the Final Biological Assessment has been included in the FEIS (Appendix N, Implementation and Adaptive Management Plan). Metrics, criteria, and an approach to monitoring and assessing river flows, water, and total dissolved gas levels are included in Appendix N, Chapter 5, generally); an assessment of those parameters on fish is included in Section 5.8, specifically. Appendix N further defines the decision framework for determining if implemented measures should continue or be modified to achieve criteria.

Comment: Mitigation-5

Where the USACE does not include measures in the alternative to address known issues, e.g., meeting TMDL temperature targets, the final EIS should also include a discussion of other mitigation measures or alternatives. The need for mitigative measures includes addressing impacts in the near-term through adaptive management provisions until planned long-term solutions can be implemented. The social, economic, and environmental tradeoffs associated with each of the alternatives need to be thoroughly documented in the final EIS before selection of the alternative and implementation of the proposed action. For example, decisions that increase fall releases to improve conditions for spawning might necessitate a decrease in summertime flow augmentation and the associated loss of the water quality benefits. Oregon looks forward to working closely with the USACE to determine suitable measures to mitigate for these unaddressed impacts of the WVS.

Response:

The measures proposed under the action alternatives were formulated to mitigate for impacts of dams on passage of ESA-listed species and impacts to water quality. Consequently, the effects of mitigation are analyzed and compared with the tradeoffs of measure implementations. Operations and maintenance measures under the selected

alternative identified in the Record of Decision would continue to be optimized under the adaptive management framework discussed in Appendix N, Implementation and Adaptive Management Plan.

Comment: Public Health and Safety-7

Additional water quality considerations that need to be addressed in the final EIS are listed below:

- Include information on the assessment for harmful algal blooms for public health and safety, and drinking water (Chapter 3 Tables).

  Response:

  FEIS Section 3.5, Water Quality, Harmful Algal Blooms, and FEIS Section 3.19, Public Health and Safety, Drinking Water, assess the impacts of the specific measures proposed under each alternative to public health and safety in terms of the occurrence of harmful algal blooms and the quality and availability of drinking water, respectively. The analyses considers information relevant to harmful algal blooms and drinking water including temperature, turbidity, nutrients, and flow.

Comment: Water Quality-44

Include additional text to clarify that pollution abatement through flow releases does not resolve all water quality concerns, but may contribute to other concerns, such as downstream temperature issues at other projects without temperature control towers, dissolved oxygen, or mercury methylation (Chapter 1,1.7.8, 1.8.4, 1-47, 1-55).

Response:

The term "pollution abatement" and its associated sentence has been deleted from Section 3.5, Water Quality, in the FEIS.

Comment: References and Data-63

Chapter 3, 3.5.1, 3-403, regarding paragraphs 3, 4, & 5 – inaccurate information. Resources for correct information can be found here: 2022 Integrated Report Fact Sheet and DEQ's Willamette TMDL webpage.

Response:

ODEQ TMDL reference in DEIS Table 3.5-1 has been updated in the FEIS.

Comment: Water Quality-45

Include the reference for temperature targets on the mainstem and clarify how these targets are used to meet water quality standards. The 2022 Integrated Report shows the Willamette mainstem is impaired for temperature during the summer for rearing and migration and impaired during the fall for spawning. Dissolved oxygen should also be assessed.

Response:

The State of Oregon 's maximum water-temperature standard on the mainstem Willamette River is 18 degrees C for fish rearing and migration, which occurs from mid-May to mid-October. Table 3.5-1 has been updated in the FEIS to provide additional information regarding waterbodies on the State of Oregon's 303d list.

Water quality conditions under five parameters, including temperature and total dissolved gas, are analyzed under each alternative as compared to the No-action Alternative in Section 3.5, Water Quality, Environmental Consequences. At the time the alternatives were analyzed, the Corps did not have the capability to simulate dissolved oxygen in the available models; however, additional qualitative description of dissolved oxygen within USACE-managed lakes has been added to the FEIS.

Comment: Water Quality-46

The Oregon Health Authority has statewide, Willamette mainstem, and subbasin fish consumption guidelines for mercury and PCBs. The revised TMDL for mercury is mentioned throughout the draft EIS. These parameters should be fully assessed for the mainstem Willamette and at other applicable projects.

Response:

The metric, Shoreline Exposure, was utilized as a qualitative description based on the information provided in Appendix C, River Mechanics and Geomorphology. The metric is for storage-based projects, as such the mainstem Willamette River is not considered a project/reservoir and information is not available.

Qualitative descriptions of mercury for this EIS are located in Section 3.5, Water Quality, Environmental Consequences, No-action Alternative through Alternative 5, and Section 3.18, Hazardous, Toxic, and Radioactive Waste. At this time, the Corps does not have the capability to simulate mercury in the available models. However, the FEIS has been updated to address mercury-contaminated fine sediment in Water Quality Section 3.5.1, Affected Environment; Section 3.5.2, Environmental Consequence; and Section 4.5.2, Cumulative Effects to Water Quality by Alternative.

Comment: Water Quality-47

In Chapter 2, Detroit and Lookout Point temperature control operations may not be consistently documented or categorized.

Response:

The comment does not provide enough information to respond to the issue of "consistently documented or categorized" regarding temperature control operations at Detroit and Lookout Point within Chapter 2.

Comment: Climate Change-14

More clarity is needed in the final EIS regarding how the effects of climate change were considered, both in the selection of the Preferred Alternative over the proposed 30-year duration of the EIS, as well as in the adaptive management plan.

Despite a body of science indicating that precipitation patterns and temperatures will change significantly in the Willamette Basin, and that extreme weather events (drought/storm) will become more common, the draft EIS lacks sufficient analysis of, and consideration for, the impacts of a changing climate. For example, based on Chapter 5 (Preferred Alternative Selection and Implementation) it appears that the effects of climate change were not considered (or perhaps only considered marginally) in selection of a preferred alternative despite the extended timeframe analyzed in the EIS. All of the bio-ecological factors that drive the models used– whether NOAA's or other's– will be influenced by a trending climate and more frequent climate extremes. Without adequately discussing the weakness of drawing conclusions from outputs where models were parameterized using data that represent historic or current conditions, the draft EIS analysis lacks scientific rigor and is overly optimistic.

Response:

To clarify, the Corps has not selected an alternative. The Preferred Alternative was presented in the DEIS for public comment, but effects from all alternatives, including anticipated effects from climate change over 30 years, will be considered equally before the Record of Decision is prepared that will document the Corps' final, selected alternative.

It is Corps' policy to integrate climate change preparedness and resilience planning and actions for all operations and maintenance activities. This is an important policy implemented for the purposes of enhancing community resilience from Corps water-resource projects and for reducing potential vulnerabilities of those communities and Corps' operations to the effects of climate change and variability. The Corps, however, does not design measures to address a single future scenario that may work for one eventuality, but that would fail under other scenarios.

The resource areas analyzed in Chapter 3, Affected Environment and Environmental Consequences, include a climate change effects analyses under each alternative, based on the foundational climate change analysis detailed in Appendix F1, Qualitative Assessment of Climate Change Impacts, and Appendix F2, Supplemental Climate Change Information. Climate change impacts anticipated under each resource were qualifiedly assessed and assigned a numeric value that was incorporated into the Preferred Alternative identification evaluation matrix. Each resource in Chapter 4, Cumulative Effects, in the FEIS has been updated to clarify that the Corps will continue to consider climate change effects applying adaptive management planning.

Comment: Hydrology-22

In addition to the general issue outlined above, Section 3.5 in Appendix F-1 (Additional Hydrologic Trend Analyses) is difficult to follow and does not sufficiently or clearly lay out what was done and the rationale for choosing to analyze specific metrics. Table 3-2 should be improved to clearly indicate (1) all trend variables assessed; (2) a definition of each variable; and (3) the results of the statistical tests. For Oregon to evaluate the various alternatives, please provide a better description of the low flow frequency analyses. More information about how changes to frequency, magnitude, and timing of anticipated low flow have been evaluated as part of this climate change analysis to determine the Preferred Alternative is needed. It appears that supplemental, low flow analyses were only conducted at Salem instead of at all the gage locations identified in Table 3-1. Given that there is error associated with correcting flow to arrive at natural flows and the fact that subbasins might respond differently, it is possible that a signal of subbasin changes is masked or evened out at Salem. This clarification should be included in the final EIS. In addition to the one-day minimum flows, the USACE should analyze the 7-day low flow, and/or the 7-day average flow that occurs once every 10 years (7Q10 flow). It isn't clear that the other metrics analyzed in Table 3-2 are sufficient for a low flow analysis. Furthermore, it is not clear that an analysis considering the anticipated shift in timing of low flows within the year has been conducted. A shift in the trend of low flow timing will have ecological ramifications and will be important for decision-makers to understand. An analysis of the anticipated timing of low flows is needed in the final EIS.

Ultimately, it is important for the USACE to better explain in the final EIS how the Preferred Alternative addresses projected climate change impacts to flow when there is very good agreement among models (e.g., lower flows and elevated temperatures), particularly when these impacts are likely timed with important fish life stages and other uses of water in the Willamette basin.

Response:

Regarding DEIS and FEIS Appendix F1, Qualitative Assessment of Climate Change Impacts, Section 3.5, Table 3-2, Section 3.5 in Appendix F-1: (1) analyzed trend variables are defined in column 1, (2) the naming convention of the variable from column 1 provides the description of each variable; additional information is contained in Section 3.5 text; and (3) results of the statistical significance tests are in shown columns 3 and 4.

Column 2 summarizes the trend slope direction, e.g., negative is a decreasing trend. Note that a p-value of 0.05 or less indicated a trend is statically relevant.

As outlined in DEIS and FEIS Appendix F1, Qualitative Assessment of Climate Change Impacts, Section 3.5, the Corps performed trends and significance analyses on several low flow metrics such as 1-day annual minimums as well as summertime/conservation (June-September) median flow, as well as average annual flows for June July, August, September, and October.

The Corps did not have the 7-day low flow data, and/or the 7-day average flows data that occurs once every 10 years to incorporate into the analyses (7Q10 flow). However, the Corps is confident that the flow metrics used for the programmatic analysis is applicable to inform anticipated impacts under each alternative for low/summer low flow trends.

The Corps qualitatively determined how projected hydrologic changes could impact (annual and seasonal) reservoir pool levels and expected change in downstream flows in DEIS and FEIS Appendix B, Hydrologic Processes, Chapter 6. Other potential qualitative climate change impacts important to fish life stages and other uses of water in the Willamette River Basin are discussed in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses.

Comment: Climate Change-15

Climate change must be appropriately considered as part of the Adaptive Management Plan (Appendix N). For example, monitoring effectiveness of fish passage actions relies on as little as two years of information and will be conducted in “average water years.” Use of past averages for these evaluations does not appear to be consistent with due consideration of climate change effects.

Response:

As stated in Appendix N, Implementation and Adaptive Management Plan, "Climate change represents both a risk to successful implementation of measures included in the Preferred Alternative and is an area of high uncertainty."

The Corps completed a climate change assessment that documents the qualitative effects of climate change on hydrology in the region (FEIS Appendix F1 and Appendix F2). Qualitative assessments of climate change impacts are required by USACE Engineering and Construction Bulletin (ECB) 2018-14 (revision 1, expires 10-Sep 2022), Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects.

The Corps response to climate change is adaptation-centric, and a guiding tenet is to incorporate climate change information and considerations early into the formulation

process, with the goal of increasing resilience in its measures and alternatives. A more resilient feature is one that is conceptually more resistant to likely future conditions, and/or possesses inherent flexibility to adapt successfully to projected changes.

As described in FEIS Appendix F1, while the climate change assessment did not indicate a statistically significant influence effect from changing climate on historical observed stream flows, future projections estimate that the Willamette River Basin will experience generally wetter winter flood seasons with less snow and more rain, as well as warmer and drier summer/conservation seasons.

The uncertainty associated with a given future projection of hydrologic conditions is large. To address very high uncertainty of a single climate change scenario, Corps policy is to leverage ensembles of the best available and accepted general circulation model scenario hydroclimate and hydrologic datasets. Determinations can then be made by inferring trends in terms of the statistical distribution metrics (e.g., median shifts, standard deviation etc.) in the climate change scenario ensemble.

Comment: References and Data-64

A critical element for gaining Oregon's support and public confidence during implementation is inclusion of a robust adaptive management process that relies on a transparent and collaborative approach. This includes developing meaningful monitoring and evaluation and providing new information to action agencies in order to respond and pivot appropriately in a timely manner.

Some of the proposed measures in this EIS are very expensive, and funding may be spread over many years or may be difficult to garner at all due to high costs and uncertain outcomes. Model outcomes used to assess potential fish performance in response to proposed actions are highly uncertain. In addition, impacts of some measures on water supply and flow management, for example, are not fully understood. Consequently, USACE should be prepared to use monitoring and evaluation results collected from Interim- and Near-Term Operation Measures to develop refinements or different alternatives if necessary.

State agencies look forward to working with tribal, federal, and other WATER partners, independent scientists, and the USACE in all aspects of the adaptive management process, including collaborative development of performance metrics and targets.

Response:

The Corps disagrees that model outputs are highly uncertain. Models incorporated decades of data sets that increase the level of output certainty. The Corps used the best available scientific information to analyze the effects of different fish passage measures among multiple alternatives. Uncertainty is accounted for in the fish performance metrics used to compare alternatives. However, the Corps recognizes that

implementation of system-wide operations and maintenance actions over a 30-year implementation timeframe involves a degree of uncertainty.

To manage for such uncertainty, the Corps is proposing implementation of an Adaptive Management Plan and will continue to work with stakeholders through the WATER Forum, NMFS, and USFWS through ESA processes, and other opportunities to engage with stakeholders. Adaptive Management, including research, monitoring, and evaluation is described in DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan.

Metrics and criteria are defined for assessing effects of the proposed measures on fish, flow, and water quality. The Adaptive Management Plan proposes to continue to work with the state as a part of the Water Forum. An annual review cycle is included to review new information and to inform decisions on implementation.

Comment: NEPA Process-27

The ability to implement both near- and long-term measures and the effective evaluation and adaptation of those measures using an unbiased science-based process will ultimately determine the USACE's success in operating and maintaining the Willamette Valley Project in accordance with authorized project purposes while still meeting obligations of the Endangered Species Act. The original WATER process was developed to provide a forum for coordination and to make recommendations to the Action Agencies regarding the 2008 Biological Opinion implementation. Oregon's confidence in the ability to evaluate and adaptively manage implementation and progress of actions identified in the EIS will require a transparent and collaborative decision-making process that can address the failings of the original WATER process.

The current Flow Management and Water Quality Team is an example of a WATER team where coordination and regional input is thoughtfully considered and decision-making factors are clearly communicated and informed by data, whenever possible. However, the WATER process does suffer when rationale for decisions is not clearly documented or when the process is not collaborative. For example, ODFW has previously expressed concern that the USACE was not using priority rankings developed by the RME Team to guide decisions about various study proposals. At that time, ODFW recommended that the USACE rely on the RME Team ranking to inform funding decisions and to add credibility to the process. The proposed adaptive management process must learn from the existing WATER process and objectively consider regional input and document decision-making rationale to achieve desired outcomes with regional support.

Response:

Comment noted.

Comment: NEPA Process-28

Regarding other potential WATER teams, in Chapter 5 and Appendix N Section 4.4 (Figure 4-2, Figure 4-3 and Table 4-4), please explain in the final EIS a) if the Habitat Technical Team will have a role in the WATER governance structure, and if yes, what its responsibilities will be; and b) which technical team(s) will be overseeing the implementation of "measures common to all alternatives."

Response:

DEIS and FEIS Appendix N, Implementation and Adaptive Management, describes the role of the Habitat Technical Team in Section 4.2.4.4, Technical Teams, Habitat Technical Team, Roles and Responsibilities.

Comment: BiOp-19

There is a strong interest and desire among agencies, basin stakeholders, and others to contribute to a longer-term water management plan that optimizes the use of a shared resource for all uses of water, both instream and out-of-stream.

Currently, reservoir coordination occurs through WATER teams that focus primarily on BiOp implementation. One of WATER's goals is to, "increase awareness and include consideration of the implementation of the Willamette BiOps' actions on non-listed species, cultural and other resources, and the multi-purposes of the Willamette Project." In the final EIS, please provide clarity on whether the proposed adaptive management approach or WATER teams will continue to focus on BiOp implementation or be expanded to include plans or guidelines needed to manage storage allocations for multi-purposes and associated water rights during dry or low-water years.

Response:

DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, describes how the Corps would continue to work with the WATER Forum so that its members may inform the Corps' decisions during implementation of the 2019 Willamette Basin Review Feasibility Study and resolution of the ongoing Willamette Valley System operations and maintenance consultation.

The WATER Forum includes a Flow Management and Water Quality Team, which provides advice to the Corps' Water Management group on in-season adaptive management. This group was identified to advise the Corps and U.S. Bureau of Reclamation on how to establish a framework to implement the Willamette Basin Review Feasibility Study.

Advisory input also includes establishing the framework for curtailing irrigation and municipal and industrial contracts in very dry years. This process is ongoing. Further

stakeholder engagement by the State of Oregon with the support of the Federal agencies is planned in the next few years.

Comment: Endangered Species Act-16

ESA-listed Willamette spring Chinook, winter steelhead and bull trout populations have been, and continue to be, negatively affected by the Willamette Valley System, resulting in their continued listing under the ESA. Additionally, other unlisted, native migratory fish populations, including Pacific lamprey, are impacted by the continued operation of the system. The timeline to implement proposed long-term fish passage solutions is protracted (see Figure 5.4-1 in Chapter 5 or Figure 2-4 in Appendix N), with permanent fish passage solutions becoming effective in the 2030s and 2040s. Successful downstream fish passage is critical for long-term sustainability of UWR spring Chinook and winter steelhead fish populations.

Response:

Comment noted.

Comment: Fish Passage-45

The draft EIS Implementation Plan (Appendix N) outlines several near-term (NT) passage operations that will be necessary to prevent further decline, including many that were Court-ordered. However, the proposed evaluation to inform adaptive management is inadequate or lacking altogether (see 5.5.6 Hills Creek Adaptive Management Approach). Given the length of time until some permanent passage solutions are planned for implementation, as well as funding uncertainty, it is imperative that the USACE conduct meaningful evaluations of the effectiveness of NT passage operations and other temporary solutions to ensure the achievement of goals and adjust if necessary. It is conceivable that monitoring will demonstrate that NT passage operations are meeting passage objectives and thus they may even become effective long-term passage solutions.

Oregon has significant concerns about the proposed approach for evaluating successful fish passage. More information and further discussions are needed about how an acceptable downstream passage survival (DPS) will be determined (including what constitutes “typical operating conditions,” timeframe for evaluation, and how estimated precision will be determined). Determining “success” by achieving either the DPS or cohort return rate target as low as 1 is inadequate for evaluating a complex biological response to a change in passage conditions. Given the importance of passage improvements in the EIS and subsequent BiOp, the goal should be to achieve far higher levels of certainty and standards in passage assessments. Passage evaluations must be consistent with NOAA standards.

Response:

A revised Adaptive Management Plan has been included in the FEIS (Appendix N, Implementation and Adaptive Management Plan). Near-term measures were changed to

be referred to as interim measures in the revised Appendix. Revisions were made to Appendix N clarifying the monitoring metrics and criteria for downstream fish passage as part of the Interim Measures (Appendix N, Section 5.1, and Section 5.2 through Section 5.6 addressing monitoring metrics and criteria for long-term downstream fish passage).

Evaluating dam passage survival and cohort replacement rates are very common approaches to assessing passage and reintroduction at dams and provides information commonly used by NMFS when evaluating the effects of a Federal action under the ESA. Structural passage measures would be designed in compliance with NMFS' WCR Anadromous Salmonid Design Manual (NMFS 2022 in Chapter 10, References).

Comment: Proposed Action-40

Appendix N table 5-1 (pg. N 41) outlines annual adaptive management performance measures for flow and temperature, and Section 5.1.6 states that flow management performance will be assessed every ten years or if significant new information becomes available. Though it is understood that studies relating fish response to habitat are underway, additional annual metrics that relate dam operations to fish response are needed. Also, the timing of evaluation and adjustments must be biologically meaningful; ten years is likely too long. For example, evaluating annual biologically relevant metrics could be key in understanding what can be done to assist adult migration of spring Chinook salmon through the mainstem, in summer, during extreme temperature events. These events will likely increase given the trajectory of climate change, increasing temperatures and lower summer flows.

Oregon requests evaluations of additional performance metrics and related models in the early stages of implementation to evaluate interactions between dam operations, flow, and temperature management, and biological response. Otherwise, given the lack of available information for how biological systems will respond to proposed flows and water management, and the urgency for actions needed to benefit fish populations, the USACE risks undermining the ability of decision-makers to understand the environmental consequences of proposed operations.

Response:

Flow and temperature would be monitored annually as a component of the Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan). These parameters would then be used to re-assess habitat availability and survival of Chinook salmon and steelhead for multiple life stages.

The Plan has been revised in the FEIS to clarify how monitoring of these metrics and attributes would be included. Additionally, the Plan acknowledges that additional research may be necessary to reduce critical uncertainties, and that this research would be identified and reviewed through the WATER Forum technical teams and prioritized for funding annually.

Comment: References and Data-65

DeWeber and Peterson (2020)2 outline potential additional metrics that were of interest to the Science of the Willamette Instream Flow Team (SWIFT) intended to evaluate Chinook and steelhead thermal exposure and accumulation.

SWIFT-identified metrics that may be appropriate to consider, such as the proportion of juvenile Chinook outmigrants exposed to temperatures greater than 18 °C, adult Chinook thermal accumulation Degree days (°C), and juvenile steelhead exposure to April-May temperatures greater than 15°C. In addition, we recommend monitoring the climate change-related flow metrics included in Appendix F1, Table 3-2 for annual and monthly changes in magnitude, timing, and frequency. Understanding what can be done to assist adult migration of spring Chinook salmon through the mainstem in summer will be important, especially given the trajectory of climate change and increasing temperatures and lower summer flows. Including additional performance metrics in the final EIS and relying on a science- based approach can help inform any necessary adjustments to dam operations during adaptive management discussions.

Response:

The SWIFT model results were used for developing the minimum flow values defined in Measure 30a and Measure 30b. The model was reapplied to analyze effects of alternatives included in the DEIS and FEIS.

To evaluate the performance after implementation, the FEIS includes an Adaptive Management Plan (Appendix N), defining monitoring flows and water temperatures metrics to assess how well criteria for water temperatures are achieved. The SWIFT model and metrics were also included in the Adaptive Management Plan to assess effects of flow and temperature management on fish survival.

The Plan process allows for recommendations and refinements, including to the metrics and criteria. An updated version of the Adaptive Management Plan is included in the FEIS (Appendix N). Metrics, criteria, and an approach to assess Interim fish passage Operations have been revised to identify success. Metrics include assessing population-level performance by monitoring cohort replacement rates.

Comment: References and Data-66

To assess the extent to which any of the alternatives meet the purpose and need, the USACE relies on models produced by NOAA (life cycle model) and the University of British Columbia (Integrated Passage Assessment model) to quantify fish responses.

As was appropriate, NOAA authors caveated their analyses heavily (e.g., Conclusions in Myers et al. 2022 in Appendix E, Chapter 7). For example, NOAA concludes that outputs should be considered on a relative basis because of a paucity of data to parameterize their model and sub-

components, and untenable or questionable assumptions inherent in the Fish Benefit Workbook (FBW) that inherently drives the NOAA model(s). UBC similarly acknowledges the lack of data needed to parameterize their model(s) with any confidence (Appendix E, Chapter 8). Due to limited data and a heavy reliance on potentially flawed assumptions, results are necessarily, and prohibitively, uncertain. Therefore, the model results are used as a relative measure to rank the likelihood of the alternatives to effectively meet the Proposed Action ESA objective (see Section 5.2.2.4.1).

Oregon strongly encourages the USACE to incorporate a robust monitoring and adaptive management program to collect data as part of ongoing efforts to understand the fish response, including life cycle survival, to interim/near-term and longer-term passage actions. This will require basin-wide monitoring infrastructure and adequate numbers of tagged fish released to inform reach-level survival and EIS modeling efforts.

Response:

While the modeling teams appropriately acknowledge the assumptions needed to initialize the models, the Corps disagrees that these assumptions are untenable or lack any certainty. Both NMFS and UBC quantify the uncertainty about the output as demonstrated by the tradeoff plots presented in the effects analyses.

The Corps disagrees that the Fish Benefit Workbook relies on untenable assumptions. While the inputs include some unquantified uncertainty, they represent the best available data. Both life cycle models and the Fish Benefit Workbook models have been reviewed by the Independent Science Advisory Board (ISAB) (2023). The final ISAB review has been referenced in the FEIS in Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Methodology.

While the Fish Benefit Workbook has gone through several iterations over the years, it remains the preferred tool until such time that improvements become available. The Fish Benefit Workbook inputs are drawn from available data, literature values, and expert opinion. These values continue to be updated as new information comes available. Regarding monitoring and adaptive management, an Implementation and Adaptive Management Plan is proposed in DEIS Appendix N. This Plan has been updated in the FEIS.

Comment: NEPA Process-29

Key to any adaptive management framework is the willingness and ability to change program direction as information is collected. Oregon supports adaptive management and encourages the USACE to be willing to change course even if it requires shifting from long-held assumptions about preferred solutions. Oregon, regional WATER partners, and independent scientists must have an active role in developing the research, monitoring, and evaluation needed for achieving successful outcomes. Information gaps and proposed research to address those gaps should be identified, prioritized, and vetted collaboratively with state and regional partners and

independent scientific review as part of a transparent process. A transparent decision-making process that openly considers regional input and documents rationale and addresses partner concerns will build trust and support for outcomes.

Response:

Comment noted.

Comment: Proposed Action-41

The measure for adapting the hatchery program (M719) should be removed from the final EIS. Adapting the hatchery program once replacement rates for above-dam fish are adequate to grow and maintain a sustainable population above the dams is best addressed within the established framework of the Hatchery and Genetic Management Plans (HGMPs). The HGMPs and 2019 Hatchery BiOp are legal documents agreed to by NMFS, ODFW, and USACE that are necessary to ensure the mitigation hatchery programs are implemented in accordance with the ESA. The USACE's NEPA process and EIS document do not supersede these legal documents. The EIS should be reviewed for consistency with them and revised as needed.

Response:

There are no specific changes proposed in the level of production of hatchery fish funded by the Corps and released in the Willamette River Basin under any alternative (FEIS Chapter 2, Alternatives, Measure 719, Adapt Hatchery Program). Production level changes would require regulatory processes and agency coordination that is outside the scope of this Proposed Action analysis. Further, the outcome of such processes is speculative and, therefore, not required to be analyzed under NEPA regulations (Council on Environmental Quality. 1981. 40 Most Asked Questions at #18).

Measure 719 is intended to modify hatchery production if passage improvements support such reductions. These strategies are intended to be implemented after improvements to fish access to habitat above dams is clearly demonstrated based on biological criteria. The current levels of mitigation production, defined in Hatchery Genetic Management Plans (HGMPs) prepared by Oregon Department of Fish and Wildlife (ODFW) and the National Marine Fisheries Service (NMFS) as discussed in FEIS Section 1.9, USACE Programs and Planning in the Willamette River Basin, are to continue until NMFS, ODFW, and the Corps develop reduction levels.

Anticipated reductions in hatchery mitigation production are already recognized in the HGMPs for the Federal hatchery mitigation in association with improved fish passage at Willamette Valley System dams. The Corps did not evaluate these potential reductions. It only addresses the location of out planting such that the approach is consistent with the Upper Willamette Chinook Salmon and Winter Steelhead Recovery Plan (ODFW and NMFS 2011).

The timing and magnitude of total hatchery outplant reductions above dam will depend on demonstrated passage improvements and therefore, as noted above, reductions in hatchery production are not incorporated into the analyses of any alternative. Further, such reductions would not inform a decision among alternatives.

Comment: Mitigation-6

The hatchery programs are intended to mitigate for the lack of habitat access and other habitat impacts on fish populations and fisheries. Providing passage alone does not restore population health or abundance, nor will it necessarily prevent jeopardy for these listed stocks or restore a fishery.

Mitigation for other on-going impacts associated with the Willamette Valley System will remain necessary once successful fish passage has been implemented.

Response:

Measure 719 is intended to modify hatchery production if passage improvements support such reductions. These strategies are intended to be implemented after improvements to fish access to habitat above dams is clearly demonstrated based on biological criteria. The current levels of mitigation production, defined in Hatchery Genetic Management Plans prepared by Oregon Department of Fish and Wildlife (ODFW) and the National Marine Fisheries Service (NMFS) as discussed in FEIS Section 1.9, U.S. Army Corps of Engineers Programs and Planning in the Willamette River Basin, are to continue until NMFS, ODFW, and the Corps develop reduction levels.

Comment: Fish-82

Impacts of the hatchery programs on UWR spring Chinook and winter steelhead were evaluated in the 2019 Hatchery BiOp. The first "Reasonable and Prudent" measure required under the Hatchery BiOp is the continued funding and implementation of the hatchery programs according to the spring Chinook salmon HGMPs. The Hatchery BiOp also resulted in a list of terms and conditions for ODFW and USACE to continue hatchery operations for providing angling opportunities and for assisting with conservation efforts in compliance with the ESA. Oregon is implementing the terms and conditions in compliance with the Hatchery BiOp. The first "Term and Condition" defines production numbers of hatchery spring Chinook salmon and specifies that any proposed changes to production levels must be consistent with the adaptive management approaches specified in the appropriate HGMP. NMFS must issue written concurrence with the changes prior to adoption. As such, the final EIS should acknowledge and describe the existing and established processes for such changes.

The draft EIS includes language that is not consistent with the HGMPs or Hatchery BiOp. These discrepancies should be addressed in the final EIS. For example, the targets identified for outplanting hatchery fish in the HGMPs are incorrectly referred to as "abundance thresholds" in the draft EIS (Table 2-21). These are minimum targets, not maximums, and the Hatchery BiOp

and HGMPs should be referenced in the final EIS where these targets and other criteria have already been set.

Response:

Anticipated reductions in hatchery mitigation production are already recognized and incorporated into the Hatchery Genetic Management Plans for the Federal hatchery mitigation in association with improved fish passage at Willamette Valley System dams. The Corps did not evaluate these potential reductions.

The EIS addresses the location of out planting such that the approach is consistent with the Upper Willamette Chinook Salmon and Winter Steelhead Recovery Plan (ODFW and NMFS 2011). The timing and magnitude of total hatchery outplant reductions above dam will depend on demonstrated passage improvements and therefore, as noted above, reductions in hatchery production are not incorporated into the analyses of any alternative. Further, such reductions would not inform a decision among alternatives.

Comment: Fish Passage-46

Section 3.8, Fish and Aquatic Habitat (Chapter 3), contains several misleading statements in relation to the impacts of hatchery steelhead and Chinook on native or listed fish species. In addition, actions taken by the State in response to the Hatchery BiOp have reduced potential impacts. The HGMPs provide a framework for crediting hatchery production needs once fish passage has been determined to be successful at a dam. The long timeline for the implementation of structural fish passage at the dams described in the draft EIS will provide more than sufficient time for the fisheries agencies and the USACE to determine the detailed crediting approach that robustly addresses the issues associated with crediting and fish passage. ODFW does not agree with the crediting approach proposed in the draft EIS. Any hatchery impacts and proposed changes to the hatchery mitigation program are most appropriately addressed through the existing HGMP and Hatchery BiOp processes and must also consider related fishery impacts. The crediting section and overall discussion of hatchery program modifications in Appendix N should be removed from the final EIS.

Response:

Comment noted.

Comment: Hydropower-16

Results of power disposition studies directed by WRDA may influence the feasibility of potential WVS fish passage solutions and related water management. The USACE should coordinate with Regional WATER partners to share power disposition study results once they are available and to collaboratively determine how those results might expand options for providing fish passage, including opportunities to eliminate the need for re-regulating facilities in the basin.

For example, the Preferred Alternative includes a deep drawdown of Cougar Reservoir to the diversion tunnel to provide fish passage. A large amount of sediment will be mobilized with this operation, resulting in economic and ecological impacts, including impacts to fisheries and the recently restored areas downstream of the dam. Robust evaluations of passage using the regulating outlet, and a turbine- less penstock if power is deauthorized, should be conducted to determine whether these options could provide similar passage survival to that of the diversion tunnel, but with fewer impacts. If a drawdown to the diversion tunnel remains the preferred passage solution, it will be critical to implement "lessons learned" from earlier sediment mobilization events resulting from drawing down Cougar Reservoir to the tunnel.

Response:

This comment requests coordination for a future action, which is out of scope for the analyses in this programmatic EIS. The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes. Impacts from the drawdown operation at Cougar Dam will be analyzed in a site-specific analysis; coordination with applicable governmental agencies and tribes will occur during that process.

Comment: Proposed Action-42

Oregon encourages the USACE to implement the Conservation Recommendations identified in the USFWS Fish and Wildlife Coordination Act Report (Appendix Q). General recommendations include restoring and supporting ecological processes and long-term monitoring to inform on-

going adaptive management in an uncertain future, and specific recommendations include delaying Fern Ridge Reservoir drawdown to simulate a more natural winter hydrology to benefit wildlife. Species-specific recommendations will benefit a host of representative native fish and wildlife and their habitats that were not specifically addressed by the EIS but are nonetheless, impacted by the WVS.

Response:

Comment noted.

Comment: Geomorphology-3

Erosion land loss should be added to the evaluation of environmental impacts/costs in Appendix C of the final EIS. The evaluation of environmental impacts shows that surface erosion risks are considered a "minor factor" in sediment supply changes "with the presence of flood storage projects that can trap sediment and regulate peak flood flows in the basin, the expected changes in the regulated reaches will be largely mitigated," p. C-15. However, Appendix C projects geomorphic change (such as bar growth, bank erosion or avulsions) under Preferred Alternative 5, acknowledging the potential for land loss resulting from bank erosion/failure due to added abrasion from increased sediment and gravel disposition. Table 2-20 in Appendix C indicates potential for major geomorphic change in the North Santiam, South Santiam, McKenzie, and Blue Rivers.

Response:

The potential for major geomorphologic change downstream of reservoirs in the North Santiam, South Santiam, McKenzie and Blue Rivers is due to Measure 384, Gravel Nourishment, that seeks to directly place bed sediment into the river. The WVS EIS is a programmatic EIS that is broad scale in its analysis.

The gravel augmentation impacts assessment is necessarily uncertain given the lack of specificity in the measure at these early operations and maintenance planning stages, including specific locations and habitat goals pertinent to measure implementation. Implementation of the gravel augmentation measure at any specific location would require site-specific technical analysis, plan development, and an impacts assessment likely including additional compliance actions prior to any project-specific plan implementation.

Site-specific biologic criteria and benefits would be cross walked against site-specific constraints in the development of an optimized implementation, monitoring, and management plan.

The language cited in the comment, "such as bar growth, bank erosion or avulsions" is related to potential climate change effects in reaches that have large, unregulated tributaries or largely unregulated hydrologic signals. This effect is anticipatory only.

Comment: Socioeconomic Resources-17

In Chapter 7, Environmental Operating Principle #3 is designed to "Create mutually supporting economically and environmentally sustainable solutions" however, it only considers the increase in temporary construction wages (economic) and reduced flood risk (environmental) and does not address the expected increased irrigation costs of a supplemental stored water right and/or crop damage due to a lack of water. The final EIS must account for potential environmental and socioeconomic costs of mid-season irrigation water loss and offer a means of mitigating or supporting decision making regarding the risk of irrigation water loss. As stated above, there is a strong interest among agencies, basin stakeholders, and others to contribute to a longer-term water management plan that optimizes the use of a shared resource for all uses of water. In drier years, which are expected to increase, constraints on stored water will make it challenging to achieve a balance of environmental health, economic prosperity, and social well-being. The EIS should prioritize actions that maximize this balance consistent with ESA obligations. Oregon supports implementation of a science-based decision-making process developed with stakeholder input for how available water will be distributed during dry years.

Response:

Regarding irrigation impacts, specifically costs, the FEIS includes qualitative impact analysis to irrigation water users in Section 3.13.3, Water Supply, Environmental Consequences. A quantitative cost analysis is not included because this EIS is a programmatic review.

The Corps addressed that some existing water users would require a backup water source when instream water rights are issued within the Willamette River Basin in the FEIS (See FEIS Section 3.13.3, Water Supply, Environmental Consequences). It is not under the Corps' control or responsibility to determine how those users obtain rights or a backup water source under state law.

This information, including costs associated with state authorizations, are speculative and cannot be analyzed in this programmatic review. The Corps will continue to collaborate with the state to comply with the Willamette Basin Review 2019 Biological Opinion Reasonable and Prudent Alternative under any alternative selected.

Comment: Hydrology-23

Individual agricultural producers often find it difficult to make fallow/not fallow decisions using limited precipitation and water storage information in advance of the growing a season. Where a producer opts to move forward and not leave fields fallow, the loss of irrigation water partway through a season can mean crop loss and potentially increased erosion from wind and water processes. These kinds of outcomes were observed with recent and ongoing drought conditions in the Deschutes basin; farmers affected by irrigation water loss mid-season experienced crop losses and soil exposure during summer conditions when establishing a cover crop was not

possible. Subsequent fall rains resulted in extensive soil erosion that affected soil health, water quality and in some cases stormwater systems in adjacent communities.

Response:

Comment noted.

Comment: Socioeconomic Resources-18

The final EIS must include a thorough analysis of impacts of the proposed actions on recreation and the socioeconomic value of fisheries. The analysis must consider the full geographic scope of these affected fisheries, as well as impacts to fisheries for both hatchery and wild fish.

The draft EIS does not adequately consider the socioeconomic value of fisheries (hatchery or wild, ESA-listed or not) in its analysis. The omission of socioeconomic effects on salmon fisheries allows for the restriction of effects described in the draft EIS to those affecting a far smaller area than is real. In fact, these effects flow all the way to southeast Alaska and British Columbia fisheries where some ESA-listed UWR Chinook harvest is allowed (see Appendix Table C-70, Pacific Salmon Commission Chinook Technical Team Report TCCHINOOK (2021)-05 https://www.psc.org/download/35/chinook- technical-committee/14106/tcchinook-21-05.pdf). Salmon fishery areas in the lower Columbia River downstream of the Willamette River and all salmon fishery areas within the Willamette basin must be considered as well. The EIS is setting the baseline for effects as only applicable within the reservoirs themselves, which inappropriately ignores significant effects in other areas attributable to the WVS operations. This allows for false conclusions in a variety of significant areas in the draft EIS that the action alternatives have no or negligible effects, when in fact the actions would have effects that are beyond negligible and, in several cases, would be significant. In effect, this error prevents informed decision-making.

Response:

Quantitative modeling would be required for a numerically based response. However, the report referenced in the comment illustrates that WVS hatchery fish are a substantially minor proportion of the overall fishery; impacts to these fisheries and related economic impacts as a result of the alternatives would likely be marginal and were, therefore, not analyzed in the EIS. However, the FEIS has been updated to include information on recreational fish and other, non-ESA-listed and non-recreational fish species in Section 3.8, Fish and Aquatic Habitat. For example, an additional assessment of resident fish species and gamefish in reservoirs targeted for sport fishing has been included.

The Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS. Impacts to gamefish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: Socioeconomic Resources-19

The draft EIS concludes that natural populations will not increase to a level that would support direct harvest in fisheries under any of the alternatives. The draft EIS further purports that if there is no direct harvest of ESA-listed fish then there is no socioeconomic impact on fisheries from any of the alternatives. While ODFW maintains that the latter presumption is false, if it were true, then the only socioeconomic impact on fisheries stemming from the Willamette system would be those derived from hatchery production. Foremost among that would be production from USACE mitigation programs which would be subject to reduction. If increases in production of ESA-listed fish due to improved passage provides no socioeconomic benefit (as stated repeatedly in the EIS) but increases in production of ESA-listed fish due to improved passage do lead to reduction in mitigation hatchery production, it is inconsistent to conclude that adapting the hatchery program (Measure 719) would have indirect and negligible long-term effects on recreation, or on socioeconomics overall.

A reduction in hatchery fish production without fisheries benefits from improved natural production will cause a net loss to recreational opportunity and economies associated with these fishery resources. The significance of that effect would be proportional to the amount of reduction not otherwise offset with other fishery improvements, as the draft EIS states would only occur if the actions are successful.

Response:

There are no specific changes proposed in the level of production of hatchery fish funded by the Corps and released in the Willamette River Basin under any alternative (Appendix A, Alternatives Development, Section 2.6.2, Measure 719, Adapt Hatchery Program). Production level changes would require regulatory processes and agency coordination that is outside the scope of this Proposed Action analysis. Further, the outcome of such processes is speculative and, therefore, not required to be analyzed under NEPA regulations (Council on Environmental Quality. 1981. 40 Most Asked Questions at Number 18).

Measure 719 is intended to modify hatchery production if passage improvements support such reductions. These strategies are intended to be implemented after improvements to fish access to habitat above dams is clearly demonstrated based on biological criteria.

The current levels of mitigation production, defined in Hatchery Genetic Management Plans (HGMPs) prepared by Oregon Department of Fish and Wildlife (ODFW) and the National Marine Fisheries Service (NMFS) as discussed in FEIS Section 1.9.2, Willamette Hatchery Mitigation Program, are to continue until NMFS, ODFW, and the Corps develop reduction levels. Anticipated reductions in hatchery mitigation production are already recognized in the HGMPs for the Federal hatchery mitigation in association with improved fish passage at Willamette Valley System dams.

The Corps did not evaluate these potential reductions. It only addresses the location of out planting such that the approach is consistent with the Upper Willamette Chinook Salmon and Winter Steelhead Recovery Plan (ODFW and NMFS 2011).

The timing and magnitude of total hatchery outplant reductions above dam will depend on demonstrated passage improvements and therefore, as noted above, reductions in hatchery production are not incorporated into the analyses of any alternative. Further, such reductions would not inform a decision among alternatives. The Corps could not find a statement in the DEIS supporting the comment that the "draft EIS concludes that natural populations will not increase to a level that would support direct harvest in fisheries under any of the alternatives."

NMFS regulates commercial and recreational fisheries in U.S. waters. ODFW regulates fisheries in the state. Hatchery and natural origin abundance are an important factor in setting ocean harvest rates, total allowable catch, and effort entry. Because specific changes to hatchery abundance levels are not included in the measure, and natural abundance levels would be the same, similar, or better than under existing conditions, ocean availability of Chinook salmon are expected to remain the same or similar under all the action alternatives in the EIS.

Freshwater harvest of ESA-listed Upper Willamette Chinook salmon and winter steelhead is not authorized by NMFS or ODFW. According to the Recovery Plan for these species (ODFW and NMFS 2011), freshwater harvest would not be authorized until criteria are met for "broad sense recovery," which is beyond the level of recovery needed to achieve compliance with the ESA. Neither ESA recovery or "broad sense recovery" are solely the responsibility of the Corps as related to the effects of the Willamette Valley System or in meeting the purpose and need of the Proposed Action.

The Corps could not find a statement in the DEIS where the "The draft EIS further purports that if there is no direct harvest of ESA-listed fish then there is no socioeconomic impact on fisheries from any of the alternatives." The abundance of hatchery and natural origin adult Chinook salmon returns are estimated under each alternative (DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses).

Abundance of natural origin Chinook salmon is estimated to be similar or to increase, depending on the alternative implemented and population abundance, as compared the No-action Alternative. Therefore, associated fishing opportunities for these species would be expected to be at least similar or would improve under the alternatives as compared to existing conditions.

Specific to non-ESA recreational species, the FEIS has been updated to include information on recreational fish and other, non-ESA-listed and non-recreational fish species in Section 3.8.2, Fish and Aquatic Habitat, Affected Environment, and Section 3.8.3, Environmental Consequences. Further, the final Biological Assessment has been incorporated into the FEIS.

Comment: Socioeconomic Resources-20

Finally, the draft EIS presumes that unless directed harvest of ESA species occurs there is no economic or recreational effect of the alternatives. This is inaccurate as impacts to Willamette basin ESA-listed fish species are a primary driver in managing several fisheries and control fishery opportunities even if they are not directly harvested. As a result, the status of those ESA species is a direct contributor to the economic and recreational outcomes of those fisheries and improvements or declines in their status will affect those outcomes. Moreover, Oregon has established a recovery goal that goes beyond ESA delisting and results in restoring populations to a 'healthy and harvestable' state. Avoidance of jeopardy alone does not meet that goal. Oregonians place a value on these iconic fish as a state symbol independent of the fishery.

Response:

There are no specific changes proposed in the level of production of hatchery fish funded by the Corps and released in the Willamette River Basin under any alternative (Appendix A, Alternatives Development, Section 2.6.2, Measure 719, Adapt Hatchery Program). Production level changes would require regulatory processes and agency coordination that is outside the scope of this Proposed Action analysis. Further, the outcome of such processes is speculative and, therefore, not required to be analyzed under NEPA regulations (Council on Environmental Quality. 1981. 40 Most Asked Questions at Number 18).

Measure 719 is intended to modify hatchery production if passage improvements support such reductions. These strategies are intended to be implemented after improvements to fish access to habitat above dams is clearly demonstrated based on biological criteria. The current levels of mitigation production, defined in Hatchery Genetic Management Plans (HGMPs) prepared by Oregon Department of Fish and Wildlife (ODFW) and the National Marine Fisheries Service (NMFS) as discussed in FEIS Section 1.9.2, Willamette Hatchery Mitigation Program, are to continue until NMFS, ODFW, and the Corps develop reduction levels.

Anticipated reductions in hatchery mitigation production are already recognized in the HGMPs for the Federal hatchery mitigation in association with improved fish passage at Willamette Valley System dams. The Corps did not evaluate these potential reductions. It only addresses the location of out planting such that the approach is consistent with the Upper Willamette Chinook Salmon and Winter Steelhead Recovery Plan (ODFW and NMFS 2011).

The timing and magnitude of total hatchery outplant reductions above dam will depend on demonstrated passage improvements and therefore, as noted above, reductions in hatchery production are not incorporated into the analyses of any alternative. Further, such reductions would not inform a decision among alternatives. The Corps could not find a statement in the DEIS supporting the comment that the "draft EIS concludes that

natural populations will not increase to a level that would support direct harvest in fisheries under any of the alternatives."

NMFS regulates commercial and recreational fisheries in U.S. waters. ODFW regulates fisheries in the state. Hatchery and natural origin abundance are an important factor in setting ocean harvest rates, total allowable catch, and effort entry. Because specific changes to hatchery abundance levels are not included in the measure, and natural abundance levels would be the same, similar, or better than under existing conditions, ocean availability of Chinook salmon are expected to remain the same or similar under all the action alternatives in the EIS.

Freshwater harvest of ESA-listed Upper Willamette Chinook salmon and winter steelhead is not authorized by NMFS or ODFW. According to the Recovery Plan for these species (ODFW and NMFS 2011), freshwater harvest would not be authorized until criteria are met for "broad sense recovery," which is beyond the level of recovery needed to achieve compliance with the ESA. Neither ESA recovery or "broad sense recovery" are solely the responsibility of the Corps as related to the effects of the Willamette Valley System or in meeting the purpose and need of the Proposed Action.

The Corps could not find a statement in the DEIS where the "The draft EIS further purports that if there is no direct harvest of ESA-listed fish then there is no socioeconomic impact on fisheries from any of the alternatives." The abundance of hatchery and natural origin adult Chinook salmon returns are estimated under each alternative (DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses). Abundance of natural origin Chinook salmon is estimated to be similar or to increase, depending on the alternative implemented and population abundance, as compared the No-action Alternative. Therefore, associated fishing opportunities for these species would be expected to be at least similar or would improve under the alternatives as compared to existing conditions.

Specific to non-ESA recreational species, the FEIS has been updated to include information on recreational fish and other, non-ESA-listed and non-recreational fish species in Section 3.8.2, Fish and Aquatic Habitat, Affected Environment, and Section 3.8.3, Environmental Consequences. Further, the final Biological Assessment has been incorporated into the FEIS.

Comment: References and Data-67

Chapter 3, 3-13.1.1, pg. 3-997: Remove reference or add text to clarify the conditions required to extend the irrigation season for a sub-basin. Reference to ORS 537.385 is misleading.

Response:

The FEIS has been updated to delete the reference to ORS 537.385 in Section 3.13.1.1, Water Supply, Affected Environment, Irrigation Water Supply.

Comment: References and Data-68

Chapter 5, 5., pg. 5-42: Label for Figure 5.5-2. USACE Adaptive Management Cycle Figure 5.4-2 is referenced in text description.

Response:

The FEIS has been updated to address editing errors.

Comment: References and Data-69

Chapter 7: Explain if this applies: Title 1 Section 313 (33 U.S.C. 1323) to Section 7.

Response:

Section 313 of the Clean Water Act applies to the Corps actions in that it requires all Federal agencies to comply with applicable requirements all sections of the Act. There is no additional independent, substantive requirement to comply with Section 313. Compliance with CWA environmental requirements discussed in Section 313 such are addressed in other CWA sections such as Section 404, which is addressed in Chapter 7, Relationship with Other Environmental Plans, Policies, and Regulations. Section 401 and Section 404 are the primary sections of the Act related to the scope of the Willamette Valley System EIS and implementation compliance.

Comment: References and Data-70

Table 3.1-3: Clarify whether safety concern or environmental effect is the focus for tiered NEPA.

Response:

Tiered NEPA would be required once design aspects are more defined for structural improvements. The purpose of NEPA is to "ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. [...] Most important, NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). Consequently, environmental effects will be a focus of any tiered NEPA analysis.

The Corps conducts routine risk assessments a minimum of every 10 years for all its dams. Risk assessments consider the most up-to-date flood and earthquake hazard data available. The dam safety risk characterization is updated and revised as needed to consider the most current understanding of flood and earthquake hazard evaluated during these risk assessments.

Earthquake-related risks at the Willamette Valley dams are characterized as a combination of the high population of communities downstream of the dams, but the

unlikely occurrence of an earthquake during sustained summer conservation pools, as discussed in Chapter 3 of Appendix H, Dam Safety. High pools that are due to extreme weather and floods are of short duration and do not generally contribute to the overall earthquake-related risks.

Comment: References and Data-71

Chapter 5 (Figure 5.4-1) and Appendix N (Figure 2-4): Include a summary list of anticipated tiered NEPA projects with timelines and decision points with the alternative implementation timeline in.

Response:

Council on Environmental Quality regulations do not require that programmatic reviews identify all possible future projects subject to tiered analyses. Not all projects can be identified with certainty and, therefore, are assessed for the potential to trigger NEPA review as major Federal actions at the time they are proposed.

Comment: References and Data-72

Appendix I, Socioeconomics; Appendix K, Recreation; Appendix M, Costs – Add summary or reference to Preferred Alternative 5 to confirm Alternative 5 was evaluated against these factors.

Response:

Section 3.11, Socioeconomics; Appendix I, Socioeconomics; and Appendix K, Recreation, have been updated in the FEIS to add an analysis of Alternative 5. This update clarifies that the Alternative 5 analysis is essentially the same as the analysis under Alternative 2B.

References to the Preferred Alternative 5 have been added where needed. Additionally, Appendix M, Costs, has been updated in the FEIS to include information on Measure 721 effects under Alternative 2A, Alternative 2B, and Alternative 5 for Blue River Dam. The evaluation of Preferred Alterative 5 in Appendix K, Recreation, can be found in Section 2.3, Average Annual Effects, and Section 5.2, Results by Alternative.

OREGON DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT (WRIGHT, DEANNA)

Comment Document: 2023-01-10_PublicComment_WV_DEIS_DLCD_Deanna Wright.pdf

Comment: Hydrology-1

I understand the EIS to not result in any changes to Floodplain Mapping (boundaries to existing Special Flood Hazard Areas, or Base Flood Elevations (BFEs). Flood carrying capacity or alteration of a watercourse

Response:

The Corps is not proposing to alter any flood risk management operations under any of the alternatives analyzed in the EIS. Therefore, studies, including Special Flood Hazard Areas and Base Flood Elevations, that rely on those operations would not be updated or modified under any alternative.

Comment: Hydrology-2

These are some minimum NFIP regulations that come to mind contained in the Code of Federal Regulations (CFRs). I assist communities in the NFIP (256 in Oregon) and provide technical assistance to their staff on floodplain management, permitting, and compliance so that they remain in good standing with the NFIP. I also coordinate and partner with other agencies (USACE, OEM, DEQ, FEMA) within my scope of work on floodplain regulations or topics in my role at DLCD.

Please reach out to me if you have any floodplain related questions and enter my comment into the record. Happy to have a follow up phone call to if that is necessary

Response:

The Corps values coordination with state and local partners and other stakeholders. Programs such as Silver Jackets would not be altered under any of the alternatives analyzed in the EIS.

OREGON DEPARTMENT OF TRANSPORTATION (WHITE, SUSAN)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_ODOT_Susan White.pdf

Comment: Proposed Action-33

For any state highways, including interstates and other highways on the National Highway System, that are located near WVS dams and flood control devices, reservoirs, and hatcheries, ODOT should be coordinated with in order to avoid any adverse impact from both permanent

impacts as well as construction-related temporary impacts from the WVS Proposed Action and the Selected Alternative on those inter- and intra-state highways and to the traveling public.

Specifically, if through coordination with ODOT it is anticipated that any part of the WVS Proposed Action and the Selected Alternative would create traffic impacts, a traffic impact study (TIS), and potential cooperative agreements with required mitigation, may be warranted. The traffic impact study and any resultant cooperative improvement agreement or plan related to traffic impacts and required mitigation, and any access needed on or adjacent to ODOT highway rights-of-way, may require review and approval by ODOT.

Response:

The requested actions are not within scope of the Proposed Action analyzed in the EIS because information necessary to inform the State's request is not yet available. When evaluating site-specific actions, the Corps would determine if further coordination with Oregon Department of Transportation is necessary.

Comment: Proposed Action-34

In addition, various permits may be needed to accommodate any oversized vehicles needed to implement the WVS Proposed Action and the Selected Alternative during construction or any installment and associated hauling and storage of equipment needed for the project (both temporarily and permanently). The link to ODOT's Permitting Page is here: https://www.oregon.gov/ODOT/Maintenance/Pages/index.aspx

Response:

Comment noted.

Comment: Proposed Action-35

In addition, any changes to existing dams or reservoirs or their associated operations, riverbank protection projects, or fish hatchery programs that may cause impacts to regular state highway operations and maintenance activities other than traffic impacts (i.e., changes or new measures that could cause increased potential for flooding on state highways, change access to or otherwise encroach upon state highway rights-of-way, require USACE owned access road changes, etc.) should be coordinated with ODOT in order to allow state highways to continue to operate safely and efficiently without adverse impacts.

Response:

The requested actions are not within scope under the Proposed Action analyzed in the EIS because information necessary to inform the State's request is not yet available. The Corps will continue to work closely with the State of Oregon through the WATER Forum as described in the governance section of Appendix N, Implementation and Adaptive Management Plan. More specifically, as projects arise that may impact roads and

highways, the Corps will continue to coordinate with Oregon's Department of Transportation as appropriate.

Comment: NEPA Process-25

Further, the following is a tentative list of potential next steps for USACE and ODOT coordination:

- Discuss and develop a regular coordination meeting schedule with USACE and ODOT
- Discuss and develop technical support reimbursement
- Discuss and develop highway *repair/maintenance cost agreement(s) and mitigation plan(s)

  *Any damages to Oregon state highways may be reimbursable through the appropriate agency claim process.

  Response:

  The requested actions are not within scope under the Proposed Action analyzed in the EIS because information necessary to inform the State's request is not yet available. When evaluating site-specific actions, the Corps would determine if further coordination with Oregon Department of Transportation is necessary.

  The State of Oregon is an active participant in the WATER Forum. Under this charter, State representatives are to coordinate with all other State entities interested in implementation of the Biological Opinions (i.e., the selected alternative identified in the Record of Decision).

OREGON STATE MARINE BOARD (MULHOLLEM, JOSH)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_OregonStateMarineBoard_Josh Mulhollem.pdf

Comment: Recreation-24

The adjustments in flows associated with future operation of the Willamette Valley System will result in changes to the physical and temporal use of the waterways that boaters and other recreators enjoy. It is therefore incumbent upon the agency to advocate for certain considerations in the evolving operation of the Willamette Valley System, as the proposed changes serve to eliminate certain recreational opportunities without accounting for replacement or acceptable substitution.

Local communities cannot be expected to account for limitations on existing recreational facilities due to a new water environment. We are also considering the impact to rural communities that rely on revenue from urban boaters to support local businesses.

Response:

Consistent with the points made in this comment, the Draft PEIS predicts major adverse effects on recreation at many of the projects in the WVS. These effects are analyzed in Section 3.14.2.3 of the Draft PEIS, and the socioeconomic effects related to recreation are analyzed in Section 3.11.7. All effects analyzed will be considered prior to a final decision on which alternative to implement.

Comment: Proposed Action-43

It is the duty of the Oregon State Marine Board, however, to advocate for the intentional and meaningful consideration of the financial impact to the state and local entities that provide recreational facilities and improvements within the system. OSMB recommends that the Corps carefully evaluate how any modifications to operations and maintenance of the WVS will impact boating facilities and floating structures; including the historical and current recreational boating activities for safety, navigation and future ability to permit, repair, or replace boating facilities and floating structures. We urge the USACE to investigate and calculate the costs that will result from the impacts of changing water levels on these facilities, and proactively allocate funding for the inevitable redesign, maintenance, and replacement of these facilities, as state and local agencies should not and cannot bear those burdens.

Response:

"The Corps owns and operates the boat ramps at the 13 Willamette Valley System dams and would close the ramps when the WSE reaches a level whereby ramps are unusable under each alternative. As discussed in FEIS Section 3.14.3.1, Recreation Resources, Methodology, the quantitative analyses included an estimation of the average annual number of days that boat ramps would be usable using water surface elevation (WSE) data from the HEC-ResSim model and boat ramp elevations at each reservoir (See also FEIS Appendix K, Recreation Analysis). The number of days in each season that the bottom of a given boat ramp elevation would be lower than the WSE were counted as usable days, with the remaining days counted as unusable.

An example of how recreation benefits were calculated, that includes the number of days boat ramps would be available is in FEIS Appendix K, Recreation Analysis, Section 2.3, Average Annual Effects, Table 2-1 and 2-2. This example illustrates only Hills Creek Reservoir; however, the total benefits results tables for each reservoir are available in FEIS Appendix K, Recreation Analysis, Chapter 3, Uncertainty in Reservoir Recreation Analysis Results, Tables 3-1 to 3-23.

The explanation of how “usable” and “unusable” boat ramp days were calculated is given in FEIS Appendix K, Recreation Analysis, Section 2.2, Methodology. "

The current analysis focuses on the frequency of boat ramp availability and the related regional economic costs during times when they are unavailable for recreational use

(FEIS Appendix K, Recreation Analysis). This analysis included valuing the recreation experience when the reservoir water level is at an attractive level, compared to when it is not. Evaluating the cost to potentially replace or redesign ramps is not within the scope of this EIS as the alternatives are not anticipated to destroy the ramps.

Comment: Recreation-25

Recreational boating facilities throughout the WVS were designed and constructed according to the anticipated water levels at that time and not the low-flow conditions that will result from operational changes. Decreases in flow have the potential to impact boat launching ramps by exposing the toe. The toe of the ramp is the lower end of the ramp that extends below the waterline to provide a hard surface for the trailer to travel on during launch and retrieval. Toe elevation of a launch ramp has a direct effect on the period of serviceability of the ramp for boaters. Continued use of a boat ramp with an inappropriate toe elevation will lead to accelerated wear and deterioration, leading to unexpected and unsustainable maintenance needs and insurmountable replacement costs on a schedule that could not have been predicted. Furthermore, many boat launch ramps and associated facilities will become entirely unusable, potentially eliminating recreational access to the water indefinitely.

Response:

"The Corps owns and operates the boat ramps at the 13 Willamette Valley System dams and would close the ramps when the WSE reaches a level whereby ramps are unusable under each alternative. As discussed in FEIS Section 3.14.3.1, Recreation Resources, Methodology, the quantitative analyses included an estimation of the average annual number of days that boat ramps would be usable using water surface elevation (WSE) data from the HEC-ResSim model and boat ramp elevations at each reservoir (See also FEIS Appendix K, Recreation Analysis). The number of days in each season that the bottom of a given boat ramp elevation would be lower than the WSE were counted as usable days, with the remaining days counted as unusable.

An example of how recreation benefits were calculated, that includes the number of days boat ramps would be available is in FEIS Appendix K, Recreation Analysis, Section 2.3, Average Annual Effects, Table 2-1 and 2-2. This example illustrates only Hills Creek Reservoir; however, the total benefits results tables for each reservoir are available in FEIS Appendix K, Recreation Analysis, Chapter 3, Uncertainty in Reservoir Recreation Analysis Results, Tables 3-1 to 3-23.

The explanation of how “usable” and “unusable” boat ramp days were calculated is given in FEIS Appendix K, Recreation Analysis, Section 2.2, Methodology. "

Comment: Recreation-26

In addition to boat launch ramps, there are many floating structures enjoyed by recreational boaters in the WVS. State and federal guidelines exist for the placement of these structures for

the protection of aquatic species. For example, the National Marine Fisheries Service requires floating structures to be located in 15 feet of water at ordinary low water elevations in the lower Willamette River section. A decrease in the ordinary low water level could mean that many floating structures could no longer meet this requirement. The need to redesign and retrofit non-compliant structures and to incorporate new waterway conditions into future designs will create an enormous cost and resource burden on the state and local governments who own and maintain these facilities.

Response:

Comment noted.

Comment: Recreation-27

The OSMB is prepared to assist local agencies as we always have with the design and permitting of facilities, but funding must be set aside at the federal level to ensure that the effort to preserve recreational boating in the WVS is successful.

Response:

Comment noted.

OREGON WILD (KULLA, CASEY)

Comment Document: 2023-01-13_PublicComment_WV_DEIS_Oregon Wild_Casey Kulla.pdf

Comment: Endangered Species Act-1

The persistence of threatened and endangered fish is central to our mission at Oregon Wild. In fact, we're deeply invested in the Oregon Department of Forestry's private forest habitat conservation plan for listed aquatic species and the State Forest programmatic habitat conservation plan for aquatic species. These parallel efforts on Oregon Board of Forestry Land and private timber land are vital for the persistence and thriving of anadromous fish; this is land where the land managers are accepting responsibility for their role in fish decline and the need for restoration. When the US Army Corps of Engineers built a series of flood control dams and haphazardly added revetments to properties along the Willamette River, you also became responsible for that decline by a combination of cutting off habitat and altering the seasonal river levels.

As you see, the state of Oregon and private landowners are moving forward to protect fish. When you examine your alternatives, including the Preferred Alternative, in light of the ongoing litigation against USACE, I hope you will consider the listed fish species first, rather than flood control first.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

The EIS analyses will assist the Corps in understanding the many potential effects of alternative means of operating and changing the projects (e.g., dams, reservoirs, and related facilities) at a programmatic level, as a result of complying with the Endangered Species Act (See FEIS Chapter 2, Alternatives, Section 2.4, Purpose of and Need for the Proposed Action). When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative. Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Fish-17

The flood control mission, arguably unnecessary, must come after promoting and restoring fish populations, both in the upper reaches and in the lower, floodplain Willamette River.

Response:

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Effects on reservoir and downstream habitat and on all fish species affected by dam operations are provided in FEIS Section 3.8, Fish and Aquatic Habitat. Additionally, the

Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA process requires consultation with NMFS and the USFWS on impacts to listed fish and measures to avoid jeopardizing the continued existence of listed species.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: Fish Passage-3

When you consider the Alternative Measures, please give weight to long-lasting, non-structural solutions to opening up habitat and passage and please give less value to flood control behind concrete. Long-lasting habitat and passage that does not require technological, human-managed solutions are the best solutions.

Response:

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2)(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Fish Passage-4

When you consider the alternatives, please give weight to appropriate seasonal flow for fish and consider with less weight hydropower production. Your own natural resources staff can provide the best flow (both volume and seasonality) for fish. Managing for hydropower and flood control rather than for natural seasonal flow is part of what got us here, to a dam-related decline in fish.

Response:

As described under all alternatives, Measure 30 would be implemented to manage stream flows to meet the needs of ESA-listed fish species. When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2)b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative. Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Hydrology-3

You've committed to maintaining your mission of flood risk management even as you attempt to find an alternative measure that safeguards the persistence of the listed fish species. Please consider your floodplains as the basis of your flood risk management. Hold Oregon's floodwaters in the natural flood storage facilities: the floodplain. Now, there is the expensive route to natural flood storage: purchasing farmland and reconnecting it to the river for water storage. That takes time and money. But, the Willamette River's floodplain contains many meander scars just sitting there, waiting all winter to be filled with fresh mountain water. I encourage you to turn your gaze away from the concrete storage that is your problem and towards the natural storage: the floodplain of the Willamette. When you do that, you take the edge off of peak flows and you can focus your attention to fish persistence.

Response:

The Corps does not have ownership or authority to acquire the necessary property to utilize the parts of the floodplain suggested by the comment. The Corps flood risk management operations take floodplain capacity and flow attenuation into account currently with the use of stage definitions at Willamette Valley System control points (for example, bank full and action stage) and water travel times.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2) b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: NEPA Process-8

As you mentioned in your presentation, tribal consent has always been important but tribes have long been neglected, ignored, and pushed aside. Tribal needs, perspectives, and management for fish are essential. Embrace your nine federally-recognized tribes whose traditional homelands overlap with what we call Oregon. Listen to them, and demonstrate that you've listened by adapting your plans (both interim and long-term) to their expert advice. Finally, show the public, federal judges, litigants, and the Services that you've listened and adapted by pointing to exactly what in your plans you changed.

Response:

Comment noted.

Comment: Vegetation-1

At Oregon Wild, we work to protect and restore forests across Oregon. We've known for 20 years that Pacific Northwest forests depend upon nutrients from the ocean, brought upstream by anadromous fish and distributed across forests by raptors and mammals (Zhang Y, Negishi JN, Richardson JS, Kolodziejczyk R. Impacts of marine-derived nutrients on stream ecosystem functioning. Proc Biol Sci. 2003 Oct 22;270(1529):2117-23. doi: 10.1098/rspb.2003.2478. PMID: 14561274; PMCID:PMC1691481). The thousands of years of marine-derived nutrients feeding our forests have been cut short by dams impeding the passage upstream of these fish, in our lifetimes. The US Army Corps of Engineers dam-building in the Upper Willamette and revetments on the lower Willamette starve the ecosystems upon which we all depend.

You were directed to build dams and revetments within many of our lifetimes, and these dams and revetments are starving our forests. Forest restoration will be incomplete until the nutrient cycle is restored. In other words, effective fish passage is essential to forest health.

Response:

This comment requests information on forest health that is out of scope for the EIS analyses. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, Proposed Action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives. Agencies are not required to analyze or address topics that are not within

its scope of review as determined through internal and public scoping processes and documented in the project record.

However, the Corps analyzed potential effects to fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA process requires consultation with NMFS and the USFWS on impacts to listed fish and measures to avoid jeopardizing the continued existence of listed species. Additionally, the FEIS has been revised to include information on marine-derived nutrients in Section 3.8, Fish and Aquatic Habitat.

Comment: Alternatives-4

Please adopt an Alternative that reconnects fish and forests, reduces reliance on technology, reintroduces seasonal flow regimes, uses natural flood control management, and emphasizes tribal management.

Response:

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2) b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives.

The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative. Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

PUBLIC POWER COUNCIL (DEEN, MICHAEL)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_PublicPowerCouncil_Michael Deen_Attachment.pdf

Comment: Hydropower-17

PPC is fundamentally concerned that among the analyzed alternatives, there is no path for maintaining economic hydropower production in the Willamette Valley System. The Draft EIS analysis shows massive costs to regional ratepayers, but as described further in these comments, even these costs are likely to be drastically understated. This concern highlights the

importance of the Corps' fulfilling in a timely manner its Congressional mandate from the 2022 Washington Resources Development Act (WRDA) that directs the Corps to conduct disposition studies for power deauthorization of the Willamette Valley System.

Response:

Costs of regional power generation under each alternative are analyzed in FEIS Section 3.12 and Appendix G, Power Generation and Transmission. The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: Hydropower-18

As PPC has urged in previous comments, the final EIS must include consideration for potential deauthorization of power or significant cost reallocations between project functions. Failure to do so would frustrate the clear intent of Congress in the recent 2022 WRDA legislation and have the potential to make this entire EIS effort for the Willamette Valley System functionally moot. Completing the disposition studies on time and considering their results in the final EIS will have multiple benefits, including the potential for more cost-effective juvenile salmon passage options, reasonable basis for the reallocation of costs between flood control and power where appropriate, and allow for BPA to make informed investment decisions for the projects.

Response:

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: References and Data-73

The final EIS must be updated with more accurate costs. First, the draft EIS does not account for the impacts of extending the proposed near-term operations until the completion of structural modifications. This omission dramatically overstates the volume and value of hydroelectric output of the Willamette Valley System projects. Second, the costs of proposed structural improvements for fish passage and water temperature appear highly optimistic based on conceptual designs, and by the Corps' own estimates could likely more than double. Further, the impacts of increased interest rates and material costs should be accounted for.

Response:

The term "near-term operations" has been changed to "Interim Operations" in the FEIS. The FEIS has been modified to include updated costs, interest rates, and other applicable updated data. Environmental consequences of the Interim Operations were analyzed in the DEIS under each applicable resource analysis in Chapter 3, Affected Environment and Environmental Consequences.

PUBLIC (ABAOR)

Comment Document: 2023-01-26_PublicComment_WV_DEIS_Citizen_Abaor.pdf

Comment: References and Data-1

This is a response to the request for feedback on the proposal to draw down the water levels of Green Peter and Lookout reservoirs.

A reference to the Fall Creek drawdown is cited in this request. Before proceeding with these actions it would be beneficial to report of the success or failure of the Fall Creek efforts. The loss of warmwater species in Fall Creek is well known. Was this action effective in achieving the desired result?

Response:

NMFS issued a Biological Opinion in 2008 on the effects of continued operations and maintenance of the WVS on ESA-listed spring Chinook salmon and winter steelhead in the Willamette Valley Basin. NMFS' Biological Opinion stated that measures to improve fish passage at several of the WVS dams, including Fall Creek Dam, were necessary to avoid jeopardizing these species.

The Fall Creek Reservoir drawdown to riverbend elevation is done each year in late fall to allow ESA-listed juvenile spring Chinook salmon to migrate downstream (DEIS Section 3.8.1.9.3, Fish and Aquatic Habitat, Affected Environment, Fall Creek Dam).

Studies have shown the operation is very effective, with all juvenile salmon in the reservoir moving downstream each fall with a high survival rate and has resulted in the re-establishment of a spring Chinook salmon populations above Fall Creek Dam now naturally sustaining itself.

The operation also has reduced the number of resident fish species that are of a size known to prey on juvenile spring Chinook salmon, further contributing to the success of the program to re-introduce and maintain a naturally spawning local population of spring Chinook salmon above Fall Creek Dam. A new adult fish collection facility was completed in 2018, designed to NMFS standards to safely collect and truck adult spring Chinook salmon upstream each year.

Comment: Fish-30

The history of efforts to help one species by sacrificing others has never proven to be beneficial to anyone. … However the destruction of fish species that eliminate outdoor activities for many future generations can not be acceptable.

Response:

The Corps analyzed potential effects to fish and other threatened species under each of the alternatives. Further, the Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been added to FEIS Section 3.8, Fish and Aquatic Habitat. Effects from climate change and other reasonably foreseeable future actions are addressed in Section 4.8, Fish and Aquatic Habitat cumulative effects.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Recreation-14

The loss of recreational access is a temporary consequence and can be tolerated.

Response:

Comment noted.

Comment: Proposed Action-13

Especially when there is no evidence that this action will provide the desired result. I can see no possible reason to encourage these efforts.

Response:

Comment noted.

PUBLIC (BLACKMORE, JUSTIN)

Comment Document: 2023-01-19_PublicComment_WV_DEIS_Citizen_Justin Blackmore.pdf

Comment: Water Supply-7

I am writing in regards to your proposed water use changes one Green Peter and Lookout Point reservoirs. I am deeply disturbed by the recent changes in water management going on throughout the state especially considering the drought conditions we continue to face and lack of water as a resource. Each year we see low water conditions is many of our lakes throughout the state.

Response:

Conservation Season Water Management is adaptive based on hydrologic conditions and available reservoir storage. Annually, beginning in March, the Corps coordinates with partner agencies such NMFS, OWRD, and ODFW to manage for authorized purposes, including fish and wildlife, water supply, irrigation, and recreation based on forecasted water supply and realized water conditions (See FEIS Section 1.11, Willamette Valley System Operations and Annual Operational Planning).

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in Chapter 1, Introduction, and Chapter 2 , Alternatives, of the EIS. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Recreation-9

One that hit home most was the changes to Wickiup reservoir in the name of saving a frog. I see the same thing on the table for both of these reservoirs. Wickiup is no longer a viable recreation site anymore due to excessive draw downs... and removing recreation access and enjoyment for thousands of people that enjoy these bodies of water.

Response:

The EIS describes seven alternatives to operate and maintain all 13 dams and reservoirs, in addition to an alternative of maintaining existing operations (No-action Alternative) (Chapter 2, Alternatives). 24 resources with potential impacts from implementation of any alternative were analyzed to allow the Corps decision maker to make an informed decision on which alternative to implement. These resources include fish, wildlife (e.g., ESA-listed northwestern pond turtles), and recreation.

Regarding statutory missions, impacts to all of the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from each alternative on fish, hydropower, water supply, flooding, etc. Congressionally authorized purposes are described in Chapter 1, Introduction, Section 1.10, Congressionally Authorized Purposes.

Section 3.14, Recreation Resources, has been revised to focus on recreation opportunities and how those opportunities would be impacted under each alternative and at each reservoir.

The analyses have been revised to address both the peak recreation season of mid-May to mid-September and also late summer impacts where they would occur. Acknowledgement of recent wildfire effects on recreation and employment have also been made in both sections. Potential cumulative effects on recreation opportunities and community economics have been revised in Section 4.11, Socioeconomics, and Section 4.14, Recreation Resources.

Comment: Wildlife-4

The fishery is all but dead and the recreation access has been ripped away along with less water for irrigation. What you are proposing is not in the best interest of the public and is focusing on one tiny aspect of the overall watershed. You will be eliminating large portions of these ecosystems … In essence you are killing off these reservoirs value in the hopes of protecting a fish that you know is struggling from hundreds of other problems that this will not fix and likely will fail resulting in not one loss but multiple. Failing both fisheries and the people that recreate on these reservoirs. Please do not move forward with these proposed changes.

Response:

As required under the ESA and NEPA, the Corps analyzed potential effects to fish and other threatened species, recreation, and irrigation under each of the alternatives including the Preferred Alternative in the DEIS and FEIS. Additionally, the Corps has been authorized by Congress to manage the Willamette Valley System for fish and wildlife among seven other purposes (i.e., the "authorized purposes) as described in FEIS Chapter 1, Section 1.10, Congressionally Authorized Purposes.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2)b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

PUBLIC (BROWN, CLAYTON)

Comment Document: 2022-12-03_PublicComment_WV_DEIS_Citizen_ClaytonBrown.pdf

Comment: Socioeconomic Resources-1

If I may, I wish to add a simple anecdote to the discussion/argument over dam modifications to save fish species. I was conversing with a cousin who said, "So you put the fish over the wellbeing of people and their livelihood?" Luckily, I was somewhat bright that day so I responded, "People are intelligent, they will find another livelihood. The fish's only choice is to live or die and we are the ones making that choice, not them".

Response:

Comment Noted.

Comment: Purpose and Need-1

I am simply unable to understand the thought processes, (If they exist), of people who are indifferent to the damage we are doing to our Mother Earth.

Response:

Comment noted.

PUBLIC (BURCHARD, SUSAN)

Comment Document: 2023-01-31_PublicComment_WV_DEIS_Citizen_Susan Burchard.pdf

Comment: Fish-33

In the article written by the New Era published 1-18-2023 it mentioned that there are other species of fish in the waters behind the Green Peter dam which include bass and Kokanee. Do these other species create a threat to the salmon population if they are not adequately fished by sports fisherman? In your research do you believe that without some control over the amount of salmon fished will survive in the path that salmon take in their life cycle to return to their spawning area?

Response:

The presence of fish species known to prey on juvenile salmon and angling in Green Peter Reservoir poses negative effects and constraints for re-establishing and maintaining Chinook salmon and steelhead local populations above Green Peter Dam. Several resident warmwater fish species occur in WVS reservoirs prey on juvenile salmon and steelhead and, therefore, effect the number surviving to emigrate.

Predation from warmwater fishes in reservoirs would affect re-establishing and maintaining Chinook salmon and steelhead above the dams, however the extent to which is not fully understood and is expected to vary annually with environmental conditions, resident fish population dynamics, climate change, and other factors.

Studies indicate mortality of juvenile Chinook salmon in Lookout Point Reservoir, where many resident fish species exist that prey on juvenile Chinook salmon, can be above 80 percent during spring and yearly summer in some years (Kock et al. 2019 in Chapter 10, References).

Below WVS dams, warmwater fish species, particularly in the mainstem Willamette River would also affect juvenile Chinook salmon and steelhead survival rates. Sport fishing could remove some level of the warmwater fish population in reservoirs annually, however, the extent of predator removal by fisheries that will reduce predation on juvenile Chinook salmon and steelhead likely would depend on several factors including the predator population size, predator population demographics, and prey availability.

Local fisheries also impose negative effects, including bycatch and poaching (illegal harvest) of Chinook salmon and steelhead resulting in injury and mortality (See FEIS, Section 3.8, Fish and Aquatic Habitat, Affected Environment, Anadromous and Migratory Fish).

PUBLIC (CHURCH, C)

Comment Document: 2023-01-09_PublicComment_WV_DEIS_Citizen_CChurch.pdf

Comment: Recreation-2

The fact that water is released to the point of Detroit Lake becoming a river is a huge disadvantage to sportsman who fish year round, should be reason enough to leave it full year round.

Response:

The FEIS has been updated to include impacts to all fish species in the analysis area including gamefish in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species. Further, the Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

The aim of the EIS analyses is to assist the Corps in understanding the many potential effects of alternative means of operating and changing the projects (dams, reservoirs, and related facilities), at a programmatic level, as a result of complying with the ESA (See FEIS Chapter 2, Alternatives, Section 2.3, Proposed Action). When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Socioeconomic Resources-3

The other issue is that the lake is drained as soon as "tourist" season is coming to an end. This by itself kills the economy of small towns in this canyon. Releasing water in December makes sense, but draining the entire lake prior to winter is not how it should be and kills the means that many of us in this canyon use to make a living.

Response:

An explanation of the Corps' Congressionally authorized purposes is provided in Chapter 1, Introduction, Section 1.1, Background, and Section 1.10, Congressionally Authorized Purposes. The Corps must manage the Willamette Valley System to meet all authorized purposes, which includes recreation but also seven other purposes.

Section 3.14, Recreation Resources, has been revised to focus on recreation opportunities and how those opportunities would be impacted under each alternative and at each reservoir. Additionally, Section 3.11, Socioeconomics, addresses the economic and community impacts expected under each alternative, including impacts from other resource effects such as hydropower and drinking water. Visitation data were updated and used to consistently analyze community impacts on recreation opportunities (Section 3.14, Recreation Resources) and on local, reservoir employment and community revenue (Section 3.11, Socioeconomics).

Regional economic modeling was applied to the analysis of economic effects from alternative implementation at Detroit Reservoir, which is updated in FEIS Appendix I. Regional modeling for economic effects at Detroit Reservoir under all alternatives is described in Appendix K and incorporated into Section 3.11, Socioeconomics, Recreation-related Revenue and Employment Earnings under All Alternatives and Economic Relationship with Communities qualitatively describing impacts/benefits.

From the comment, it is unclear exactly how lowering reservoir levels after the peak recreation season "kills the economy of small towns." However, the analyses have been revised to address both the peak recreation season of mid-May to mid-September and also late summer impacts where they would occur. Acknowledgement of recent wildfire effects on recreation and employment have also been made in both sections.

Finally, potential cumulative effects on recreation opportunities and community economics have been revised in Section 4.11, Socioeconomics, and Section 4.14, Recreation Resources.

PUBLIC (CISSEL, JOHN)

Comment Document: 2022-12-03_PublicComment_WV_DEIS_Citizen_JohnCissel.pdf

Comment: Hydropower-1

It is imperative that USACE do everything it can to maximize hydropower. It is widely recognized that we are in a climate emergency and that we need to decarbonize our economy. According to state of Oregon official reports over 70% of total energy consumed in Oregon comes from fossil fuels. To convert all or most of that to non-fossil electricity requires a four- or five-fold increase in noncarbon electricity generation. That is a monumental challenge and we can not afford to lose any hydropower. Please maximize hydropower.

Response:

The Corps analyzed potential impacts to hydropower production under each of the alternatives in FEIS Section 3.12 and Appendix G, Power Generation and Transmission. Impacts to hydropower production have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: Climate Change-1

If climate change continues unabated future fish habitats and populations will be drastically altered regardless of measures proposed to help fish.

Response:

In 2019, the Corps initiated its programmatic review of Willamette Valley System (WVS) operations and maintenance with a Notice of Intent to prepare an EIS. Unlike the Willamette Basin Review and the 2019 Biological Opinion processes, the WVS EIS NEPA review is related to operations and maintenance of the WVS, not water storage allocation.

While the WVS EIS Notice of Intent was published in 2019 just prior to the Willamette Basin Review Finding of No Significant Impact (FONSI), the two NEPA actions are only related in that operations and maintenance under each alternative may directly, indirectly, or cumulatively impact water storage needed for various uses.

All alternatives analyzed in the WVS EIS propose measures to operate and maintain the WVS; they do not address modifications to water supply allocation. If at some point operations change to where allocations could not be met in normal to wet years, a subsequent feasibility study to revisit allocations would be initiated.

PUBLIC (COCHRAN, MIKE)

Comment Document: 2023-01-09_PublicComment_WV_DEIS_Citizen_Mike Cochran.pdf

Comment: Recreation-3

My concerns on the drawdown is that it will completely destroy the recreation we currently have at Green Peter Reservoir. The bottom line of my thoughts; My family and many friends use Green Peter every Month of the year, it is an amazing outdoor escape in our backyard. There are countless youngsters who are going to miss out (including my grandchildren) on a needed resource that is not replaceable in the foreseeable future if this plan is implemented.

Response:

The analyses in the EIS predict a range of effects to recreation at Green Peter Dam and all other dams in the Willamette Valley System from minor beneficial to major adverse

depending on the measure, location, and alternative. When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Fish-13

What will it do to the thriving Kokanee that eat the Zooplankton to survive and grow? What will it do to the Trophy Bass we currently enjoy? (It has taken well over 15 years to get to this amazing fishery.) Will all the fish be flushed into Foster or just the endangered species? How do we know the Hatchery adult Chinook that was taken to the headwaters actually had a successful spawn?

Response:

The Corps analyzed potential effects to fish and other threatened species under each of the alternatives including kokanee. The analyses have been updated in the FEIS to include additional information on in-reservoir and downstream habitat (FEIS Section 3.8, Fish and Aquatic Habitat). Impacts to recreational fish have also been added to the FEIS in Section 3.8, Fish and Aquatic Habitat. Further, the Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS. Survival of Chinook salmon have been addressed in the Corps' required ESA consultation with NMFS.

Monitoring (e.g., spawning surveys, juvenile migrant trapping, genetic pedigree analysis) would occur under any alternative to document the spawning success of adult hatchery Chinook salmon released upstream of WVS dams (See DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan).

Comment: Socioeconomic Resources-4

Has a plan like this ever worked and benefited a similar fishery/ recreation? What will be the economic impact on the current retailers around the area?

Response:

The EIS reviews eight alternative options for operations and maintenance of the WVS over 30 years. The Corps would continue to implement adaptive management principles as identified in Appendix N, Implementation and Adaptive Management Plan, to modify its operations and maintenance as needed, and would adhere to ESA requirements under any action alternative.

This comment letter specifically requests information pertaining to Green Peter Reservoir. As is demonstrated by the recreation modeling presented in DEIS and FEIS Appendix K, Recreation Analysis, under Alternative 5, visitation at Green Peter Reservoir is only expected to be reduced by 6,000 persons annually and would result in a 3.6 percent reduction in monetary recreational benefits. Recreational modelling for all alternatives at Green Peter Reservoir is described in DEIS and FEIS Appendix K, Recreation Analysis, Table 3-7.

Note that "recreational benefits" are characterized as economic activity (e.g., regional benefits from jobs; direct spending by recreational visitors on food, gas, lodging; etc.) that would result from visitations to reservoirs. There would be a minor decrease in these benefits under Alternative 5 due to fewer visits. A per visit value (unit-day-value) is multiplied by each visit as explained in DEIS and FEIS Appendix K, Recreation Analysis, Section 1.2.

FEIS Section 3.11, Socioeconomics, analyzes impacts of each alternative on recreation employment and revenue at each reservoir.

Comment: Proposed Action-4

How many months will the Reservoir be below 920', making the boat ramps unusable?

Response:

The Corps owns and operates the boat ramps at the 13 Willamette Valley System dams and would close the ramps when the WSE reaches a level whereby ramps are unusable under each alternative. As discussed in FEIS Section 3.14.3.1, Recreation Resources, Methodology, the quantitative analyses included an estimation of the average annual number of days that boat ramps would be usable using water surface elevation (WSE) data from the HEC-ResSim model and boat ramp elevations at each reservoir (See also FEIS Appendix K, Recreation Analysis). The number of days in each season that the bottom of a given boat ramp elevation would be lower than the WSE were counted as usable days, with the remaining days counted as unusable.

An example of how recreation benefits were calculated, that includes the number of days boat ramps would be available is in FEIS Appendix K, Recreation Analysis, Section 2.3, Average Annual Effects, Table 2-1 and 2-2. This example illustrates only Hills Creek

Reservoir; however, the total benefits results tables for each reservoir are available in FEIS Appendix K, Recreation Analysis, Chapter 3, Uncertainty in Reservoir Recreation Analysis Results, Tables 3-1 to 3-23.

The explanation of how "usable" and "unusable" boat ramp days were calculated is given in FEIS Appendix K, Recreation Analysis, Section 2.2, Methodology.

PUBLIC (DAVIDSON, DAVID)

Comment Document: 2022-12-04_PublicComment_WV_DEIS_Citizen_DavidDavidson.pdf

Comment: Recreation-1

My opinion would be to go back the old ways of of using the reservoirs. Making electricity & recreation.

Response:

Comment noted.

Comment: Fish-1

Building bigger and better hatcheries keep trying to make a stronger salmon. There is no wild salmon left I don't think that any one can prove that there is. So just keep improving the hatcheries and making stronger Salmon if possible

Response:

Comment noted.

Comment: Hydropower-2

Using the dams for flood control, producing electricity

Response:

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

PUBLIC (DIMMICK, JUSTIN)

Comment Document: 2023-01-10_PublicComment_WV_DEIS_Citizen_Justin Dimmick.pdf

Comment: Visual Resources-1

The Army Corps of engineers need to keep these reservoirs as close to full as possible. Lowering them to mud flats and stumps, takes away the scenic value of the lake and surrounding area.

Response:

Effects on visual quality is addressed in FEIS Chapter 3, Affected Environment and Environmental Consequences, Section 3.22, Visual Resources.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Fish-16

These lakes are important habitat for a variety of species of fish, bass, crappie, walleye, pikeminnow, trout, kokenee, and many others. These fish are just as valuable as a resource as salmon.

Response:

The FEIS has been updated to include impacts to all fish species in the analysis area including bass, crappie, walleye, pikeminnow, trout, kokenee, and many others in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species.

Further, the Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: Socioeconomic Resources-5

Local small communities around these reservoirs depend on revenue from tourists who come to fish, swim, boat, and camp near these "lakes".

Response:

An explanation of the Corps' Congressionally authorized purposes is provided in Chapter 1, Introduction, Section 1.1, Background, and Section 1.10, Congressionally Authorized Purposes. The Corps must manage the Willamette Valley System to meet all authorized purposes, which includes recreation but also seven other purposes.

Section 3.14, Recreation Resources, has been revised to focus on recreation opportunities and how those opportunities would be impacted under each alternative and at each reservoir. Additionally, Section 3.11, Socioeconomics, addresses the economic and community impacts expected under each alternative, including impacts from other resource effects such as hydropower and drinking water. Visitation data were updated and used to consistently analyze community impacts on recreation opportunities (Section 3.14, Recreation Resources) and on local, reservoir employment and community revenue (Section 3.11, Socioeconomics).

The analyses have been revised to address both the peak recreation season of mid-May to mid-September and late summer impacts where they would occur. Acknowledgement of recent wildfire effects on recreation and employment have also been made in both sections. Finally, potential cumulative effects on recreation opportunities and community economics have been revised in Section 4.11, Socioeconomics, and Section 4.14, Recreation Resources.

PUBLIC (DOMINGUE, RICH)

Comment Document: 2023-02-20_PublicComment_WV_DEIS_Citizen_Rich Domingue_Attachment.pdf

Comment: Proposed Action-17

While the analysis is extensive, there are numerous omissions and inconsistencies that render the proposed action inadequate to guide project operations, modifications and maintenance over the next 30 years.

Response:

Comment noted.

Comment: Proposed Action-18

DEIS Section 4.1 fails to identify the Corps' intent to use the preferred alternative as the proposed action in the ESA Section 7 consultation taking place between the Action Agencies (Corps, BPA, and the Bureau of Reclamation) and NMFS and FWS under court order (No. 2:18-cv-00437-HZ), to be completed and a remanded Biological Opinion issued by December 31,2024. Currently, this purpose is not described until Appendix A, Section 2.8.

Response:

The Corps disagrees that the model results are unreliable based on the very minor differences between Alternative 2B and Alternative 5. While the performance of Alternatives 2B, 4, and 5 may be similar, note that each alternative would achieve specific objectives using, in some cases, different approaches or combinations of approaches.

While Alternative 4 and Alternative 5 would produce similar outcomes, the hydrology and water management approaches differ substantially. For example, Alternative 4 incorporates primarily structure-based downstream passage while Alternative 2B and Alternative 5 incorporate a combination of structural and operational passage.

However, to demonstrate this model behavior, the FEIS has been updated to include model outputs for Alternative 5 (See Section 3.8, Environmental Consequences, Alternative 5).

Comment: References and Data-2

It appears that the Corps is also attempting to resolve the causes for NMFS' Jeopardy finding (June 28, 2019) regarding the Willamette River Basin Review Feasibility Study with this PEIS. According to Appendix J, the Corps anticipates a 2050 level of development in its modeling (Res-Sim) of all alternatives considered, increasing water use for irrigated agriculture from the current 50,000 acre-feet of contracted Corps storage to over 250,000 acre-feet. By including the 2050 build-out in all alternatives, it is not possible to identify the streamflow and fish habitat effects of this action. Flow diminishment is not the only effect of issuing water service contracts. The Corps would attempt to store the water needed to meet water service contracts, thereby limiting efforts to reduce storage to improve fish passage survival.

Response:

The 2050-level of irrigation was selected based on the 30-year timeframe for implementation of any alternative under this programmatic EIS, which addressed the continued operations and maintenance of the Willamette Valley System. The FEIS has

been updated to include additional information on the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes in Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008.

The 2008 Biological Opinion included a Reasonable and Prudent Alternative (RPA) that required the U.S. Bureau of Reclamation and Corps to work through legal and administrative processes necessary to protect instream flows for ESA-listed species under state law.

In compliance with that RPA, the Willamette Basin Review Feasibility Study was formally initiated in 2016. The goal of this study was to seek Congressional approval to reallocate Willamette Valley System (WVS) conservation storage for the benefit of fish and wildlife, agricultural irrigation, and municipal and industrial water supply over a 50-year analysis period, while continuing to fulfill other WVS purposes.

The study examined different ratios of storage allocations for fish and wildlife, irrigation, and municipal and industrial uses based on projected demand for irrigation and municipal and industrial uses in 2070 and mainstream flow requirements for fish.

The Willamette Basin Review addressed the initial step in the process to secure protection of instream flows under state law. In 2019, the Corps initiated its programmatic review of WVS operations and maintenance with a Notice of Intent to prepare an EIS. Unlike the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes, the WVS EIS NEPA review is related to operations and maintenance of the WVS, not water storage allocation.

While the WVS EIS Notice of Intent was published in 2019 just prior to the Willamette Basin ReviewFinding of No Significant Impact (FONSI), the two NEPA actions are only related in that operations and maintenance under each alternative may directly, indirectly, or cumulatively impact water storage needed for various uses.

All alternatives analyzed in the WVS EIS propose measures to operate and maintain the WVS; they do not address modifications to water supply allocation. If at some point operations change to where allocations could not be met in normal to wet years, a subsequent feasibility study to revisit allocations would be initiated. The Adaptive Management Plan includes an overarching governance framework that includes implementation of the WVS operations and maintenance ESA consultation, the 2019 Willamette Basin Review Feasibility Study Biological Opinion, 2019 Hatcheries Biological Opinion, and other activities in the region (Appendix N, Implementation and Adaptive Management Plan).

For example, the Corps would continue in-season adaptive management to meet downstream flow targets, while considering input from the WATER Forum Flow Management and Water Quality Team. Flow targets are incorporated into this

operations and maintenance EIS and ESA consultation, including modeling to support these regulatory processes.

The Adaptive Management Plan also incorporates requirements from the Willamette Basin Review Feasibility Study and 2019 Biological Opinion regarding notification to irrigation and municipal and industrial users when their contracts cannot be fulfilled due to flow requirements for ESA-listed species. This process is ongoing.

The Adaptive Management Plan includes an overarching governance framework that includes implementation of the WVS operations and maintenance ESA consultation, the 2019 Willamette Basin Review Feasibility Study Biological Opinion, 2019 Hatcheries Biological Opinion, and other activities in the region (Appendix N, Implementation and Adaptive Management Plan). For example, the Corps would continue in-season adaptive management to meet downstream flow targets, while considering input from the WATER Forum Flow Management and Water Quality Team.

Flow targets are incorporated into this operations and maintenance EIS and ESA consultation, including modeling to support these regulatory processes. The Adaptive Management Plan also incorporates requirements from the Willamette Basin Review Feasibility Study and 2019 Biological Opinion regarding notification to irrigation and municipal and industrial users when their contracts cannot be fulfilled due to flow requirements for ESA-listed species. This process is ongoing.

Comment: Endangered Species Act-2

The DEIS should be revised to clearly demonstrate that the preferred alternative does not appreciably reduce the species likelihood of survival and potential for recovery, does not adversely modify the species designated critical habitat, and minimizes the take of listed species. As presented, the preferred alternative is inadequate to achieve this goal.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: References and Data-3

To measure success, the Corps proposes to use a single metric, recruits per spawner, with a goal of achieving R/S greater than one. A broader range of performance metrics should be adopted and fish passage success evaluated in accordance with NMFS' fish passage criteria. Because the WVS is a major contributor to these fishes' current statuses, the Corps should clearly state its

intent to manage the project to improve their statuses and likelihood for recovery and adopt metrics to measure such improvement.

Response:

The analytical approach for assessing the environmental consequences of the alternatives on spring Chinook salmon and winter steelhead includes multiple metrics, documented in FEIS Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Methodology. The Adaptive Management Plan also includes multiple metrics for monitoring performance of the measures after implementation (Appendix N, Implementation and Adaptive Management Plan). An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N).

Metrics, criteria, and an approach to assess Interim fish passage Operations have been revised to identify success. Metrics include assessing population-level performance by monitoring cohort replacement rates. The environmental consequences and Adaptive Management Plan both include metrics directly assessing fish effects at the scale of the specific measure, and at the broader population scale. Typically, few performance metrics should be considered at a time—this is because in structured decision-making, performance metrics may conflict without addressing the core goals for fish and wildlife. The Corps' goal is to consider performance metrics that can indicate signals that relate directly to assessing ESA-obligations to avoid jeopardy without reducing the likelihood for recovery.

Comment: Fish Passage-9

The DEIS claims to focus on fish passage, yet offers only a long and expensive process leading to two-way trap and haul systems. Expanded operational measures, such as longer term and deeper drawdowns and improving regulating outlet fish passage and total dissolved gas performance, are not considered. The rationales for the proposed floating fish collectors and their construction schedules are poorly defined.

Response:

The descriptions of the alternatives include both operational and structural measures for fish passage (See Appendix A, Alternative Development, for a description of all measures). Appendix E, Fish and Aquatic Habitat Analyses, describes downstream passage performance of operational verse structural passage under each alternative.

While some information and field data exist to inform operational measures, these data are complicated to collect and assess due to annual hydrology. The Corps captures these data in the Fish Benefit Workbook (Appendix E, Fish and Aquatic Habitat Analyses). With respect to TDG, the NMFS life cycle model includes a module to capture TDG effects (See Appendix E, Fish and Aquatic Habitat Analyses, for a description).

Comment: Fish Passage-10

Life-cycle models used in the PEIS to estimate the likely population trajectories following implementation of each alternative use favorable assumptions for collector effectiveness (e.g., fish collection efficiency >50%) which are unlikely to be achieved. Currently, non-structural juvenile passage measures are being evaluated throughout the system. Until these and other operational measures are fully evaluated it would be unwise to design and install juvenile collectors.

Response:

Collector DPE was evaluated based on the peer-reviewed hierarchical model described in Kock et al. 2019 (FEIS Chapter 10, References) as described in Appendix E, Fish and Aquatic Habitat Analyses. Additionally, the Corps consulted with the authors of the lifecycle models (Appendix E, Fish and Aquatic Habitat Analyses) to temper expectations based on the level of flow expected at each dam.

The Corps also acknowledges the considerable uncertainty about collectors of the size proposed that do not yet exist; however, performance of the proposed collectors is expected to be better than other collectors based on the calculations of size and daily flow. The FEIS has been updated to include this information in Section 3.8, Fish and Aquatic Habitat, Environmental Consequences. The FEIS includes an Adaptive Management Plan for monitoring of implementation of near-term and long-term measures. The Plan also defines how results would be used to inform decisions regarding future modifications designed to achieve objectives and criteria (Appendix N, Implementation and Adaptive Management Plan).

Comment: Alternatives-8

Because the Corps has chosen not to consider alternatives that might require changes in the WVS' Congressional authorization, the potential benefits of such changes have not been analyzed. This limits the potential for avoiding jeopardizing and adverse modification of the UW Chinook salmon and steelhead critical habitats, and other potential benefits of project operations.

Response:

This comment requests additional EIS information on contractor selection that is out of scope for the EIS analyses. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, Proposed Action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in

the project record. Regardless, the Corps analyzed potential effects to fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA process requires consultation with NMFS and the USFWS on impacts to listed fish and measures to avoid jeopardizing the continued existence of listed species.

Comment: References and Data-4

Because the Corps proposes that this EIS guide operations and maintenance for the next 30 years, a set of fish population viability criteria should be adopted and the project's performance periodically reviewed every 5 years.

Response:

The Corps is proposing an Adaptive Management Plan that includes assessing several metrics used for viability assessments including flow, management, and downstream passage (Appendix N, Implementation and Adaptive Management Plan). Appendix N was updated in the FEIS to reflect completion of the Final Biological Assessment submitted to the Services.

Comment: Climate Change-5

The DEIS presents extensive data on ongoing climate change including modeling work done by the Corps for this DEIS, identifies a series of risks, including unusual and unseasonal flood and drought risk, yet offers no change in project operations to better manage such risks. This lack of proposed adaptations to changing hydrologic conditions also has implications for UW Chinook salmon and steelhead. (See Addendum)

Response:

The Corps conducted a comprehensive climate change assessment outlining possible climate change scenarios. This information was considered when developing DEIS alternatives including operations.

Through that process, many of the proposed actions would likely benefit salmon in a climate changing environment; however, direct and indirect impacts on salmon and steelhead from changing hydrologic conditions are best assessed at the site-specific level.

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: Water Quality-6

The only interim measures considered to reduce adverse total dissolved gas concentrations downstream from project dams is spreading spills across multiple spillway bays. This is insufficient… During the fall and winter of 2021-22 the Corps operated Detroit reservoir in an effort to reduce the magnitude of spills to the extent practical. This effort was mostly successful at maintaining episodic TDG concentrations downstream below 120% throughout the winter. 1 This interim measure should be continued as completion and evaluation of structural TDG reduction is at least 5 years away. The Corps should also commit to managing refills in a manner that reduces the potential for adverse fill and spill operations in the spring.

Response:

The Corps would continue to optimize operations to the greatest extent possible to reduce TDG production, using the spread spill concept, as well as other operational strategies. Balancing operations that support downstream fish passage and water quality while refilling reservoirs (such as Detroit) for water supply and recreation is inherently difficult. The Corps would continue to utilize water supply forecasts and state-of-the-art numerical modeling to make inter-seasonal adjustments to operations that minimize TDG when possible.

Comment: Water Quality-7

There is a general lack of discussion of spill operations to manage reservoir surcharges. As spills have an array of effects downstream, from contributing to the Corps' Environmental Flow program, to generating harmful concentrations of TDG downstream, a detailed discussion of surcharge and spill management is needed.

Response:

DEIS Chapter 1, Introduction, Section 1.8, System Operation and Annual Operational Planning, describes the general annual operations of the Willamette Valley System for its multiple authorized purposes including how and when to safely and effectively implement flood risk management reduction operations like surcharging. Section 1.8 has been updated in the FEIS as Section 1.11, Willamette Valley System Operations and Annual Operational Planning, and clarifies that flood control operations like surcharging and its effect on spill management are situational and are determined in real-time to best address each particular hydrologic event. Consequently, heightened specificity on management is not possible prospectively.

FEIS Chapter 2, Alternatives, Section 2.8.2, Water Quality Measures, describes the strategies to minimize TDG. Strategies used to mitigate TDG include increasing turbine outflows to dilute elevated TDG from other outflow routes, spreading spill across spillways to avoid plunging flows and the entrainment of gases, or increasing available reservoir storage so as to reduce the amount and rate of outflow from a given dam

during high flow events (e.g., delayed reservoir refill operations or forecast-informed reservoir management operations).

Comment: Revetments-2

The DEIS does not propose any specific measures aimed at increasing flood plain connectivity and side-channel fish habitat. Numerous studies, including work produced by the Corps, have identify the loss of such habitat in the Willamette Valley as limiting anadromous fish production, and regional entities have invested in an ongoing program to increase flood plain habitat (Willamette Focused Investment Partnership). As the Corps constructed and currently maintains 100 miles of revetments along the mainstem and tributaries of the Willamette River, the Corps should include a program of revetment modification to increase flood plain connectivity and side-channel habitat in this DEIS, either directly or in partnership with others.

Response:

The FEIS has been updated to include information on revetments in Section 1.7.2, Revetments and Other Structures for Bank Protection.

The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley. The revetments converted to private sponsors to own and maintain are discussed in the FEIS in Section 1.7.2, Revetments and Other Structures for Bank Protection. Projects that propose to alter privately owned revetments, although they are no longer Federally owned and operated, are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Changes to the Rivers and Harbors Act Section 408 statutory program are outside the scope of this EIS.

Comment: Proposed Action-19

As the statuses of the fish, notably their abundances, are in decline, and the climate continues to change, a 30-year planning horizon is unrealistic. Further, developing successful fish passage, particularly at high-head dams is an iterative or adaptive management process with the results of prior measures helping to identify potential improvements. A better approach would be to view the process as iterative, 5 to 10-year time steps during which measures are implemented, their effects monitored, and the need to revise or add measures evaluated.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. The temporal scope and the justification for it is in FEIS Chapter 1, Introduction, Section 1.4, Geographic and Temporal Scopes. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA and an Implementation and Adaptive Management Plan in Appendix N.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: Proposed Action-20

the lack of an emphasis on species recovery and an excessive reliance on existing operations, limits the range of measures considered, thereby rendering the DEIS insufficient. The preferred alternative includes only minor operational changes, choosing instead to solve fish passage limits imposed by the dams and reservoirs through structural measures, mostly floating surface collectors located at or near the dams. These would take decades to complete, with the last scheduled to be completed in 2044. They are bewilderingly expensive (c. $400 million, each) and the likely success of such measures is arguable.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

When making its decision based on analyses in an EIS, Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in Chapter 1 and Chapter 2 of the EIS. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes. See also Appendix A, Attachment 1 for a discussion of the range of actions considered and those screened.

Comment: References and Data-5

A recent survey of such systems at high-head dams (Kock et al. 2019) found a wide of success, from very low to high. While there has been considerable technological advancement in the design of such structures, such as the use of computational fluid dynamics to site and models to size floating surface collectors, high rates of successful passage cannot be assured. It is

important to recognize that fish collection efficiency (FCE), a measure of fish collection success (number captured in the collector/number released), has been measured differently by different studies, depending on the purpose of the study. To evaluate the potential effectiveness of floating surface collectors at the WVP, FCEres, the ratio of fish captured at the floating surface collector to those released at or above the head of reservoir is the performance metric of interest. It is unclear whether the Corps life-cycle modeling used FCEres or other measures of FCE. FCE also varies by species. For example, the fixed surface collector at North Fork Dam on the Clackamas River that collected over 90% of the steelhead and coho salmon juveniles released at the head of the reservoir, collected only 60% of the Chinook salmon juveniles released (reported in Kock et al. 2019). As other, less successful collection systems show similar low FCEres for Chinook salmon, it is reasonable to assume that Chinook are harder to collect than steelhead or coho. Review of life-cycle modeling conducted for this DEIS (Appendix E) shows that overly optimistic FCE values were used, particularly where Chinook salmon were the target species. An issue missing in the evaluation is the importance of reservoir travel time to FCE and juvenile passage survival in general. In brief, the longer juvenile salmon and steelhead reside in a reservoir the lower their likelihood to pass successfully. Reservoir residence exposes juveniles to water quality, disease, predation, residualization, and competition limits on successful dam passage. The longer juveniles remain in the reservoirs, the lower their likelihood of successfully passing the dams. Juvenile residence time is lower when reservoir storage is lower and when flows are high (Kock et al. 2015). Minimizing reservoir residence time should be an objective to achieve high passage survival. Due to the inherent uncertainty in estimating juvenile passage survival and the potential benefits of large, expensive, structural measures such as FSCs, the preferred alternative should be one of experimental design. Initially, this experiment should focus on modifying existing facilities (e.g., TDG control, juvenile passage survival improvement) and operations (spills to pass fish and temporary powerhouse shutdowns to limit entrainment). An intensive RM&E program, such as that developed to evaluate ongoing interim measures, is needed to determine if such measures are adequate to support species recovery. If not, additional measures, such as FSSs may be needed. This could reasonably be accomplished within 7 years of ROD issuance.

Response:

The Corps acknowledges the wide uncertainty about novel fish collectors. The Corps assessed Chinook salmon and steelhead downstream dam passage effects using the Fish Benefit Workbook model, which calculates downstream fish passage efficiency and survival for fish available to pass from the dam forebay through available routes.

If a surface collector was included in the EIS alternative at a specific dam (i.e., the alternative includes Measure 392 for that dam), then that route was accounted for when calculating fish passage efficiency and survival. This modeling approach, therefore, calculates a very similar metric as that described in the comment as "FCE" (i.e., fish collection efficiency).

Lifecycle models used to assess Chinook salmon and steelhead population-scale performance incorporate the Fish Benefit Workbook dam passage survival estimates into their accounting of juvenile stage Chinook salmon and steelhead entering and utilizing the reservoir prior to passage. The Kock et al. (2019 in Chapter 10, References) model was hierarchal (i.e., relied on different collectors as separate "populations").

The details are previously described in Kock et al. 2019. Where Measure 392 is included under any of the alternatives, passage efficiency values in the Fish Benefit Workbook model, estimated using the Kock et al. (2019) logistic regression, reflect the larger size of the proposed collectors and the larger size and configuration of WVS dams and forebays relative to those assessed by Kock et al. (2019).

The Corps worked with Kock et al. (2019) authors to better understand the predictive power of the model. While uncertainty is not predicted by the model, there is likely uncertainty about performance given variables that are unaccounted for (i.e., power peaking, inconsistent flow signatures). To accommodate these variables, Measure 392 was developed to constrain outflows at a constant rate either through operations or pumps. Constant flow is prioritized during nighttime hours (DEIS Section 2.4.4, Measure 392, Construct Structural Downstream Fish Passage).

No supporting information, data, or studies are provided in the comment with regard to "the longer juvenile salmon and steelhead reside in a reservoir the lower their likelihood to pass successfully." The in-reservoir factors listed in the comment also occur below WVS dams.

It is difficult to determine based on available information if fish passage actions to reduce reservoir residence time would improve population viability attributes, because juveniles also experience superior growth in reservoirs compared to those rearing in streams (e.g., Monzyk et al. 2014 in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses). Modeling of the Middle Fork Willamette River Chinook salmon population indicates that strategies passing fry downstream reduced population performance compared to strategies passing sub-yearling parr or yearlings downstream (McAllister and Parkinson, 2019). Size at ocean entry has been related positively to ocean survival and, therefore, may increase adult spawner abundance.

References: McAllister, M, and Parkinson, E. 2020. Investigation of Fish Passage Alternatives for Spring Chinook Salmon (*Oncorhynchus tshawytscha*) in the Willamette Valley Project with Focus on the Middle Fork Willamette River. Final Draft. Report Submitted to the U.S. Army Corps of Engineers. Portland District, Portland, OR.

Comment: Alternatives-9

For at least the first five years of operation under the preferred alternative the focus should be on using existing facilities, or modified existing facilities to pass fish. For the first five years of

operation under such an alternative, all of the Interim Measures adopted under Case 3:18-cv-00437-HZ should continue and the following measures considered or adopted.

Response:

Interim Operations are based on operations required under the court-ordered injunction. The implementation schedule identified in the Adaptive Management Plan is consistent with the recommendations provided in this comment (DEIS and FEIS Appendix N, Implementation and Adaptative Management Plan).

See also, FEIS Chapter 2, Alternatives; Appendix A, Alternatives Development; DEIS Chapter 5, Preferred Alternative Selection and Implementation (in FEIS Appendix A, Alternatives Development, Attachment 4); and the implementation schedule in DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan.

The Adaptive Management Plan has been updated in the FEIS.

Comment: Alternatives-10

Among the alternatives considered should be deep, permanent drafts at several reservoirs – Green Peter, Cougar, and Lookout Point. Year-round drawdowns at these reservoirs should be analyzed both independently and collectively. As the Corps has been authorized to evaluate de-authorization of power generation at the WVS, such operations should be evaluated as part of that effort as well. The possibility that such substantial changes in project operations would require Congressional authorization prior to implementation is insufficient cause not to evaluate them.

i. This would mean permanently lowering the reservoirs to within 20 feet of their lowest outlet, storing additional water only when needed to reduce downstream flood risk, and managing the release of such surcharges to minimize adverse TDG conditions downstream to the extent practical.

ii. As the regulating outlets would be the primary route of discharge and fish passage, outlet modifications should be considered at all ROs to reduce TDG production and improving fish passage survival. Approaches such as spillway flip-lips and modification of RO outfalls to broaden the impact area of the discharge stream to reduce plunge depth and thereby reduce gas saturation should be considered.

iii. Reservoir residence time would be minimized, increasing survival to the dam and dam passage efficiency (non-turbine passage) would dramatically increase. Successful passage would primarily be dependent on performance of the ROs, which should be improved as necessary.

iv. This would substantially reduce the stored water available to augment downstream flows and limit flat-water recreation during the summer and fall.

v. Hydroelectric power generation would only occur when surcharges raised the reservoirs above the minimum power pool. Generation and dependable capacity of the system would decline.

vi. By not refilling the reservoirs, such measures would increase spring flows in both the affected tributaries and the mainstem Willamette River. Flows in the affected tributaries and the mainstem Willamette River would be less modified by project operations, returning the rivers to more normative conditions.

vii. Permanently lowering the pools would also increase available flood storage, thereby reducing downstream flood risk and increasing climate resilience.

viii. At Cougar Dam the regulating outlet channel would need to be redirected into the river channel upstream from the adult trap. Design and construction would likely take at least five years, delaying potential implementation.

ix. These and other likely effects should be analyzed in detail.

x. The preferred alternative should adopt year-round minimum pool operations for at least one of the large storage reservoirs within the fishes' range for five years. Given the physical plant modifications necessary to provide year-round minimum pool operations at Cougar Dam, and the fact that reintroduction efforts are just getting underway at Green Peter Dam, Lookout Point Dam is likely the best choice as the test bed. Data collected during this operation would inform future decisions regarding operations and the need for new passage systems throughout the WVS.

xi. Cursory evaluation suggests that Lookout Point would be the prime location for such an experiment: spring Willamette River flow benefits would extend from Lookout Point Dam to the river mouth, enhancing conditions for both returning adult and outmigrating juvenile Chinook salmon and steelhead; downstream needs for stored water could be met by releases from Hills Creek reservoir; and the need for structural improvement (RO modification to improve juvenile passage survival and to reduce TDG production) would be small.

Response:

Year-round deep drawdowns were screened from further analysis as they increase flood risk (Appendix A, Alternatives Development). The pools must be able to fluctuate to capture hydrologic events.

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction,

and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS.

Further, impacts to all Corps' Congressionally mandated purposes have been analyzed in the EIS including effects under the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes. Impacts from the drawdown operation at Cougar Dam will be analyzed in a site-specific analysis; coordination with applicable governmental agencies and tribes will occur during that process.

Comment: Fish Passage-11

b. Improving fish passage survival at existing facilities. Preliminary evidence from the interim operations has shown that fish are often injured passing through project regulating outlets and channels and going over spillways. Where DPE is high but injury rates are too high, efforts should be made to identify the causes of injury and remedial action taken. This could include measures from smoothing spillways and regulating outlet channels, to modifying RO mouths to spread the spill stream which would dissipate impact energy.

Response:

Operational measures for downstream fish passage will be monitored and reviewed, with any decisions on modification completed as part of the Adaptive Management Plan (DEIS and FEIS models used to assess fish effects from the alternatives in the Willamette Valley System EIS were reviewed by the Independent Science Advisory Board (ISAB) (See https://www.nwcouncil.org/reports/isab2023-1/). The review states that "The ISAB determined that the models for spring Chinook salmon and steelhead developed by the four modeling groups include the major processes influencing spring Chinook salmon and steelhead life histories and are scientifically sound."

The models reviewed by the ISAB included those used to assess the effects of changes in flows below WVS dams associated with the alternatives in the EIS on ESA-listed salmon and steelhead.

The methods used are documented in Appendix E, Fish and Aquatic Habitat Analyses. The ISAB Final Review is also addressed in Appendix E.

Existing studies document common sources of injury and mortality at WVS dams, as summarized in FEIS Section 3.8, Fish and Aquatic Habitat. Fish passage efficiency is often low due to reservoir elevation and dam outlet availability. In some years, reservoirs do not fill above spillway crest and, therefore, these outlets would not be available. If reservoirs are not refilled in spring when inflows are high and held at elevations near regulating outlets, then reservoir storage would not be available to augment downstream river flows and to manage water temperatures.

Survival also varies depending on hydraulic head pressure relating to reservoir elevation. Although it may be possible to reduce certainty types of injuries or risk of mortality for fish associated with abrasions on spillway or regulating outlet surfaces, there are no solutions to sheer stress and strikes for fish under certain conditions. Therefore, different combinations of downstream fish passage measures (operational and structural) were evaluated in the EIS.

The Adaptive Management Plan is included to monitor and assess where modifications may be needed to meet the objectives and criteria for fish passage at each location after implementation. The Plan has been updated in the FEIS (Appendix N, Implementation and Adaptive Management Plan).

Comment: Water Quality-8

c. Project modifications to reduce TDG production. The high rate of TDG production at several WVS dams limits the range of operations that are safe for fish. The preferred alternative only considered modifications to reduce TDG at the Detroit/Big Cliff complex. As regulating outlets and spillways are the preferred routes for fish passage, measures should be developed to reduce TDG production throughout the system, from reducing spill rates when possible, to modifying spillways and ROs to reduce TDG production.

d. Petition ODEQ for a waiver from the state standard for TDG. The state standard for TDG is 110% of the saturation concentration. This standard is unobtainable during spill at WVS dams, particularly during floods and post-flood surcharge reduction operations. Further, efforts to meet this standard during spill operations for fish passage can limit the hours of operation, reducing effectiveness. For voluntary spill operations to facilitate fish passage the TDG limit should be increased to 120% of saturation. Such a waiver could be viewed as experimental and of a limited duration, say 5 years, to allow for monitoring and evaluation. There is precedent for such waivers (letter of January 13, 2020 from Richard Whitman, ODEQ Director, to Oregon Environmental Quality Commission; and 85 FR 63834). Hopefully ODEQ and EPA would agree to expedite the process.

Response:

As stated in the Section 3.5, Water Quality, a substantial way to reduce TDG is to utilize the turbines. Under the Preferred Alternative, the Corps would utilize a mixture of structural improvements and operations to provide necessary fish passage. Where structural solutions are recommended and hydropower facilities exist, turbines would continue to be the primary means for reducing TDG in these reaches.

Comment: Alternatives-11

e. Detroit and Big Cliff Dams. Operating Detroit reservoir at a long-term low water surface elevation is unlikely to be feasible due to socio-economic concerns and the value of stored water. Hence, operational fish passage measures are limited to using the dam's regulating outlets and the spillway with limited changes to reservoir storage. Spring operation of the spillway has shown promise and is adopted in the preferred alternative. However, the approximate date when the Corps would open the Detroit Dam spillway in the spring and the hours of operation to provide fish passage are unclear. "Late spring" is indicated, suggesting June. This is inadequate as it would increase reservoir residence time for earlier arrivals which begin arriving in February. Continuous spill over the surface spillway should occur as soon as practical after the reservoir water surface elevation is 1.5 feet or more over the spillway crest (el 1541), which generally occurs in mid-April and continue spilling for the next 30 days. In 2022, the highest number of juvenile salmon collected in the rotary screw trap situated downstream from Big Cliff Dam occurred during the last two weeks of April, immediately after the spillway had been opened. Large numbers likely also passed in early May, but the trap was not fished for much of this time due to high flows.

Spilling water over the spillway or through the ROs, the outfalls of which are situated in the spillway, produces high levels of TDG and efforts to meet the state standard downstream can limit the hours of operation of both for fish passage purposes. Further, high TDG concentrations in the Big Cliff forebay is likely more harmful to juvenile Chinook salmon and steelhead than downstream from Big Cliff Dam because juvenile residence time in the forebay lasts for days while exposure to harmful TDG concentrations downstream from Big Cliff would affect actively migrating juveniles for a few hours as high concentrations of TDG monitored immediately downstream from Big Cliff Dam have been shown to dissipate by the time the water reaches the Minto trap, about 4 miles downstream (USACW 2011). Hence, reducing juvenile exposure to adverse TDG conditions should include modification of Detroit Dam's spillway and regulating outlets to reduce TDG production. The design for such measures should aim to improve juvenile fish passage survival as well.

Response:

Measure 714 (pass water over spillway in spring for downstream fish passage) and Measure 721 (use spillway to release warm surface water in summer) were included in the draft Preferred Alternative as Interim Operations. Measure 392 (floating surface

screen) and Measure 105 (Water Temperature Control Tower) are included as long-term measures.

Under Measure 714, use of the spillway would begin May 1 or as soon as the pool elevation allows. Under Measure 721, use of the spillway would begin each year as soon as the water surface elevation is above the spillway crest after April 15. Implementing these measures together would result in use of the spillway beginning April 15 or as soon as the water surface elevation is above spillway crest. The Corps is actively designing and implementing court-ordered actions to reduce TDG below Big Cliff Dam. Long-term Measure 392 and Measure 105 would reduce TDG generated at Detroit Dam.

Comment: Proposed Action-21

1. Section 2.2.6. Should be revised to state that adopted interim operations will continue until structural measures and associated operations have been shown to provide at least as much benefit to the species as the interim operations, at which point they should be employed when structural measures are out of service.

Response:

In 2019, the Corps initiated its programmatic review of Willamette Valley System operations and maintenance with a Notice of Intent to prepare an EIS. Unlike the Willamette Basin Review and the 2019 Biological Opinion processes, the Willamette Valley System EIS NEPA review is related to operations and maintenance of the Willamette Valley System, not water storage allocation. This analysis is not impacted by the purpose for which the water is stored just when and where it is stored until it is released.

While the Willamette Valley System EIS Notice of Intent was published in 2019 just prior to the Willamette Basin Review Finding of No Significant Impact (FONSI), the two NEPA actions are only related in that operations and maintenance under each alternative may directly, indirectly, or cumulatively impact water storage needed for various uses.

All alternatives analyzed in the Willamette Valley System EIS propose measures to operate and maintain the system; they do not address modifications to water supply allocation. If at some point operations change to where allocations could not be met in normal to wet years a subsequent feasibility study to revisit allocations would be initiated. FEIS Chapter 1, Introduction, Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008 has been added to the FEIS to clarify this information.

Additionally, the Interim Operations information in FEIS Chapter 2, Alternatives, Section 2.8.5, Interim Operations, has been revised with more information, and includes an implementation timeline as Figure 2.8-17.

Comment: Biological Assessment-1

2. Table 2.2-11. Detroit/Big Cliff. Should include discretionary operations aimed at controlling the magnitude of spills. This measure proved beneficial but insufficient to avoid project-generated harmful concentrations of total dissolved gas (TDG) downstream. In testing conducted during 2021-22 this measure mostly maintained TDG below 120% while storage was available. In keeping with its flood risk management objective, the Corps should continue to use its discretion in an effort to limit the magnitude and duration spills to limit the production of TDG in concentrations known to be harmful to fish (>120%). This measure should continue until structural TDG abatement is in place and shown capable of limiting TDG production.

By adopting Interim Risk Reduction Measures (IRRM) that limited available summer flood storage while maintaining the previous refill trajectory, the Corps has increased the risk of fill and spill at project dams. Fill and spill events at the Detroit/Big Cliff complex have caused toxic TDG conditions in the past. See Addendum

a. Appendix D, 2.2 TDG. This analysis is focused on the frequency that operations under each alternative would result in TDG concentrations of 110% or more, the current state standard. No discussion of fish effects, tolerances, seasonal changes in fish health risk, or operational measures to reduce those risks is presented. The duration analysis of project-caused TDG risk (Appendix D, Figure 2-38) would be improved by presenting monthly analyses as fish harms vary seasonally.

Response:

The Corps is actively designing and implementing court-ordered actions to reduce TDG below Big Cliff Dam. Long-term Measure 392 and Measure 105 would reduce TDG generated at Detroit Dam.

The Corps flood control mission is not discretionary. There are no Willamette River Basin-specific data on fish effects from TDG.

Modeling teams are currently assessing functional relationships from laboratory studies and studies completed in other basins to help determine what the fish response may be with respect to depth compensation (Parkinson et al. April 6, 2023. Corvallis, Oregon. How Should Juvenile Salmonid Mortality Rate Responses to Tailrace TDG be Assessed in Evaluation of Dam Passage Options? Conference presentation available online at https://pweb.crohms.org/tmt/documents/FPOM/2010/Willamette_Coordination/WFSR/).

Comment: Alternatives-12

3. 2.2.3.1 Deeper Fall Reservoir Drawdown for Downstream Fish Passage (#40). The minimum duration of deep drawdowns should be 30 days for at least the first 5 years of operation and data collection. Changing the duration of deep drawdowns could be considered

through the adaptive management program and that program should be revised to include NMFS and FWS in an advisory role. Notes of all such meetings should be taken and made available on a publicly accessible website.

Response:

FEIS Appendix A provides the full description for Measure 40 (See FEIS Appendix A, Alternative Development, Section 2.4.1, Downstream Fish Passage Measures, Measure 40). The target water surface elevations would be achieved for up to 21 days beginning at the earliest November 15, and the latest December 15. This is based on repeated observations that juvenile Chinook salmon pass downstream quickly (typically within a few days) once elevations are declining in the fall, while many do so before lower target elevations are achieved (e.g., Nesbit et al. 2014 in FEIS Appendix E, Fish and Aquatic Habitat Analyses, Spring Chinook References).

Maintaining the target elevation in any single year would depend on inflow rates to the reservoir. Ending the deep drawdown on December 15 supports reservoir refill up to the water control diagram, thereby reducing potential impacts to storage for achieving other water management objectives for fish passage, water quality, and instream flows during the following calendar year.

Adaptive management would allow the Corps to continue to optimize operations (Appendix N, Implementation and Adaptive Management Plan). Adaptive management would include coordination with the WATER Forum, which includes NMFS and USFWS. Notes of government meetings are not published but can be requested.

Comment: References and Data-6

4. Table 2.2.11. Lookout Point deep drawdown. The table states that the target drawdown elevation would be 750 ft, but Table 2.2-7 lists el 762 as the target. Please explain. As the analysis for this action specified 750 ft., that should be the draft target. Also, as this measure has not yet been implemented, detailed evaluation should be conducted over the first 5-years of operation prior to defining long-term operations.

Response:

FEIS Chapter 2, Alternatives, Table 2.8-6, Interim Operations, identifies the elevations used for the Interim Operations. FEIS Chapter 2, Alternatives, Table 2.8-3, Fall Reservoir Drawdown Target Elevations, identifies the elevations for the long-term drawdown operations.

Based on lessons learned from the Fall Creek Reservoir drawdown operation the past 10+ years, the Corps proposed drawing down the reservoir to only 25 feet above the top of the regulating outlet instead of the 25 feet above the centerline of the regulating outlet as is part of the Interim Operations. This drawdown would be sufficient to provide

the hydrologic signal for fish to find the outlet. The injunction identified a defined monitoring plan for injunction operations. The Interim Operations in the EIS have been informed by the injunction operations. The Interim Operations would be monitored and optimized as described through the Adaptive Management Plan if included in the selected alternative (Appendix N, Implementation and Adaptive Management Plan).

Comment: Alternatives-13

5. Section 2.2.5 Suite of Near-term Operations. Page 2-39. The statement: "These operations are designed to improve fish passage and water quality until the structural measures under an alternative can be implemented," is insufficient. The Corps should commit to continuing these interim measures until their performance is equaled or exceeded by new measures and NMFS and FWS agree with that assessment.

Similarly, if a measure isn't effective, or causes unacceptable adverse effects, the same decision process should be used to modify or discontinue it.

Response:

The term "Near-term Operations" has been changed to "Interim Operations" in the FEIS. The Corps is committed to continued implementation of the goals of each of the Interim Operations. NMFS and USFWS will contemplate each of the Near-term Operations Measures during development of their respective Biological Opinions.

Near-term operations would continue to be optimized through adaptive management (Appendix N, Implementation and Adaptive Management Plan). The Plan has been updated in the FEIS.

Comment: Mitigation-1

6. Section 2.2.6. The Corps should ensure that its contractors conform to EPA's menu of current best management practices (BMPs) to protect water and soil resources.

Response:

This comment requests additional EIS information on contractor selection that is out of scope for the EIS analyses. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, Proposed Action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record.

Comment: Alternatives-14

7. Section 2.2.6.1. Detroit Selective Withdrawal Tower. This is a good idea as the benefit to Chinook reproduction would extend downstream past Mehama. However, the proposed in-the-wet construction would be difficult and environmentally risky. Sediment and anaerobic water liberated during dredging could adversely affect downstream water quality during the construction period. Construction in the dry, using a coffer dam would be simpler and less environmentally risky but would require a narrower and lower reservoir operating range during construction. The Corps should reconsider the method of construction. Also, the design and operation should consider and work to limit juvenile attraction and entrainment, particularly during spring and summer when the spillway should be used as much as possible to pass fish and manage discharge temperatures.

Response:

Structural measures would require comprehensive design and engineering efforts and additional, site-specific environmental compliance that would tier from the programmatic EIS (See FEIS Chapter 1, Introduction, Section 1.3.1.1, Programmatic Reviews and Subsequent Tiering under the National Environmental Policy Act).

Comment: References and Data-7

8. Section 2.2.6.2 Foster Fish Ladder Temperature Improvement (#479). Available evidence shows that this measure would likely be effective. This measure should be implemented as soon as possible. The time-line for this action is not shown on the construction schedule for the preferred alternative Figure 5.4-1.

Response:

Comment noted.

Comment: Fish Passage-12

9. Section 2.2.6.6 Construct Structural Downstream Fish Passage (#392). This section assumes that FSCs or FSSs would provide safe and effective fish passage at WVS's high- head dams. Given the sizes of project reservoirs in relation to their inflows, reservoir residence time would likely remain very high (weeks to months). In general, the higher the juvenile residence time in the reservoirs, the lower their survival. Hence, prior to making the decision to build juvenile collectors, thorough evaluation of operational passage measures, including deep drawdowns, should be conducted. It will likely take another 5-7 years to develop sufficient data to make this determination. Where it is determined that operational measures are infeasible, or insufficient to support a viable salmonid population upstream, juvenile collection systems may be warranted. As handling stress reduces juvenile survival, systems to avoid or minimize handling, such as juvenile bypass systems, should also be considered.

Response:

Operations would be implemented prior to construction of structural downstream passage per Measure 392. Monitoring of these operations is described in the Adaptive Management Plan (DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan).

The comment provides no evidence that "the higher the juvenile residence time in the reservoirs, the lower their survival." Kock et al. (2019 in Chapter 10, References) estimated survival of juvenile Chinook salmon in Lookout Point Reservoir between April and October. Results indicate that most mortality occurred early in the study period when juvenile Chinook salmon were small; survival rates increased monthly.

Juvenile Chinook salmon also experience high growth rates in reservoirs (e.g., Monzyk et al. 2014 in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses), and size at ocean entry has been positively related to ocean survival and adult rates (e.g., Claiborne et al. 2011) suggesting high juvenile Chinook salmon reservoir growth rates observed in Willamette Valley System reservoirs can positively contribute to smolt-to-adult return rates.

While the Corps acknowledges uncertainty about collectors that have yet to be built. Available modeling tools indicate good collection efficiency for fish present in the forebay, based on the dimensions of, and flow through, these structures (See Fish Benefit Workbook model results and parameter estimate in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses). Operations generally are low in collection efficiency particularly if there are operational constraints, in part due to the inability to maintain consistently safe and effective fish passage conditions.

Operational constraints were compared in the DEIS and FEIS in Appendix A, Alternatives Development, Measure 392 and Appendix E, Fish and Aquatic Habitat Analyses. Fish Benefits Workbook). Furthermore, the Adaptive Management Plan (DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan) would include continued investigation and triggers for management changes.

References: Claiborne, A. M., Fisher, J. P., Hayes, S. A., & Emmett, R. L. 2011. Size at Release, Size-selective Mortality, and Age of Maturity of Willamette River Hatchery Yearling Chinook Salmon. Transactions of the American Fisheries Society, 140(4), 1135-1144.

Comment: Climate Change-6

10. Section 2.2. Response to Climate Change

a. Very little is presented in regard to the Corps' program to improve the project's resilience in the face of climate change, though substantial gate and other structural improvements are underway improving the resilience of project dams.

b. The Corps' reluctance to consider measures that would alter current Flood Risk Management limits the WVS's potential benefits during prolonged drought or other climate emergencies. As presented in Appendix F, climate-related risks are increasing. See Addendum.

Response:

All dams are currently managed primarily for flood risk. A major constraint of any alternative is that no measure would lead to an increase in flood risk. The Corps includes extensive analyses in the FEIS assessing projected climate change in the Willamette River Basin. More detail is contained in Appendix F1 and Appendix F2.

It is Corps policy to continually improve climate change analyze with the best available information and to incorporate updated information into system planning. Alternatives with measures that can be adapted would be more resilient to climate change risks and would provide better management for such risks than those measures that are not easily adaptable to changing climate conditions. Additionally, Corps policy is to consider climate change in its planning and operations.

Comment: Revetments-3

11. Section 2.4.2.3 Maintain Revetments considering Nature-based Engineering or Alter revetments for Aquatic Ecosystem Restoration. This section is inadequate and incomplete. The Recovery Plan (ODFW, NMFS 2011) identifies the loss of floodplain connectivity and side channel habitat as limiting factors. Backwater and side-channels are prime juvenile salmon habitat. Floodplain and side channel connections are a focus of work being done under the auspices of the Oregon Watershed Enhancement Board (OWEB) and its Willamette Special Investment Partnership. Over half of the mainstem Willamette is cutoff from its historical floodplain. Although Corps constructed and maintained revetments are only partly responsible for this lost habitat, absent a clear commitment to increase floodplain connectivity and side-channel habitat lost due to Corps-constructed and maintained revetments, the primary adverse effect of the program would remain unmitigated. The Corps should either propose specific floodplain restoration projects, set specific floodplain/side-channel connection length goals within specified intervals, or commit to contributing funding to OWEB's SIP program throughout the life of its proposed action. The Corps mentions the need to obtain local sponsors to cost-share ecosystem restoration projects as limiting its ability to mitigate revetment effects. Addressing Corps-caused adverse effects on species limiting factors is necessary and cannot be restricted by the actions of third parties. The Corps should place such projects or OWEB contributions in its annual budget submittals with or without local commitment.

Response:

Revetments and levees do not have the same function or impact. Revetments are made of materials placed on the slope of a channel to prevent erosion. Generally, revetments do not prevent flow into adjacent areas; however, revetments can limit connectivity to side channel habitat.

The FEIS has been updated to include information on revetments in Appendix S, USACE-managed Dams, Reservoirs, and Band Protection Structures.

The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley. The revetments converted to private sponsors to own and maintain are discussed in the FEIS in Section 1.7.2, Revetments and Other Structures for Bank Protection.

Projects that propose to alter privately owned revetments, although they are no longer Federally owned and operated, are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Changes to the Rivers and Harbors Act Section 408 statutory program are outside the scope of this EIS.

The Corps would continue to maintain Corps-constructed revetments under all alternatives including the No-action Alternative. In contrast to the No-action Alternative, revetments could be modified to incorporate fish-friendly improvements under the action alternatives such as adding natural materials but must continue to provide the same level of protection as when originally authorized.

The Corps is also proposing to secure a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These restoration authorities would allow for a potential change in the protectiveness level of revetments studied. However, this collaboration is not part of the scope of this EIS because it has not been initiated.

Comment: Alternatives-15

It is difficult to fully assess the preferred alternative because descriptions of the actions are scattered among the previous alternatives and its effects are analyzed in DEIS Sections 3 and 5 and several appendices. Section 2.4 would be improved by providing a full list of measures included and then analyzed in Section 3.

Response:

Refer to FEIS Section 2.10.4.9 that identifies all the measures and dam locations for each proposed measure under Alternative 5, the Preferred Alternative.

Summaries of effects under each resource by alternative are provided throughout Chapter 3, Affected Environment and Environmental Consequences. Section 3.25 provides all summary tables. Summary tables describe impacts anticipated to each resource when measures are applied under each alternative.

Providing an analysis of the impact of each measure itself would be irrelevant; the anticipated outcome of how a measure would affect a resource is the more pertinent information to make an informed decision about potential impacts on resources.

Comment: References and Data-8

12. Section 2.4.11. Alternative 5. Neither the referenced section 2.3.1.1 or section 2.3.1.2 exist.

Response:

The FEIS has been updated to address editing errors.

Comment: Water Supply-9

13. Appendix A. Page A-21-22. Water management during the conservation season under the preferred alternative is unclear. The concept of managing operations to meet both downstream flow and temperature goals is laudable, perhaps workable, but it is unclear how it would be implemented. Does the Corps intend to provide weekly modeled flow, temperature, and reservoir storage alternatives to the WATER team to inform its decisions? What weight would the WATER team's recommendations have as compared to model-driven operations? To be clear, modeled outcomes of alternative operations are very valuable to refill and conservation season water management, but cannot replicate the 'expert system' provided by the WATER team which should make flow management decisions.

a. WUA is weighted usable area, not wetted usable area.

b. Although the analyses presented are voluminous, it isn't clear why the 2008 BiOp targets as therein described are not desired. Does modeling show a substantial decrease in available summer storage to meet summer and fall tributary flows following the existing regime? Please explain.

Response:

(13) The Flow Management and Water Quality Team under the WATER Forum would continue to be the appropriate forum for annual conservation season planning and discussions, regardless of the alternative selected in the Record of Decision. Section 5.4, Implementation, and Appendix N, Implementation and Adaptive Management Plan, have been updated in the FEIS to reference the WATER Forum, specifically the Flow Management and Water Quality Team, for interagency discussions on annual water management.

The Corps will maintain its authority to operate the system, balancing the multiple purposes of the WVS. The WATER Forum does not make decisions on behalf of the Corps, rather it advises and informs the decisions the agency makes.

(a) The FEIS has been updated to address editing errors.

(b) The Corps developed the revised fish flow targets as part of its responsibility from the 2008 Biological Opinion Reasonable and Prudent Alternatives (RPAs), specifically RPA

2.4.2 and RPA 2.4.3. These RPAs required the Corps to complete instream flow studies to analyze the needs of the various fish species. The Corps worked with a multi-agency group to inform the proposed revised targets.

Comment: Fish-36

14. Appendix A, Page A-22 “Where feasible and funding is available, monitoring activities will be recommended and implemented to assess the stated benefits and inform future flow management.” This is inadequate. Spawning surveys downstream from project dams should be conducted annually, as part of a RM&E program, fully funded by the Corps.

Response:

The Adaptive Management Plan includes the metrics and process for monitoring activities (Appendix N, Implementation and Adaptive Management Plan). This sentence has been removed from FEIS Appendix A, Alternatives Development, to avoid confusion and to clarify inconsistency with the Plan. The Plan has been updated in the FEIS.

Comment: Alternatives-16

15. Appendix A, Page A-26 2.1.2 Measure 30b. Refined Integrated Temperature and Habitat Flow Regime. Although the proposed mainstem Willamette River minimum flow regime (Measure 30b) for abundant water years is very similar to the flow regime prescribed in the 2008 BiOp, minimum flows would be substantially reduced during normal and low water years below those currently prescribed. Further, in April, April though August runoff predictions using the River Forecast Center’s ESP model carry wide confidence bands, meaning confidence is fairly weak. In fact, the Corps itself makes this argument in its response to concerns raised over refill operations at Detroit this spring (2022). 2 As suggested in Appendix A, Section 2.1.2 it would be entirely possible to estimate a low water year in April, only to be clearly in an abundant water year by early June, as occurred in 2022. By mid-June, when runoff is well known, so is reservoir storage and available storage should guide operations. The Corps should work with the RFC to develop better 30 to 90-day streamflow and runoff predictions to improve project operations in the spring. Rather than establishing hard operating rules, it would be better for the WATER team to make decisions regarding reducing mainstem and tributary flow targets, considering the latest hydrologic data and predictions, storage data, and Res-Sim model outputs. A point not lost on the WATER team is that maintaining fish friendly mainstem flows in the spring may have consequences on the stored water available to meet summer and fall flow and temperature objectives.

Response:

The comment appears contradictive, recognizing high uncertainty in the ability to forecast in-season hydrologic conditions, yet recommends any changes to minimum flows should be left to professional opinion of the WATER Forum "considering the latest hydrologic data and predictions, storage data, and ResSim model outputs."

Minimum flow values included in Measure 30b for the mainstem would be changed based on a current water year percentage of the Northwest River Forecast Center's rolling 30-year average, April-September water supply forecast. Additional water in spring may also be released to manage water temperatures in the mainstem, as described in Measure 30a and Measure 30b (FEIS Appendix E, Fish and Aquatic Habitat Analyses).

Minimum flow value schedules are included to manage flows for fish in tributaries under those alternatives that include these measures and would be applied according to accrued reservoir storage (reservoir elevation).

Accordingly, for both the mainstem and tributaries, the Corps, working with the Flow Management and Water Quality Team, would review forecast and reservoir conditions every 2 weeks and make appropriate adjustments to minimum flow values to manage to or above the appropriate target schedule, between February 1 and June 1. After June 1, the minimum flow schedule applied on June 1 would be followed for the remainder of the conservation season.

The Flow Management and Water Quality Team under the WATER Forum would continue to be the appropriate forum for annual conservation season planning and discussions, regardless of the alternative selected in the Record of Decision. The Corps would maintain its authority to operate the system, balancing the multiple purposes of the WVS under any alternative. The WATER Forum does not make decisions on behalf of the Corps, rather it advises and informs the decisions the agency makes.

Comment: Water Supply-10

16. Appendix A. Table 2-2. Reducing tributary minimum flows during low-water, low-storage years, particularly during the summer, may be necessary to maintain sufficient water to meet Chinook salmon spawning flow needs in the fall and to avoid severe water temperature conditions. However, the proposal to substantially reduce tributary minimum flows when storage falls below 90% of the storage rule curve would result in very frequent reductions in minimum flows. Even in average water years, reservoir storage is often below 90% of the rule curve due to depletions to meet downstream needs, including minimum flows. Both the severity and the frequency of these minimum tributary flow reductions should be reduced, particularly during the spawning seasons for UW Chinook salmon (Sept – Oct) and steelhead (Mar – May). Instream flow studies conducted by the Corps show that summer flow augmentation (July – August) does not provide a fish habitat benefit and could be reduced.

Response:

The results of the EIS analyses do not indicate that tributary minimum flows would be substantially reduced compared to the No-action Alternative when Measure 30a or Measure 30b are implemented. Measure 30a and Measure 30b include two minimum flow schedules that would be implemented based on reservoir storage accrual in spring.

The higher minimum flow schedule provides for flows providing 90 percent or more of the weighted usable spawning habitat below each dam. The lower minimum flow schedule provides 80 percent or more of the weighted usable spawning habitat below each dam.

Every 2 weeks between February 1 and June 1, Corps managers working with WATER Forum teams (principally the Flow Management and Water Quality Team) would review forecast and reservoir conditions make appropriate adjustments to the minimum flow values and apply either the higher or lower minimum flow schedule. When storage is below 90 percent of the storage rule curve before June 1, the lower minimum flow values would be chosen. There is not enough water to maintain the higher minimum flows below any of the dams in years when the reservoir does not fill.

This real-time management approach would allow for adjustments to flows based on the actual accrual of storage and, therefore, would be less dependent on uncertainty in weather and runoff forecasts.

After June 1, the minimum flow schedule would be maintained for the remainder of the conservation season according to that applied on June 1. This approach reflects the fact that substantial contributions to stream flows from precipitation and snowmelt have resided by June and substantial reservoir refill rarely occurs again until fall (See FEIS Section 3.2, Hydrologic Processes, and Appendix B, Hydrologic Process Technical Information).

Comment: Alternatives-17

17. Appendix A. Section 2.7.3.1 Scheduled/Routine Maintenance. The Corps should commit to revising each of the operations manuals listed in this section as needed to conform with final actions taken under the consultation within 18 months of ROD issuance. Similarly, following construction project completion and testing (e.g., Detroit temperature tower), operating manuals should be developed and project personnel trained in their operation.

Response:

After the Record of Decision is signed, the Corps will follow its engineering regulations for properly documenting changes in operations by updating the water control manuals for each individual project as appropriate. Operation and maintenance plans for fish facilities are developed at the time of construction and are updated as necessary.

Comment: Proposed Action-22

18. Appendix A. Section 2.8.1 Overview 2021 Court Ordered Interim Injunction. This clear commitment to continue measures adopted under court order until replaced by measures adopted under the preferred alternative should occur in the body of the DEIS, not just this

Appendix. Also, the Corps should commit to continuing effective interim measures until new measures implemented under the proposed action have been shown to be at least as effective.

Response:

Interim Operations are described in FEIS Section 2.8.5 and are common to all action alternatives except Alternative 1. Further, Interim Operations are analyzed under each resource in Chapter 3, Affected Environment and Environmental Consequences.

Understanding that structural solutions would have long lead times for execution, the Corps developed Interim Operations that will continue to focus on improving volitional passage and water quality long-term solutions are in place. The Interim Operations are based on the inunction operations ordered in *NEDC v. USACE* as optimized under adaptive management.

Comment: Water Quality-9

19. Appendix B Page B-62. "The downstream maximum rules are in effect year-round, but typically only govern the ResSim program decision making during a winter flood event. Smaller flood events may occur during the spring refill season or late in the drafting season as well and need some regulation to manage. …" Emphasis added. How does the Corps intend to manage spring and summer surcharge and high TDG risk? (See Addendum).

Response:

Strategies used to mitigate TDG include increasing turbine outflows to dilute elevated TDG from other outflow routes, spreading spill across multiple spillways to avoid plunging flows and the entrainment of gases, or increasing available reservoir storage to reduce the amount and rate of outflow from a given dam during high flow events (e.g., delayed reservoir refill operations or forecast-informed reservoir management operations).

While the Corps has implemented many of these strategies over the years, delayed refill operations or forecast-informed water management strategies have not been adopted primarily because such strategies are inherently difficult to implement due to the uncertainty and variability in weather and water supply forecasts.

Specifically, weather conditions remain uncertain when forecasting from 3 days to 10+ days into the future. In some cases, experience and forecast skill may be useful for predicting weather scenarios. However, maintaining safe conditions at, and downstream of, the dams while also meeting water conservation targets, requires precise weather skill estimates for forecast lead times that are scenario-, project-, and watershed-specific. These factors have not yet been studied in the Willamette River Basin.

Comment: Fish Passage-13

20. Section 3.8.1.6.1 “Passage for ESA-listed salmonids and steelhead at Detroit Dam/Big Cliff Dam Complex. Only adult hatchery origin UWR Chinook salmon are outplanted above Detroit Dam.” Elsewhere, this section supports the Recovery Plan’s (ODFW and NMFS 2011) a split-basin approach to managing the fishery, in which hatchery origin adults provide the bases for fisheries downstream from the dams where they may also spawn, while only wild fish would be transported upstream, preserving their genetic integrity. The current management scheme is necessitated by CRR values less than 1 for Chinook salmon released upstream of the reservoir, meaning that under current project conditions, the returning progeny of fish placed upstream would not equal the number of adult fish transported. At present, the low CRR of wild Chinook makes transporting wild fish to locations upstream of Detroit reservoir risk mining their populations. To provide a potential for species recovery, passage survival must be increased. Spilling water through the upper ROs in the fall and over the spillway in the spring should be continued. The current wild fish sanctuary river reach between the Minto Dam and Big Cliff Dam, a steep, mostly bedrock portion of the river, is both limited in spawning habitat and presents a survival risk due to episodic high TDG concentrations.

To be consistent with the Recovery Plan, once CRR has been shown to exceed 1, only unclipped adult steelhead and Chinook salmon collected at the Minto trap should be transported to sites upstream from Detroit reservoir. Modifying fishery management would require developing a consensus among the Corps, ODFW, NMFS, and FWS. As such, the Corps should demonstrate its support for fishery management that comports with species Recovery Plans in this EIS.

Response:

The recommendation to spill water through the upper regulating outlets in the fall and over the spillway in the spring was included in the DEIS alternatives and analyses, including the DEIS Preferred Alternative as part of the Near-term Operations Measures (See DEIS Chapter 5, Preferred Alternative Selection and Implementation). Disposition of hatchery Chinook salmon and wild Chinook salmon and winter steelhead above Willamette Valley System dams would continue in accordance with Hatchery Genetic Management Plans approved by NMFS in 2019 under all alternatives.

The ODFW and NMFS 2011 Recovery Plan for Upper Willamette River Chinook Salmon and Steelhead describes a "split basin" approach. However, until downstream passage is improved, hatchery supplementation above dams would continue to initiate reintroduction under all alternatives, supplement natural production, and encourage local adaptation.

Once successful downstream passage is implemented, above dam supplementation strategies would change (depending on consultations with NMFS and ODFW), with the goal of ending hatchery supplementation above dams once natural returns have adequately increased to maintain replacement levels (i.e., CRR greater than 1). This

evaluation would not take place until a minimum of three cohorts demonstrated CRR greater than 1 on average. See FEIS Section 3.8, Fish and Aquatic Habitat.

Comment: Proposed Action-23

21. Section 5.4.1 and Appendix N. Implementation of the Preferred Alternative. Overall, implementation of the proposed fish passage and water quality improvement structures is too slow and the rationale for the priorities displayed in the schedule unexplained (Figure 5.4.1).

a. No timeline for construction of the permanent temperature matching system at the Foster trap is presented. As the need for this structure has been demonstrated, final design and construction should be expedited.

b. Appendix N, Section 2.1. "While these (court-ordered) actions are tracked in this Implementation Plan, the structural injunction measure will undergo a separate NEPA process that will assess the direct, indirect, and cumulative impacts of their effects on the human environment." To expedite implementation of these measures, compliance with NEPA should be provided by way of Categorial Exclusions if possible, or brief EAs if not.

d. Appendix N, Page N-52. The proposed performance metrics are inadequate and call into question the life-cycle modeling performed to evaluate effects. The Corps intends to measure dam passage survival (DPS) of only juveniles detected in the dam forebay (Figure 5-3). This measure of success would ignore fish losses that occur within the body of the reservoir. The Corps should adopt measures of DPS that measure survival from reservoir entry to the unimpounded river, including all of the reservoir and the downstream re-regulating pool and dam. Adult fish collection at the base of Green Peter Dam isn't currently needed. Adult fish needed to seed habitat upstream are being collected at the Foster trap and that could continue. Ongoing monitoring could determine if a new trap is needed within 5-7 years of ROD signing.

e. Juvenile fish passage using existing dam facilities and modified operations is currently being implemented. Given the extraordinary cost and delay in developing new structural juvenile collection systems, these and other primarily operational measures described above would likely be more cost-effective. Until the effectiveness of those measures is known, developing juvenile collection systems (FSSs and FSCs) at Detroit, Cougar and Lookout Point dams at this time is premature. Within 7 years of ROD issuance, and following at least 5 years of implementing aggressive operational measures, the Corps, in consultation with NMFS, FWS, and ODFW should determine if operational measures are sufficient to support species recovery and, if needed, initiate design/construct projects to meet juvenile passage needs.

Response:

(a) A timeline under the best-case scenario for Measure 479 is included in Appendix N, Implementation and Adaptive Management Plan.

(b) It is beyond the scope of the programmatic EIS to specify the level of analysis that will be conducted for site-specific NEPA to be completed for construction actions. Furthermore, this scope is currently unknown.

(c) N/A

(d) Specific metrics commonly applied in the region for assessing fish passage performance are included in Appendix N, Implementation and Adaptive Management Plan, Dam Passage Survival and Cohort Replacement Rate. The life cycle models are not specified for assessing fish passage measures following implementation. A new adult facility at the base of Green Peter Dam would be needed once natural origin returns occur to facility passage of adult Chinook salmon originating from above this dam back upstream in a safe and effective manner.

(e) Operational measures are proposed for implementation prior to completing design and construction of structural downstream passage at the dams indicated. The Adaptive Management Plan includes monitored to assess operations performance (Appendix N, Implementation and Adaptive Management Plan). An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N). Metrics, criteria, and an approach to assess near-term fish passage operations have been revised to identify success. Metrics include assessing population-level performance by monitoring cohort replacement rates.

Comment: Proposed Action-24

22. Section 5.5 Adaptive Management Plan. This plan is incomplete. Both performance evaluation and the development of remedial action should engage the regulatory agencies (NMFS and FWS) and interested parties (e.g., municipalities). The Corps should commit to periodic check-ins at pre-determined intervals to track measure implementation and performance.

Response:

Both performance evaluation and development of remedial actions are included in the Adaptive Management Plan (DEIS and Appendix N, Implementation and Adaptive Management Plan). The Plan includes regional coordination and input to the Corps for decision-making via the WATER Forum.

NMFS and USFWS participate in the WATER Forum. The implementation schedule includes periodic check-ins at pre-determined intervals to track measure implementation and performance. The Plan has been updated in the FEIS.

Comment: Alternatives-18

23. Appendix E. Life Cycle Modeling. Alternative 5, the preferred alternative, was not modeled. This was likely due to time constraints as the preferred alternative was developed late

in the process. Given the overly high fish passage efficiency attributed to floating screen structures (FSS) and floating surface collectors (FSC), it is likely that life cycle modeling of Alternative 5 would provide similar results to that for Alternative 4, which presented a high species viability (VSP) score. For reasons given below, these modeling results are unreliable.

Response:

"While Alternative 5 was not modeled with respect to fish, it was modeled with respect to hydrology. It was determined that Alternative 5 would not be substantially different in terms of fish outcomes, than Alternative 2B. Therefore, the Corps relied on the analysis under Alternative 2B to inform population-level performance. This is stated in the effects analysis (Section 3.8, Fish and Aquatic Habitat, Environmental Consequences).

The Corps disagrees that the model results are unreliable based on the very minor differences between Alternative 2B and Alternative 5. While the performance of Alternatives 2B, 4, and 5 may be similar, note that each alternative would achieve specific objectives using, in some cases, different approaches or combinations of approaches.

While Alternative 4 and Alternative 5 would produce similar outcomes, the hydrology and water management approaches differ substantially. For example, Alternative 4 incorporates primarily structure-based downstream passage while Alternative 2B and Alternative 5 incorporate a combination of structural and operational passage.

However, to demonstrate this model behavior, the FEIS has been updated to include model outputs for Alternative 5 (See Section 3.8, Environmental Consequences, Alternative 5). "While Alternative 5 was not modeled with respect to fish, it was modeled with respect to hydrology. It was determined that Alternative 5 would not be substantially different in terms of fish outcomes, than Alternative 2B.

Therefore, the Corps relied on the analysis under Alternative 2B to inform population-level performance. This is stated in the effects analysis (Section 3.8, Fish and Aquatic Habitat, Environmental Consequences).

Comment: Biological Assessment-2

24. Appendix E, Page E-47. "… it is important to recognize that the collectors discussed in the EIS and the BA have yet to be successfully implemented and there is considerable risk and uncertainty about the realized effectiveness of these structures." I agree. The referenced study by Koch et al. (2021) shows that FSCs have highly variable fish collection efficiencies (from head of reservoir), ranging from about 2% to over 90% at one project. This wide range of FCEs suggest that the life-cycle model used to compare the VSP scores should also carry very wide ranges of possible outcomes. Further, the majority of the structures investigated by Kock et al. (2019) were FSCs, rather than FSSs, which likely perform differently, thereby adding to model error.

Response:

There is uncertainty and variability in the Koch et al. (2019) study. This was a hierarchical analysis so this would be expected without exchangeable collector features to explain the variability.

The variability among collectors is expected based on the primary variables of interest (e.g., entrance size, forebay size, outflows, etc.). The performance of a given collector is expected to be less variable with a set of defined dimensional criteria that helps explain the variability and predict more precisely. Uncertainty and variability are included in the lifecycle model results included in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses.

Comment: References and Data-9

25. Appendix E, Table 1-42. The FCE values presented are unlikely to be achieved and should not be used in life-cycle modeling. The referenced Kock et al. (2019) study presented FCE values for head of reservoir releases, forebay releases, and near collector entrance releases. This is clearly not a single population of data and it is unsurprising that the results of using Kock et al.'s regression equation to obtain FCE estimates for proposed FSSs are unrealistic. For example, the value given for steelhead in Table 1-42 is greater than 1, an impossibility. The value given for Chinook salmon is a negative value, which is also impossible. The Kock et al. study likely has value in sizing fish collectors, but the regression for FCE should not be used in life-cycle modeling.

Response:

Kock et al. (2019 in Chapter 10, References) published a hierarchical model and assumes collector features such as entrance size and flow are exchangeable. When the fish collection efficiency (FCE) passage efficiency values (i.e., collection efficiency values for collectors) were applied in the Fish Benefit Workbook model, it was also assumed that inflows were at an average level where Measure 392 is included under an alternative (See DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses).

While the Corps acknowledges uncertainty in these assumptions, the model is the most complete and represents the best available information. When consulting fish biologists in the region, it was determined that these values were the most reliable given exchangeable physical features.

The issues noted in the comment with FCE occurs because of the size of the collectors being proposed. There are no data to indicate what happens at the upper end of the curves included in Kock et al. 2019. The Corps recognizes that values of greater than 1 are not plausible; however, this is an artifact of the lack of hierarchical data on fish collection efficiencies on the upper end of the logistic curve for a collector of large size.

In future iterations, it could be useful to bound/constrain values below 1.0. This is not a feature of the current model framework.

Comment: Alternatives-19

26. Appendix E, Page E-411. "Alternatives that relied solely on operational passage, 3a and 3b, did poorly compared to the other alternatives. It is beyond the scope of this report to detail differences between structural and operational passage at high head dams; however, it appears much of the inefficiency inherent in operational passage (as expressed in the FBW) comes from periods of time when the reservoir elevations are not ideal for passage through regulating outlets or via spill." This statement assumes that operational passage would be constrained to follow existing reservoir storage rule curves. Year-round deep drawdowns were not considered. As described above, reservoir and dam passage survival would be greatly improved by deep, year-round drawdowns, which were not analyzed.

Response:

The Corps disclosed the tradeoffs and performance of operational versus structural passage in the EIS. Year-round deep drawdowns were considered out of scope for this EIS analyses, because such drawdowns would result in increases to flood risk and the elimination of certain Congressionally authorized purposes (e.g., water supply, hydropower). See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, Proposed Action, and range of alternatives. Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes.

Comment: References and Data-10

27. Appendix J. The flow duration analyses presented is not very useful in identifying and comparing the streamflow related fish habitat effects of the alternatives. Either fish-use seasonal evaluations, or monthly analyses would provide a better opportunity to evaluate fish habitat effects. Side-by-side comparisons would be more useful than displaying each alternative separately.

Response:

Models used to assess Chinook salmon and steelhead survival below Willamette Valley System dams accounted for habitat availability relating to daily flows by reach. Methods and results are documented in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses. Additional habitat availability information relating to flow below WVS dams was developed for the Final Biological Assessment, which has been included in the FEIS (See FEIS Section 3.8, Fish and Aquatic Habitat).

Comment: Hydrology-7

There are beneficial operational measures the Corps could adopt now without any additional flood risk, such as delaying refill when appropriate. Others, such as extending the duration that surcharges (storage above the minimum conservation pool (rule curve)) is allowed to persist to improve the likelihood of refill in dry years, require additional study. Given the scope and scale of the analyses presented in support of the DEIS, the Corps clearly has the expertise to conduct detailed flood risk assessments of alternative operations. These measures should be further evaluated for flood risk and adopted when appropriate.

Response:

The Corps has analyzed the immediate actions taken under the Interim Operations within the EIS. The Corps continues to investigate methods to improve the operations of the WVS reservoirs. For example, water management is studying forecast-informed reservoir operations, although the Corps cannot, and Council on Environmental Quality NEPA regulations do not require that agencies, speculate on effects from alternative implementation.

Water management is studying forecast-informed reservoir operations, although the Corps cannot speculate, and Council on Environmental Quality NEPA regulations do not require that, agencies speculate on effects from alternative implementation. DEIS and FEIS Appendix B, Hydrologic Processes, Section 8 and Section 9, describe cursory investigations including spring refill starting from the top of the secondary flood pool and opportunistic fill above the rule curve during refill season, respectively.

Comment: Hydrology-8

The Corps should either allow surcharge above the IRRM limit, if dam-safety permits, or delay refill until the risk of fill and spill has substantially declined to reduce downstream high TDG events. Such a refill delay decision would consider forecasted inflows (e.g. NOAA River Forecast Center's (RFC) 10-day forecast), prevailing climatic conditions, and probability of refill estimates. The existing WATER process as described on page 3-43 would seem well-suited to this task.

Not all high TDG-generating events can be avoided, but thoughtful refill management could reduce their occurrence during steelhead spawning. To be clear, delaying refill to reduce the risk of fill and spill operations would not in any way increase flood risk, it would reduce it.

While I have only taken the time to review operating limit changes through time at Detroit reservoir, all projects operating under IRRM likely also have a somewhat increased probability of fill and spill operations due to the loss of available summer flood storage. But the issue is perhaps most acute at Detroit because refill is a high priority and the need to avoid fill and spill is high due to high TDG production and the presence of listed fish.

Response:

The Corps would continue to optimize operations to the greatest extent possible to reduce TDG production, using the spread spill concept, as well as other operational strategies. Balancing operations that support downstream fish passage and TDG management while refilling reservoirs (such as Detroit Reservoir) for water temperature, supply, and recreation is inherently difficult.

The Corps would continue to utilize water supply forecasts and state-of-the-art numerical modeling to make inter-seasonal adjustments to operations that minimize TDG when possible.

The Interim Risk Reduction Measures (IRRMs) are excluded from the EIS modeling because they are temporary, awaiting permanent resolution. Interim Risk Reduction Measures are currently implemented so that the Corps has maximum operational and maintenance capabilities for the WVS dams and reservoirs within dam safety tolerable risk guidelines. As such, the Corps does not currently operate outside the Interim Risk Reduction Measures limits while the measures are implemented.

The Corps uses available forecasts for Willamette Valley System regulation decisions on a routine basis, balancing all WVS authorized purposes. Thus, they were not considered for analysis purposes for the long-term Proposed Action.

Comment: Hydrology-9

Increasing operational flexibility, using real-time and forecasted climate and hydrology data to inform operations, particularly during refill, would improve WVS response to changing hydrologic conditions at low cost. The Corps should also seek to improve refill-season runoff forecasting to better manage refill for all project purposes. Operations evaluations should take place every 5-7 years throughout the 30-year life of the preferred alternative to incorporate new information, forecasting improvements, and lessons learned. It would benefit the WVS's climate resilience to adopt more flexible operations as forecasting skill allows.

Response:

The Corps will continue to use the best available scientific information that has been properly reviewed and certified when managing real time reservoir operations. Appendix N: Adaptive Management describes how forecasting information will be used to inform real time and seasonal operations, though current forecasting technology remains extremely limited. DEIS and FEIS Appendix B, Hydrologic Processes, Section 8 and Section 9, describe cursory investigations including spring refill starting from the top of the secondary flood pool and opportunistic fill above the rule curve during refill season, respectively.

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Comment Document: 2023-02-23_PublicComment_WV_DEIS_Citizen_Christopher Douglass.pdf

Comment: Water Quality-23

The most troublesome part that I don't see addressed enough in your EIS Draft is the vital requirement to replace the 60+ years of ocean rich nutrients to the headwaters above, and downstream of the (13) thirteen dam projects of the Willamette Valley. Salmon/steelhead carcasses and/or man-made analogs MUST be prioritized and funded as a remedy as to the impacts of depleting our watershed ecosystems of naturally spawned out salmon & steelhead that are essential for our riparian plants, aquatic insects, and juvenile fish to sustain themselves on in the wild.

The loss of 60+ years is easily apparent to the general citizen. If you choose to ignore completely, or only partially reload our watersheds with nutrients, you aren't & won't get the results for endangered salmon & steelhead as you propose. Any long term plan must go "above and beyond" in this category of fixing mistakes of our past. Without nutrient carcass planting and analogs in every creek and river, the reservoirs will continue to drive our fish into extinction.

Response:

The Chinook salmon hatchery adults are currently being transported above WVS dams where reintroduction is being pursued. After transportation about dams, salmon spawn and die. These salmon carcasses provide nutrients to streams above WVS dams. The Corps expects nutrient loading to occur as run sizes increase and more adult fish are transported above a dam barrier.

The EIS does not include a nutrient loading analysis because the act of transporting adults increases nutrient loading over time. Quantifying the appropriate degree and magnitude of nutrient loading is not explicitly possible because the baseline nutrient loading prior to the construction of the dams and industrialization is unknown. However, the FEIS has been updated to include information on marine-derived nutrient loading in Section 3.8, Fish and Aquatic Habitat. Differences among alternatives in marine-derived nutrient contributions from salmon carcasses is assumed to be directly related to spawning abundance estimates made under each alternative.

PUBLIC (EDWARDS, RONALD)

Comment Document: 2023-01-07_PublicComment_WV_DEIS_Citizen_Ronald Edwards.pdf

Comment: Fish-3

The first topic is Sockeye Salmon, every Sockeye that was in the fish ladder was summarily killed and disposed of. The reason given was no diseases from the Sockeye getting transmitted to the

Chinook Salmon. That is interesting considering these fish have shared the Willamette River for thousands of years.

Response:

Sockeye salmon are not native to the Willamette River Basin and were never widely distributed naturally in Oregon. After being stocked into WVS reservoirs, kokanee (landlocked sockeye salmon) has become self-sustaining in some reservoirs. Offspring spawned from kokanee parents may emigrate to the ocean and return as adult sockeye. ODFW avoids risks of disease transference by not transporting returning adult sockeye back upstream of WVS dams.

The FEIS was updated to add this information in Section 3.8, Fish and Aquatic Habitat, Affected Environment, Kokanee.

Comment: Fish-4

The second topic is Chinook Salmon, now for some history. I have seen the fin clipped satisfying tribal considerations and for a time some went to the gleaners. The rest of the fin clipped Chinook were just destroyed, they were put into the diversion channel used during dam construction or sent to a processor to be made into fish food for the hatchlings at the hatchery. I know this because I used to operate the fish hopper on to the truck on the roadway deck and watch as the water valve was opened and listening to the fish flopping around in the tank and then watching the fly population from the south side of the South Santiam River. There were so many flies it looked like a low lying fog bank, and from above I was told other fish went to be processed into fish food for the small fish at the hatchery. The fin clipped Chinook is the small fry getting their fins clipped, they come from salmon that are native. A meeting in Sweet Home twenty plus years ago explained that scientifically there was no difference between fin clipped and native Salmon. The point is spawning native fish becomes fin clipped in the hatchery and necessarily needs to be destroyed, really? Testimony in Sweet Home years ago indicated they are the same, then destroy the fin clipped. The fish go to the ocean and deal with the same predators and yet the fin clipped are inferior?

Response:

Many scientific studies of salmon document negative effects of hatcheries on wild salmon fitness and productivity. Only fish spawned in a hatchery are adipose fin-clipped.

It is common that hatchery adult Chinook salmon return to the traps below WVS dams in surplus of needs for meeting brood stock and for use in reintroduction of Chinook salmon above WVS dams. Addressing obligations of the ESA requires reducing effects of the WVS dams and programs, including hatchery mitigation, to improve natural production and abundance of ESA threatened spring Chinook salmon and winter steelhead in the Willamette River.

Hatchery Genetic Management Plans have been approved by NMFS will continue to be implemented by the Corps. Fin-clipping continues for selective fisheries and hatchery management actions, including avoiding hatchery fish spawning in the wild. See FEIS Section 3.8.2.3, Fish and Aquatic Habitat, Willamette Hatchery Mitigation Program and effects under each alternative in Section 3.8.3, Environmental Consequences.

Comment: Fish-5

Every time people with the brains get involved it seems the fish population goes away. There needs to be a real discussion on the Native Steel Head run on the South Santiam. If you believe it is a native run you need to do a deep dive into the records.

Response:

The EIS describes seven alternatives to operate and maintain all 13 dams and reservoirs, in addition to an alternative of maintaining existing operations (No-action Alternative) (Chapter 2, Alternatives). 24 resources with potential impacts from implementation of any alternative were analyzed to allow the Corps decision maker to make an informed decision on which alternative to implement.

Under the National Environmental Policy Act, the agency Record of Decision (ROD) presents preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions. The ROD explains all the essential considerations balanced by the agency in making its decision and explains how those considerations entered the alternative implementation decision (40 CFR 1505.2). This balancing requirement addresses issues raised by all parties, including the public, tribes, and Cooperating Agencies.

Regarding statutory missions, impacts to all the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from each alternative on fish, hydropower, water supply, flooding, etc. Congressionally authorized purposes are described in Chapter 1, Introduction, Section 1.10, Congressionally Authorized Purposes.

The FEIS analyzes effects of each of the eight alternatives on native fish species in all analysis area subbasins, including steelhead in the South Santiam River Subbasin in Section 3.8, Fish and Aquatic Habitat. Winter steelhead are native to the Willamette River Basin.

Both winter and summer hatchery steelhead, with brood stock taken from out-of-basin stocks, have been produced and released in the Willamette River Basin. Published scientific reports cited in the FEIS document run timing, genetic information for steelhead in the Santiam River, and the introgression of hatchery steelhead with naturally spawning populations (Section 3.8, Fish and Aquatic Habitat). Legacy effects of the previous winter steelhead hatchery program in the Willamette River Basin is

documented in these scientific studies, along with introgression of hatchery-origin summer steelhead with wild winter steelhead.

Comment: Hydropower-5

The point of all this is to introduce what is not spoken of thus far. First on the discussion is the letter from the NORTHWEST POWER POOL (WILLAMETTE VALLEY/SOUTHWEST WASHINGTON AREA VOLTAGE STABILITY OPERATINGPROCEDURE). This talks about the drop in voltage in this area with voltage instability from cold weather loads with reduced local area generation, the primary concern is to prevent a blackout or voltage emergency. This simply means with the electrical loads being inductive in nature driving the voltage down as loads increase beyond 7,000 megawatts the risk of a UVLS (Under Voltage Load Shedding Relays) operation which will cause a black out. I could spend hours going into the weeds but I believe this document has been distributed. The other document is (WILSSWA VOLTAGE STABILITY 1998-1999), I had not seen an amended document or documents before I retired in 2013. In summary the voltage in the Foster area will drop to levels that will require action to prevent a trip during a cold weather event and high loads, period. I have seen this already which I will discuss in the next paragraph. During the 1990's there was a cold weather event and the voltage was getting quite low so the voltage control was increased on the generating units that were condensed but that was not enough. The only course of action left was to take the generating units from condense to generate and to add positive reactivity and the voltage was restored to a safe level. I was the operator on duty and I had two Green Peter units running. I later discussed this operation with two BPA engineers at Foster project and they agreed.

Response:

The Corps has not received the referenced Northwest Power Pool letter. However, the FEIS includes acknowledgement of blackout occurrences in Section 3.12, Power Generation and Transmission. Additionally, the FEIS analyses disclose that blackout occurrences would continue under any alternative; however, there would be no additional risk over existing conditions.

Integration with the overall transmission system provides reliable local service without relying on the hydropower generation at Green Peter and Foster Dams. Under EIS alternatives that limit the availability of generation at those dams, Bonneville Power Administration would continue to meet the applicable power and transmission reliability requirements. This is explained in the analyses in Section 3.12 and in Appendix G, Power Generation and Transmission.

Comment: Hydropower-6

On 15 August 2006 I was involved in "FOS/GPR ISLAND EVENT", which further identifies the need for all generators running when something happens. There is no excuse to put the citizens power in jeopardy because of ill thought out programs or policies. The operating Generators

prevented an outage. I have submitted the three documents I have mentioned to the Corps of Engineers.

Response:

The Corps analyzed potential impacts to hydropower production under each of the alternatives in Section 3.12 and Appendix G, Power Generation and Transmission.

Integration with the overall transmission system provides reliable local service without relying on the hydropower generation at Green Peter and Foster Dams. Under EIS alternatives that limit the availability of generation at those dams, Bonneville Power Administration would continue to meet the applicable power and transmission reliability requirements. In addition, as directed by Congress in the Water Resources Development Act of 2022, the Corps is undertaking, in consultation with the Bonneville Power Administration, disposition studies for the power purpose of the Willamette River dams that will evaluate all potential impacts to power and transmission reliability.

Impacts to hydropower production have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation. Specific islanding analyses are provided in Section 4312, Power Generation and Transmission.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2) b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Public Health and Safety-1

The reason I am so animate is because of my concern for all the infirmed that require assistance from electrical devises to sustain life and not suffer consequences with equipment made inoperable by a large voltage spike. … Therefore, in my mind I honestly believe the public will not be safe from power outages from a high power (cold weather) outage coupled with extremely low voltage, extremely high power flow with large inductive reactance.

Response:

The Corps assessed load spikes due to extreme temperature fluctuations in its climate change analyses under each alternative in Section 4.12, Effects to Power and Transmission by Alternative. Addressing issues of public safety related to climate impacts would be difficult to predict.

Comment: Public Health and Safety-2

One of the tenants I was trained to do was not to damage equipment, cause damage due to mis operation (during flood control operations and maintenance considerations), hurt anyone I was working with and keep everyone safe. This simply means my employer was the citizen, through the US ARMY CORPS OF ENGINEERS. Therefore, in my mind I honestly believe the public will not be safe from power outages from a high power (cold weather) outage coupled with extremely low voltage, extremely high power flow with large inductive reactance.

Response:

The Corps assessed load spikes due to extreme temperature fluctuations in its climate change analyses under each alternative in Section 4.12, Effects to Power and Transmission by Alternative. Addressing issues of public safety related to climate impacts would be difficult to predict.

Comment: Fish-6

I have stated my objections on this EIS being done for fish, and then watching all of the work being done and the fish just killed and buried and sent to processing. When in a public meeting in Sweet Home the people who were promoting Native over fin clipped fish admitted there was no difference on any level, as I remember the conversation.

Response:

Many scientific studies of salmon document negative effects of hatcheries on wild salmon fitness and productivity. Only fish spawned in a hatchery are adipose fin clipped.

It is common that hatchery adult Chinook salmon return to the traps below WVS dams in surplus of needs for meeting brood stock and for use in reintroduction of Chinook salmon above WVS dams. Addressing obligations of the ESA requires reducing effects of the WVS dams and programs, including hatchery mitigation, to improve natural production and abundance of ESA threatened spring Chinook salmon and winter steelhead in the Willamette River.

Hatchery Genetic Management Plans have been approved by NMFS will continue to be implemented by the Corps. Fin-clipping continues for selective fisheries and hatchery management actions, including avoiding hatchery fish spawning in the wild. See FEIS

Section 3.8.2.3, Fish and Aquatic Habitat, Willamette Hatchery Mitigation Program and effects under each alternative in Section 3.8.3, Environmental Consequences.

Comment: Out of Scope-3

I think the Washington State governor gave everyone insight on the reason for all this business. First spend the federal money on studies and all that goes along with it, then make the argument to save the fish acknowledging a loss of revenue due to barging farm produce to market, however the EIS said that could be made up by trucking and trains. What made me laugh so loud to bring people into the control room was the solution submitted in the EIS was fishing, that is for real. His proposal is to now remove all four dams from the Snake River. This means in order down river 990 MW Lower Granite, 990 MW Little Goose, 990 MW Lower Monumental, 660 MW at Ice Harbor, with all generating units available. He said they only generate 230 - 250 MW per hour and that there may be some outages later. The Power he was talking about was run of the river Power, the reservoirs would still be full, so when the need arises there is approx. 3,600 megawatts of power available minus the generation from run of the river power. Another very important point is hydro-electric generators take perhaps 5-10 minutes to be at full capacity. The river can be returned to normal flow when the immediate need is satisfied, large commercial coal and nuclear plants will take about one full day to get to full load as I remember.

Response:

Comment noted.

Comment: Out of Scope-4

There is no doubt in my mind that this whole process is to remove all real renewable energy sources like Hydro. The national average on the so called 'renewable' energy, that is solar or wind is only available perhaps 20% of the time and only when the sun is shining or the wind is blowing. There is much information on the big problem of inverter tripping. This means that if the energy storage issue is solved or providing energy to the grid, inverter tripping will shut it all off and therefore where is the reliability compared to hydro, coal and nuclear power energy sources? Inverters are devises meant to convert DC power to AC power. I personally saw this play out on a back to back system out of state.

Response:

This comment requests information on alternative energy sources that is out of scope for the EIS analyses. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, proposed action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record.

Further, the Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The Corps is not considering dam removal as part of its Willamette Valley System operations and maintenance program under this review. Since dam removal is not a component of the proposed action, no alternatives include this potential action and subsequently, no impacts associated with dam removal, including impacts on regional or local energy sources, are identified in the EIS.

However, impacts to all of the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the proposed action and alternatives on fish, hydropower, water supply, flooding, etc. (Chapter 1, Introduction, Section 1.1, Background, and Section 1.10, Congressionally Authorized Purposes).

Comment: Dam Safety-1

Let us now talk about dam safety, all information is quite clear about what dam safety is. I cannot understand how dam safety integrity can be considered or maintained with the proposals being made. The floods of 1990 and 1996 demonstrated the need for communications being maintained to determine when equipment and plant operations need an operator's intervention. Examples are the overhead (in the trees) communications link is down as has happened before and the roads are not passable. In 1996 a helicopter needed to fly the necessary operator to Green Peter and communications was performed by a cell phone from the top of Green Peter Dam roadway deck. I do not think much input was initially used to discuss all of these points made above.

Response:

This comment requests information regarding communications during flood events that is out of scope for the EIS analyses. See Final EIS Chapter 1, Introduction, and Chapter 2, Alternatives, for descriptions of the scope of analyses, purpose and need statement, Proposed Action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record. The Corps continues to conduct routine monitoring and inspections as part of its dam safety program.

Comment: Dam Safety-2

Before my retirement there was a problem found on the stilling basin floor at Green Peter, at the time we were asked to use the other RO gate to spill water to keep the water away from the area of damage. Is there a requirement to run water over the damaged area, if so for how long and what happens if the stilling basin floor starts to lift?

Response:

The Corps continues to conduct routine monitoring and inspections part of the dam safety program. Hydro surveys are collected routinely in the spillway's stilling basin on a minimum 5-year frequency to detect any new or worsening concrete conditions. If warranted, repairs may be completed.

The Green Peter Spring Spill Interim Operations would be using Gate 2 (south gate) to mitigate effects to areas of potential erosion. Appendix H, Dam Safety, indicates that measures with minor dam safety effects could result in an increased frequency in this type of routine monitoring commensurate with the increased usage to help detect any increased degradation to the structures. If warranted, operations would be paused while repairs are completed.

Comment: Hydropower-7

I think much thought needs to be expended in figuring this out. People need to consider these projects were funded for important reason and everyone can see much industrial growth and population growth because of reliable power has occurred.

Response:

Bonneville Power Administration would continue to meet the applicable power and transmission reliability requirements for all alternatives that would limit the availability of power generation.

Comment: Dam Safety-3

Part of my duties when employed at Green Petr was dam inspections. A deep drawn down will expose inside areas to dry out and when it comes time to water it up again the inspections will need to be done. There is a VHS video at Foster that I took of the galleries at Green Peter that could be used as a reference point.

Response:

Comment noted.

Comment: NEPA Process-3

My last point is a very important point. Upon reading what I have so far I think the fact finding team that negotiated what was going to happen did not include the most familiar and professional folks at these dams and that is the operational people. Each project has some one or some people that are true professionals and I don't think they were included in any discussions. If necessary some folks that are retired Corps of Engineers people can be consulted or retired BPA systems dispatchers can be consulted for historical perspective. After a big upset and any consequences that come with it is not the time to say we should have, could have, would have and didn't.

Response:

The Corps' Project Development Team (PDT) for development of this EIS included management and resource staff from the Willamette Valley System dams. These professionals remained an integral part of the PDT and ongoing FEIS development process necessary to inform the Record of Decision on a selected alternative.

PUBLIC (EDWARDS, RONALD)

Comment Document: 2023-01-24_PublicComment_WV_DEIS_Citizen_Ronald E. Edward (Retired)\1.pdf

Comment: Hydropower-10

My concerns are based on the potential harm that will be caused with voltage control issues and the potential harms which will occur on the operations of the electrical systems undervoltage protection systems. I also provided a document written to prevent a "blackout" or "voltage emergency'' and my question is, have these questions and concerns been addressed? I am willing to discuss my concerns so as to prevent a low voltage high reactive current trip causing a power outage and potential harm to the equipment being used to support life.

Response:

The Corps analyzed potential impacts to hydropower production under each of the alternatives, under each of the alternatives in Section 3.12 and Appendix G, Power Generation and Transmission.

Specific islanding analyses are provided in Section 3.12, identifying the potential for increased islanding at Oakridge and Blue River Dams. Integration with the overall transmission system provides reliable local service without relying on the hydropower generation at Green Peter and Foster Dams. Under EIS alternatives that limit the availability of generation at those dams, Bonneville Power Administration would continue to meet the applicable power and transmission reliability requirements.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative. Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Public Health and Safety-4

I am concerned because as a care giver and understanding what some people need that are fragile (health issues) and needing electrical equipment to support life.

Response:

The Corps assessed load spikes due to extreme temperature fluctuations in its climate change analyses under each alternative in Section 4.12, Effects to Power and Transmission by Alternative. Integration with the overall transmission system provides reliable local service without relying on the hydropower generation at Green Peter and Foster Dams.

Under EIS alternatives that limit the availability of generation at those dams, Bonneville Power Administration would continue to meet the applicable power and transmission reliability requirements (See Appendix G, Power Generation and Transmission).

PUBLIC (FALK, BRYCE)

Comment Document: 2023-01-08_PublicComment_WV_DEIS_Citizen_Bryce Falk.pdf

Comment: Proposed Action-2

Adding fish passage to Cougar reservoir and regulating water temps for fish is amazing!

Response:

Comment noted.

Comment: Fish-8

In my opinion, I think it would be incredibly beneficial to prioritize steelhead and Salmon. In Oregon, there is a lack of cold-water refugees due to climate change.

Response:

Comment noted.

Comment: Fish Passage-2

The PGE fish passage facility on the Clackamas river has incredibly helped out those Salmon and steelhead populations. But the fish passage needs to be done well. Good fish passage required very little human involvement and handling.

Response:

PGE dams on the Clackamas River have low hydraulic head and impound relatively small reservoirs operated as "run of river" (i.e., reservoir elevations do not fluctuate). The Willamette Valley System includes high hydraulic head dams with large reservoirs that fluctuate over 100 feet in the spring and fall. Fish passage solutions have to take into account these conditions.

Under any alternative, structural fish passage facilities require regular monitoring and maintenance to ensure hydrologic conditions are maintained to operating standards. Debris management under any alternative would also require ongoing labor to maintain safe operating conditions for fish and the facility.

PUBLIC (GALICIA, ANNETTE)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_Citizen_Annette Galicia.pdf

Comment: Recreation-19

As an avid angler I have a deep appreciation for our wildlife, and the water quality for our land and citizens. The dams have such a profound impact to everything and everyone around it, thanks for helping make the important quality improvements as well as your stewardship.

Response:

Comment noted.

Comment: Fish-49

Fishing Screen/ Fish Ladder

1. How comfortable is it for the fish that are utilizing it, making it easier for them to use to get over to there destination

2. Material composition, will it erode over time due to elements and how can it easily be replaced back to normal working conditions

Response:

Although there are no studies on fish comfort regarding fish ladder use, with thoughtful design and construction, fish ladders and fish screens are safe for fish to use based on assessments of survival and passage efficiency. The Corps used models to assess population-level performance under each alternative, which included a variety of passage measures.

Monitoring and a decision process for potential further refinements where needed to achieve objectives are included in the Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan).

Maintenance would be required under any alternative; however, maintenance frequency would depend on the type of measure. Most maintenance activities would be accomplished outside of periods when most fish are passing to ensure fish safety.

Comment: Water Quality-22

Structural Improvements

1. The effects of these improvements over the long span how will these structures impact the water flow, water temperature, gravel erosion and water quality.

2. How will it be measured for changes, how often, and what about adaptability due to possible effects of climate change (level of water available), as well as natural changes in environment (Cascade subduction zone, weather changes, such as droughts, floods, fire, earthquakes)

Response:

(1) See FEIS Section 4.5, Cumulative Effects to Water Quality, for impacts to water quality parameters addressing reasonably foreseeable future actions including climate change-related effects from precipitation, drought, and wildfires.

Additionally, Section 3.5, Water Quality addresses climate change-related effects to water temperature, total dissolved gas, turbidity, harmful algal blooms, and mercury under each alternative. FEIS Section 3.2, Hydrologic Process, and Appendix C, River

Mechanics, and Geomorphology, address impacts to water movement throughout the Willamette River Basin under the alternatives.

(2) Although the analyses do not address earthquakes, in-season adaptive management occurs every year as hydrologic conditions have substantial year-to-year variability as described in Appendix N, Implementation and Adaptive Management Plan. The Plan also outlines research, monitoring, and evaluation that would occur for the selected alternative identified in the Corps' Record of Decision. Additionally, dam safety is addressed in Appendix H, Dam Safety.

PUBLIC (HAMILTON, JULIUS)

Comment Document: 2023-01-19_PublicComment_WV_DEIS_Citizen_Julius Hamilton.pdf

Comment: Fish-23

Lookout Point is an extremely popular bass fishery that is fun for people of all ages. I ha e grown up fishing that reservoir for many years and I've brought many friends and family members there to fish as well.

Response:

The FEIS has been updated to include impacts to all fish species in the analysis area including smallmouth and largemouth bass in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species. Further, the Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS.

Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Fish-24

Green Peter is another reservoir is another bass fishery that many of us love to fish. While I haven't spent many years there, I've recently had some amazing fishing trips with friends and family. The year of 2022 showed many of us that Green Peter is a world class smallmouth fishery that should NOT be destroyed. I have attached a few photos of some world class sized smallmouth bass that I caught in this reservoir throughout 2022. There are very few places in the world that have a smallmouth bass fishery like this place. Destroying to let some salmon pass through would be a major disaster.

Response:

The FEIS has been updated to include impacts to all fish species in the analysis area including smallmouth bass in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species. Further, the Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS.

Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: Recreation-8

You are destroying so many great memories for many people. You are destroying the future fun times to be had with many of our children fishing the same waters as we once did. Please stop. Smallmouth bass, largemouth bass, crappie, bluegill, etc. They all matter to us just as much as trout and salmon matter to you. Please stop destroying our future happiness.

Response:

Measures such as gravel augmentation below dams (384), maintain revetments using nature-based engineering or alter revetments for aquatic ecosystem restoration (#9), maintenance of existing and new fish release sites above dams (726), restore upstream and downstream passage at drop structures (#639), and use spillway for surface spill in summer (721) would not directly benefit recreation, but would improve fish habitat and passage over time thereby contributing to recreational fisheries.

The FEIS has been updated to include impacts to all fish species in the analysis area including resident fish in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species. Further, the Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS.

Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

PUBLIC (HARMON, JODY)

Comment Document: 2023-01-19_PublicComment_WV_DEIS_Citizen_Jody Harmon.pdf

Comment: Recreation-6

Then I heard that Foster Reservoir can't be filled now til mid May or close to it, because of some lawsuit and thought "shoot", a low rain spring and that means no water recreation in our two months of sun we get in Oregon, because they won't have time to fill. It's devastating to think of losing Foster as a summer recreation lake for those of us who love water and kayaking, swimming, which is me, and have limited resources, so Foster is about it, as far as water recreation around here. I kayak or row my raft up both rivers feeding Foster, swim in more remote spots along the shores, as far from speed boats as I can get, love going up there as often as I can when it finally fills for the summer.

Response:

Although there are no deep drawdowns proposed at Foster Dam under any alternative, several actions within under the Interim Operations would have similar effects on recreation at Foster Dam as the deep drawdowns would have at Cougar, Green Peter, Lookout Point, and Fall Creek Dams. Refills would be delayed at Foster Dam, which could have noticeable visual impacts and shorten the recreation season, although not as drastically as the deep drawdowns. The adverse effects at Foster Dam would be moderate.

Effects on recreation opportunities at all reservoirs under all alternatives are analyzed in FEIS Section 3.14, Recreation Resources. These analyses address land-based, water-based, and river-based opportunities.

Comment: Out of Scope-14

I couldn't care less about fishing. The only fish I eat are sardines. If you want more fish to survive, quit letting all those fishermen kill them, is my thought. When swimming in the reservoir or the river up there (Santiam is too cold for swimming unless its hot), I routinely clear out fish line, fish hooks, bobbers, all kinds of leftover deadly fishing crap. It's everywhere. I'm not a fan.

Response:

In compliance with the ESA and NEPA, the Corps analyzed potential effects to fish and other threatened species under each of the alternatives. Additionally, the Corps has been authorized by Congress to manage the Willamette Valley System for fish and wildlife among seven other purposes (i.e., the "authorized purposes) as described in Chapter 1, Introduction, Section 1.10, Congressionally Authorized Purposes.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2)b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Recreation-7

Please consider the other people, like me, the water lovers, who do not have money to travel to some other far off lake, to kayak, birdwatch from the water, swim, free dive, find some peace from the cars and concrete that make up Albany, Oregon and pretty much everywhere now seems like. Don't ruin Foster Reservoir for us, please. We don't have a lot of time in Oregon to get out on the water and feel the sun. I'm a native Oregonian if that makes any difference.

Response:

Recreation is one of the Congressionally authorized purposes of each of the reservoirs in the Willamette Valley System, and as such, the Corps maintains a responsibility to continue allowing for recreation use at the 13 WVS projects (FEIS Section 1.10, Congressionally Authorized Purposes). Analyses of land-based, water-based, and river-based recreation opportunities under each alternative at each reservoir is provided in Section 3.14, Recreation Resources. Economic and socioeconomic impacts on local communities is provided in FEIS Section 3.11, Socioeconomics.

PUBLIC (HEUBERGER, K. R.)

Comment Document: 2023-01-04_PublicComment_WV_DEIS_Citizen_K.R.Heuberger_.pdf

Comment: Fish-2

Native salmon and steel head are important. Extinction of salmon and steel head most be avoided and addressed.

Response:

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based

on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Out of Scope-2

The primary, most obvious problem is the out of control predation by predators: specifically seals and sea lions. Due to the over population of seals and sea lions, the salmon and steel head are being decimated.

An easy low cost, to the beleaguered taxpayers, solution is to allow sportsmen/sportswomen to hunt the over populated seals/sea lions. The resulting meat/protein could be provided to individuals in public/taxpayer supported institutions: jails, penitentiaries, mental hospitals.

Response:

This comment requests information that is out of scope for the EIS analyses. Seals and sea lions are not found within the analysis area or associated with Willamette Valley System operations. Additionally, marine mammal management is under the purview of the National Marine Fisheries Service and not the Corps.

See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives, for descriptions of the scope of analyses, purpose and need statement, proposed action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives. Agencies are not required to analyze or to address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record.

Information on predation, competition, and disease as they affect fish in the analysis area is provided in Section 3.8, Fish and Aquatic Habitat.

Comment: Dam Removal-2

The plan to remove Willamette Basin dams will be exorbitantly expensive mistakes.

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority.

Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

Comment: Water Supply-1

Our growing population needs reservoir water for agriculture, and human consumption, recreation and power generation.

Response:

Effects on resources from population growth in combination with the Proposed Action are analyzed in Chapter 4, Cumulative Effects.

PUBLIC (HEWITT, CAROLYN)

Comment Document: 2023-01-10_PublicComment_WV_DEIS_Citizen_Carolyn Hewwitt.pdf

Comment: Water Supply-5

I am hoping my statement and response to The Army Corps of Enginers may be taken under consideration where it concerns this plan up for discussion, and implementation of routing water differently to adapt to the concern and fact of our lower water tables, and how to continue the water needs of our communities.

Response:

Water supply is analyzed in FEIS Chapter 3, Affected Environment and Environmental Consequences, Section 3.13, Water Supply and in Chapter 4, Environmental Consequences, Section 4.13, Water Supply. Community effects from water supply in relation to other possible effects are further analyzed in the same chapters in Section 3.11, Socioeconomics and Section 4.11, Socioeconomics.

Comment: Alternatives-3

My vote for the method in where we take care of a comprehensive strategy would involve implementing Alternative 2A.

Response:

Comment noted.

Comment: Fish-15

I take this position because of my concern for the Chinook in the spring that survive in the Middle Fork of the Willamette, their prospects for a long term healthy sustainable exsitance.

Response:

Comment noted.

PUBLIC (INGLIS, TRAVIS)

Comment Document: 2023-01-19_PublicComment_WV_DEIS_Citizen_Travis Inglis.pdf

Comment: Proposed Action-9

I am writing to express my concern regarding the proposed extreme drawdowns to Green Peter and Lookout Point reservoirs… Please carefully reconsider the new proposed extreme draw downs as I think you would find many boaters and fisherman will be opposed to the new water control charts.

Response:

Major adverse effects would occur on recreation at many of the projects in the Willamette Valley System under various alternatives, including Green Peter Dam. However, Green Peter Dam would still support some level of recreational use throughout the year. The alternatives analyses address different measures at each dam, including Green Peter Dam so the Corps can compare tradeoffs between different possible solutions and their effects.

Additional information on recreation effects at Green Peter Dam have been added to FEIS Section 3.14, Recreation Resources.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in Chapter 1, Introduction, and Chapter 2, Alternatives, of the EIS. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Recreation-10

The proposed drawdowns will greatly impact boating and recreational on each reservoir. Over the last several years the lakes were well below their current water control diagram, thus rendering the ramps difficult or unable to be used. With the new proposed water control diagrams and extreme drawdowns the ramps will be unusable for a vast majority of the year. In the event of a prolonged drought the water control diagrams will be even less likely to be followed and maximum pool will never be reached. This will greatly impact boating and recreation on both reservoirs, especially during the warmer months.

Response:

The Corps owns and operates the boat ramps at the 13 Willamette Valley System dams and would close the ramps when the WSE reaches a level whereby ramps are unusable under each alternative. As discussed in FEIS Section 3.14.3.1, Recreation Resources, Methodology, the quantitative analyses included an estimation of the average annual number of days that boat ramps would be usable using water surface elevation (WSE) data from the HEC-ResSim model and boat ramp elevations at each reservoir (See also FEIS Appendix K, Recreation Analysis). The number of days in each season that the bottom of a given boat ramp elevation would be lower than the WSE were counted as usable days, with the remaining days counted as unusable.

Comment: Fish-25

Fishing will greatly be impacted, as the extreme water levels will likely have a negative impact on the current robust fish populations in each reservoir.

Response:

The analyses of fish species have been updated in FEIS Section 3.8, Fish and Aquatic Habitat. The FEIS has also been updated to include information on recreational fish and other, non-ESA-listed and non-recreational fish species in Section 3.8, Fish and Aquatic Habitat. For example, an additional assessment of resident fish species and gamefish in reservoirs targeted for sport fishing has been included.

The Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS. Impacts to gamefish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: Socioeconomic Resources-8

The inability to use each reservoir will also impact local business that draw additional income during spring and summer months when boating is at its peak.

Response:

The Corps would comply with the 2019 Willamette Basin Review Feasibility Study under any alternative, which addresses development of a management plan for consumptive uses when there is not enough water to meet instream targets for fish.

PUBLIC (JONES, BEN)

Comment Document: 2023-01-10_PublicComment_WV_DEIS_Citizen_Ben Jones1.pdf

Comment: Out of Scope-8

Sent from my iPhone

Response:

Noted for the record.

PUBLIC (JONES, BEN)

Comment Document: 2023-01-10_PublicComment_WV_DEIS_Citizen_Ben Jones2.pdf

Comment: Out of Scope-9

The drainage system know as the Santiam River system has been known historically as the valleys most prolific salmon habitats.

There are cave dwellings with parietal drawings of salmon over 9000 years old. The motivations of the individuals who are pushing this draw down and have secured a court order are not without merit.

I would imagine that this is an attempt to bring back those glorious days of basically undisturbed habitat for indigenous plants and animals.

Response:

Comment noted.

Comment: Wildlife-3

I believe that the avenue this very one sided court order is taking is poorly conceived and will harm more of Oregons wild life than it will help.

Response:

Comment noted.

Comment: Out of Scope-10

Though many of Oregons residents don't see our game and fish department in a favorable light, they have done in my opinion an amazing job (very difficult) of protecting, counting, and maintaining our wild life.

Look at how well represented ODFW has been on the appointed represtation for this project, I see in the original group, not one person appointed, this points to exactly the problem with the entire thing.

The "Complaintant" had two appointees.

Response:

ODFW was invited to participate in development of the EIS as a formal Cooperating Agency, which it accepted in a signed Memorandum of Understanding between the two agencies. Under 1978 Council on Environmental Quality regulations, Cooperating Agencies are those that have jurisdiction by law or special expertise regarding any environmental issue under NEPA review (40 CFR 1501.6).

The scope of ODFW's involvement included participation in the NEPA process "at the earliest possible time," responsibility for providing and reviewing information specific to ODFW "special expertise," and providing a staff representative, which attended monthly meetings with the Corps.

The Corps is required to use the "environmental analysis and proposals" of Cooperating Agencies to the maximum extent possible consistent with its responsibility as the lead Federal agency for this NEPA review (Id.). See Appendix L, Cooperating Agencies; FEIS Section 1.6, National Environmental Policy Act Cooperating Agencies and Endangered Species Act Action Agencies; and EIS Cover Page.

Comment: Fish-14

The truth is folks we now have dams and millions of people in this state, we have new managed species of non indigenous fish.

Green Peter reservoir is a success, it is by far one of the best fisheries for multiple species of fish, crappie, small mouth and large mouth bass, trout, Kokanee salmon, perch and more

Response:

Comment noted.

Comment: Proposed Action-5

ODFW has spent a lot of Oregon's taxpayers money to maintain and monitor this resource. This attempt to bring back something that does not exist anymore is going to destroy what we now have. Anyone can see that pays attention that flushing that reservoir is a big mistake, and not even the counsel that is appointed can say what the outcome will be, the amount of snow, runoff, and rainfall is not predictable.

Response:

Comment noted.

PUBLIC (JURNEY, EVA)

Comment Document: 2023-01-14_PublicComment_WV_DEIS_Citizen_Eva Jurney.pdf

Comment: NEPA Process-9

1. Having tables in the back of the room with an 'expert' at each for discussion with the audience after the presentation was a good strategy.

2. The presenters should have had a microphone. Many in the audience wore hearing aides and the presenters were stressed by having to project their voices in such a large space.

3. The slides were unreadable.

First there was too much information on each slide. I guess your A-V person doesn't know about the 28 words or less per slide recommendation as well as other criteria for producing an effective slide.

Second, I was sitting approx. 1/2 back into the room, and I have excellent vision, and even for me the text was a blur. So my only visual frame of reference was the handout, which was not a duplicate for the slide presentation.

4. There was no way to read the handout which has useful information before the presentation. Had I had that handout to review before I would have known more about the project. In retrospect I realize the presentation was designed to be an introduction. Not to engender discussion during the presentation but to divert the queries to the tables in the back.

Response:

This valuable feedback on the Corps' public information meeting formats and presentations has been forwarded to the Portland District Planning Department.

Comment: NEPA Process-10

The challenge for you continues to be how to translate your engineering/ EIS format/multiple agency contributions into a 45 minute presentation for people who are not engineers. It would be helpful if you had someone on your staff who was skilled at this type of communication. Basically I don't think a one and done approach is effective.

Response:

This valuable feedback on the Corps' public information meeting formats and presentations has been forwarded to the Portland District Planning Department.

PUBLIC (KING, DANIEL)

Comment Document: 2023-01-07_PublicComment_WV_DEIS_Citzen_Daniel King.pdf

Comment: Out of Scope-5

When are we going to start using geothermal energy to produce electricity?!

Response:

This comment requests information on alternative energy sources that is out of scope for the EIS analyses. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives, for descriptions of the scope of analyses, purpose and need statement, proposed action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record.

Further, the Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the proposed action (Appendix A, Alternatives Development, Attachment 1). The Corps is not considering dam removal as part of its Willamette Valley System operations and maintenance program under this review. Since dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal, including impacts on regional or local energy sources, are identified in the EIS.

However, impacts to all of the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the proposed action and alternatives on fish, hydropower, water supply, flooding, etc. (Chapter 1, Introduction, Section 1.1, Background, and Section 1.10, Congressionally Authorized Purposes).

Comment: Fish Passage-1

If we keep the dams we need more routes for the migratory fish, and more shallow wetlands for all wildlife!

Response:

The Corps analyzed potential effects to fish and other threatened species under each of the alternatives. Further, the Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS.

Measures include improving fish passage conditions at dams for migrating fish. Upstream passage would require a trap and haul approach due to the height of the dams and the annual fluctuation in water levels in the reservoirs. Operation of the dams would also include supplementing naturally low flows in summer, providing benefits to wildlife below WVS dams. Effects of the alternatives (both positive and negative) on aquatic resources are assessed and included in Section 3.6, Vegetation; Section 3.7, Wetlands; and Section 3.8, Fish and Aquatic Habitat.

PUBLIC (KOEHN, CAT)

Comment Document: 2023-01-10_PublicComment_WV_DEIS_Citizen_Cat Koehn.pdf

Comment: Out of Scope-11

Sent from my iPhone

Response:

Noted for the record.

PUBLIC (KULLA, CASEY)

Comment Document: 2023-02-13_PublicComment_WV_DEIS_Citizen_Casey Kulla.pdf

Comment: Revetments-1

Reopen channels

As a farmer, landowner, and resident on a river island surrounded by revetments, disconnected meander scars, and long-abandoned floodplains, I ask you to reopen channels and remove revetments. Allow the natural floodplain to do the flood control rather than holding water behind concrete to reduce flood risk.

Response:

The FEIS has been updated to include information on revetments in Section 1.7.2, Revetments and Other Structures for Bank Protection.

The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley. The revetments converted to private sponsors to own and maintain are discussed in the FEIS in Section 1.7.2, Revetments and Other Structures for Bank Protection. Projects that propose to alter privately owned revetments, although they are no longer Federally owned and operated, are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Changes to the Rivers and Harbors Act Section 408 statutory program are outside the scope of this EIS.

The Corps would continue to maintain Corps-constructed revetments under all alternatives including the No-action Alternative. In contrast to the No-action Alternative, revetments could be modified to incorporate fish-friendly improvements under the action alternatives such as adding natural materials but must continue to provide the same level of protection as when originally authorized.

The Corps is also proposing to secure a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These restoration authorities would allow for a potential change in the protectiveness level of revetments studied. However, this collaboration is not part of the scope of this EIS because it has not been initiated.

Comment: Hydrology-5

I hope you are considering the lost value of having floodwaters on the landscape in a seasonally appropriate manner; my farm fields exist upon soil and in an ecosystem that was flood-derived, and the loss of soil deposition impacts the fertility of the landscape and my fields. The inundation is good for reducing soil-borne diseases and keeping some weeds at bay. The ecosystem needs floodwaters in winter. However, your management of water also has a cost to farmers when you release floodwaters in the late spring, a time that is unusual for flooding. Cherry trees in bloom or bee hives in fields get flooded by the lack of appropriate seasonality. Please consider all the costs when you cite figures like $1 Billion in flood control savings… seasonally-appropriate flood dynamics need to be reinstated. Farmers and fish know that winter is flood season, and when you hold back water in winter but release water during spring, you mess with our seasonal cycles.

Response:

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency

statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2)b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Hydrology-6

Ancient and recent past floodplains of the lower Willamette *are flood control* and should be used as such. Allowing floodplains to fill is the most effective strategy for reducing flood risk to communities. Meander scars are ready to serve their purpose. Reconnecting the floodplain is much cheaper than having to comply with the ESA, after all. I encourage you to add an alternative that includes flood plains, restoration of banks and riparian areas, and removing revetments.

Response:

The Corps does not have ownership or authority to acquire the necessary property to utilize the parts of the floodplain suggested by the comment. The Corps flood risk management operations take floodplain capacity and flow attenuation into account currently with the use of stage definitions at Willamette Valley System control points (for example, bank full and action stage) and water travel times.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2) b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Water Supply-8

Irrigation: no one is going to use costly allocated irrigation water; return this to fish

In my community, us farmers all know that we're not going to use the allocated irrigation water that you have in the System, because it costs too much. I hope you will consider this and return that allocation to fish for downstream use.

Response:

The re-allocation of storage space from 100 percent joint use to roughly 70 percent fish and wildlife, less than 20 percent irrigation, and less than 10 percent municipal and industrial uses was evaluated during the Willamette Basin Review Feasibility Study and authorized by Congress. This was a critical step towards completing the 2008 Biological Opinion requirements for U.S. Bureau of Reclamation and the Corps to protect instream flows.

The Corps analyzed the release and withdrawal of water when operating for all authorized purposes and species needs in the DEIS and FEIS. Appropriately, the Corps did not re-analyze the division of the stored conservation space because the operations proposed under any alternative would not impact the designated allocations.

Comment: Recreation-15

But, please know that seasonal flooding is fun, it is recreation, and it is hunting down in the floodplain. Whole economies can spring up around a regular floodplain inundated in winter.

Response:

Winter flows, on average, would be changed only marginally from what they are at present under the various action alternatives (FEIS Section 3.2, Hydrologic Processes, Affected Environment). Recreation, including hunting, would continue in the floodplains of Willamette River tributaries and in the mainstem under all alternatives.

FEIS Section 3.14, Recreation Resources, includes an analysis of land-based and water-based recreation opportunities at each dam under each alternative. The socioeconomic effect on local communities is analyzed in Section 3.11, Socioeconomics.

Comment: Alternatives-5

When you consider the Alternative Measures, please give weight to long-lasting, non-structural solutions to opening up habitat and passage and please give less value to flood control behind concrete. Long-lasting habitat and passage that does not require technological, human-managed solutions are the best solutions.

Response:

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Alternatives-6

When you consider the alternatives, please give weight to appropriate seasonal flow for fish and consider with less weight hydropower production. Your own natural resources staff can provide the best flow (both volume and seasonality) for fish. Managing for hydropower and flood control rather than for natural seasonal flow is part of what got us here, to a dam-related decline in fish.

Response:

As applicable under all alternatives, Measure 30 would be implemented to manage stream flows to meet the needs of ESA-listed fish species. When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: NEPA Process-13

Embrace your nine federally-recognized tribes whose traditional homelands overlap with what we call Oregon. Listen to them, and demonstrate that you've listened by adapting your plans (both interim and long-term) to their expert advice. Finally, show the public, federal judges, litigants, and the Services that you've listened and adapted by pointing to exactly what in your plans you changed.

Response:

Comment noted.

PUBLIC (LAFLEUR, JOE)

Comment Document: 2023-01-18_PublicComment_WV_DEIS_Citizen_Joe Lafleur.pdf

Comment: Fish-18

The concern for the loss of our salmon runs is certainly valid, but much of the blame is being misplaced. For decades I have heard people blaming the dams for this loss while ignoring the "elephant-in-the-room": commercial fishing… I asked my dad what happen to our salmon. He told me this: "Researchers tagged our salmon and found that after they migrate downstream to the ocean, then they go up to the coast of Alaska and live offshore of the Aleutian Islands for five years. After 5 years, they form a school and head back to the river they were born in. But now the Japanese have started using 50-mile long drift nets off the coast of Alaska and they caught our returning school."

Response:

Harvest was accounted for in the effects analysis for Chinook salmon and steelhead under each alternative in FEIS Section 3.8, Fish and Aquatic Habitat. Dynamic fishing effects were captured using Chinook Technical Committee (CTC) assessment records. This is described in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses, Integrated Passage Assessment Report.

Comment: Fish-19

I feel obligated at this time to share what I have observed regarding the loss of our salmon run on the McKenzie.

Response:

Comment noted.

Comment: Fish Passage-5

For decades I have heard people blaming the dams for the loss of our salmon, but that theory does not fit the observable facts. The hypothesis that the dams impeding upstream migration is to blame does not address the fact that the historic swarms of spawning salmon on the lower river were downstream from all the dams. And after all the dams were in place, we still had prolific salmon runs up and down the river. The fish ladders and side channels installed by EWEB and The Army Corps of Engineers work well.

Response:

Harvest was accounted for in the effects analysis for Chinook salmon and steelhead under each alternative in FEIS Section 3.8, Fish and Aquatic Habitat. Dynamic fishing effects were captured using Chinook Technical Committee (CTC) assessment records. This is described in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses, Integrated Passage Assessment Report.

Comment: Water Quality-1

Another part of the blame-the-dams theory is the contention that the dams are responsible for a water temperature increase; which, in turn is detrimental to hatching of the salmon eggs and development of the fry. The warming of water by the dams cannot explain the loss of our salmon run on the lower McKenzie.

The primary cause of warmer water downstream is because there is an increase in shallower, slower moving parts of the river. When we were kids floating the river on inner-tubes, we were very much aware that the water coming out of the Walterville Power Canal was notably colder than the water in the rest of the river there. That was because the water in the canal was moving at a swifter average speed and had a greater average depth. Before the dams were built, there were places in the lower river where we would have to get out and walk our drift boat through the shallows during the summer low water. Since the dams were built, the Army Corps of Engineers has maintained a higher flow rate during the summer, resulting in a cooler water temperature in the lower McKenzie than what we had before the dams were built.

Response:

Comment noted.

Comment: Fish-20

Because our former spawning beds here on the lower McKenzie are far downstream from the dams, we cannot blame the dams for migration impediment; and, because the dams are providing us a greater, cooler summer flow here, we cannot blame the dams for impairment of egg hatching and fry development. Those theories cannot be applied here. These facts bring me back to the “elephant-in-the-room”: commercial fishing.

Response:

Harvest was accounted for in the effects analysis for Chinook salmon and steelhead under each alternative. Dynamic fishing effects were captured using Chinook Technical Committee (CTC) assessment records. This is described in DEIS Appendix E, Fish and Aquatic Habitat Analyses, Integrated Passage Assessment Report.

Comment: Fish-21

It is sad to say, but I am confident that expensive revamping of the dams and declaring Chinook salmon to be an endangered species are not going to restore our salmon runs. As long as our salmon have to survive commercial fishing at sea, these efforts on our rivers will not solve the problem.

Response:

Comment noted.

Comment: Out of Scope-13

It is regretful that EWEB has decided to destroy Leaburg Lake on the McKenzie River near Vida. Locals as well as visitors have enjoyed having that small, easily accessible lake to recreate on and it has been a real haven for waterfowl. The McKenzie consists of about 75 miles of free-flowing river. It is pointless and very expensive to remove Leaburg dam and take away such a valuable, multiuse little lake in our community.

Response:

This comment pertains to information about another agency's management that is out of scope for the EIS analyses (i.e., EWEB). See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, proposed action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record.

PUBLIC (LIVERMAN, MARC)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_Citizen_Marc Liverman.pdf

Comment: NEPA Process-23

Please find my comment on the subject DEIS in the attachment below. I request that this email and my attached comments be added to the administrative record for this project.

Response:

This request has been completed.

PUBLIC (LIVERMAN, MARC)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_Citizen_Marc Liverman_Attachment.pdf

Comment: Fish-58

2. Salmon and Steelhead. The likelihood of reversing the long decline of ESA-listed salmon, steelhead, and bull trout in the WRB is a major theme underlying the proposed action. This is entirely appropriate, not only because of ESA regulatory concerns but also because salmon and steelhead are a biological foundation of the Willamette River ecosystem, an important center for the economy and culture here, and a symbol for the public to rally around that has broad support among a wide range of social and economic groups across Oregon and the United States (Rahr 2023).

Surprisingly, the DEIS and its many Appendices do not seem to provide a comprehensive list of measures that it has the authority to carry out and considered as part of the NEPA process before it began to screen the measures for tradeoffs with other purposes and costs and packaged them into alternatives. Specifically, the DEIS has no comprehensive list of the measures that it has the authority to carry out and that are also most likely to allow ESA-listed species to survive and recover as quickly as possible. Instead, that information seems to be fragmented, diffused and caveated across the entire DEIS which makes it difficult to discern the full scope of the Corps' thinking in regard to measures for ESA-listed species before the Alternatives were designed.

Response:

Measures proposed under each alternative are described in Chapter 2, Alternatives, Section 2.8, Final Measures Developed for the Action Alternatives. A comprehensive list of measures is provided in Chapter 2, Alternatives, Table 2.10-14. Criteria for developing alternatives are detailed in Appendix A, Alternatives Development.

Comment: Fish-59

the DEIS seems to quickly jump to full Alternatives and a scientific evaluation of those based primarily on the use of very limited and uncertain data from the Fish Benefit Workbook (FBW) (ISAB 2014). The FBW data are then used to populate complex life history models that necessarily produce equally uncertain estimates of abundance and viability (DEIS Appendix E, at E-533). The Corps then combines those estimates with results from countless other physical and biological models and analyses to summarize and compare the most important effects of each action alternative. All of this somehow leads the Corps to recommend Alternative 5, which will "improve conditions for ESA-listed fish while providing more flexible ways for USACE to meet

demands for fish and wildlife, flood risk management, water supply for municipal and industrial use, water quality, water supply, irrigation, hydropower generation, and recreation in the WRB."

Response:

The Independent Science Advisory Board (ISAB) recently completed a review of the models used to assess ESA-listed fish effects in this DEIS (https://www.nwcouncil.org/reports/isab2023-1/), which stated "In summary, the four primary models are scientifically sound, and the multi-model approach used by the Corps to date is an excellent approach for assessing alternatives in the EIS process for the WVS."

The ISAB review is currently available on the ISAB website; the FEIS has been updated with a citation to the report in Section 3.8.3, Fish and Aquatic Habitat, Environmental Consequences, Methodology.

Comment: Alternatives-48

All things being equal, the Corps estimated that Alternative 5 would take a staggering 32 years to complete, assuming full funding and no other delays (DEIS Figure 5.4-1, at 5-38). Yet the DEIS does say that Alternative 2A would most effectively meet the Proposed Action objectives for ESA-listed species for most dams compared with all other alternatives (DEIS, at 5-16).

Surprisingly, Alternative 2A also ranks as high or higher than Alternative 5 (the Preferred Alternative) in every other criterion that the Corps used to compare alternatives, including change in conservation storage, impact to flows, change in net present value, cost, average annual recreation benefits, and regional economic impact from recreation effects (DEIS Table 5.2-1, at 5-8 and 5-9). This begs the question of why is Alternative 5 the Preferred Alternative. Is there nothing else the Corps do to promote the survival and timely recovery of ESA-listed species?

Unfortunately, Appendix E (Fish and Aquatic Habitat) did not evaluate the performance of Alternative 5, but it did suggest that Alternative 2A was among the alternatives that would provide the highest improvement in the overall status of salmon and steelhead populations (DEIS Appendix E at E-531) and that any alternatives with fish passage options that provide "only modest improvements in overall abundance are still likely to have high probabilities of falling below the quasi-extinction thresholds, given the high variability in ocean and freshwater survivals" (DEIS Appendix E, at E-531).

Recommendation: Provide a comprehensive list of the measures that it has the authority to carry out and that are also most likely to allow ESA-listed species to survive and recover as quickly as possible, and explain how Alternative 5 compares to Alternative 2B in terms of each of those measures, not simply to sets of measures that combine fish passage, water quality, streamflow purposes into a single evaluation criterion. Use plain language to explain how the

Corps determined that Alternative 5 is appreciably superior to Alternative 2B for any purpose so that Alternative 5 was chosen to be the Preferred Alternative.

This is necessary to give third parties and members of the public a common, basic understanding of which measures are most likely to have the most benefit for ESA-listed species, the extent to which those specific measures are included in each alternative, and why the Corps chose Alternative 5 to be the Preferred Alternative.

Response:

The Corps would implement actions immediately as Interim Operations (Chapter 2, Alternatives, Section 2.8.5, Interim Operations).

When making its decision based on analyses in an EIS, Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

A comparison of the alternatives is provided in FEIS Section 3.25, Summary of Direct and Indirect Environmental Consequences.

The primary difference in measures between Alternative 2A and Alternative 2B and Alternative 5 would be the downstream fish passage measure proposed at Cougar Dam. Alternative 2A proposes a floating fish screen, and Alternatives 2B and Alternative 5 propose a deep drawdown to pass fish through the diversion tunnel.

In contrast to Alternative 2A, Alternative 2B and Alternative 5 would result in high persistence for only three of the four Chinook salmon populations though all three populations would perform better than under the No-Action Alternative. The difference in the anticipated number of populations with high persistence is because the ESA models assume more optimistic downstream fish passage performance with a structure at Cougar Dam.

Alternative 5 is the same as Alternative 2B except for the proposed flow regime. Alternative 5 would include Measure 30b. Measure 30 was refined to Measure 30b based on consultations with Cooperating Agencies.

As shown in FEIS Section 3.2, Hydrologic Processes, the key difference in the refined flow operation per Measure 30b would be higher flows at Foster, Detroit, and Cougar Dams as compared to the No-action Alternative and the other action alternatives.

Comment: BiOp-4

the introduction to the regulatory background for the DEIS frames the reader's perceptions and understanding of all that follows and states that since 2009, the Corps has been implementing the RPA provided in the 2008 NMFS BiOp (DEIS, at 1-5). That is certainly true to an extent, but it fails to mention that the Corps only sought reinitiation of the BiOp after a lawsuit had been filed against the Corps and NMFS in 2019 that alleged a multiyear delay during which the Corps and NMFS were in fact not carrying out many critical RPA measures and as a result caused substantial and irreparable harm to the threatened species they were required to protect (NEDC 2021).

Response:

The FEIS has been modified to include more information on regulatory history in FEIS Section 1.3.3, Willamette Valley System National Environmental Policy Act and Endangered Species Act History since 2008.

Comment: BiOp-5

The Court also included an injunction with its final opinion that, among other things, a firm date for completion of the next BiOp, a range of operational actions such as deep reservoir drawdowns to encourage volitional fish passage, research, monitoring, and evaluation actions necessary to plug gaps in the FBW and evaluate measure effectiveness, and established a Technical Advisory Team comprised mostly of fish biologists external to the Corps to direct the Corps on how to carry out the interim measures. Except for the Technical Advisory Team, these actions had all been languishing before the litigation due to opposition from the Corps and BPA.

RECOMMENDATION: Add a more complete account of issues surrounding the implementation of the 2008 BiOp that led up to the 2019 litigation, the role of the Techincal Advisory Team, and an explanation of how the specific measures coming forward as a result of the injunction affect measures and analysis included in the DEIS.

This is necessary to give third parties and members of the public a more objective understanding of the roles played by various actors in BiOp implementation, to highlight the importance of carefully screening the objectivity and accuracy of all policy statements and technical analyses in the DEIS, including appropriate skepticism of new proposed timelines for restoration actions that in some cases extend 32 years into the future, assuming full funding and no other delays (see, e.g., DEIS, at 5-38).

Response:

The Biological Opinions associated with the Proposed Action will supersede the 2008 Biological Opinions requirements. As such, the Proposed Action and range of alternatives address ESA compliance from date of Record of Decision issuance.

Further, the Corps addresses court-ordered injunction measures intended to improve conditions for fish passage and water quality in the WVS to avoid irreparable harm to ESA-listed salmonids during the interim period until the completion of the reinitiated ESA consultation through the range of alternatives analyzed in the EIS.

See FEIS Section 1.12.3, Court-ordered Injunction Measures; FEIS Section 2.8.5, Interim Operations; FEIS Section 4.1, Ongoing and Present Actions; and Appendix A, Alternatives Development, DEIS Section 2.8, Interim Operations Measures. Analyses of the Preferred Alternative, Alternative 5, in the FEIS is consistent with the NMFS and USFWS Final Biological Opinions.

Comment: Willamette Basin Review-5

4. Willamette Basin Review BiOp. DEIS introductory materials also overlook the role and importance of the NMFS ESA consultation on the Willamette Basin Review (WBR) which resulted in a second jeopardy opinion with a set of five RPAs (NMFS 2019) that regulate the allocation and use of water stored in WVS reservoirs. Although the WBR BiOp responds to significant new information regarding the Corps' preferred approach to using its reservoirs to manage the water supply that became available long after 2008, the analysis of effects presented in that BiOp and the constraints created by RPAs issued with the BiOp are scarcely mentioned in the DEIS.

For example, the DEIS is silent regarding WBR BiOp RPA #1, which called on the Corps to ask Congress for the local authority to modify the reallocation without further Congressional action. The Portland District Engineer included RPA #1 in the WBR Final Report and EA that he transmitted to the Chief of Engineers (USACE 2019a) although the Chief did not include that recommendation in the report he transmitted to Congress (USACE 2019b). Nonetheless, Congress did authorize the Secretary of the Army to reallocate "not more than 10 percent of overall storage in the joint conservation pool" without further Congressional action, provided that the reallocation is consistent with the ongoing ESA, is not reallocated from a single storage use, does not seriously affect authorized project purposes, and does not otherwise involve major operational changes to the project (WRDA 2020).

Although the DEIS does not mention RPA #1, it still paraphrased and modified the corresponding WRDA language a sentence that reads "WRDA also gave the USACE the ability to reallocate up to 10% of the total storage volume to fish and wildlife purpose [sic] as long as that volume didn’t come from a single purpose based on the outcome of the ongoing ESA Section 7 Consultation for the operation and maintenance of the WVS" (DEIS Appendix J, at J- 6).

The DEIS is equally vague and incomplete regarding the history and significance of the other four RPAs in the WBR BiOp.

RECOMMENDATION: Explain how the Corps currently interprets its reallocation authority from Congress and whether it intends to use that authority. Also, provide a better description of RPAs 2-4 and their purpose, e.g., add the following summaries that are based on the presentation of those RPAs in Corps' own WBR Final Report and EA (USACE 2019a, Appendix O, at 4-5) and the WBR BiOp (NMFS 2019, at 100-102). This is necessary so that third parties and members of the public can better understand the importance of these RPAs as constraints on the allocation of storage space in WVS reservoirs and the development of new water supplies in the Willamette Valley.

Response:

The FEIS has been updated to include additional information on the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes in Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008. The 2008 Biological Opinion included a Reasonable and Prudent Alternative (RPA) that required the U.S. Bureau of Reclamation and Corps to work through legal and administrative processes necessary to protect instream flows for ESA-listed species under state law.

In compliance with that RPA, the Willamette Basin Review Feasibility Study was formally initiated in 2016. The goal of this study was to seek Congressional approval to reallocate Willamette Valley System (WVS) conservation storage for the benefit of fish and wildlife, agricultural irrigation, and municipal and industrial water supply over a 50-year analysis period, while continuing to fulfill other WVS purposes.

The study examined different ratios of storage allocations for fish and wildlife, irrigation, and municipal and industrial uses based on projected demand for irrigation and municipal and industrial uses in 2070 and mainstream flow requirements for fish.

The Willamette Basin Review Feasibility Study addressed the initial step in the process to secure protection of instream flows under state law. In 2019, the Corps initiated its programmatic review of WVS operations and maintenance with a Notice of Intent to prepare an EIS.

Unlike the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes, the WVS EIS NEPA review is related to operations and maintenance of the WVS, not water storage allocation. While the WVS EIS Notice of Intent was published in 2019 just prior to the Willamette Basin Review Feasibility Study Finding of No Significant Impact (FONSI), the two NEPA actions are only related in that operations and maintenance under each alternative may directly, indirectly, or cumulatively impact water storage needed for various uses.

All alternatives analyzed in the WVS EIS propose measures to operate and maintain the WVS; they do not address modifications to water supply allocation. If at some point operations change to where allocations could not be met in normal to wet years, a subsequent feasibility study to revisit allocations would be initiated.

The Adaptive Management Plan addresses an overarching governance framework that includes implementation of the WVS operations and maintenance ESA consultation, the 2019 Willamette Basin Review Feasibility Study Biological Opinion, 2019 Hatcheries Biological Opinion, and other activities in the region.

For example, the Corps would continue in-season adaptive management to meet downstream flow targets, while considering input from the WATER Forum Flow Management and Water Quality Team.

Appendix N also incorporates requirements from the 2019 Willamette Basin Review Biological Opinion on how to notify irrigation and municipal and industrial users when their contracts cannot be fulfilled due to flow requirements for ESA-listed species. These efforts are informed by one another but are not dependent upon one another for implementation.

Comment: NEPA Process-24

5. Joint Action Agencies. The Bonneville Power Administration (BPA) and the U.S. Bureau of Reclamation (BOR) were joint action agencies with the Corps for purposes of the 2008 consultation and BiOp (NMFS 2008). The Corps identifies both agencies as cooperating agencies for the purpose of preparing this DEIS and as action agencies for the ongoing and upcoming ESA consultations (DEIS, at 1-11). Moreover, the Corps met weekly with the BPA, BOR, NMFS, and USFWS to get real-time feedback during the development of DEIS including the formulation and evaluation of the proposed action and the preferred alternative. The Corps systematically facilitated coordination within this group at all levels from the technical team, local leadership, and up to the regional leadership level, on a basis far beyond that which was shared at monthly meetings of the rest of the cooperating agency group.

Given the level of NEPA and ESA planning coordination to date, the degree to which BPA and BOR are intimately involved with the operation and maintenance of the WVS through funding and execution of essential RPA measures, and the fact that the BPA and BOR also have their own decisions to make regarding the WVS, it appears that they are easily and fully qualified to act as co-leads for this NEPA process.

It is significant to note that because the EIS is not a Record of Decision (ROD), but instead constitutes the information and analysis on which to base a decision, any disagreements about conclusions that the Corps, BPA, and BOR may draw from the EIS process should not inhibit them from issuing a joint EIS, or for BPA and BOR from adopting the Corps' EIS if the record of analysis for the EIS is adequate to support decisions by those agencies (CEQ 1981, at Question

14b). Thus, the Corps, BPA, and BOR can each identify their own "preferred alternative" within a single EIS, and they can each prepare their own ROD.

Conversely, if the BPA or BOR choose not to adopt the Corps' EIS because it does not have the information they need to make its own decisions despite the level of coordination that has already occurred, the Corps may be forced to issue a new, more complete EIS or a Supplemental EIS, or BOR and BPA may each have to complete their own EIS. If either of those events occurs because the Corps failed to secure adequate commitments from BPA and the BOR to serve as joint leads at the outset of the EIS process thus giving them a full stake in the production of a single high-quality EIS that also meets their needs, then the resulting proliferation of EIS processes would be inefficient for the agencies and place an undue burden on the resources of third parties and members of the public who wish to participate. It could also easily delay the implementation of key RPA measures. A similar rationale applies to the pending ESA consultation on the proposed action and the role of the BPA, BOR, and Corps as joint action agencies, an approach that was used successfully to complete the 2008 BiOp.

Moreover, if expert agencies, tribes, and other third parties made similar recommendations to the action agencies during their many recent, multilevel coordination meetings, and the action agencies refused those recommendations so they can pursue parallel or sequential processes, that may be a sign that the action agencies up to the Regional leadership level are still engaging in the pattern of self-centered behavior that led to the 2019 litigation.

Recommendation: Confirm whether the BOR and BPA have agreed that the DEIS is sufficient to meet their needs for decisions regarding their NEPA obligations for actions they will take to authorize, fund, or carry out actions to maintain or operate the WVS, including recovery actions for ESA-listed species. Similarly, confirm whether they will be joint action agencies for purposes of the pending ESA consultation on the proposed action.

This is necessary to give third parties and members of the public insight into whether the action agencies are able to collaborate at the level necessary to ensure they carry out the procedural requirements for NEPA and ESA in the most efficient and timely way possible, or whether they intend to prepare their own NEPA and EIS documents.

Response:

Both agencies maintain responsibilities to comply with NEPA for their respective agency actions that trigger NEPA review. Operations and maintenance of the Willamette Valley System is the responsibility of the Corps; therefore, the Corps is the appropriate lead agency under 1978 Council of Environmental Policy NEPA regulations. Bonneville Power Administration (BPA) and U.S. Bureau of Reclamation (BOR) are Cooperating Agencies and assisted the Corps in development of this EIS as defined under 1978 Council on Environmental Quality regulations at 40 CFR 1508.5 (See Appendix G, Power and Transmission, which was prepared by BPA).

As Cooperating Agencies, these agencies can adopt the EIS for NEPA compliance related to their proposed major Federal action(s), if the criteria for adoption are met by these agencies under requirements of each of the respective agency NEPA implementation regulations. Further, if consistent with each agency's NEPA implementing regulations, neither agency is precluded from incorporating any information from the Corps' EIS by reference for future NEPA compliance requirements imposed on these agencies through proposed actions responsive to their agency missions and authorities.

BPA and BOR are Action Agencies on the Proposed Action under the ESA as described in FEIS Section 1.6, National Environmental Policy Act Cooperating Agencies and Endangered Species Act Action Agencies.

PUBLIC (MARSHALL, JODY)

Comment Document: 2023-02-21_PublicComment_WV_DEIS_Citizen_Jody Marshall_USACEResponse.msg.pdf

Comment: Fish-38

Will you please define reach replacement for me? It is not in the glossary nor in the text. I think understanding this will help my overall understanding of the EIS and impacts to ESA-listed fish.

Response:

"Replacement" (or "Cohort Replacement") refers to if the adult progeny "replaced" by their parents. Per this suggestion, a definition has been added to Section 3.8, Fish (see footnotes).

If the number of returning adult progeny is lower than the number of spawning parents, then this is considered a replacement rate less than 1. If a population is on average below a replacement rate of 1 (i.e., does not reach/achieve "replacement") then it would be in decline.

Conversely, if a population is on average at or above a replacement rate of 1 then it would be stable or increasing in size. The FEIS has been revised to add a definition of "Cohort Replacement" in Chapter 8, Glossary.

Comment: Fish-39

Will you also please explain what it means for fish species' population to remain with hight persistence which is defined as a low risk of extinction? What does this mean about the species' populations to return to the numbers before the WVS was constructed?

Response:

This effort is focused on addressing specific needs of the listed species in compliance with the Endangered Species Act, not pre-dam performance. This may lead to reader confusion because populations were already vulnerable prior to construction of the reservoirs in the mid-1900s, due to several limiting factors (FEIS Section 3.8, Fish and Aquatic Habitat, Affected Environment). The state of fish immediately prior to construction was likely not a state of equilibrium.

To address this, the Corps has included a "persistence" metric to indicate the likelihood that Corps' actions would further endanger vulnerable populations. The probability of persistence (or the inverse, the probability of population extinction) considered predicted population growth rates and spawner abundance.

A population with a non-negative growth rate and an average abundance approximately equivalent to minimum thresholds described in the 2011 Recovery Plan should be considered to be in the highest persistence category according to the Willamette and Lower Columbia Technical Recovery Team as cited by NMFS (see DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses).

"High Persistence" is a probabilistic value that indicates a low likelihood that a population will go extinct within 30 to 100 years in the future. A "high persistence" outcome is one that demonstrates less than a 5 percent probability of population extinction over the timeline of interest. The FEIS has been updated for clarity on this issue (See Section 3.8, Fish and Aquatic Habitat, Environmental Consequence, Methodology).

Comment: Fish-40

Also not defined is the McKenzie Core Legacy population. What is this?

Response:

"Core Legacy" is a population category used in the Recovery Plan for Upper Willamette River Spring Chinook and Steelhead (See FEIS Chapter 10, References, for ODFW and NOAA 2011). The FEIS has been revised to assist the reader with this information in Section 3.8, Fish and Aquatic Habitat, Environmental Consequences, Methodology.

PUBLIC (MARSHALL, JODY)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_Citizen_Judith Marshall_Attachment.pdf

Comment: BiOp-2

The Corps robbed all Oregonians and interested public entities the opportunity to have their voices heard regarding the declining populations of imperiled salmonids in the WVS as a whole. The first time was when the salmonids were first listed 1999, which was significant new information about the Willamette Valley System (WVS). The second time this occurred was when the USDOC National Marine Fisheries Service (NMFS) and USDOI Fish & Wildlife Service (USFWS) each issued the Corps a biological opinion per the Endangered Species Act (ESA) in 2008 with a Reasonable and Prudent Alternative (RPA). The RPA was needed to protect these salmonids from extinction, would result in new significant impacts, and the RPA is a new alternative. The new information and significant new effects should've been disclosed under NEPA, but no NEPA analyses and public involvement occurred. The Corps now should know that NEPA was required with the 2008 biological opinions(BiOps) as they were defendants on the case presided by US District Judge Simon where he declared in his 2016 opinion and order for the Federal Columbia River Power System (FCRPS) that,…implementation of a biological opinion by an action agency triggers the action agency's obligation to comply with NEPA. [citations omitted] Given that the Corps violated their RPA and biological opinion, it is difficult to know if they really had no intent of following the some of the unequivocal measures in the 2008 biological opinion. While the Corps claims they did project specific NEPA documents such as an EA for a fish collection facility required by the 2008 BiOp, this segmentation of NEPA does not offer the public the full view of all the requirements (RPA measures) to operate the system of dams that work collectively and avoid bringing ESA-listed species to extinction. Because they did not do a NEPA analysis, maybe the Corps did not feel obligated to comply with all the RPA measures in the 2008 BiOp. However, had a NEPA document been issued with the 2008 BiOp, the public would've had the opportunity not only to comment on the plan but also hold the Corps responsible for staying committed to the mitigation that keeps them in compliance with the ESA (40 Code of Federal Regulations or CFR § 1502.14) and keep the ESA-listed fish from extinction.1

Response:

Comment noted.

Comment: Willamette Basin Review-1

The third time this happened was for a proposal to re-allocate reservoir storage space to three of its eight authorized uses; fish and wildlife (F&W), agricultural irrigation (AI) and municipalities and industries (MI). This action covered included all the dams and reservoirs on the WVS since it operates as a system, and the proposal is called the Willamette Basin Review (WBR). The Corps sent out a draft Feasibility Report/Environmental Assessment FR/EA in 2017 that had NO analyses of effects to ESA-listed fish, one of the most significant issues. The Corps received from NMFS a biological opinion that amended the WVS 2008 biological opinion with a finding of jeopardy to the salmonids in peril. The NMFS also provided a RPA for the Corps to implement to make a 'no jeopardy' determination for the WBR. Through review of the Willamette Valley System Draft Programmatic Environmental Impact Statement (WVS PEIS) (Corps, 2022), I was

surprised to find out that the Corps made a decision on the Willamette Basin Review (WBR) without updating the 2017 feasibility report/environmental assessment (FR/EA) for public review. That was a BAD decision that violated NEPA regulations. The environmental analysis in the 2017 draft FR/EA only analyzed the tentatively selected plan (TSP), it DID NOT address the ARP (agency recommended plan), which is the plan selected in the signed finding of no significant impact (FONSI). There was no new analyses of the impacts with selecting the ARP over the TSP, and the 2017 draft FR/EA failed to address the impacts to ESA threatened and endangered fish species or impacts to lamprey and other species. The 2019 final FR/EA also did not address the effects of implementing the 2019 WBR biological opinion RPA or describe how the RPA will recover the species. I was told by the Corps project manager, Douglas Komoroski, that the 2019final FR/EA was only sent to stakeholders to review because I had not received notice of its availability. This lack of new analyses or lack of a supplemental draft NEPA document violates Council on Environmental Quality (CEQ) NEPA regulations, 40 Code of Federal Regulations (CFR) §1500.1(b), § 1502.9(c) and § 1502.10(g).2

Response:

Comment noted.

Comment: Willamette Basin Review-2

Also, the CEQ regulations address the timing of agency actions in 40 CFR § 1506.1. Since this WBR action will result in a 'no-jeopardy' with a RPA, it may significantly impact the human environment, and an analyses of all the effects of the ARP would help determine this. The notice of intent to prepare this programmatic EIS was issued in April 2019 so this WVS PDEIS was in progress at the time and before Colonel Helton signed the WBR FONSI in March 2021. Therefore, the WBR FR/EA does not comply with 40 CFR § 1506.1.

Response:

The Corps would continue to coordinate its various actions in the basin to help develop a transparent long-term management plan of shared water resources under any alternative, in compliance with all applicable laws. The FEIS has been updated to include additional information on the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes in Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008.

The 2008 Biological Opinion included a Reasonable and Prudent Alternative (RPA) that required the U.S. Bureau of Reclamation and Corps to work through legal and administrative processes necessary to protect instream flows for ESA-listed species under state law. In compliance with that RPA, the Willamette Basin Review Feasibility Study was formally initiated in 2016.

The goal of this study was to seek Congressional approval to reallocate Willamette Valley System (WVS) conservation storage for the benefit of fish and wildlife, agricultural

irrigation, and municipal and industrial water supply over a 50-year analysis period, while continuing to fulfill other WVS purposes. The study examined different ratios of storage allocations for fish and wildlife, irrigation, and municipal and industrial uses based on projected demand for irrigation and municipal and industrial uses in 2070 and mainstream flow requirements for fish.

The Willamette Basin Review Feasibility Study addressed the initial step in the process to secure protection of instream flows under state law. There is no regulatory or legal authority concluding that an ESA determination triggers NEPA. NEPA EIS or EA analyses are required when an agency proposes an action that may significantly affect the human environment (42 USC 4321 Sec. 102(C)). An ESA determination is not a Proposed Action, although implementation of a Reasonable and Prudent Alternative can be incorporated into a Proposed Action.

Further, per the comment, a no jeopardy determination does not suggest the potential for significant impacts on the human environment; it confers the opposite conclusion. Regardless, the Corps did complete a NEPA analysis to assess the potential for significant impacts on the human environment from implementation of the 2019 Biological Opinion RPA. The regulatory adequacy of that NEPA compliance is not within the scope of this programmatic NEPA review.

In 2019, the Corps initiated its programmatic review of WVS operations and maintenance with a Notice of Intent to prepare an EIS. Unlike the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes, the WVS EIS NEPA review is related to operations and maintenance of the WVS, not water storage allocation.

While the WVS EIS Notice of Intent was published in 2019 just prior to the Willamette Basin Review Feasibility Study Finding of No Significant Impact (FONSI), the two NEPA actions are only related in that operations and maintenance under each alternative may directly, indirectly, or cumulatively impact water storage needed for various uses. All alternatives analyzed in the WVS EIS propose measures to operate and maintain the WVS; they do not address modifications to water supply allocation. If at some point operations change to where allocations could not be met in normal to dry years, a subsequent feasibility study to revisit allocations would be initiated.

Comment: Willamette Basin Review-3

The 2019 final WBR FR/EA lacks a discussion of effect to the species and effects under ESA. It just includes an appendix of where one can find NMFS' BiOp. That is not the analysis NEPA intended.

I recommend the Corps rescind this WBR decision and 2021 finding of no significant impact (FONSI) until the WVS PDEIS is completed, and there is understanding of the current O&M of

the WVS and per the Council of Environmental Quality's (CEQ's) NEPA regulation (40 CFR § 1506.1).

Response:

Comment noted.

Comment: Endangered Species Act-5

Then the Corps should completely analyze the 2019 preferred alternative called the agency recommended plan (ARP) with the RPA and describe the effects of implementing the ARP & RPA and particularly how it will lead to the recovery of ESA-protected fish. This also will allow the general public to hold the Corps accountable for its compliance with the ESA through the NEPA process (see CFR 40 § 1502.14 (e)).

Response:

40 CFR 1502.14 of the 2022 Council on Environmental Quality (CEQ) final rule amendment to NEPA regulations is not applicable to this EIS review. The FEIS has been revised to explain the CEQ regulatory framework in Section 1.1.1, The National Environmental Policy Act.

Federal agencies cannot "be held accountable for compliance with the ESA through the NEPA process." There is no regulatory or legal authority concluding that an ESA determination triggers NEPA compliance.

NEPA EIS or EA analyses are required when an agency proposes an action that may significantly affect the human environment (42 USC 4321 Sec. 102(C)). An ESA determination is not a Proposed Action, although implementation of a Reasonable and Prudent Alternative (RPA) can be incorporated into a Proposed Action. The Willamette Valley System EIS alternative selected in the Record of Decision will be consistent with the Services' Final Biological Opinions.

Comment: BiOp-3

In the example of the WBR above, NEPA and ESA were not well coordinated in light of the RPA. Please consider that the RPA is additive to the proposed action. I don't think the Corps envisioned all the RPA measures that were required to avoid jeopardizing upper Willamette River (UWR) steelhead and Chinook salmon in the 2008 BiOp from NMFS. In the case of WBR, the effects of implementing the RPA were not analyzed, and NMFS' and USFWS' biological opinions were put in appendices for the WBR FR/EA. If the Corps should receive a biological opinion with a RPA from NMFS or USFWS for this WVS O&M proposal, please seriously consider a supplement to this draft Willamette Valley System Operations and Maintenance, Draft Programmatic Environmental Impact Statement (WVS PDEIS)

Response:

The Affected Environment adequately describes conditions to fish and fish habitat as existing conditions. The Biological Opinions associated with the Proposed Action will supersede the 2008 Biological Opinions requirements, so the effects of implementing the 2008 Biological Opinion are not within the scope of this EIS. As such, the Proposed Action and range of alternatives address ESA compliance from date of Record of Decision issuance.

Further, the Corps addresses court-ordered injunction measures intended to improve conditions for fish passage and water quality in the Willamette Valley System to avoid irreparable harm to ESA-listed salmonids during the interim period until the completion of the reinitiated ESA consultation through the range of alternatives analyzed in the EIS.

See FEIS Section 1.12.3, Court-ordered Injunction Measures; FEIS Section 2.8.5, Interim Operations; FEIS Section 4.1, Ongoing and Present Actions; and Appendix A, Alternatives Development, DEIS Section 2.8, Interim Operations Measures. Analyses of the Preferred Alternative, Alternative 5, in the FEIS is consistent with the NMFS and USFWS Final Biological Opinions.

Comment: References and Data-20

Throughout this WVS PDEIS, there are Error! Messages. I suggest doing a search to remove those.

Response:

The FEIS has been updated to address editing errors.

Comment: Purpose and Need-2

The 2nd paragraph in the Abstract states, To meet the many purposes of the Willamette Valley System, the U.S. Army Corps of Engineers manages a complex operation that includes storing and releasing water from the13 system reservoirs to balance various needs and demands throughout the year such as flood control, fish and wildlife, hydropower, recreation, irrigation, water supply, water quality, and navigation. In the last paragraph on page E-3 in the Executive Summary, states, Each project (dam and reservoir) has up to eight purposes authorized by Congress. These include flood control, irrigation, navigation, hydropower, fish and wildlife, water quality, recreation, and municipal and industrial water supply. These statements contradict what the U.S. Army Corps of Engineers (Corps) reported in the2019 Willamette Basin Review Feasibility Study, Final Draft, Integrated Feasibility Report and Environmental Assessment (Corps, 2019) (WBR FR/EA). This document states, Navigation was an authorized purpose of the WVP, but due to a lack of commercial navigation traffic in the upper Willamette River, the WVP was de-authorized for navigation by the Water Resources Development Act of 1986. Reservoir discharges are no longer regulated for navigation above Willamette Falls Lock (USACE,

2015f).Which document is correct regarding the Willamette Valley System's authorized use of navigation? I suggest amending which document is NOT correct.

Response:

WRDA 1986 deauthorized navigation specifically at Willamette Falls Locks and uncompleted navigation projects on the Willamette River above Portland and Yamhill River. Given that the 13 dams and reservoirs were completed prior to 1986 and are operated for navigation support and water quality in accordance with House Document 531, navigation is still an authorized purpose of the Willamette Valley System.

Comment: Purpose and Need-3

I suggest spelling out all the features of the WVS in the first paragraph. This would include the hatcheries, fish collection facilities or any other feature not previously described or understood by most of the public.

Response:

The Executive Summary has been revised in the FEIS as an overview of EIS content.

Comment: Endangered Species Act-6

• Page ES-7. Please explain why Endangered Species Act (ESA)-fish are still imperiled if the 2008 National Marine Fisheries Service (NMFS) biological opinion (BiOp) had a reasonable and prudent alternative (RPA) that would not cause the species to go extinct

Response:

See the latest NMFS Northwest Fisheries Science Center (NWFSC) technical memorandum on pacific salmon and steelhead population viability (Ford 2021: https://library.oarcloud.noaa.gov/noaa_documents.lib/NMFS/NWFSC/TM_NMFS_NWFSC/TM_NMFS_NWFSC_171.pdf). This memorandum provides the best available information on current population status as well as threats and constraints to recovery. The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives.

Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: Scope-1

In the last paragraph, I suggest that the geographic scope include the hatcheries, built fish collection facilities or other amenities added to the WVS after its original construction. The hatcheries contribute to the effects on ESA-listed fish.

Response:

The FEIS has been revised to include this information in Chapter 1, Introduction, Section 1.4.1, Geographic Scope.

Comment: Scope-2

Why is the horizon of this PEIS 30 years? Does the Corps expect to receive a BiOp with a 30-year life? If no, how will the proposed action be complying with the ESA?

Response:

Programmatic reviews of operations and maintenance measures require a long timeframe for implementation to monitor and adaptively manage for measure success. Some measures, such as improvements to fish, can take years to realize. Further, the Corps needs the flexibility built into the timeframe to secure funding as site-specific projects are identified. These projects would require additional NEPA analysis that can be tiered from this programmatic analysis within the 30-year implementation timeframe.

Without this NEPA tiering ability, the Corps would spend more funding and staffing resources to complete programmatic NEPA reviews as compared to the more simplified NEPA processes related to tiered, site-specific analyses. Per Council on Environmental Quality, "The tiering process would make each EIS of greater use and meaning to the public as the plan or program develops, without duplication of the analysis prepared for the previous impact statement" (Council on Environmental Quality. 1981. 40 Most Asked Questions at 24c). This programmatic review and subsequent tiering are consistent with CEQ regulations (40 CFR 1500.2(c), 1501.1(a), 1501.2, CEQ 40 Most Asked Questions at 24b).

However, the Corps retains the flexibility to update the Programmatic EIS if needed within the 30-year implementation timeframe (Council on Environmental Quality 40 Most Asked Questions at 32).

Comment: References and Data-21

The first paragraph refers the reader to Table ES-3, which is below the first paragraph. However, the PEIS mistakenly calls it Table ES-2.

Response:

The FEIS has been updated to address editing errors.

Comment: Endangered Species Act-7

• The last paragraph states the following:

These four federal agencies have met routinely with USACE to improve understanding and provide real time feedback on the PEIS and the Preferred Alternative to inform the proposed action.

An appendix with meeting notes would be most helpful to help readers understand how the Corps reached their decision under the NEPA and how NMFS and USFWS reached their respective decisions regarding the ESA.

Response:

Meeting notes are not typically attached to EIS documents. The final decision on the selected alternative and the rationale for this decision will be provided in the Record of Decision per Council on Environmental Quality regulations. This type of collaboration was envisioned by Council on Environmental Quality in creating the Cooperating Agency process.

Twelve Cooperating Agencies participated in development of this EIS. The Corps continues to inform, and to be informed by, these agency representatives as the FEIS is being developed.

Comment: Cultural and Tribal Resources-3

Table ES-4 - I think the Confederated Tribes of Coos should maybe listed as Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians

Response:

FEIS Acronym List and Section 3.24.2, Affected Environment, have been updated to The Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians.

Comment: NEPA Process-16

3.2 Key Issues and Resource Concerns

The 3rd bullet of this section states,

NEPA Process comments conveyed concerns on how the PEIS may affect other ongoing USACE NEPA analyses within the WVS, cumulative effects to natural resources and ecosystems within

the WVS, inclusion of information in the PEIS to inform analysis on fish habitats, water allocation and storage, and streamflow.

Please be aware of 40 CFR 1506.1 (c) regarding the concern noted above.

(c) While work on a required programmatic environmental review is in progress and the action is not covered by an existing programmatic review, agencies shall not undertake in the interim any major Federal action covered by the program that may significantly affect the quality of the human environment unless such action: (1) Is justified independently of the program; (2) Is itself accompanied by an adequate environmental review; and (3) Will not prejudice the ultimate decision on the program. Interim action prejudices the ultimate decision on the program when it tends to determine subsequent development or limit alternatives.

Some of the WVS proposal under development may need to wait until the NEPA analysis under this PEIS is complete.

Response:

Comment noted.

Comment: Willamette Basin Review-4

I think it was premature for the Corps to sign a FONSI for the WBR since this WVS PEIS started in 2019 with the issuance of the notice of intent in the Federal Register.

Response:

In 2019, the Corps initiated its programmatic review of Willamette Valley System (WVS) operations and maintenance with a Notice of Intent to prepare an EIS. Unlike the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes, the WVS EIS NEPA review is related to operations and maintenance of the WVS, not water storage allocation.

While the WVS EIS Notice of Intent was published in 2019 just prior to the Willamette Basin Review Feasibility Study Finding of No Significant Impact (FONSI), the two NEPA actions are only related in that operations and maintenance under each alternative may directly, indirectly, or cumulatively impact water storage needed for various uses.

All alternatives analyzed in the WVS EIS propose measures to operate and maintain the WVS; they do not address modifications to water supply allocation. If at some point operations change to where allocations could not be met in normal to dry years, a subsequent feasibility study to revisit allocations would be initiated.

The Willamette Basin Review Feasibility Study NEPA review and the WVS NEPA review do not tier from each other. Further, the Willamette Basin Review Feasibility Study EA and the WVS EIS have independent actions because maintenance and operations of the WVS

under the current EIS review can occur independent of the Willamette Basin Review Feasibility Study allocations under the 2020 FONSI. A FONSI on review of proposed water supply allocation does not inform a Record of Decision on potentially significant impacts from operations and maintenance.

Comment: References and Data-22

4 - Development and Comparison of Alternatives

• In the first paragraph, is UACE supposed to be USACE?

Response:

The FEIS has been updated to address editing errors.

Comment: Purpose and Need-4

- 4.1 - Purpose and Need

- The first sentence is re-stating the proposed action, not how the proposed action is responding to the purpose and need. I suggest re-stating it to, The purpose and need for the proposed action is to meet the authorized purposes for which the WVS was established… Then I suggest to state those authorized purposes after … and what it means to meet them. For example, how is success identified for meeting the authorized purpose of fish and wildlife? Need is the condition requiring relief and the purpose of a proposal is to address that need

- I suggest dropping the part about meeting ESA obligations as that is required by law because if it is required by law, why would you not meet it?

- The first sentence in the 3rd paragraph state, More specifically, the aim of the proposed action and alternatives is to improve salmonid passage over dams and through reservoirs to increase their survival though cost-effective means while still meeting the Congressionally authorized project purposes of the WVS. The though listed in red font should probably be through instead. Also, instead of the word survival, perhaps the word recovery is more suitable to the requirements of the ESA by federal agencies.

Response:

The DEIS Executive Summary has been revised in the FEIS. The purpose and need statement have undergone thorough consideration in light of Council on Environmental Quality and Corps NEPA Implementing Regulations. The need for the Proposed Action is to operate the system in accordance with the eight Congressionally authorized purposes (as defined below) and in compliance with the ESA. Congress has delegated the responsibility for managing the Willamette Valley System to the Corps (i.e., the purpose for the Proposed Action). Congress further authorized “why” the Corps must manage

and operate the Willamette Valley System (i.e., the "need" for the Proposed Action) – for flood control, hydropower, navigation, water quality, water supply, fish and wildlife, and recreation missions.

Additionally, to operate the system, the Corps must do so in a way that complies with the ESA. The U.S. District Court for the District of Oregon held that the Corps' operation and maintenance of the system is not incompliance with the ESA; therefore, this EIS is specifically evaluating actions the Corps could take to remedy any ESA deficiencies while continuing to carry out its authorized mission.

Defining how "success" would be met for each of the eight authorized purposes within the purpose and need statement would not be consistent with the EIS construct - operation and maintenance for each of the authorized purposes is demonstrated in the EIS analyses of measures under each alternative; these outcomes (or "successes") are analysis-dependent and not appropriate as an element of the purpose and need statement.

Comment: Dam Safety-6

• 4.2 Constraints - Under the 2nd bulleted item on Dam Safety, the Corps states, A more detailed dam safety evaluation of components will be conducted during site-specific planning and design.

Does the PEIS explain how it makes sense to invest in this new infrastructure to supplement an existing and degrading system of dams, and in many cases where they have reached their design life?

Response:

The Corps will evaluate how a proposed modification to an existing dam structure may or may not impact the existing condition of structure through a targeted risk assessment, as described in Appendix H, Dam Safety, Section 2.1. No modifications would increase dam safety risk; therefore, some measures may require advanced analyses and mitigative measures prior to implementation.

Appendix H, Dam Safety, Chapter 3 describes how the risk of dams in their current conditions are being addressed through advanced risk assessments and potentially through Dam Safety Modification Studies.

Congress authorizes, or directs the Corps, to construct and operate its projects for specific purposes, consistent with recommendations to Congress by the Chief of Engineers based on planning studies and reports. The expectation is that the Corps will construct and operate its projects substantially in accordance with the Chief of Engineers' recommendation.

The Corps does not have discretion to eliminate a project purpose once authorized without Congressional approval.

Comment: Purpose and Need-5

• 4.3 Objectives –

• Do these objectives have goals? What would success look like under each goal?

Response:

Objectives are synonymous with goals (see Webster or Oxford Dictionary definitions for "Objective, noun"). To measure objective/goal implementation, strategies were identified as the desired result of alternative implementations (See appendix A, Alternatives Development). Further, as described in DEIS Section 2.1, Alternatives Development Process, "The alternatives development process focused on creating strategies to meet at least one objective under individual alternatives (Table 2.1-1)."

"Success" is not a term incorporated under Council of Environmental Quality regulations because a NEPA review must demonstrate beneficial and adverse effects to resources under all reasonable alternatives. As such, the EIS demonstrates how implementation of measures would impact resources under a given alternative, thereby demonstrating the degree to which alternative objectives would be met (As described in DEIS Section 4.4, Measures and Alternatives, "A measure is the action an agency would take to achieve a given objective").

Further, adaptive management would be applied for any selected alternative, which includes specific, defined criteria for assessing success during alternative implementation.

Comment: Water Quality-24

• In item #6, I recommend that the improved water quality benefit all life that depends on the waters in the WB, including humans and other animals.

Response:

The objectives were designed from the scoping process and purpose and need for the Proposed Action, which is continued operations and maintenance of the system while meeting requirements of the ESA. Ensuring improved water quality for humans and other aquatic life was outside the scope of objective development.

Objectives were developed and used to create the range of alternatives (Chapter 2). The indirect effects to humans and other aquatic life from implementation of Objective 6 into the alternatives were assessed in the EIS (i.e., by "Reducing pollutant levels to restore impaired water quality associated with the Willamette Valley System dams").

Although not specifically an objective used to develop the range of alternatives, the Corps analyzed impacts to various water quality parameters affecting humans and all aquatic life and would continue to comply with Clean Water Act requirements as described in Section 3.5 and Section 4.5, Water Quality. The Corps also analyzed impacts to public health and safety from hazardous, toxic, and radioactive waste in Section 3.18 and Section 4.18 and analyzed impacts to public drinking water in Section 3.19 and Section 4.19.

Comment: References and Data-23

• 4.4 Measures and Alternatives
• There is reference to Table ES-4 in the 3rd paragraph but appears it meant to say Table ES-5.

Response:

The FEIS has been updated to address editing errors.

Comment: Alternatives-32

• Table ES-5. The No Action Alternative as described is really an action alternative.

• How can the no action alternative allow objective 1: Allow greater flexibility in water management (related to refill, drawdown timing, and other water management measures), if there is no new action?

• How can the no action alternative allow objective 5: Improve water management during the conservation season to benefit anadromous ESA-listed fish and other authorized project purposes. If there is no action?

Response:

Under 1978 Council on Environmental Quality (CEQ) regulations, the No-action Alternative does not mean that an agency will literally take no action (e.g., would not conduct operations and maintenance activities). CEQ provides guidance and two examples of how a no-action alternative is framed; the first example is applicable to address the comment as described below.

Per CEQ's 40 Most Asked Questions at Number 3, "Section 1502.14(d) requires the alternatives analysis in the EIS to 'include the alternative of no action.' There are two distinct interpretations of 'no action' that must be considered, depending on the nature of the proposal being evaluated. The first situation might involve an action such as updating a land management plan where ongoing programs initiated under existing legislation and regulations will continue, even as new plans are developed. In these cases, 'no action' is 'no change' from current management direction or level of management intensity.

To construct an alternative that is based on no management at all would be a useless academic exercise. Therefore, the 'no action' alternative may be thought of in terms of continuing with the present course of action until that action is changed.

Consequently, projected impacts of alternative management schemes would be compared in the EIS to those impacts projected for the existing plan. In this case, alternatives would include management plans of both greater and lesser intensity, especially greater and lesser levels of resource development."

Following CEQ regulations, the Corps would continue with existing operations and maintenance activities under a no-action alternative as described in Chapter 2, Alternatives. This would include activities necessary to meet all Congressionally authorized purposes (FEIS Section 1.10, Congressionally Authorized Purposes). The analysis of a no-action alternative, which includes activities that would continue to be implemented or new activities necessary to meet agency missions, "provides a benchmark, enabling decisionmakers to compare the magnitude of environmental effects of the action alternatives" (CEQ 40 Most Asked Questions at Number 3).

Comment: References and Data-24

• 4.5 Assessment and Comparison of alternatives

• On page ES-21, the first sentence in first paragraph seems to be missing a verb. Perhaps you should add, are described before, …in Chapter 3.

Response:

The FEIS has been updated to address editing errors.

Comment: NEPA Process-17

On page ES-21, the 2nd paragraph states, USACE will conduct subsequent NEPA analyses of future site-specific actions. I concur with this statement. Also, if new alternatives are developed, including possibly an RPA from NMFS, the Corps may need to provided the public with a supplemental EIS describing this RPA and its effects to the environment and it contribution to the purpose and need of the proposed project.

Response:

Comment noted.

Comment: Alternatives-33

Why is there no action on removing some or all of the dams?

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority.

Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA.

Impacts to all of the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects under the alternatives on fish and wildlife, hydropower, water supply, flood risk management, etc.

Comment: Hydrology-13

When discussing flows in the effects discussions, I suggest you state why 6000 cubic feet per second (cfs) is a benchmark for flow at Salem.

Response:

The detailed discussion of the measures under each alternative in FEIS Chapter 2, Alternatives, Section 2.8, has a full list of the flow targets and their sources, including the Salem target.

Comment: Fish-54

• When discussing effects to fish species' population.

• Suggest you state what it means for a fish species' population to reach replacement. This is not defined in the Glossary, and I suggest adding it there.

• Suggest you define what it means for a fish species' population to remain with high persistence, which is defined as a low risk of extinction. But what does it mean about the species' populations returning to those numbers before the WVS was constructed?

• What is the McKenzie Core Legacy population? I suggest you add this to the Glossary as well.

Response:

The definition of fish population replacement has been clarified in the FEIS in Section 3.8, Fish and Aquatic Habitat, and to the Glossary, Chapter 8. The McKenzie Core Legacy term is cited from the ODFW and NMFS, 2011 Recovery Plan (See DEIS Chapter 10, References) and has been added to the FEIS Glossary, Chapter 8.

The purpose and need as defined for this EIS in Chapter 2, Alternatives, includes meeting ESA-obligations. Reference conditions for compliance with the ESA are not pre-project conditions, but related to extinction risk and likelihood of recovery, as defined in recovery plans.

Comment: Fish-55

What is meant in the 2nd bullet - Adaptation of the Hatchery Program? It is not described in the Glossary.

Response:

Adaptation is defined exactly as written in the EIS: a change (in the program) in response to environmental or population factors that necessitate an appropriate response to better support wild population improvements. This terminology has been added to the FEIS Glossary, Chapter 8.

Comment: NEPA Process-18

Where is/are the NEPA document for existing and new release sites above dams? I cannot find it on the web or Corps site. When were the new release sites analyzed?

Response:

The Final Environmental Assessment for Adult Salmonid Release Site Improvement Projects in Marion, Linn, and Lane Counties, Oregon can be found at https://usace.contentdm.oclc.org/digital/collection/p16021coll7/id/24946. The Corps signed a Finding of No Significance for the Adult Salmonid Release Site Improvement Projects in Marion, Linn, and Lane Counties, Oregon on August 7, 2013.

The Corps is analyzing the continued use of existing out planting sites under this Willamette Valley System programmatic EIS. This programmatic review will be used by the Corps for planning purposes for a 30-year timeframe with the potential for additional site-specific NEPA reviews tiered from this EIS (FEIS Section 1.3.1.1, Programmatic Reviews and Subsequent Tiering under the National Environmental Policy Act).

Comment: Fish-56

What is Adaptive Management and Governance Framework? This was not in Glossary, and I suggest you define it there.

Response:

The Adaptive Management and Governance framework is defined in Footnote 17, DEIS Section 2.4.3, Adaptive Management Common to All Alternatives and in FEIS Section 2.10.1, Footnote 8. It is further discussed in DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan. This term has been added to the Glossary in Chapter 8.

Comment: Fish-57

One of the measures is O&M of Adult Fish Facilities. What are the Adult Fish Facilities? Is it the Adult Fish Collection Facilities?

Response:

Adult fish facilities (AFF) and adult fish collection facilities are the same facility. The FEIS has been revised to refer only to adult fish facilities in all cases, and a description of this type of facility is in the FEIS Glossary, Chapter 8.

Comment: Alternatives-34

5.2 Near Term Operational Measures - The whole paragraph is confusing. What is the nature of these actions, and in what NEPA documents are they described? Look at Appendix N.

Response:

The term "near-term operations" has been changed to "Interim Operations" in the FEIS.

Interim Operations are described in Section 2.8.5. Structural solutions for passage and survival will require long lead times for execution. Consequently, the Corps developed the Interim Operations to continue focus on improving volitional passage and water quality conditions until long-term solutions are in place.

The Interim Operations are based on the inunction operations ordered in *NEDC v. USACE* as optimized under adaptive management. These measures are common to all action alternatives and would continue to be optimized under the Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan).

Comment: Alternatives-35

• 5.3 No Action Alternative

• There is no discussion on the hatchery operations as part of the Willamette Valley System (WVS). Shouldn't this be included (see objective 7).

• The last sentence in the first paragraph states, "Actions and operations occurring in the WVS would also include those agreed to in previous ESA consultation between USACE and the Services (NMFS and USFWS).

• The 2nd paragraph states, The NAA does not meet the purpose and need of the project because the current operating conditions of the WVS adversely affect ESA-listed fish species and the designated habitat for these species. Won't there still be adverse effects still hold with the other alternatives?

Response:

The FEIS has been updated to include hatchery information under the No-action Alternative in Section 3.8, Fish and Aquatic Habitat. In summary, hatchery operations under the No-action Alternative would continue under operations and maintenance plans implemented as of April 2019 when the Notice of Intent to Prepare this EIS was published. This management would include compliance with the 2019 Hatchery Genetic Management Plans.

The FEIS has also been updated to clarify that, pending negotiations with NMFS and ODFW, hatchery fish production under each alternative would be adjusted in accordance with Measure 719. Measure 719 would not be implemented under the No-action Alternative.

Comment: References and Data-25

• 5.4. Effects of the NAA

• In the 3rd paragraph, the 3rd sentence should start with NPV, not NVP. Also need to close parentheses at the end of the sentence.

Response:

The FEIS has been updated to address editing errors.

Comment: Hydrology-14

5.4. Effects of the NAA… Maybe you should discuss downstream flows as you do in section 5.6.

Response:

Section 5.6 does not exist in the DEIS, so the Corps cannot evaluate this reference directly. Flows for each alternative at the Salem and Albany control points are explained

under each alternative in DEIS Section 3.2.2 under the heading "Mainstem Willamette River."

Comment: Water Quality-25

5.4. Effects of the NAA… There is nothing about effects to impaired water quality.

Response:

Water quality effects under each alternative are provided in FEIS Section 3.5, Water Quality. Anticipated effects to water quality parameters under the No-action Alternative are specified in DEIS Table 3.5-9.

The FEIS has been updated to include additional water quality parameters under the No-action Alternative in Table 3.5-13. Cumulative effects to water quality parameters under each alternative as compared to the No-action Alternative are analyzed in FEIS Section 4.5, Water Quality.

Comment: Alternatives-36

• 5.5 Alternative 1. Improve Fish Passage Through Storage-Focused Measures.

• No mention of hatchery operations

• Figure ES-22. I really don't see how this schematic shows how a floating screen structure works and what it is supposed to do.

Response:

The Executive Summary is not intended to address each alternative detail and complies with Council on Environmental Quality content requirements. Chapter 2, Alternatives, provides a complete description of measures that would be implemented under each alternative, including measures related to hatchery operations. The Corps does not have a diagram to better depict the floating screen structures.

Comment: References and Data-26

• 5.6 Effects of Alternative 1

• Need a period at the end of the first paragraph.

• In the 2nd paragraph, the last sentence is in blue font. Why?

• In the 4th paragraph, suggest adding an average of right after the (and 8.

Response:

The FEIS has been updated to address editing errors.

Comment: Water Quality-26

5.6 Effects of Alternative 1…There is no mention of effects to water quality, objective #6

Response:

Cumulative effects to Water Quality parameters analyzed under each alternative as compared to the No-action Alternative are located in FEIS Chapter 4, Cumulative Effects, Section 4.5, Water Quality. Appendix A, Alternatives Development, Section 5.2.3, states "The fish models account for effects at a population scale of the measures under the alternatives cumulatively with the other major factors occurring in the watershed as described in Chapter 4.

As all major factors outside the alternative measures are the same across alternatives, the model outputs inform the level of effects each alternative would have on the species at a population level. These models incorporate inputs for passage survival (Objective 4), appropriate flows for habitat conditions supportive of the different life stages within the river system during the conservation season (Objective 5), and improved water quality (Objective 6). Therefore, metrics derived from the outputs of these population models demonstrate the effectiveness of an alternative for all three ESA-specific objectives identified in FEIS Chapter 2, Alternatives, Section 2.7, Range of Alternatives Development.

Objective 6 is defined as "Improve water quality associated with the WVS dams to benefit anadromous ESA-listed species." Appendix A, Attachment 1, Table 5.2-1 illustrates how Objective 6 would be met under each alternative as it applies to UWR spring Chinook salmon populations.

Comment: Alternatives-37

- 5.7 Alternative 2A
- No mention of measures and operations for hatchery fish.
- No mention of what a rule curve is. Need to explain.

Response:

The Executive Summary is not intended to address each alternative detail and complies with Council on Environmental Quality content requirements. Chapter 2, Alternatives, provides a complete description of measures that would be implemented under each

alternative, including measures related to hatchery operations. Section 1.11.1, Reservoir Pools and Water Control, Water Control Diagrams, provides a description of rule curves.

Comment: Alternatives-38

• 5.8 Effects of Alternative 2A

• In the 2nd paragraph, define the importance of flow targets meeting the 90% of the rule curve.

Response:

The FEIS Executive Summary has been revised as an overview and does not contain detail on rule curves. The minimum flow levels under Measure 30a and Measure 30b when the reservoir is less than 90 percent of the rule curve were defined based on flows corresponding to 80 percent WUA for spawners below WVS dams as described in Appendix A, Alternatives Development, Sections 2.1.1, Measures Considered in Alternatives Development, Flow Measures.

An 80 percent WUA is consistent with NMFS' application of an 80 percent criteria as protective of salmonid habitat needs (NMFS and USFWS 2013 in FEIS Appendix A, Alternatives Development, References).

Comment: Water Quality-27

5.8 Effects of Alternative 2A… There is nothing about effects to impaired water quality.

Response:

No Section 5.8 is provided in the DEIS. Cumulative effects to water quality parameters under each alternative as compared to the No-action Alternative is in DEIS Section 4.5.2.1, Cumulative Effects to Water Quality by Alternative and in Section 4.5 in the FEIS.

Comment: NEPA Process-19

1.1.1 National Environmental Policy Act -

- I suggest that you add to the first sentence the following or something similar, and make that information available to public officials and citizens before federal decisions are made and actions are taken.

- I suggest you add verbiage about the possibility of a supplemental EIS, especially if the Corps anticipates a RPA with a jeopardy opinion from NMFS.

Response:

The Corps followed all requirements for public comment prior to making its decision in the Record of Decision based on 1978 Council on Environmental Quality regulations at 40 CFR 1502.9(c)(1) (note that this EIS was prepared under the former 1978 regulations).

The DEIS public comment period began on November 22, 2022 for a 55-day period noticed in the Federal Register (87 FR 72482). Based on public requests to extend the comment period, the Corps announced a 35-day extension in the Federal Register on January 13, 2023 (88 FR 2357). The full 90-day public comment period closed on February 23, 2023.

The Corps published the dates for November 2022 DEIS public comment period and the January 2023 extended public comment period on its Portland District website. The Corps also noticed the public comment period dates in the Federal Register (FR 72482) and provided this information, along with hard copies of the DEIS, to eight public libraries in the analysis area, which were listed on the Corps' webpage.

Further, all journalists seeking information on the project were provided the public comment period dates. https://www.nwp.usace.army.mil/Media/News-Releases/Article/3262661/corps-extends-public-comment-period-for-proposed-willamette-valley-system-30-ye/ (extension)
https://www.nwp.usace.army.mil/Locations/Willamette-Valley/Fern-Ridge/

If the Corps decides that a supplemental NEPA review is required, it will follow its implementing regulations at 33 C.F.R. part 230 regarding public notification.

Comment: Endangered Species Act-8

1.1.2 Endangered Species Act

• Need to fix or define conspecific2 on page 5

• I suggest you describe in the 2nd paragraph the results of implementing/not implementing the RPA in the 2008 BiOp.

• The following is not completely correct in the last paragraph, Since 2008, USACE has been implementing the RPA provided in the 2008 NMFS BiOp. Since the Reasonable and Prudent Alternative (RPA) is the collective suite of RPA measures, the Corps has NOT been implementing the RPA - only some of the RPA measures. This is based on US District Judge Hernandez's 2021 opinion and order, where the Court concluded that the Corps is violating the ESA because its operation of the WVP is jeopardizing the survival and recovery of the listed salmonids…The Court also determined that…the Corps was not carrying out the critical RPA measures… and this resulted in …a substantial procedural violation of the ESA. I suggest restating to say that the Corps has been implementing 3 of the RPA measures.

Response:

Comment noted.

Comment: Scope-3

1.2.1.1 The Willamette River Basin

• Why not describe the effect further downstream of these dams since the impetus for Congress to pass authorization for them came from the flooding of Portland, OR in 1861? This seems to imply the reach that the WVS had on communities downstream of the counties where the WVS occurs.

• I suggest including the fact that the Willamette River drains into the Columbia River in the northern Portland area.

Response:

FEIS Chapter 1, Introduction, Section 1.4.1.1, The Willamette River Basin, describes the basin and the historic Portland flooding. Additional information on basin hydrology is provided in Section 3.2, Hydrologic Processes. Analyses of downstream effects of the Willamette Valley System Dams is incorporated into each resource analysis such as water quality, wetlands, and fish and aquatic habitat. Chapter 1 does not address direct, indirect, or cumulative effects analyses.

Information on the Willamette River Basin and its drainage into the Columbia River is also provided in the EIS. FEIS Section 1.4.1.1 states, "The Willamette River is a major tributary of the Columbia River, which is the largest river in the Pacific Northwest and one of the largest in North America." Additional information on the Basin is then provided. FEIS Figure 1.1-1 illustrates the confluence of the Willamette River with the Columbia River as part of the Willamette River Basin. The figure also denotes the location of Portland, Oregon in relation to the confluence.

Comment: NEPA Process-20

The PEIS states the temporal scope of analysis for the PEIS is 30 years from the signing of the Record of Decision (ROD). I am afraid the Corps will put this document in a drawer somewhere and forget it like they did with 1980 FEIS. The ROD has not been found to the 1980 EIS.

Response:

Comment noted.

Comment: Purpose and Need-6

• As written the purpose and the need are the same. The need is the condition requiring relief, and the purpose is to address that condition.

• Isn't the purpose and need for the proposed action to meet the authorized purposes for which the WVS was established?

• The first sentence is re-stating the proposed action, not how the proposed action is responding to the purpose and need. I suggest re-stating it to, The purpose and need for the proposed action is to meet the authorized purposes for which the WVS was established…Then I suggest to state those authorized purposes after … and what it means to meet them. For example, how is success identified for meeting the authorized purpose of fish and wildlife?

Response:

The purpose and need statement has undergone thorough consideration in light of Council on Environmental Quality and Corps NEPA Implementing Regulations. The need for the Proposed Action is to operate the system in accordance with the eight Congressionally authorized purposes (as defined below) and in compliance with the ESA.

Congress has delegated the responsibility for managing the Willamette Valley System to the Corps (i.e., the purpose for the Proposed Action). Congress further authorized "why" the Corps must manage and operate the Willamette Valley System (i.e., the "need" for the Proposed Action) – for flood control, hydropower, navigation, water quality, water supply, fish and wildlife, and recreation missions.

Additionally, to operate the system, the Corps must do so in a way that complies with the ESA. The U.S. District Court for the District of Oregon held that the Corps' operation and maintenance of the system is not incompliance with the ESA; therefore, this EIS is specifically evaluating actions the Corps could take to remedy any ESA deficiencies while continuing to carry out its authorized mission.

The DEIS Executive Summary has been revised in the FEIS. The purpose and need statement has undergone thorough agency consideration in light of Council on Environmental Quality and Corps NEPA Implementing Regulations. The need for the proposed action is to operate the system in accordance with the eight Congressionally mandated (authorized) purposes (as defined below) and in compliance with the ESA. Congress has delegated the

Contrary to the comment suggestion, it would be cumbersome to list each of the eight Congressionally mandated purposes within the purpose and need statement. This inclusion of detailed information would only serve to make the purpose and need statement more complex. This approach would also be inconsistent with the 1978 NEPA regulations requiring brevity and only the underlying information - "The statement shall

briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action [emphasis added]" (1978 40 CFR 1502.13). The EIS purpose and need statement is appropriately brief and encompasses all eight Congressionally mandated purposes. Defining how "success" would be met for each of the eight authorized purposes within the purpose and need statement would not be consistent with the EIS construct—operation and maintenance for each of the authorized purposes is demonstrated in the EIS analyses of measures under each alternative; these outcomes (or "successes") are analysis-dependent and not appropriate as an element of the purpose and need statement.

Comment: Purpose and Need-7

I disagree with the last sentence, Management of the WVS for its authorized purposes necessitates ongoing and future operation of the system and maintenance at any given project that responds to changes in WRB conditions and new information related to system operations and technology, the affected environment, polices, and regulations such as the ESA. So essentially the Corps thinks these dams, which greatly alter the river's morphology besides killing off ESA-listed fish, should exist in perpetuity? What if there are much newer, cleaner advantages to achieving some or all of the authorized purposes in another and better way? Also, almost all of the dams in the WVS have reached their design life of 50 years before major rehabilitation is needed.

Response:

The Corps does not have the authority to de-authorize dams within the WRB without clear direction from Congress, including those stated in the comment. As such, the Corps properly conveys that it operates within Congressional mandates but that its system management in the WRB necessarily responds to varying changes and conditions.

Comment: NEPA Process-21

1.4 COOPERATING AGENCIES - I suggest you list the cooperating agencies again in this section and describe their reason/purpose for being a cooperating agency (jurisdiction by law or special expertise relevant to the WVS). This would help provide the context in which these organizations are included.

Response:

The Cooperating Agency information in the FEIS is now Section 1.6, National Environmental Policy Act Cooperating Agencies and Endangered Species Act Action Agencies. The context for the Cooperating Agency involvement is provided in Appendix L, an appendix specifically addressing Cooperating Agency roles. The text in Section 1.6 has been modified to indicate that the law or special expertise pertaining to each Cooperating Agency is described in Appendix L.

Comment: Purpose and Need-8

So the 2019 WBR FR/EA states that navigation is no longer an authorized purpose. This document is not consistent with that finding because it still lists navigation as an authorized purpose. Whatever the answer may be, I suggest you fix it in the appropriate document.

Response:

Navigation is an authorized purpose for the Willamette Valley System as identified in FEIS Chapter 1, Introduction, Section 1.1, Background, and Section 1.10.5, Navigation.

Comment: References and Data-27

Need to fix footnote #1 to Table 1.5.2. Currently it states, Dorena Dam houses privately owned generates as a part of the privately owned (under a Federal Energy Regulation Commission licensed) and run hydropower. USACE does not operate Dorena Dam for hydropower and any hydropower production is incidental. Should generates be generators? Maybe want to insert the word privately before run.

Response:

The private hydropower facility regulated by the Federal Energy Regulatory Commission was described in the DEIS (See FEIS, Section 1.10.2, Hydropower). Private generation is incidental to the Corps' operations for its authorized purposes.

Comment: Water Supply-14

1.5.1.1 Hills Creek - I suggest adding to this section that Hills Creek is in a IRRM by limiting refill to 10 feet less than full pool. This would reduce Hills Creek's total storage by 27,350 acre-feet for a current IRRM storage of 322,650 acre-h. See https://www.usace.army.mil/Media/News-Archive/ Story-ArFcle-View/ArFcle/2091524/corps-plans-changes-to-summer-reservoir-levels-at-hills- creek-lookout-point-to/

Response:

The Interim Risk Reduction Measures (IRRMs) are not considered as direct and indirect effects to water supply at Hills Creek Dam because the outcome of the dam safety study is speculative; it is unknown whether the IRRMs will remain in place. The IRRMs could be replaced with different long-term solutions to address seismic dam safety concerns.

The Corps assumes that the IRRMs would be lifted during the 30-year planning timeframe. This assumption has been clarified in FEIS Chapter 1, Introduction, Section 1.12.2, Interim Risk Reduction Measures. See also Appendix H, Dam Safety.

Comment: Water Supply-15

1.5.1.2 Lookout Point.

I suggest adding to this section that Lookout Point is in a IRRM by limiting refill 5 feet less than full refill. With the IRRM restriction, storage is 21,800 acre-feet less than the 438,200 acre-feet of full storage. With the IRRM, the storage is at 416,400 acre-feet.

• Figure 1.5-1 - You might want to footnote or include in the glossary what a run-of-river dam is.

Response:

The Interim Risk Reduction Measures (IRRMs) are not considered as direct and indirect effects to water supply at Hills Creek Dam because the outcome of the dam safety study is speculative; it is unknown whether the IRRMs will remain in place. The IRRMs could be replaced with different long-term solutions to address seismic dam safety concerns.

The Corps assumes that the IRRMs would be lifted during the 30-year planning timeframe. This assumption has been clarified in FEIS Chapter 1, Introduction, Section 1.12.2, Interim Risk Reduction Measures. See also Appendix H, Dam Safety.

Comment: Water Supply-16

1.5.6.1 Detroit

I suggest adding to this section that Detroit dam is in a IRRM by limiting refill 5 feet less than full refill. At full pool elevation Detroit Reservoir covers an area of 3,580 acres with 428,800 acre-feet of usable storage but with the IRRM, there is 17,500 acre-feet less of storage. So that reduces the full storage during the IRRM period to 411,300 acre-feet.

Response:

Detroit Dam is temporarily limited to a maximum conservation storage pool that is 5 feet below the maximum conservation pool elevation per the authorization for this dam and reservoir. This temporary limitation will either become permanent or will be replaced with a different long-term dam safety measure.

The outcome of the dam safety evaluation was speculative at the time the alternatives were analyzed, so is not included in the planning and evaluation of long-term impacts and performance of the alternatives. See DEIS Chapter 1, Introduction, Section 1.9.2, Ongoing USACE Planning and Environmental Reviews in the Region, Interim Risk Reduction Measures (revised as Section 1.12 in the FEIS).

Comment: Alternatives-39

1.7 AUTHORIZED PURPOSES - Is there a contingency plan for substantial fish loss as well as a Drought Contingency Plan, which addresses flow needs, drought management organizations, a drought assessment process, and a framework to carry out a drought response. Per Judge Hernandez in 2021, Not only is the Corps' authority to adjust WVP operations under the 1950 FCA much broader than it was in EDF, but HD 531 also contemplates prioritizing the needs of the salmonids over power production when necessary. [citations omitted]…(providing an "exception" to the power storage requirement and detailing that the Corps should use power storage to support fish life "when a shortage of water existed" because "under this condition . . . fish life . . . would have priority over power").

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the WVS EIS alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

The Corps prepares an operating plan annually for the conservation storage and release seasons (February-October) in the Willamette River Basin. Called the Willamette Conservation Plan (WCP or Conservation Plan), the WCP describes how meeting the authorized project purposes will be accomplished during the conservation storage and release seasons given the volume of stored water forecasted to be available during the present water year.

The Corps also annually prepares a Willamette Fish Operations Plan in coordination with the Bonneville Power Administration and regional federal and state agencies, tribes, and other partners through the Willamette Fish Passage Operations & Maintenance (WFPOM) coordination team. The WFOPM describes year-round operations and maintenance activities at Corps projects in the Willamette Basin as coordinated through WFPOM to protect and enhance anadromous and resident fish species listed as endangered or threatened under the ESA, as well as non-listed species of concern.

Emergencies that require projects to temporarily deviate from normal operating procedures, to the extent practicable, will continue to be coordinated with Federal and state agencies, tribes, and other partners via the MOC/MFR process, as carried out under the WATER Forum governance structure, and conducted in a manner to avoid or to minimize fish impacts. This includes deviating from normal operations due to drought conditions.

Normally, coordination occurs prior to an action; however, if an emergency situation requires immediate attention, coordination will be completed as soon as practicable

afterwards. The WATER Forum teams and their roles are described in Appendix N (Implementation and Adaptive Management Plan). Further descriptions of the WCP and WFOPM has been added to Appendix N in the FEIS.

Comment: Hydropower-14

1.7.2 Hydropower - I suggest adding that BPA is evaluating4 the viability of economical power generation at these WVS dams. The dams in the WVS generate a small amount of power relative to their operating costs. Bonneville Power Administration is evaluating the viability of economical power generation from these dams as it also seeks biologically effective and technologically feasible solutions for protecting, mitigating and enhancing fish and wildlife in the basin.

Response:

The Bonneville Power Administration is a Cooperating Agency in development of this EIS and developed most of the primary analyses including development of Appendix G, Power Generation and Transmission. BPA has reviewed a commented on the Chapter 3, Affected Environment and Environmental Consequences, Section 3.12, Power Generation and Transmission content.

Hydropower generation would continue under the No-action Alternative.

Comment: Alternatives-40

1.8.3 Water Control Annual Planning - Besides a drought contingency plan, perhaps there should be a contingency plan if there is a considerable increase in mortality of ESA-listed fish. Perhaps one will be added to the new BiOp for this proposed O&M of the WVS.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: NEPA Process-22

1.9 ONGOING USACE PLANNING AND ENVIRONMENTAL REVIEWS IN THE REGION - It would be helpful to provide the link to all the on-going, separate, site specific NEPA documents mentioned in this section.

Response:

It is impracticable to provide links to numerous documents within this EIS document for various reasons. Not all related NEPA documents may be available as URL links , or parts of the documents are not in electronic format such as appendices materials. Providing some, but not all, related documentation would not be an inclusive resource for the reader.

Comment: References and Data-28

1. Summary of Authorized Purposes Specific to the Proposed Action and Purpose and Need - Should you include WRDA 2000?

Response:

WRDA 2000 is not a Congressionally authorized purpose.

Comment: References and Data-29

2.1 Alternatives Development Process - fix …pr2ocess.

Response:

The FEIS has been updated to address editing errors.

Comment: Alternatives-41

2.2 Final Measures Developed for Action Alternatives - why are the court-ordered measures called near term?

Response:

The operations ordered by the court under the injunction are temporary and only in effect until the injunction is lifted, which will occur when NMFS issues its final Biological Opinion. The Corps understands the need to continue these operations in the interim, or near-term, until a long-term solution is in place and operational. Such operations could include an operation of existing outlets or operation of a new structure.

Comment: References and Data-30

fix anadromous15 in #4

Response:

The FEIS has been updated to address editing errors.

Comment: References and Data-31

Table 2.1-1. Project Alternative Strategies and Associated Objectives - this table does not correspond with the Table ES-65.

Response:

The FEIS Executive Summary does not contain this detail. Refer to FEIS Appendix A, Alternatives Development.

Comment: References and Data-32

2.2.1.1 Integrated Temperature and Habitat Flow Regime (#30a) - why the numbers after each subsection like #30a? How does this help the reader?

Response:

As described in a text box added to the FEIS, Section 2.8, Final Measures Developed for Action Alternatives, "Each measure was assigned a unique identification number at the start of the measure development process. This identification number was carried through the measure screening process and is provided in parentheses in the measure titles. For example: Provide Pacific Lamprey Passage and Infrastructure (#52) – this is Measure Number 52. This section provides summary measure descriptions." The FEIS includes a table summarizing the measure titles and corresponding measure numbers.

Providing measure numbers is a useful tool for lay readers because measures are referenced throughout the EIS.

Comment: References and Data-33

2.2.2 Water Quality Measures - the 6th paragraph states, Total dissolved gas (TDG) supersaturation also negatively effects environmental effects fish and other aquatic species (EPA, 1973). I think you need to delete environmental effects as shown above.

Response:

The FEIS has been updated to address editing errors.

Comment: References and Data-34

Use Spillways to Release Warm Surface Water in Summer (#721) - The referenced figure, Figure 2.3-8, does not exist in this document. I think it should’ve referenced Figure 2.2-8. I suggest reviewing the numbering in the figures in this subchapter.

Response:

The FEIS has been updated to address editing errors.

Comment: References and Data-35

2.2.3.1 Deeper Fall Reservoir Drawdown for Downstream Fish Passage (#40)

• Figure 2.3-9 is wrong reference. See comment for Section 2.2.2.5.

Response:

The FEIS has been updated to address editing errors.

Comment: Alternatives-42

Please explain why would use of the DT or RO at Cougar need a change in operational authority.

Response:

Use of the Cougar Dam regulating outlet would not require a change in authority. It is currently being operated as proposed under Alternative 2A and Alternative 3A. Conversely, the Corps would pursue a change in authorities due to extreme nature of the diversion tunnel operation under Alternatives 2B, 3B, and 5.

Congress requires the Corps to operate the Willamette Valley System substantially in accordance with the authorization purposes such as hydropower, irrigation, water supply, etc. The diversion tunnel operation would only allow the Corps to operate for the authorized purposes served by the conservation pool and hydropower pool for a few days in 1 or 2 years in the hydrologic periodic of record.

This broad approach to screening alternatives allowed the Corps to consider measures/actions well outside its current authorities for the purposes of providing a large range of alternatives that meet the purpose and need for the Proposed Action; however, these types of measures/actions would necessitate Congressional approval prior to implementation.

Comment: References and Data-36

Table 2.3-7 is also mis-numbered like the Figures in this section.

Response:

The FEIS has been updated to address editing errors.

Comment: References and Data-37

• 2.2.5 Suite of Near-term Operations –

• The last paragraph uses AM, which I think is adaptive management. Therefore AM should be included in the glossary.

Response:

The FEIS has been updated to address editing errors.

Comment: References and Data-38

• Table 2.4-1. No Action Alternative Measures and Locations - This table would be easier to read if it is all on one page.

• 2.4.1.1 Stream Flow - This section mentions Table 2.5-4, which is not in this section. I think many of the Tables in Chapter 2 will need to be renumbered.

Response:

The FEIS has been updated to address editing errors.

Comment: Alternatives-43

• 2.4.2 Measures Common to All Action Alternatives

• Table 2.4-5. Measures and Locations Common to All Action Alternatives - what is meant by Adapt Hatchery program? What types of actions are included? Is this a reference to Objective #7? What specific actions does the Corps implement especially as related to reducing spawning and rearing habitat competition caused by hatchery fish?

Response:

"Adapt Hatchery Programs" identified in DEIS, Chapter 2, Alternatives, Table 2.4-5, now FEIS, Chapter 2, Alternatives, Table 2.10-5, refers to Measure 719. The description of this measure is provided below the table in FEIS Chapter 2, Alternatives, Section 2.10.4, Action Alternatives.

Further, the hatchery programs are detailed in FEIS, Chapter 3, Affected Environment and Environmental Consequences, Section 3.8, Fish and Aquatic Habitat.

Comment: References and Data-39

Figure 2.4-2. Willamette River Basin Bank Protection Program Revetment Locations - I cannot see the revetments on this map.

Response:

DEIS Figure 2.4-2 depicts revetments in light yellow barred on either side by black. However, this figure has been improved for readability in the FEIS.

Additionally, DEIS Figure 2.4-2 has been updated in the FEIS to depict Corps-constructed but sponsor-maintained revetments in the Willamette River Basin found in FEIS Appendix S, USACE-managed Dams, Reservoirs, and Bank Protection Structures.

Comment: References and Data-40

Table 3.8-1. Life history timing for UWR spring Chinook salmon - Need to fix SpawnCing

Response:

The FEIS has been updated to address editing errors.

Comment: Alternatives-44

3.8.2.2 Environmental Consequences Summary - I suggest just saying outright what the effects are of Alternative 5 will be instead of referring to discussion on Alternative 2B, which references Alternative 2A.

Response:

Council on Environmental Quality regulations support "consolidation of discussions of those elements required" under NEPA, including discussions of environmental impacts (40 CFR 1502.16). EISs are to be "clear, concise, and to the point" (40 CFR 1502.1). "The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences" (40 CFR 1500.1(c)).

Summarizing effects that would occur under an alternative in comparison to another alternative is common practice that adheres to these regulations. More importantly, the comparison described in FEIS Section 3.25, Summary of Direct and Indirect Environmental Consequences, highlights distinctions for the public official to consider in making decisions regarding effects under Alternative 5 versus other alternatives.

Comment: Water Quality-28

3.16.1.6 Oil Spills and Above-ground Storage Tanks - Is there an estimated annual residual spill of oil that happens at the hydro power dams? If so, is does this need permitting under Section 402 of the Clean Water Act (CWA)?

Response:

As discussed in FEIS Section 3.16.2.6, Oil Spills and Above-ground Storage Tanks, the eight power-producing dams are going through the NPDES permitting process and are anticipated to be permitted to discharge up to 10 parts per million (ppm) of oil and grease per day under Section 402 of the Clean Water Act. However, the actual amount of oil that the dams would discharge could be much lower than this due to regular

preventative maintenance and the measures described in the Spill Prevention, Control, and Countermeasures Plan for each dam.

Additional information has been added to the FEIS in Chapter 7, Environmental Regulations, Section 7.8, Identification of Federal Permits, Licenses, and Entitlements and Status of Compliance with Applicable Laws, Executive Orders, and Memoranda.

Comment: Public Health and Safety-5

3.17 PUBLIC HEALTH AND SAFETY – HARMFUL ALGAL BLOOMS

3.17.2 HABs in the WVS - In reservoirs like Detroit, it seems there is little nutrient loads that can lead to HABs from farms and fertilizers. It seems to me that it is the human activity, including the fecal load to the reservoir that can spark growth of the HABs, like those in the past where Salem's drinking water supply was affected. Why doesn't the Corps have responsibility since it is their reservoir, and the creation and management of it (river to lake recreation) has resulted in substantial nasty HABs? Who has responsibility to monitor and control this or provide advisories for the public safety?

Response:

The Oregon Health Authority (OHA) provides advisory information on their website regarding Harmful Algal Blooms (cyanobacteria) including information on current advisories (https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/RECREATION/HARMFULALGAEBLOOMS/Pages/index.aspx). The Corps provides educational and outreach signage at boat ramps for public awareness of the potential presence of harmful algal blooms as it cannot guarantee toxin-free waters (Section 3.5, Water Quality).

The Corps does not conduct routine algae monitoring, although staff may collect a sample for analysis of toxin concentrations for research purposes if an algal bloom is observed. The Corps will report results to OHA who will determine if an advisory is required based on state guidelines.

Comment: Visual Resources-2

3.22 Visual Resources - The existing landscape looks very different with an empty pool and a bunch of tree stumps in the late fall and winter months. I have always thought so especially since I used to work at Detroit, OR. It looks like a zombie land. During the conservation season, when the reservoir is full, it is a much prettier site from the road and from the lake. During drought years though with very low water in reservoir, it looks like a zombie land of mud in a hot climate. It really is perspective. In calendar year 2015 was a very dry year where reservoirs were almost void of all water except for the actual river. It also exposed many historic properties at the old town of Detroit.

Response:

A discussion of the Willamette Valley System seasonal system operation, along with photographs depicting drawdowns, were added to FEIS Section 3.22, Visual Resources.

Comment: Water Quality-29

3.18.1.6 CERCLA Sites

Table 3.18-3.18-2. USACE WVS CERCLA Site Summaries - Arsenic has also been released at Big Cliff reservoir from an original construction pile. This should be added to this table and evaluated in the effects section.

Response:

The FEIS has been updated to define heavy metals in Section 3.18.2.4, Legacy Environmental Contamination, and their definition includes arsenic. FEIS Table 3.18-4, Willamette Valley System CERCLA Site Summaries, has been revised to include arsenic with additional information in Section 3.18.3, Environmental Consequences.

Comment: References and Data-41

CHAPTER 4 - CUMULATIVE IMPACTS

• 4.1 ANALYSIS APPROACH - Need to include RFFA in the list of acronyms and abbreviations

Response:

The acronym for "reasonably foreseeable future actions" (RFFA) was included in the DEIS List of Acronyms and Abbreviations on Page xliii. It is also included in the FEIS List of Acronyms and is defined in Section 4.1, Cumulative Effects Introduction.

Comment: Alternatives-45

CHAPTER 5 - PREFERRED ALTERNATIVE SELECTION AND IMPLEMENTATION

•I suggest moving section 5.2 Comparison of Alternatives to Chapter 3. Chapter 5's title suggests it is all about the Preferred Alternative.

Response:

DEIS Chapter 5 has been moved to FEIS Appendix A, Alternatives Development, Attachment 4. The title has been revised to "Chapter 5, Comparison of Alternatives and Identification of the Preferred Alternative."

PUBLIC (MAY, P. W.)

Comment Document: 2023-01-11_PublicComment_WV_DEIS_Citizen_PW May.pdf

Comment: Out of Scope-12

In my opinion make the Willamette River Navigable Again.

Early on the Willamette river was a highway for goods and services as far up river to Eugene down to Portland. Imagine, if now, we could use it again to keep more traffic off the highways and at the same time provide passenger and tourism traffic on the Willamette again.

The possibilities are endless. What a boom to the small Cities along the way.

Response:

As described in FEIS Chapter 1, Section 1.10, Congressionally Authorized Purposes, the Corps is authorized by Congress to operate and maintain the Willamette Valley System for eight purposes, which includes navigation. FEIS Section 1.10.5 states "Navigation was authorized at most of the dams and reservoirs in the WVS. HD531 recognized low channel depths due to increased withdrawal of streamflow as an impediment to navigation upstream of Willamette Falls."

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

PUBLIC (MCKENZIE, SCOTT)

Comment Document: 2023-01-08_PublicComment_WV_DEIS_Citizen_Scott McKenzie.pdf

Comment: Proposed Action-3

Are there intentions to remove any if the dams storing water in the Willamette Valley?

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority. Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA.

Impacts to all of the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects under the alternatives on fish and wildlife, hydropower, water supply, flood risk management, etc.

Comment: Water Supply-2

How will they plan to provide the water for farming and replace the power generated by the facilities?

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority.

Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS. Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc.

The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

PUBLIC (O'CAER, TERESSA)

Comment Document: 2022-12-05_PublicComment_WV_DEIS_Citizen_TeressaOCaer.pdf

Comment: Alternatives-1

I would vote against the Preferred Alternative because of the reduction hydropower and the reservoir draw down….

Perhaps Alternative 1 will do all that at $104M.

Response:

Comment noted.

Comment: Hydropower-4

I think it best to protect hydropower production, irrigation and the fish as much as possible.

Response:

Comment noted.

PUBLIC (OVERWATER, ALAN)

Comment Document: 2023-01-09_PublicComment_WV_DEIS_Citizen_Alan Overwater.pdf

Comment: NEPA Process-7

I saw an article in the Statesman on the 13 damns and needing public input. The article gave the days, times and locations but not the DATES. I would like this info please.

Response:

The DEIS public comment period began on November 22, 2022 for a 55-day period noticed in the Federal Register (87 FR 72482). Based on public requests to extend the comment period, the Corps announced a 35-day extension in the Federal Register on January 13, 2023 (88 FR 2357). The full 90-day public comment period closed on February 23, 2023.

The Corps published the dates for November 2022 public comment period and the January 2023 extended public comment period on its Portland District website. The Corps also noticed the public comment period dates in the Federal Register (FR 72482) and provided this information to eight public libraries in the project area, which were listed on the Corps' webpage.

Further, all journalists seeking information on the project were provided the public comment period dates. https://www.nwp.usace.army.mil/Media/News-Releases/Article/3262661/corps-extends-public-comment-period-for-proposed-willamette-valley-system-30-ye/ (extension)
https://www.nwp.usace.army.mil/Locations/Willamette-Valley/Fern-Ridge/

Comment: Climate Change-3

Also, in reguards to the plans, has climate change been taken into account? Specifically, if there are no dams, with higher temperatures, wouldn't more rivers in the future evaporate? Due to less snow pack and demands for irrigation?

Response:

This comment requests information about dam removal that is out of scope for the EIS analyses. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives, for descriptions of the scope of analyses, purpose and need statement, Proposed Action, and range of alternatives. Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record.

Corps policy is to consider climate change in NEPA documents to help inform the decision maker. DEIS and FEIS Appendix F1, Quantitative Assessment of Climate Change Impacts, and DEIS and FEIS Appendix F2, Supplemental Climate Change Information, describe future temperature impacts from climate change. These appendices have been updated in the FEIS to include additional information pertinent to climate change. Climate change-related effects are described for each resource analyzed in Chapter 3, Affected Environment and Environmental Consequences, and Chapter 4, Cumulative Effects.

Comment: Fish-12

Would removing dams in the long run affect salmon due to rivers running dry?

Response:

The WVS reservoirs augment naturally low river flows downstream of dams, providing benefits for salmon and aquatic resources, and other beneficial uses. Impacts of dams on fish and aquatic habitat are addressed in Section 3.8, Fish and Aquatic Habitat. Impacts on fish from dam removal is complex, but not analyzed in this EIS. The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the proposed action (Appendix A, Alternatives Development, Attachment 1).

The Corps is not considering dam removal as part of its Willamette Valley System operations and maintenance program under this NEPA review (Appendix A, Alternatives Development, Attachment 4).

Because dam removal is not a component of the proposed action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS. However, impacts to all of the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the proposed action and alternatives on fish, hydropower, water supply, flooding, etc.

Comment: Water Supply-4

And if you have thought through the effects of global warming, what are the statagies that will be put in place so that EVERYONE has EQUAL access to fresh, clean drinking water. I would appreciate any and all info on this.

Response:

Water quality impacts were analyzed in DEIS and FEIS Chapter 3, Section 3.5, Water Quality, and in Chapter 4, Section 4.5, Water Quality cumulative effects. Drinking water impacts under each alternative are analyzed in FEIS Chapter 3, Section 3.19, Drinking Water, and in Chapter 4, Section 4.5, Drinking Water cumulative effects. These analyses include expected effects from climate change-related conditions on water quality and drinking water.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2)b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

PUBLIC (PEARSON, COLBY)

Comment Document: 2023-01-19_PublicComment_WV_DEIS_Citizen_Colby Pearson.pdf

Comment: Fish-22

Do not proceed with the proposed strategy!

This would be another failed management strategy and would ruin both fisheries which are phenomenal trout, Kokanee and bass fisheries as they are.

Do not proceed.

Response:

Comment noted.

PUBLIC (QUIRING, JIM)

Comment Document: 2023-02-22_PublicComment_WV_DEIS_Citizen_Jim Quiring.pdf

Comment: Fish-45

Protect our Willamette Basin salmon and steelhead.

These wild runs of salmon and steelhead have come to our rivers in the Willamette Basin since time immemorial and represent an important part of our Oregon's environmental and cultural heritage.

Response:

Comment noted.

PUBLIC (RINGWALD, MICHAEL)

Comment Document: 2022-12-03_PublicComment_WV_DEIS_Citizen_MichaelRingwald.pdf

Comment: Dam Removal-1

Please do not tear down any Dams in Oregon, we are short of water the last few dry years, also really need all the electric power that these dams produce.

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority. Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA.

Impacts to all of the Corps' Congressionally authorized purposes have been analyzed in the EIS, including effects under the alternatives on fish and wildlife, hydropower, water supply, flood risk management, etc.

PUBLIC (ROMANO, DEB)

Comment Document: 2023-01-07_PublicComment_WV_DEIS_Citzen_Deb Romano.pdf

Comment: Fish-7

I am writing this email because I am concerned about the changes that are going to take place at Green pewter. This is a world class bass fishery. I am fearful that these new plans will impact the survival of the fish. Please reconsider anything that will impact this great fishery.

Response:

The FEIS has been updated to include impacts to all fish species in the analysis area including smallmouth and largemouth bass in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species.

Further, the Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been identified and will be

considered prior to a final decision when balancing all impacts associated with alternative implementation.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

PUBLIC (ROSSO, ERIC)

Comment Document: 2023-01-26_PublicComment_WV_DEIS_Citizen_Eric Rosso.pdf

Comment: Fish-31

You've done the same stupid s***[1] to Fall Creek, Lookout, Dorena, and Cottage Grove, and what did we get out of it? A huge divot in our annual fishing spend, and the destruction of a world-class Largemouth Bass, and Crappie fisheries! That's all we got!!!

Response:

The FEIS has been updated to include impacts to all fish species in the analysis area including crappie and largemouth bass in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species.

Further, the Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: Fish-32

I'm sure some state/federal suck-a**[2] got a kick-back or two out of it, but you people are HARMING THIS STATE! Worse yet, the s***[3] you're doing isn't even helping Salmon, or

[1] Obscene language omitted.
[2] Obscene language omitted.
[3] Obscene language omitted.

Steelhead! Like seriously, did any of you even bother to consider what smolt feed on while they are in our lakes? They don't just go around sucking up bug larvae. THEY EAT THE FRY, AND FINGERLINGS OF OTHER FISH! In case you were wondering, in lakes like Fall Creek, that means "LARGEMOUTH BASS, AND CRAPPIE FRY/FINGERLINGS"!

Understand now, why getting rid of Bass, and Crappie is a F******[4] STUPID IDEA?

Response:

The FEIS has been updated to include impacts to all fish species in the analysis area including crappie and largemouth bass in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species.

Comment: Fish Passage-7

They also get out of the lakes too. Albeit not easily, and most of the smolt get trapped in the lakes, but a good number of them do make it out. To me, this means that the issue is the design of the dams. An issue best remediated by either a means of open passage that goes through the dams, or a canal that circumvents the dams. Opening the gates (and draining the lakes) just eliminates winter fishing opportunities, and destroys the lake's residential fisheries.

Response:

Both operational and structural measures for improving fish passage at WVS dams are included under the alternatives described in the FEIS. These measures are defined in DEIS and FEIS Appendix A, Alternatives Development.

The analysis results of the effectiveness of the measures under each alternative is provided in FEIS Chapter 3, Affected Environment and Environmental Consequences, and Appendix E, Fish and Aquatic Habitat Analyses. An additional assessment of resident fish species in reservoirs targeted for recreational fishing has been included in the FEIS in Section 3.8, Fish and Aquatic Habitat.

Comment: Proposed Action-14

If you want to make a policy change that will help everyone, lock down the gates, and only let out what water YOU NEED TO, in order to facilitate power generation, to keep the lakes from flooding, and keep the riverbeds wet enough for whatever winter runs we have, to get to where they need to go. While improving the dams (in the ways I've suggested) would be really expensive (and create a lot of jobs), closing the gates would be relatively cheap, and do just as much good.

[4] Obscene language omitted.

Response:

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2)b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

PUBLIC (ROSSO, ERIC)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_Citizen_Eric Rosso.pdf

Comment: Alternatives-31

I write you today specifically concerning the proposed draw-downs of Green Peter, and Lookout Point Reservoir. I cannot express the depth of confusion, frustration, and apathy I feel, when I contemplate the outcomes of this utterly moronic proposition. Not only have previous test pilots of the proposal (what you've done to Fall Creek, and adjustments you've made to the retention schedules of the reservoirs you manage) failed to meet even the most paltry of returning salmonid expectations, but these policies have damaged the biospheres of all of these impoundments, (and as a result, our annual fishing spend) in profound, and possibly irreparable ways.

Response:

Substantial, adverse effects on water-based recreation opportunities at many of the projects in the Willamette Valley System would occur under various alternatives as described in FEIS Section 3.14, Recreation Resources. However, Green Peter Dam would still support some level of recreational use throughout the year.

When making its decision based on analyses in an EIS, Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Fish-50

It's as if your office decided Bass aren't worth anything, and you have to prioritize a few thousand returning Chinook over ALL other considerations. Your water retention schedules have FAILED to produce positive results. I watch every Fall as you raise the Willamette to damn near flood-stage, just to make sure you've destroyed the lakes for another year. Even now, the Willemette is running about 10, to 15 feet higher than is needed. We simply don't have enough returning fish to need to push that much more water down-river. And given how ultra-low you'd drawn Lookout down, IMHO you should be retaining every cubic foot of water you can until you have about 30 feet to go to full pool. This would allow maximum spawning area for the Smallmouth, Crappie, Largemouth, Walleye, and Native Trout. This would vastly improve the volume of the spawn that makes it to adulthood, as well as be more inline with at least the first 3 of these guiding tenants than your current/future plans.

Response:

The FEIS has been updated to include impacts to all fish species in the analysis area including smallmouth and largemouth bass in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species. Further, the Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Hydropower-13

Given the growing need for clean sources of energy, (and that hydro is the least invasive, least damaging, and least toxic form of renewable energy), I would think projects that incorporated improved (natural) passages, as well as hydro-electric generating facility would get greater consideration than they do.

Response:

Comment noted.

Comment: Fish-51

1. Stop considering warm-water species, and anadromids/salmonids separately. They are not separate. The disclusion of Largemouth, Smallmouth, and other "warm-water/invasive" from consideration as part of the river-systems is errant, and not inline with "reality". Your precious Salmon, and Steelhead are inextricably dependent on warm-water species for forage during their spawn, and while they smolt

Response:

Several warm-water species introduced to WVS reservoirs are known to prey on juvenile salmon and trout. Reducing these warm-water species would reduce mortality rates for ESA-listed fish species within WVS reservoirs. ESA-listed salmon do not appear to be dependent on warm-water fish species for growth and survival as suggested by the comment.

Published scientific studies have shown Chinook salmon growth rates in Fall Creek Reservoir have not changed despite the reduction in introduced species in the reservoir since deep drawdowns to riverbed have occurred, and then downstream passage and adult return rates have increased as a result of the reservoir deep draw downs (e.g., Murphy et al. 2019 in FEIS Appendix E, Fish and Aquatic Habitat Analyses).

Furthermore, the Corps analyzed potential effects to fish and other threatened species under each of the alternatives. The Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

An additional assessment of resident fish species in reservoirs targeted for recreational fishing has been included in the FEIS (Section 3.8, Fish and Aquatic Habitat).

Comment: Fish-52

Draining the lakes in attempts to facilitate the escapement of salmonids is not only not helping the smolt escape the lakes any faster, but it's also terminally harming the very forage-base those smolt are supposed to be beefing up for the ocean on! In addition, it's harming prized fisheries that just as many (if not far more) fishermen pursue.

Salmon, and Steelhead are only available during brief periods of the year, but Largemouth Bass provide fishing opportunities all year round.

Response:

Several warm-water species introduced to WVS reservoirs are known to prey on juvenile salmon and trout. Reducing these warm-water species would reduce mortality rates for ESA-listed fish species within WVS reservoirs. ESA-listed salmon do not appear to be dependent on warm-water fish species for growth and survival as suggested by the comment.

Published scientific studies have shown Chinook salmon growth rates in Fall Creek Reservoir have not changed despite the reduction in introduced species in the reservoir since deep drawdowns to riverbed have occurred, and then downstream passage and adult return rates have increased as a result of the reservoir deep draw downs (e.g., Murphy et al. 2019 in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses). Furthermore, the Corps analyzed potential effects to fish and other threatened species under each of the alternatives.

The Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation. An additional assessment of resident fish species in reservoirs targeted for recreational fishing has been included in the FEIS (Section 3.8, Fish and Aquatic Habitat).

Comment: Fish-53

3. I've watched for decades, as ODFW, and ACE have contended with the fact that the way the dams were built had zero consideration for the future existence of Salmon, and Steelhead. In the process of doing so, you've interrupted what were reasonable water retention policies in our reservoirs, and have not only damaged our warm-water fisheries, but also failed to improve Chinook, and Steelhead populations to an extent that would justify continuing them, or expanding them to Lookout, and Green Peter. Both are developing into fantastic Smallmouth Bass fisheries, and Lookout is developing the best/healthiest population of Walleye south of Portland! As both are much sought-after species, and we have failed to see destroying Fall Creek result in so much as a self-sustaining Steelhead, or Chinook run, I see absolutely zero justification for draining Lookout, or Green Peter.

Response:

The FEIS has been updated to include impacts to all fish species in the analysis area including bass, crappie, walleye, pikeminnow, trout, kokanee, etc. in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species.

Further, the Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS. Analyses of resident fish species in reservoirs targeted for recreational fishing under each alternative have been included in the FEIS and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

PUBLIC (SANDS, STEVEN)

Comment Document: 2023-01-21_PublicComment_WV_DEIS_Citizen_Steven Sands.pdf

Comment: Fish-28

You, like me, know this proposal is ludicrous. This will do nothing for any meaningful salmon populations. It's a waste of so many resources. Mainly fish, water and time. Green Peter has another reservoir below it. What are the salmon smolts going to do there?--

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats. Further, the Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS. Measures include improving fish passage conditions at dams for migrating fish. Upstream passage would require a trap and haul approach due to the height of the dams and the annual fluctuation in water levels in the reservoirs.

Operational and structural measures are included and assessed among the alternatives that would be implemented at Green Peter and Foster Dams to allow smolts to migrate downstream.

PUBLIC (SCHMIDT, WAYNE)

Comment Document: 2023-01-10_PublicComment_WV_DEIS_Citizen_WayneSchmidt.pdf

Comment: Proposed Action-6

In sum, I support your Preferred Alternative.

Public support for Corps projects relies on trust and confidence in your competence and expressed values. Today, Eric Peterson's summary did that for me…

So, thank you for all your efforts to fairly "rebalance the benefits" of the Willamette Valley System. It's way past due.

Response:

Comment noted.

PUBLIC (SMITH, BRIAN)

Comment Document: 2023-01-19_PublicComment_WV_DEIS_Citizen_Brian Smith.pdf

Comment: Recreation-4

I am a member of Mid Valley Bass club and am concerned or more like disgusted with the disregard concern for the public use of these water ways for families during the summer time.

Response:

Recreation is one of the Congressionally authorized purposes of each of the reservoirs in the Willamette Valley System, and as such, the Corps maintains a responsibility to continue allowing for recreation use at the 13 WVS projects (FEIS Section 1.10, Congressionally Authorized Purposes). The FEIS has been revised to include additional information on land-based, water-based, and river-based recreation at all reservoirs under all alternatives in Section 3.14, Recreation Resources.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives, including recreation. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Proposed Action-7

This draw down of these lakes should not be done just to fix a ODFW problem that they created by their poor management of the salmon population. That is what needs fixing.

Response:

Comment noted.

Comment: Socioeconomic Resources-7

This will also be a hardship on the towns around these places because people will not be stopping for gas and food on the way home.

Response:

An explanation of the Corps' Congressionally authorized purposes is provided in Chapter 1, Introduction, Section 1.1, Background, and Section 1.10, Congressionally Authorized Purposes. The Corps must manage the Willamette Valley System to meet all authorized purposes, which includes recreation but also seven other purposes.

Section 3.14, Recreation Resources, has been revised to focus on recreation opportunities and how those opportunities would be impacted under each alternative and at each reservoir. Additionally, Section 3.11, Socioeconomics, addresses the economic and community impacts expected under each alternative, including impacts from other resource effects such as hydropower and drinking water.

Visitation data were updated and used to consistently analyze community impacts on recreation opportunities (Section 3.14, Recreation Resources) and on local, reservoir employment and community revenue (Section 3.11, Socioeconomics).

At the local and regional levels, the analyses have been revised to address both the peak recreation season of mid-May to mid-September and late summer impacts where they would occur. Acknowledgement of recent wildfire effects on recreation and employment have also been made in both sections.

Finally, potential cumulative effects on recreation opportunities and community economics have been revised in Section 4.11, Socioeconomics, and Section 4.14, Recreation Resources.

PUBLIC (SMITH, HAL)

Comment Document: 2023-01-07_PublicComment_WV_DEIS_Citzen_Hal Smith.pdf

Comment: Alternatives-2

Alternative 1 seems to make the most common sense. It will increase energy supply using clean hydro. It will enhance irrigation for farmers that produce our food. The ESA rules apparently do not come with funded mandates; however, with increasing demand for two basic necessities, i.e., energy and food, increases for both of these make sense even though expensive… There is less disruption to humans, their lifestyles, jobs and culture and therefore I vote for Alternative One.

Response:

Comment noted.

Comment: Hydropower-8

Unless and until alternate energy supplies are actually on line it is foolish to select any alternative that would diminish current hydro-electric sources.

Response:

The Corps analyzed potential impacts to hydropower production under each of the alternatives in FEIS Section 3.12 and Appendix G, Power Generation and Transmission. Impacts to hydropower production have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

PUBLIC (SPAIN, BRUCE)

Comment Document: 2023-02-18_PublicComment_WV_DEIS_Citizen_Bruce Spain.pdf

Comment: Proposed Action-16

I am totally against the extreme drawdowns of these reservoirs due to long term effects it will have on irrigation, local economy, and recreation.

Response:

Comment noted.

PUBLIC (STEELE, JOHN)

Comment Document: 2023-02-20_PublicComment_WV_DEIS_Citizen_John Steele.pdf

Comment: Water Quality-5

Focus on one environmental factor that is known to have the greatest impact on fish: Temperature. Build temporary siphon units draped over spillways, similar to those used during dam maintenance activities. Place these on dams of moderate heights to modulate downstream water temperatures during low summer flows and during fall reservoirs' temperature inversion events. The following are possible advantages to this approach:

- Temperature is a known key factor in fish migration independent of water flow.

- Water flow will not be changed and thus avoid any additional conflicts of water usage.

- Design and install siphon tubes: According to the contractor who built the water temperature tower on Cougar reservoir, these can be built in two pieces, trucked to a dam's location and assembled in place at a considerable cost saving.

- Modulating only one variable, e.g. temperature, allows the determination of its effectiveness without having other factors, such as changes in water flow, producing unknown/indeterminate 'experimental noise' that would mask any outcome achieved by modulating downstream temperature outflows.

- Once you have perfected temperature modulation, then you can start modulating water flow to find its optimal effect.

- Addressing downstream water temperature will send a clear message that the Corps is following the irrefutable scientific evidence regarding water temperature and moving forward its goal of restoring fish populations.

Response:

This comment requests that the Corps construct a temporary structure, which pose dam safety concerns. The alternatives evaluate safe and effective ways to manage temperatures through operations or permanent structural modifications. See Chapter 2 for descriptions of the range of alternatives and the temperature measures under those alternatives.

PUBLIC (STRICKLER, ERIC)

Comment Document: 2023-01-20_PublicComment_WV_DEIS_Citizen_Eric Strickler.pdf

Comment: Recreation-11

The Oregon reservoirs such as Green Peter, Lookout Point, Dorena, Cottage Grove, Foster, Fall Creek, Detroit, Fern Ridge just to name a few are a wonderful part of Oregon and a resource that we desperately want to continue using all year long.

Response:

Substantial, adverse effects on water-based recreation opportunities at many of the projects in the Willamette Valley System would occur under various alternatives as described in FEIS Section 3.14, Recreation Resources. However, each of the reservoirs mentioned in the comment would still support some level of recreational use throughout the year under any alternative.

When making its decision based on analyses in an EIS,1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Proposed Action-10

The idea that a quick fix of lowering lake levels to an extreme point to allow fish to start using these areas of the rivers again is; not reliable, not a good long term solution

Response:

Comment noted.

Comment: Socioeconomic Resources-9

slows the economy as people will not be recreating as much

Response:

An explanation of the Corps' Congressionally authorized purposes is provided in Chapter 1, Introduction, Section 1.1, Background, and Section 1.10, Congressionally Authorized Purposes. The Corps must manage the Willamette Valley System to meet all authorized purposes, which includes recreation but also seven other purposes.

Section 3.14, Recreation Resources, has been revised to focus on recreation opportunities and how those opportunities would be impacted under each alternative and at each reservoir. Additionally, Section 3.11, Socioeconomics, addresses the economic and community impacts expected under each alternative, including impacts from other resource effects such as hydropower and drinking water. Visitation data were updated and used to consistently analyze community impacts on recreation opportunities (Section 3.14, Recreation Resources) and on local, reservoir employment and community revenue (Section 3.11, Socioeconomics).

The Corps did not analyze national economic trends, which are speculative over a 30-year implementation timeframe. However, at the local and regional levels, the analyses have been revised to address both the peak recreation season of mid-May to mid-September and also late summer impacts where they would occur. Acknowledgement of recent wildfire effects on recreation and employment have also been made in both sections.

Finally, potential cumulative effects on recreation opportunities and community economics have been revised in Section 4.11, Socioeconomics, and Section 4.14, Recreation Resources.

Comment: Fish-26

causes harm to current fish populations… The current lake populations of Bass, Blue Gill, Crappie, Kokanee, etc will suffer far more from this extreme lake drain events that will benefit the Salmon.

Response:

The FEIS has been updated to include impacts to all fish species in the analysis area including bass, crappie, walleye, pikeminnow, trout, kokanee, etc. in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species. Further, the Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS.

Analyses of resident fish species in reservoirs targeted for recreational fishing under each alternative have been included in the FEIS and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: Hydropower-9

requires the additional of diesel generators to be used where hydropower generation is stopped,

Response:

The Corps analyzed potential impacts to hydropower production under each of the alternatives in FEIS Section 3.12 and Appendix G, Power Generation and Transmission. Impacts to hydropower production have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Further, hydropower from the Federal Willamette River dams is managed by the Bonneville Power Administration as a part of the larger Federal Columbia River Power System (FCRPS). All wholesale customers of the Bonneville Power Administration receive power from the entire FCRPS and are not dependent on the output of individual dams.

Comment: Geomorphology-1

will cause increased erosion in the banks of the reservoirs, and on and on.

Response:

The Corps analyzed potential for changes in bank erosion within the reservoirs under each of the alternatives including the Preferred Alternative in FEIS Section 3.4, Geology and Soils; Section 3.6, Vegetation; and Section 3.7, Wetlands. Sediment transport is analyzed in Appendix B, Water Quality Analysis.

Comment: Fish Passage-6

By taking a course of action that will allow Salmon to use fish ladders, such as the ones used on the Columbia power generating dams, there is more benefit to; the fish (current and future populations), the environment (reduction of generator power, erosion), the economy (as fishing/camping/hiking/boating) will continue to be used at normal or possibly higher frequency if populations are able to stabilize, and is long term sustainable.

Response:

Fish ladders at Columbia River mainstem dams allowing passage of upstream migrating salmon and other fishes are not feasible at the Willamette Valley System (WVS) dams due to the extreme seasonal and annual fluctuations in reservoir pool elevations (greater than 100 feet). Fish ladders at Columbia River dams are not designed to operate with large fluctuations in reservoir elevations.

The Corps is not aware of a design that would allow fish ladders to effectively operate were reservoir fluctuations substantially. The height of the Willamette River dams is also

a limiting factor. Fish ladders would need to be extremely long to achieve the elevation gain for passage at the dams. Trap and haul programs have proven very effective around Willamette River dams for safe collection and transport of adult salmon and steelhead above WVS dams (e.g., Sharpe et al. 2015 in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses).

Comment: NEPA Process-11

Please fight the courts, asking for more time to allow for building the necessary long-term solution needed to see success for the Salmon and for maintaining the reservoirs that we cherish so much in Oregon.

Response:

Comment noted.

PUBLIC (TIECKE, CLARK)

Comment Document: 2023-01-17_PublicComent_WV_DEIS_Citizen_Clerk Tiecke.pdf

Comment: Socioeconomic Resources-6

Please analyze modifications to existing or new boat ramps for all reservoirs. This should be part of your economic analyze.

Response:

This comment requests information on boat ramp modifications that is out of scope for the EIS analyses. This is a programmatic analysis and does not address impacts related to specific projects such as boat ramp modifications, or any type of specific repairs or resource replacement.

See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives, for descriptions of the scope of analyses, purpose and need statement, proposed action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record. This is a programmatic analysis and does not address impacts related to specific projects such as boat ramp modifications, or any type of specific repairs or resource replacement.

Section 3.14, Recreation Resources, has been revised to focus on recreation opportunities and how those opportunities would be impacted under each alternative and at each reservoir including effects from low reservoir levels and boat ramp use. Additionally, Section 3.11, Socioeconomics, addresses the economic and community

impacts expected under each alternative, including impacts from other resource effects such as hydropower and drinking water. Visitation data were updated and used to consistently analyze community impacts on recreation opportunities (Section 3.14, Recreation Resources) and on local, reservoir employment and community revenue (Section 3.11, Socioeconomics).

"The Corps owns and operates the boat ramps at the 13 Willamette Valley System dams and would close the ramps when the WSE reaches a level whereby ramps are unusable under each alternative. As discussed in FEIS Section 3.14.3.1, Recreation Resources, Methodology, the quantitative analyses included an estimation of the average annual number of days that boat ramps would be usable using water surface elevation (WSE) data from the HEC-ResSim model and boat ramp elevations at each reservoir (See also FEIS Appendix K, Recreation Analysis). The number of days in each season that the bottom of a given boat ramp elevation would be lower than the WSE were counted as usable days, with the remaining days counted as unusable.

An example of how recreation benefits were calculated, that includes the number of days boat ramps would be available is in FEIS Appendix K, Recreation Analysis, Section 2.3, Average Annual Effects, Table 2-1 and 2-2. This example illustrates only Hills Creek Reservoir; however, the total benefits results tables for each reservoirs are available in FEIS Appendix K, Recreation Analysis, Chapter 3, Uncertainty in Reservoir Recreation Analysis Results, Tables 3-1 to 3-23.

The explanation of how “usable” and “unusable” boat ramp days were calculated is given in FEIS Appendix K, Recreation Analysis, Section 2.2, Methodology. "

PUBLIC (UNDERWOOD, LONNIE)

Comment Document: 2023-01-23_PublicComment_WV_DEIS_Citizen_Lonnie Underwood.pdf

Comment: Proposed Action-12

I am writing you regarding the proposed drawdowns of Lookout and Green Peter reservoirs. … Please re consider this proposal and find an alternative solution.

Response:

Major adverse effects would occur on recreation at many of the projects in the Willamette Valley System under various alternatives, including Green Peter Dam. However, Green Peter Dam would still support some level of recreational use throughout the year. The alternatives analyses address different measures at each dam including Green Peter Dam so the Corps can compare tradeoffs between different possible solutions and their effects.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based

on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in Chapter 1, Introduction, and Chapter 2, Alternatives, of the EIS. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Fish-29

While the drawn may or may not help the Salmon fishery, it will destroy the bass fishing if Fall Creek is any indication.

Response:

The FEIS has been updated to include impacts to all fish species in the analysis area including smallmouth and largemouth bass in Section 3.8, Fish and Aquatic Habitat. Section 3.8.2, Affected Environment, addresses the existing condition of these species. Further, the Corps consulted with ODFW, USFWS, and NMFS as Cooperating Agencies in development of the EIS.

Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: Recreation-13

It will also hurt the use of the reservoirs for other recreational purposes, pushing boaters into other areas that are already overcrowded. Green Peter is becoming a world class smallmouth fishery as well as a very good kokanee fishery.

Response:

Substantial, adverse effects on water-based recreation opportunities at many of the projects in the Willamette Valley System would occur under various alternatives as described in FEIS Section 3.14, Recreation Resources. However, Green Peter Dam would still support some level of recreational use throughout the year.

When making its decision based on analyses in an EIS, Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by

the agency in making its decision…" (40 CFR 1505.2(b)). The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative. Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Socioeconomic Resources-10

I'm sure this drawdown will decrease tourism in Sweet Home also.

Response:

Regional economic modeling under all alternatives was updated in FEIS Appendix I, Socioeconomics Analysis. Regional modeling under all alternatives at all reservoirs provided in FEIS Appendix K, Recreation Analysis, was applied to the FEIS Section 3.11, Socioeconomics analysis of Recreation-related Revenue and Employment Earnings under All Alternatives.

The FEIS also includes an analysis of the Economic Relationship with Communities that qualitatively describes impacts/benefits under all alternatives in Section 3.11, Socioeconomics. This description includes the community of Sweet Home, Oregon.

PUBLIC (WALSH, JIM)

Comment Document: 2022-12-04_PublicComment_WV_DEIS_Citizen_Jim Walsh.pdf

Comment: Proposed Action-1

I want to express my strong opposition to any plan that would reduce hydro-electric production, reduce drinking water storage, impact flood control and irrigation capabilities and reduce the recreation options on the reservoirs.

Response:

Comment noted.

Comment: Hydropower-3

The loss of the hydro-electric production that powers 14,333 homes is ridiculous to say the least…. Also reducing hydropower generation will I'm confident cause rates to rise.

Response:

The Corps analyzed potential impacts to hydropower production under each of the alternatives in Section 3.12 and Appendix G, Power Generation and Transmission.

Impacts to hydropower production have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: Out of Scope-1

All we hear about anymore is we need to go green. I guess that only counts when it suits a particular political goal! … I'm tired of the government putting fish before people.

Response:

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Socioeconomic Resources-2

Also reducing hydropower generation will I'm confident cause rates to rise.

Response:

The economic viability of power generated from the Willamette Valley System under each alternative is analyzed in Chapter 3, Affected Environment and Environmental Consequences, Section 3.12, Power Generation and Transmission. The 3-year average cost of power generation is provided as well as the increase in costs over the 30-year implementation timeframe. In summary, compared to the No-action Alternative, there would be long-term, substantial, adverse effects on economic viability from the WVS dams under all action alternatives. However, power generated by the WVS is a small contribution to the regional power system.

PUBLIC (WARREN, DOUG)

Comment Document: 2023-01-19_PublicComment_WV_DEIS_Citizen_Doug Warren.pdf

Comment: Proposed Action-8

This email is in concern to your new water plan on Lookout point and Green Peter… This proposal is the craziest thing I have ever heard. You need to stop the idea of this

Response:

Comment noted.

Comment: Recreation-5

Both these lakes are highly used recreation areas.

Response:

FEIS Section 3.14 and Section 4.14, Recreation Resources, analyze effects on water-based, land-based, and river-based recreation opportunities at each WVS reservoir under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect as predicted that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Water Supply-6

while we are at it start putting water in Dorena, Cottage Grove, Galesville also. I have quietly set by and watched the gross miss management of all our lakes in Oregon.

Response:

Conservation Season Water Management is adaptive based on hydrologic conditions and available reservoir storage. Annually, beginning in March, the Corps coordinates with

partner agencies such NMFS, OWRD, and ODFW to manage for authorized purposes, including fish and wildlife, water supply, irrigation, and recreation based on forecasted water supply and realized water conditions while following the guide curve for flood risk management for each reservoir (See FEIS Section 1.8, System Operation and Annual Operational Planning). Additionally, the Corps does not own nor operate Galesville Dam and Reservoir.

PUBLIC (WEICHSELBAUM, LEE)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_Citizen_Lee C. Weichselbaum.pdf

Comment: Water Supply-17

During the lower flow summer season, the project can draw down quickly causing problems for recreational users.

Response:

Analyses of impacts on land-based, water-based, and river-based recreation opportunities under each alternative at each reservoir have been revised in FEIS Section 3.14, Recreation Resources.

The EIS analyses will assist the Corps in understanding the many potential effects of alternative means of operating and changing the projects (e.g., dams, reservoirs, and related facilities) at a programmatic level, as a result of complying with the Endangered Species Act (See DEIS Section 1.3, Proposed Action and Purpose and Need).

When making its decision based on analyses in an EIS, Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Recreation-20

During the lower flow summer season, the project can draw down quickly causing problems for recreational users.

Response:

The EIS analyses will assist the Corps in understanding the many potential effects of alternative means of operating and changing the projects (e.g., dams, reservoirs, and related facilities) at a programmatic level, as a result of complying with the Endangered Species Act (See FEIS Chapter 2, Alternatives, Section 2.4, Purpose of and Need for the Proposed Action).

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative. FEIS Section 3.14, Recreation, analyzes drawdown effects on water-based and land-based recreation opportunities at all reservoirs under all alternatives.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Dam Safety-7

This measure assumes the current spillway gates and spillway channel could be re-designed to enable low-flow releases when the lake is above spillway crest. Blue River has an unlined spillway downstream of the apron and mitigation for erosion concerns would need to be considered. Additionally, there are concerns for the existing vegetation downstream of the spillway that would need to be considered. (See attached photos, BR Dam 15-10, BR Dam 15-11). This assumption is questionable because the spillway channel was originally constructed on a geologic "dike" zone, rendering it vulnerable to catastrophic failure. The proposed spillway structural modifications at Blue River have the potential for severe adverse effects to dam safety risk which would require project specific potential failure modes analyses (PFMAs) and possible mitigation measures or changes to the design.

Response:

Use of the Blue River Dam spillway is identified as a potential major adverse effect in Appendix H, Dam Safety. Use of the spillway at Blue River Dam would require structural modifications that would be subject to a targeted risk assessment also described in Appendix H, Dam Safety.

Comment: Dam Safety-8

Completion of the advanced risk assessment, called an Issue Evaluation Study (IES), which the USACE is conducting on Blue River Dam, is of even greater urgency given the increased water storage and structural modifications to the dam proposed under Alternative 5 (PA).

Preliminary IES results for Lookout Point, Hills Creek, and Detroit identified unacceptable risk for seismic failure modes resulting in the implementation of interim risk reduction measures (IRRMs). According to the studies, an earthquake could cause the spillway gates and the concrete supports on either side to become damaged. In addition to the spillway gates and piers, the rock fill embankment at Hills Creek has the potential for settlement during an earthquake event. If this occurs when the reservoir is at its highest, the damaged gates/embankment may no longer be able to hold back the water, allowing a high volume of outflows that could cause flooding of areas downstream.

Response:

Blue River Dam operations and maintenance are currently undergoing an Issue Evaluation Study as noted in Appendix H, Dam Safety, Chapter 3. Any structural modifications would be subjected to targeted risk assessments as discussed in Appendix H, Dam Safety, Section 2.1. A targeted risk assessment will consider the results of the Issue Evaluation Study when evaluating the dam's existing conditions. The refill changes proposed for Blue River Dam are described under Alternative 5, Preferred Alternative, in Appendix A, Alternatives Development.

Comment: Dam Safety-9

As mentioned, the Blue River Dam is a rock fill embankment with a vulnerable OT and compromised spillway gates and spillway channel. The Blue River Reservoir Top of Dam Zone is at 1362 ft. elevation, the Flood Control Zone is at 1357 ft. elevation, and the Conservation Zone is at 1350 ft. elevation. The community of Blue River is approximately a mile and a half downstream of the Blue River Dam. The increased amount of time that the reservoir will be maintained at these elevation levels under Alternative 5 (PA), the propensity of the Blue River Reservoir to rise rapidly during major storm events and open questions about the seismic vulnerability of the dam structures increase the risk of a potential catastrophic flood.

Response:

DEIS Executive Summary Section 5.10 Indicates that the Blue River Reservoir pool would fill more under Alternative 5 than under the No-action Alternative to balance storage in the McKenzie Basin, which means that it would be more likely to meet the target rule curve, not exceed or extend it. The duration the pool is held at the summer conservation pool as evaluated using the target rule curve, when earthquake risk is at its highest, would not be increased under the Preferred Alternative 5, as shown in DEIS and FEIS Appendix B, Hydrologic Processes Technical Information, Figure 5-186.

DEIS and FEIS Appendix H, Dam Safety, discusses how meeting the rule curve is unlikely to affect the total dam safety risk. Earthquake-related risks at the dams are driven by the high populations in downstream communities and the combined unlikely occurrence of an earthquake during sustained summer high pools, as indicated in DEIS and FEIS Appendix H, Dam Safety, Chapter 3. High pools resulting from extreme weather and floods are short duration conditions and do not contribute to overall earthquake-related risks.

Comment: Public Health and Safety-6

In addition, Alternative 5 (PA) proposes a deep draw down of Cougar Reservoir to pass fish through the Diversion Tunnel. The proposed fish passage operation at Cougar Dam would result in infrequent, temporary major adverse effects on transmission services to Blue River. Reduced reservoir levels associated with decreased refill ability or draw downs, combined with anticipated increases in the likelihood of extreme wildfire or weather events, would incrementally increase the risks that Cougar Dam would be unable to provide power during periods of reduced reservoir levels to the community of Blue River in the event a fire or severe weather event were to cause a transmission outage between Blue River and Thurston substations. Deep fall and spring draw downs would compromise Cougar Dam's ability to operate islanded (isolated) and serve the Blue River community under temporary weather or fire related outage conditions, resulting in significant adverse affects to public health and safety.

Response:

Comment noted.

Comment: Alternatives-46

The proposed use of the emergency spillway for surface spill in summer (#721), see above, for water temperature mitigation at Blue River, is limited because surface water releases can only be made up to the point that the reservoir is drawn down to the spillway elevation of 1,321 ft. Although the duration of the releases can last from May-July, historically that elevation of water in the reservoir is reached by early to mid June, before the air temperatures begin to really heat up. The Blue River fall reservoir draw down target elevation is 1165 ft. The coldest water will be released in the summer if the only available outlet for releasing water is the deep regulating outlet (RO). River temperature at Blue River, below the dam (USGS 14162200), was 63.5 degrees F, on October 22, 2022.

There are no water temperature measures for Cougar or Blue River dams under Alternative 5 (PA) and Alternative 2B in the McKenzie River, refer to Appendix D Section 1.6.4.3 for a comparison of Alternative 2B and NAA water temperature effects at Cougar Dam 3-562.

Response:

Comment noted.

Comment: Alternatives-47

Alternative 5 combines measures 105, 166, 11721, 30, 304, 718, 40, 392, 714, 52, and 722. Alternative 5 is exactly the same as Alternative 2b except that the integrated temperature and habitat flow regime (Measure 30a) has been replaced by the refined integrated temperature and habitat flow regime (Measure 30b).

Alternative 2b includes estimated funding increases for additional expected routine O&M activities brought on by new capital investments. Capital investments are included in Alternative 2b at Detroit/Big Cliff, Foster, Green Peter, Cougar, Blue River, and Lookout Point/Dexter. These capital investments would require design as well as engineering during construction costs. Measure numbers, descriptions of measure, and cost estimates for capital, design, engineering during construction, and O&M (in addition to the NAA) by project under Alternative 2b are as follows:

5. Blue River – Total - $520,000

M384 - Gravel augmentation below dams - $520,000 Capital - $350,000

Design/EDC – $70,000 OMRRR - $100,000

Alternatives 3A and 3B include a cost projection of $144,000,000 for M721 - Use spillway for surface spill in summer for Blue River as follows:

M721 - Use spillway for surface spill in summer- $144,000,000 Capital - $100,000,000 Design/EDC – $44,000,000

And although Alternative 5 (PA) includes measure 721, see above, the cost projections for Alternative 5 (PA) do not include any costs for that measure.

Response:

The FEIS has been updated to delete cost information by measure, and to highlight overall costs of full alternative implementation. This approach aligns with the analyses of effects under each alternative. All costs have been updated in Appendix M, Costs, to Fiscal Year 2025 values.

PUBLIC (ZASH, GREG)

Comment Document: 2023-01-21_PublicComment_WV_DEIS_Citizen_Greg Zash.pdf

Comment: Proposed Action-11

I have been reading about the plan to draw down Green Peter and Lookout Point resivors in the Fall of this ant a little but a lot. I fish for for multiple species of fish every year. I am writing this

message in the hopes that these draw downs will not as drastic as planned! ... Please reconsider the deep draw down in these resivors.

Response:

Substantial, adverse effects on water-based recreation opportunities at many of the projects in the Willamette Valley System would occur under various alternatives as described in FEIS Section 3.14, Recreation Resources. However, Green Peter Dam would still support some level of recreational use throughout the year.

When making its decision based on analyses in an EIS, Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Fish-27

Drawing these resivors down to the planned level will devastate the other species of fish which draw a lot of recreational fishing! Please reconsider the deep draw down in these resivors.

Response:

The Corps analyzed potential effects to fish and other threatened species under each of the alternatives. Further, the Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been added to FEIS Section 3.8, Fish and Aquatic Habitat. The FEIS has been updated to include information on the effects to resident fish populations targeted in local fisheries in the WVS reservoirs in Section 3.8, Fish and Aquatic Habitat.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc.

The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Effects on reservoir and downstream habitat and on all fish species affected by dam operations are provided in FEIS Section 3.8, Fish and Aquatic Habitat. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA process requires consultation with NMFS and the USFWS on impacts to listed fish and measures to avoid jeopardizing the continued existence of listed species.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes."

PUBLIC (ZEMBA, MICHAEL)

Comment Document: 2023-01-22_PublicComment_WV_DEIS_Citizen_Michael Zemba.pdf

Comment: Hydrology-4

Hi my name is Michael, I have some concerns about your plan to lower the lakes low pool. First of all I drove out to lookout point today January 22 to go fishing and the boat ramp was closed because of low water and this proposal hasn’t passed yet.

Response:

"The Corps owns or supports operations of the boat ramps at the 13 Willamette Valley System dams and would close the ramps when the WSE reaches a level whereby ramps are unusable under each alternative. As discussed in FEIS Section 3.14.3.1, Recreation Resources, Methodology, the quantitative analyses included an estimation of the average annual number of days that boat ramps would be usable using water surface elevation (WSE) data from the HEC-ResSim model and boat ramp elevations at each reservoir (See also FEIS Appendix K, Recreation Analysis). The number of days in each season that the bottom of a given boat ramp elevation would be lower than the WSE were counted as usable days, with the remaining days counted as unusable.

An example of how recreation benefits were calculated, that includes the number of days boat ramps would be available is in FEIS Appendix K, Recreation Analysis, Section 2.3, Average Annual Effects, Table 2-1 and 2-2. This example illustrates only Hills Creek Reservoir; however, the total benefits results tables for each reservoir are available in

FEIS Appendix K, Recreation Analysis, Chapter 3, Uncertainty in Reservoir Recreation Analysis Results, Tables 3-1 to 3-23.

The explanation of how “usable” and “unusable” boat ramp days were calculated is given in FEIS Appendix K, Recreation Analysis, Section 2.2, Methodology. "

The Corps is not proposing to modify flood risk management operations under any of the alternatives in the EIS; most winter reservoir pool target elevations across the WVS would not change under the EIS alternatives.

The projected range of seasonal reservoir elevations resulting from modifications to minimum releases and target elevations are detailed in Appendix B, Hydrologic Processes. The annual minimum target elevation is temporarily reduced for the purposes of spring and fall fish passage operations under some alternatives at some reservoirs.

Comment: Recreation-12

Second my fishing license keeps getting more expensive and the bodies of water that are going to be affected will cut my fishing time down drastically not to mention the unknown effect that it will have on the fish that I’m trying to catch. I didn’t buy a fishing license to wonder if I will get to use it or not and I certainly didn’t think I was paying just to screw myself over.

Response:

The cost and availability of fishing licenses are under the authority of ODFW and not the Corps; therefore, licensing is out of scope for this EIS review. However, the Corps analyzed potential effects to gamefish and resident species under each of the alternatives.

Further, the Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS. Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

SANTIAM WATER CONTROL DISTRICT (STEVENSON, BRENT)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_SantiamWaterControlDistrict_Brent Stevenson_Attachment.pdf

Comment: Proposed Action-44

The District as a current contract holder would like to understand the actual impacts of the proposed action to the use of stored water under our existing contract, and as it relates to new uses or contracts.

Response:

Availability of stored water for U.S. Bureau of Reclamation water service contracts for irrigation would continue to be determined on an annual basis. Actual, precise impacts on a specific contract cannot be determined due to the annual variability of reservoir refill, both system-wide and at individual projects. Additionally, specific contract matters are out of scope for the programmatic NEPA review (See Chapter 2, Alternatives, Section 2.4, Purpose and Need for the Proposed Action).

FEIS Chapter 3, Affected Environment and Environmental Consequences, Section 3.13.3.1, Water Supply, Environmental Consequences, Methodology, describes how implementation of the alternatives would affect water supply, including municipal and industrial and irrigation consumptive uses. FEIS Table 3.13-3 describes the criteria for analyzing potential effects to water supply under the alternatives.

The Corps analyzes water supply at a broad and macroscopic scale using the best available data and flow models. FEIS Section 3.13, Water Supply, Table 3.13-4 summarizes the overall effects to water supply and consumptive uses under each alternative using relative comparisons and model probabilities of reservoir refill. The footnote to Table 3.13-4 specifies that actual effects to stored water users are unknown at this time because the annual management process in dry years has not been established, as required by the 2019 Willamette Basin Review Biological Opinion Reasonable and Prudent Alternative.

The FEIS has been updated to modify this footnote to "Effects to specific stored water users are unknown at this time..." This information is also explained in more detail in Section 3.13.3.1, Water Supply, Methodology in the FEIS.

Comment: Water Supply-27

- The District believes that current contracted water users be “grandfathered” as senior contract holders and all new contracts utilize a proportionate reduction system among water user types if shortfalls arise in dry years.

- The District supports a preference towards existing (contract and live flow) users and ESA needs before additional or new uses are contemplated, Identifying all current users and ESA needs and ensuring those uses are provided water before newer uses are allowed ensures Federal actions closer align with state water law.

Response:

Comment noted.

Comment: Water Supply-28

The water right certificates to store water in the Willamette system have two differing priority dates, the EIS should provide a tabulation of storage amounts and releases per reservoir and use to better understand potential tributary specific impacts. The EIS should include materials sufficient to understand any potential conflicts arising with Oregon water law.

Response:

The FEIS has been updated to include changes to mid-May-stored water by subbasin in Section 3.13.3, Water Supply, Environmental Consequences, and Appendix J, Water Supply, Section 3, Physical Effects Analysis. The exceedance flow charts in Appendix J for river control points convey the potential effects to water supply more effectively than tabular data. For example, the non-exceedance flow charts characterize the flow frequency achieved under each alternative.

Comment: Proposed Action-45

The Corps should explain the anticipated water management framework and clarify whether stored water proposed to be used for fish passage or chosen to not be stored will come from the allocation of stored water to be used for fish and wildlife purposes.

Response:

DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, describes how the Corps would continue to work with the WATER Forum so that its members may inform the Corps' decisions during implementation of the 2019 Willamette Basin Review Feasibility Study and resolution of the ongoing Willamette Valley System operations and maintenance consultation.

The WATER Forum includes a Flow Management and Water Quality Team, which provides advice to the Corps' Water Management group on in-season adaptive management. This group was identified to advise the Corps and U.S. Bureau of Reclamation on how to establish a framework to implement the Willamette Basin Review Feasibility Study.

Advisory input also includes establishing the framework for curtailing irrigation and municipal and industrial contracts in very dry years. This process is ongoing. Further stakeholder engagement by the State of Oregon with the support of the Federal agencies is planned in the next few years.

Comment: BiOp-20

Discussions of the Biological Opinions (BiOps) related to the WVP should explain whether and how implementation of this BiOp included the proposed reallocation plan, including how state water law and the transfer process may affect water operations.

Response:

The FEIS has been updated to include additional information on the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes in Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008. The 2008 Biological Opinion included a Reasonable and Prudent Alternative (RPA) that required the U.S. Bureau of Reclamation and Corps to work through legal and administrative processes necessary to protect instream flows for ESA-listed species under state law. In compliance with that RPA, the Willamette Basin Review Feasibility Study was formally initiated in 2016.

The goal of this study was to seek Congressional approval to reallocate Willamette Valley System (WVS) conservation storage for the benefit of fish and wildlife, agricultural irrigation, and municipal and industrial water supply over a 50-year analysis period, while continuing to fulfill other WVS purposes.

The study examined different ratios of storage allocations for fish and wildlife, irrigation, and municipal and industrial uses based on projected demand for irrigation and municipal and industrial uses in 2070 and mainstream flow requirements for fish.

The Willamette Basin Review Feasibility Study addressed the initial step in the process to secure protection of instream flows under state law. In 2019, the Corps initiated its programmatic review of WVS operations and maintenance with a Notice of Intent to prepare an EIS. Unlike the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes, the WVS EIS NEPA review is related to operations and maintenance of the WVS, not water storage allocation.

While the WVS EIS Notice of Intent was published in 2019 just prior to the Willamette Basin Review Feasibility Study Finding of No Significant Impact (FONSI), the two NEPA actions are only related in that operations and maintenance under each alternative may directly, indirectly, or cumulatively impact water storage needed for various uses.

All alternatives analyzed in the WVS EIS propose measures to operate and maintain the WVS; they do not address modifications to water supply allocation. If at some point operations change to where allocations could not be met in normal to wet years, a subsequent feasibility study to revisit allocations would be initiated.

The Adaptive Management Plan addresses an overarching governance framework that includes implementation of the WVS operations and maintenance ESA consultation, the 2019 Willamette Basin Review Feasibility Study Biological Opinion, 2019 Hatcheries Biological Opinion, and other activities in the region.

For example, the Corps would continue in-season adaptive management to meet downstream flow targets, while considering input from the WATER Forum Flow Management and Water Quality Team. Appendix N also incorporates requirements from

the 2019 WBR Biological Opinion on how to notify irrigation and municipal and industrial users when their contracts cannot be fulfilled due to flow requirements for ESA-listed species. These efforts are informed by one another but are not dependent upon one another for implementation.

Comment: Revetments-10

The Corps should clearly identify US ACOE operated revetments and those that are maintained by a local sponsor and identify operations and impacts to each subset.

Response:

The FEIS has been updated to include information on revetments in Section 1.7.2, Revetments and Other Structures for Bank Protection.

The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley. The revetments converted to private sponsors to own and maintain are discussed in the FEIS in Section 1.7.2, Revetments and Other Structures for Bank Protection. Projects that propose to alter privately owned revetments, although they are no longer Federally owned and operated, are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Changes to the Rivers and Harbors Act Section 408 statutory program are outside the scope of this EIS.

The Corps would continue to maintain Corps-constructed revetments under all alternatives including the No-action Alternative. In contrast to the No-action Alternative, revetments could be modified to incorporate fish-friendly improvements under the action alternatives such as adding natural materials but must continue to provide the same level of protection as when originally authorized.

The Corps is also proposing to secure a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These restoration authorities would allow for a potential change in the protectiveness level of revetments studied. However, this collaboration is not part of the scope of this EIS because it has not been initiated.

Comment: References and Data-74

- Many of the datasets and assumptions used to model system operations are outdated… The Corps should use the most current datasets such as the 2020 Modified Flow Dataset. The Corps should clearly identify the assumptions carried forth by utilizing old datasets.

Response:

The Corps applied the most current information available at the time of the EIS Notice of Intent (April 2019). The 2020 Modified Flow Dataset (published October 2020) was not available at that time, so the Corps used the 2010 Modified Flow Dataset for its analyses,

extending the information with flow records through Water Year 2019. This extension appropriately captures variability across flow scenarios because flow conditions are not reliably repeated across years. The methods to calculate the inflow dataset are in Appendix B, Section 2.

Comment: Water Supply-29

Alternative 5, the Preferred Alternative, proposes a decrease in total conservation storage of 98,536 AF, the District appreciates the Corps' efforts to minimize reductions in conservation storage while meeting other project objectives such as the protection of Endangered Species Act (ESA) listed fish species. As described on page 3-1033 of the Draft EIS, the decrease of 98,536 AF of stored water under Alternative 5 is categorized as a "minor adverse effect" to consumptive users of the conservation storage. However, it is impossible to evaluate this impact adequately for two reasons. First, on page 3-1004, the Draft EIS states that "the actual effects to stored water users are unknown at this time because the annual management process in dry years has not been established." If the actual effects are unknown, then categorization of the impact as "minor" is unsupported. Second, the proposed changes in storage are only presented in the Draft EIS on a system-wide basis rather than by reservoir.

Response:

FEIS Table 3.13-3, Evaluation Criteria for Potential Effects for Water Supply in FEIS Section 3.13.3.1, Water Supply, Methodology, lists the evaluation criteria for effects to stored water uses, based on how much water would be stored system-wide by mid-May.

The statement "the actual effects to stored water users are unknown at this time because the annual management process in dry years has not been established" refers to impacts to individual users. Such specific impact assessments are beyond the scope of this programmatic EIS.

The FEIS has been updated to include changes to mid-May-stored water by reservoir in Section 3.13.3, Water Supply, Environmental Consequences, and Appendix J, Water Supply, Section 3, Physical Effects Analysis.

Comment: Water Supply-30

Appendix C of the Feasibility Study provides an explanation of the fact that meeting the 2008 BiOp minimum flow targets at Salem from April through October would require 4.22 million AF of water, while all of the reservoirs in the WVP combined hold a total of 1.6 million AF. Thus, while stored water can be managed to supplement flows, it is imperative that all flows needed to meet the Biop needs be quantified and detailed at the independent tributary level. For example, the 2008 Biop included RPA that the diversion of water on the Santiam rivers could impact ESA species, but Detroit and Green Peter reservoirs have more than adequate water available to meet all ESA, Existing and likely all future water needs for each tributary. A reservoir and reach specific analysis should be completed so that effects by individual tributary can be

assessed. The Draft EIS could fail to identify geographical areas with Major impacts when only a system wide analysis is made.

Response:

FEIS Section 3.2.2, Hydrologic Processes, Environmental Consequences, addresses the anticipated hydrologic effects under each alternative, tributary, and associated dams. A presentation of modeled reservoir elevations, dam outflows, and flows at downstream control points are described in this section. The model used in the programmatic analysis does not conduct reach-level analyses.

Comment: BiOp-21

The Relationship among the Biological Opinions Should Be Clarified, specifically the moratorium on issuing new contracts from the North Santiam river should be clarified. The 2008 BiOp developed by the National Marine Fisheries Service (NMFS) included an RPA Measure 3 (9.3.1) which required a moratorium on new Irrigation contracts in the Santiam Basins with an additional requirement for the Corps to update its flow exceedance models every five years to determine if additional water was available. The Moratorium was also contained in the 2019 Reallocation BiOp. The Draft EIS should state whether the Corps has completed an analysis of available water as required in the moratorium on contracts in the Santiam Basin and whether it will be lifted or if further actions are expected to be required to do so. The relationship among these BiOps should be clearly explained in the EIS (and/or in the forthcoming BiOp) to enable affected water users to understand how they may be impacted. For example, it would be helpful to understand whether the forthcoming BiOp will entirely replace the 2008 BiOp, or whether the Corps plans to continue making efforts to implement requirements of all three BiOps (2008, 2019, and 2023/2024), and how these requirements will be reconciled if they conflict.

Response:

The Biological Opinions associated with the Proposed Action will supersede the 2008 Biological Opinions requirements. As such, the Proposed Action and range of alternatives address ESA compliance from date of Record of Decision issuance.

Further, the Corps addresses court-ordered injunction measures intended to improve conditions for fish passage and water quality in the Willamette Valley System (WVS) to avoid irreparable harm to ESA-listed salmonids during the interim period until the completion of the reinitiated ESA consultation through the range of alternatives analyzed in the EIS.

See FEIS Chapter 1, Introduction, Section 1.12.3, Court-ordered Injunction Measures; FEIS Chapter 2, Alternatives, Section 2.8.5, S Interim Operations; and FEIS Appendix A, Alternatives Development.

The FEIS has been updated to include additional information on the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes in Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008.

The 2008 Biological Opinion included a Reasonable and Prudent Alternative (RPA) that required the U.S. Bureau of Reclamation and Corps to work through legal and administrative processes necessary to protect instream flows for ESA-listed species under state law. In compliance with that RPA, the Willamette Basin Review Feasibility Study was formally initiated in 2016.

The goal of this study was to seek Congressional approval to reallocate WVS conservation storage for the benefit of fish and wildlife, agricultural irrigation, and municipal and industrial water supply over a 50-year analysis period, while continuing to fulfill other WVS purposes. The study examined different ratios of storage allocations for fish and wildlife, irrigation, and municipal and industrial uses based on projected demand for irrigation and municipal and industrial uses in 2070 and mainstream flow requirements for fish.

The Willamette Basin Review Feasibility Study addressed the initial step in the process to secure protection of instream flows under state law. In 2019, the Corps initiated its programmatic review of WVS operations and maintenance with a Notice of Intent to prepare an EIS. Unlike the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes, the WVS EIS NEPA review is related to operations and maintenance of the WVS, not water storage allocation.

While the WVS EIS Notice of Intent was published in 2019 just prior to the Willamette Basin Review Feasibility Study Finding of No Significant Impact (FONSI), the two NEPA actions are only related in that operations and maintenance under each alternative may directly, indirectly, or cumulatively impact water storage needed for various uses.

All alternatives analyzed in the WVS EIS propose measures to operate and maintain the WVS; they do not address modifications to water supply allocation. If at some point operations change to where allocations could not be met in normal to wet years, a subsequent feasibility study to revisit allocations would be initiated. In 2019, as the Willamette Basin Review Feasibility Study was concluding, the Corps and NMFS were sued for failure to implement the 2008 RPA.

Meanwhile, the Willamette Basin Review Feasibility Study was completed and subsequently presented to Congress. In 2020 Congress approved the reallocation of the storage per the Chief's Report recommendations in the Water Resources Development Act (WRDA). The Feasibility Study underwent appropriate environmental review compliance including, but not limited to, consultation under Section 7 of the ESA and NEPA. A FONSI on the storage allocation was signed by the Corps in early 2020 after Congress issued its approval on reallocation.

Additionally, in 2019, the Corps initiated the WVS Operations and Maintenance EIS and reinitiated ESA consultation with the Services for failing to execute all of the provisions of the 2008 Biological Opinion RPA.

Congressional approval of the Willamette Basin Review Feasibility Study in 2020 also included language that the allocations could change up to 10 percent as part of a subsequent ESA consultation, if this change was not from any one source (i.e., fish and wildlife, irrigation, or municipal and industrial water supply).

The Proposed Action submitted to NMFS and USFWS for the accompanying WVS operations and maintenance consultation, which is based on the Preferred Alternative identified in FEIS Appendix A, Alternatives Development, Attachment 1, did not include any changes to the Willamette Basin Review Feasibility Study allocations because any change to the allocations would not affect the Corps' ability to provide flow for fish.

In compliance with the 2019 Willamette Basin Review Feasibility Study Biological Opinion, the Corps and U.S. Bureau of Reclamation were required to include contract provisions explicitly stating that water will not be available for irrigation and municipal and industrial uses in dry years. Consequently, the previous NEPA compliance and Willamette Basin Review Feasibility Study 2008 Biological Opinion would not be modified and would remain valid under any alternative.

The Adaptive Management Plan addresses an overarching governance framework that includes implementation of the WVS operations and maintenance ESA consultation, the 2019 Willamette Basin Review Feasibility Study Biological Opinion, 2019 Hatcheries Biological Opinion, and other activities in the region. For example, the Corps would continue in-season adaptive management to meet downstream flow targets, while considering input from the WATER Forum Flow Management and Water Quality Team. The Team is also the group working with the state to establish a science-based approach for managing the WVS in dry years. This process is ongoing.

Comment: Alternatives-99

Although Appendix N states that a water management plan will be prepared annually describing how stored water will be used for fish and wildlife needs and other authorized purposes, no guidelines are set forth explaining how this water management framework will be integrated with the approved reallocation of conservation storage space, and the discussion leans heavily toward strictly meeting flow targets with little consideration of tradeoffs to meet competing objectives. In practice, adaptive management decisions are already being made annually that seek a more realistic balance among objectives, such as deciding to forgo attempting to meet flow targets at Salem earlier in the year in order to store water for use later in the summer for temperature control. The Draft EIS should more clearly acknowledge current adaptive management actions and explain how the water management framework would be integrated and aligned with the objectives of the Oregon Water Resources Dept, Water users and non-ESA ecological needs.

Response:

DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, describes how the Corps would continue to work with the WATER Forum so that its members may inform the Corps' decisions during implementation of the 2019 Willamette Basin Review Feasibility Study and resolution of the ongoing Willamette Valley System operations and maintenance consultation.

The WATER Forum includes a Flow Management and Water Quality Team, which provides advice to the Corps' Water Management group on in-season adaptive management. This group was identified to advise the Corps and U.S. Bureau of Reclamation on how to establish a framework to implement the Willamette Basin Review Feasibility Study.

Advisory input also includes establishing the framework for curtailing irrigation and municipal and industrial contracts in very dry years. This process is ongoing. Further stakeholder engagement by the State of Oregon with the support of the Federal agencies is planned in the next few years.

Comment: Water Supply-31

Greater clarity around the water management framework is critical to understanding how reductions in system-wide storage (whether permanent or simply due to reduced reservoir fill in a given year) will impact all users of stored water, particularly in dry years. For all new contracts the Water Providers support development of a framework that allows all designated purposes to “share the shortfall” through proportionate reduction. Currently, large volumes of water are allocated to specific purposes but are not yet under contract with particular users. It is understood that uncontracted water would be managed first to meet project purposes if reductions are needed during dry years; however, it would be prudent to develop a plan outlining how additional reductions would be managed (such as through proportionate reduction) in the future when more contracts are in place consistent with the demand projections analyzed in the Draft EIS.

Response:

Appendix N, Implementation and Adaptive Management Plan, describes how the Corps would continue to work with the WATER Forum so that its members may inform the Corps' decisions during implementation of the 2019 Willamette Basin Review Feasibility Study and resolution of the ongoing Willamette Valley System operations and maintenance consultation.

The WATER Forum includes a Flow Management and Water Quality Team, which provides advice to the Corps' Water Management group on in-season adaptive management. This group was identified to advise the Corps and U.S. Bureau of

Reclamation on how to establish a framework to implement the Willamette Basin Review Feasibility Study.

Advisory input also includes establishing the framework for curtailing irrigation and municipal and industrial contracts in very dry years. This process is ongoing. Further stakeholder engagement by the State of Oregon with the support of the Federal agencies is planned in the next few years.

Comment: References and Data-75

The current EIS model includes information that may lead to inaccurate results, for example; B-10 table 2-5 - Detroit Typically, summer flows used a 7-day average of the Dataquery 1.0 inflows, as evidenced by 2003–2006. 2007 FIS inflows do not match up with the CDB dataset or any known dataset. 2009 summer flows used North Santiam + Breitenbush (not Blowout Creek) USGS gages instead of Dataquery 1.0 inflows.

Response:

The citation refers to the Willamette FIS methodology and does not reflect the complete dataset used for the EIS analyses. The EIS inflow dataset reflects the best information available for a long-term study.

As stated in the final paragraph of DEIS and FEIS Appendix B, Hydrologic Processes, Section 2.4.1, the "FIS data has more detailed QC and gage extension methods for the winter season" and "2010 Modified Flows dataset (data type “A”) is used for the April-October period to ensure the at-site project inflow estimates are used."

Comment: Hydrology-24

B-15 2- Embed evaporation into the inflow dataset. This approach assumes the same volume of evaporative losses for each individual year irrespective of changes in reservoir surface area resulting from changes in reservoir operations.

Response:

The HEC-ResSim model is incorporates best available methods and data. While evaporation does vary with reservoir surface area, most WVS reservoirs are relatively deep. Therefore, volumes change considerably more than the surface area with changes in regulation.

The exceptions to this are the conditions at Fern Ridge Dam, so the Corps calculates evaporation differently at that reservoir. A detailed explanation on evaporation methods is provided in Appendix B, Sections 2.3.2, 2.4.3, and 2.5.3 (Existing information, methods, and results, respectively).

Appendix B, Section 2 describes the inflow dataset in general. The Fern Ridge Dam evaporation values are presented in Table B-2-2.

Comment: Water Supply-32

model specifics such as in the example of evaporation being calculated as lower inflow rather than a function of use of storage, serves the purpose of the EIS draft but could lead to inaccurate understandings and use of that information. Demonstrated as a simplification; how much stored water is available 1.6 million acre feet or 1.6 minus evaporation?; inaccurate determination of true inflow, which for state water right purposes regulatory purposes must be accurately determined; unless that assumption and information was clearly understood. Accurate Inflows and evaporation calculations must be completed, especially if the continued requirement of creating an instream water right is anticipated. A full presentation of the Corps' methods, assumptions, and analysis should be available for public review and comment.

Response:

The primary method to determine reservoir inflow across the WVS is to calculate inflow from storage and outflow. There are some gages upstream of certain WVS reservoirs, but it is not possible to account for inflow with gages.

The EIS inflow data should not be used for determination of water rights. A full explanation of the methods and assumptions within the inflow data is available in DEIS and FEIS Appendix B, Hydrologic Processes, Section 2.

SOUTH SANTIAM WATERSHED COUNCIL (RICHARDSON, SHANNON)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_SouthSantiamWatershedCouncil_Shannon Richardson_Attachment.pdf

Comment: NEPA Process-30

The SSCW urges USACE to incorporate the comments presented by the action agencies responsible for the wise use and management of Oregon's resources on behalf of all Oregonians to the greatest extent possible. We encourage USACE to consider their mission critical work of providing flood control in balance with the needs of fish and wildlife species, the interests of local community economies, and whole river health.

Response:

Comment noted.

Comment: NEPA Process-31

We further encourage USACE to plan for both short- and long-term impacts and opportunities, and to seek the support of local partners well-versed in local conditions and considerations. The South Santiam Watershed Council hopes that the Corps will consider us partners moving forward, and rely on the SSWC to provide information, resources, and expertise specific to this part of the Willamette Valley System.

Response:

Comment noted.

SPRINGFIELD UTILITY BOARD (MILLER, GREG)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_SpringfieldUtilityBoard_Amy E. Chinitz_Attachment.pdf

Comment: References and Data-76

The DEIS states that Tables 3.13-1 and 3.13-2 "list the number of diversions and permitted flow of water for withdrawals in tributaries with a Corps dam and reservoir and on the mainstem Willamette River" (DEIS at 3-999). Table 3.13-2 summarizes "Water Use in Select Tributaries to the Willamette River," using data obtained from OWRD WRIS for the year 2021 (DEIS at 3-1000). However, Table 3.13-2 lists the total municipal surface water diversions for the Middle Fork Willamette River as 6.95 cfs. Id. Though it is not clear by what method this data was compiled, "6.95 cfs" appears to underrepresent the importance of the Middle Fork Willamette River as a source of municipal water supply. For example, SUB currently holds one certificated water right to divert 10.0 cfs from the Middle Fork Willamette River, as well as one water right permit authorizing SUB to develop an additional 10.0 cfs from the same point of diversion. SUB has already diverted and put to beneficial use 2.28 cfs under this permit. This means SUB has already demonstrated the ability to divert and put to beneficial use 12.28 cfs from the Middle Fork Willamette River under its existing water rights.

SUB requests that the USACE accurately account for the full permitted amounts of municipal water as part of the environmental baseline and long-term planning horizon described in the DEIS, and that the USACE further analyze the environmental consequences to permitted but not-yet-developed municipal water rights that could result from the Proposed Action and alternatives.1…

1 Likewise, SUB currently holds one water right permit authorizing SUB to develop a total of 40 cfs from the McKenzie River, of which 35.9 cfs are authorized for municipal use and 4.1 cfs are authorized for corresponding "fish and wildlife uses." Currently, SUB can divert and put to beneficial use at least 1.4 cfs under this permit. SUB requests that Table 3.13-2 and the corresponding analyses in the DEIS accurately account for that full permitted amount as well.

Response:

Section 3.13, Water Supply, Table 3.13-1 (Summary of Water Permitted for Use on June 1 for Water Rights in Select Tributaries to the Willamette River) has been updated in the FEIS with comprehensive water rights data provided by OWRD.

The water supply analysis is qualitative, based on flows at model control point relative to corresponding 2008 Biological Opinion flow objectives. Therefore, the analysis in the FEIS did not change from the DEIS based on the corrected data tables.

The Corps included the fully permitted volume of the water rights in its description of the Affected Environment (Section 3.13, Water Supply).

Comment: Water Quality-48

SUB is most concerned about increased sediment loading resulting from deep reservoir drawdown. On the Middle Fork Willamette River, high turbidity taxes the slow-sand filters and shortens their life span; and high turbidity events can force us to take the river intake offline. Operation of our forthcoming membrane filtration plant on the McKenzie River will also be affected by fluctuations in river turbidity levels.

In addition to sediment loading, changes in flows from the dams can increase nutrient levels and the amount of algae/cyanobacteria in the river. Potential risks to SUB include algae clogging water treatment filters and a shut-down of the system due to cyanotoxins (which can be produced by the cyanobacteria).

Response:

The Oregon Department of Environmental Quality is a Cooperating Agency integrally involved in the development of this EIS. The Corps will continue to consult with Department of Environmental Quality and coordination with drinking water organizations as part of any plans for construction or operational activities when site-specific information is made available to inform such consultations.

Comment: Alternatives-100

The preferred alternative (Alternative #5) plans for deep drawdowns at Cougar Reservoir, which will have consequences for SUB's new treatment plant on the McKenzie River. According to the DEIS, management changes at Cougar may trigger adjustments at Lookout Point/Dexter, which would create consequences for SUB's treatment plant on the Middle Fork Willamette as well, in addition to the impacts we already manage from the Fall Creek drawdown.

The DEIS notes that the preferred alternative is meant to offer operational flexibility: "The measures are intended to improve conditions for ESA-listed fish while providing flexibility for USACE to meet water demands for fish and wildlife, water supply, hydropower generation, and recreation in the WRB" (DEIS at ES-43). Given the prospect of elevated turbidity levels that have

significant adverse impacts to downstream users, SUB encourages the USACE to explore how that flexibility can be optimized to reduce impacts to the public water supply. For example, can the USACE set a downstream turbidity threshold, in consultation with the public water systems, that triggers operational adjustments?

Response:

Sedimentation effects from changes to operations were described in the DEIS, but have been moved to Appendix C, River Mechanics and Geomorphology, in the FEIS.

If a Willamette Valley System EIS alternative is selected that would include the Cougar Dam diversion tunnel operation, a site-specific NEPA analysis would be conducted prior to project implementation. This tiered NEPA analysis would specify drawdown elevations and potential impacts from the project.

The Corps would engage with the sub-district to throughout that project development.

Comment: NEPA Process-32

Section 3.19 of the DEIS addresses the consequences to drinking water and summarizes the magnitude and extent of the eight alternatives. In reality, different municipal water systems will be impacted differently depending on multiple factors, including location and the nature of their sources and treatment works. Again, SUB encourages the USACE to include direct consultation and coordination with impacted water systems in its plans and future analyses, for the purposes of:

- Obtaining water-system-specific details about impacts of near-term and long-term measures;
- Establishing turbidity management as an operational objective;
- Setting operational procedures related to the minimization of disruption to the public water supply; and
- Developing an adverse-event notification system.

Response:

The FEIS states that "Elevated turbidity and harmful algal blooms and subsequent treatment requirements could temporarily include increased costs of additional chemicals; testing; and facility maintenance, repairs, and/or equipment replacement. Adverse effects to communities could also include temporary loss of drinking water access and the requirement to supplement potable water" in Section 3.19, Drinking Water, Subsection 3.19.3.2, Alternatives Analyses, Water Quality and Treatment Facility Operations under All Alternatives.

Site-specific operational procedures and coordination are incorporated into the Adaptive Management Plan process described in DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan. A formal adverse event notification is beyond the scope of this EIS, which addresses drinking water effects at the programmatic level.

THE ROTARY CLUB OF SALEM-CREEKSIDE (MOKRAI, MARIA)

Comment Document: 2023-01-20_PublicComment_WV_DEIS_Rotary Club of Salem-Creekside_Maria Mokrai.pdf

Comment: NEPA Process-12

We have been reading about a plan to reshape management of 13 dams and reservoirs in the Willamette River Basin and are interested in learning more about the upcoming proposals. We read that you will be hosting in person meetings in the Willamette Valley and hope that you will be able to join us at Salem Creekside Rotary in March and inform our community as to the progress of this delicate project to save the salmon, while protecting homes and farming lands.

Response:

Corps staff attended a meeting with the Salem Creekside Rotary on March 16, 2023 and provided an overview of Willamette Valley System DEIS and public comment period. This meeting included a question-and-answer period with Corps subject matter experts.

Comment: Climate Change-4

Oregon has been gravely affected by weather conditions these last few years and led to changes to the way we manage our lands and state.

Response:

Analyses of climate change-related effects are provided for each resource in Chapter 3, Affected Environment and Environmental Consequences and in Chapter 4, Cumulative Effects. These analyses are supported by detail on climate change-related effects and best available information in Appendix F1, Qualitative Assessment of Climate Change Impacts, and Appendix F2, Supplemental Climate Change Information.

THE WATER PROVIDERS (CARY, JOEL)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_GSIWaterSolutions_Leah Cogan_Attachment.pdf

Comment: Water Supply-19

- The Water Providers support preserving allocated storage volumes for all uses to the extent possible and would like to understand the actual impacts of the proposed action to users of stored water.

- The EIS should provide a tabulation of storage reductions per reservoir for each alternative to better understand potential tributary specific impacts.

- The Water Providers support water management for multiple purposes without a preference toward a single water use.

- The Corps should explain the anticipated water management framework and clarify whether stored water proposed to be used for fish passage will come from the allocation of stored water to be used for fish and wildlife purposes.

- The Water Providers support the concept that current contracted water users be grandfathered as senior contract holders and all new contracts utilize a proportionate reduction system among water user types in the event that shortfalls arise in dry years.

Response:

DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, describes how the Corps would continue to work with the WATER Forum so that its members may inform the Corps' decisions during implementation of the 2019 Willamette Basin Review Feasibility Study and resolution of the ongoing Willamette Valley System operations and maintenance consultation.

The WATER Forum includes a Flow Management and Water Quality Team, which provides advice to the Corps' Water Management group on in-season adaptive management. This group was identified to advise the Corps and U.S. Bureau of Reclamation on how to establish a framework to implement the Willamette Basin Review Feasibility Study.

Advisory input also includes establishing the framework for curtailing irrigation and municipal and industrial contracts in very dry years. This process is ongoing. Further stakeholder engagement by the State of Oregon with the support of the Federal agencies is planned in the next few years.

Comment: BiOp-6

- Discussions of the Biological Opinions (BiOps) related to the WVP should explain how implementation of the BiOps will be integrated and aligned.

- The Water Providers agree with the Corps’ analysis that shows RPA Measure 2 in the 2019 Reallocation Bi-Op is unwarranted.

Response:

FEIS Section 7.4, Endangered Species Act, has been updated to describe the current status of the Willamette Valley System (WVS) ESA consultation, including a summary of the Reasonable and Prudent Alternative (RPA). Additionally, the FEIS has been updated to include additional information on the 2008 Biological Opinion, Willamette Basin Review Feasibility Study, and the 2019 Biological Opinion processes in Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008.

The Corps did not state the 11,000-acre-foot cap would be unwarranted, just that the Corps assumed the cap would be lifted in the analyses. This assumption was made because of instream flow protections, which would be in place during the 30-year implementation timeframe under each alternative. The Corps would comply with the 2019 Willamette Basin Review Feasibility Study under any alternative, which requires the Corps to determine availability of stored water for consumptive uses on an annual basis and to coordination with regional agencies, especially when there is not enough water to meet instream targets for fish.

The Adaptive Management Plan addresses an overarching governance framework that includes implementation of the WVS operations and maintenance ESA consultation, the 2019 Willamette Basin Review Biological Opinion, 2019 Hatcheries Biological Opinion, and other activities in the region. For example, the Corps would continue in-season adaptive management to meet downstream flow targets, while considering input from the WATER Forum Flow Management and Water Quality Team. The Team is also the group working with the state to establish a science-based approach for managing the WVS in dry years. This process is ongoing.

Comment: Socioeconomic Resources-13

The economic analysis should be expanded to include the full area impacted by changes to water supply, and the proposed methods and results should be made available for public review and comment.

Response:

FEIS Section 3.11, Socioeconomics, Affected Environment, describes the full area of anticipated impact that would occur under any alternative. DEIS and FEIS Section 3.13, Water Supply, focuses on effects to existing natural flow water rights for municipal and industrial uses and irrigation as well as the effects to the use of stored water via the storage allocations. See also FEIS Chapter 1, Section 1.11.1.2, Conservation Pool Allocation.

Comment: Alternatives-53

Based on the recommendations in the WRB Feasibility Study, Congress and the President approved a reallocation of the conservation storage volumes in the WVP in the Water Resources Development Act (WRDA) of 2020, including 159,750 acre-feet (AF) for M&I use. The volume allocated for M&I use is based on the Corps' own analysis of anticipated M&I water demands by 2070 as presented in the Feasibility Study. This volume will be required to meet M&I water users' long-term water supply needs; therefore, the Water Providers cannot support proposed alternatives, such as Alternatives 3A and 3B in the Draft EIS, that would significantly decrease the probability of refilling the WVP reservoirs each year and therefore decrease the volume of conservation storage space that would be available for designated purposes. The Water Providers support efforts to ensure that conservation storage space is maintained or increased as feasible for the benefit of all users. While Alternative 5, the Preferred Alternative, does propose a decrease in total conservation storage of 98,536 AF, the water providers appreciate the Corps' efforts to minimize reductions in conservation storage while meeting other project objectives such as the protection of Endangered Species Act (ESA) listed fish species.

Response:

Comment noted.

Comment: References and Data-42

As described on page 3-1033 of the Draft EIS, the decrease of 98,536 AF of stored water under Alternative 5 is categorized as a "minor adverse effect" to consumptive users of the conservation storage. However, it is impossible to evaluate this impact adequately for two reasons. First, on page 3-1004, the Draft EIS states that "the actual effects to stored water users are unknown at this time because the annual management process in dry years has not been established." If the actual effects are unknown, then categorization of the impact as "minor" is unsupported. Second, the proposed changes in storage are only presented in the Draft EIS on a system-wide basis rather than by reservoir. Therefore, although the classification as "minor" is explained as stemming primarily from the "expected limited level of demand for stored water on the McKenzie River," insufficient information is provided to assess the impacts to potential users of stored water on the McKenzie River compared to impacts to users elsewhere in the system.

Response:

FEIS Table 3.13-3, Evaluation Criteria for Potential Effects for Water Supply in FEIS Section 3.13.3.1, Water Supply, Methodology, lists the evaluation criteria for effects to stored water uses, based on how much water would be stored system-wide by mid-May.

The statement "the actual effects to stored water users are unknown at this time because the annual management process in dry years has not been established" refers to impacts to individual users. Such specific impact assessments are beyond the scope of

this programmatic EIS. The FEIS has been updated to include changes to mid-May-stored water by reservoir in Section 3.13.3, Water Supply, Environmental Consequences, and Appendix J, Water Supply, Section 3, Physical Effects Analysis.

Comment: Purpose and Need-9

In WRDA 2020, Congress reallocated the conservation storage space to three purposes: fish and wildlife (69 percent), agricultural irrigation (21 percent), and M&I water supply (10 percent). The Water Providers support management of stored water for all of these purposes rather than giving preference to any single use. For example, page J-6 of Appendix J states that WRDA 2020 granted the Corps the ability to reallocate up to 10 percent of the total system-wide storage "to fish and wildlife purpose" subject to certain conditions. This is inconsistent with the language of WRDA 2020, which simply authorizes the reallocation of up to 10 percent of overall storage among all uses in the joint conservation pool, not solely to fish and wildlife use.

Response:

FEIS Appendix J, Section 1.1.3, Water Supply, Storage Allocations, has been updated to accurately summarize the WRDA authorization.

Other Federal agencies have responsibilities for the WVS, including the Bonneville Power Administration, which markets and transmits the electrical power generated by the eight hydropower-producing dams, and the U.S. Bureau of Reclamation, which markets water for irrigation purposes to users within the Willamette River Basin.

Comment: Water Supply-20

Similarly, the Draft EIS states that decreases in system-wide stored water would adversely impact M&I and agricultural water users, but it conspicuously does not state that system-wide reductions would impact the volume of stored water available for fish and wildlife. On page 3-869, the Draft EIS describes how "reservoir drawdowns in support of ESA-listed fish passage reduce the amount of water available for other authorized purposes" with no indication that the use of stored water from the reservoirs to support fish passage will come from the volume of water allocated for that purpose versus impacting other uses. Given that 1,102,600 AF of stored water has been allocated for fish and wildlife, it is unclear why the Corps is not proposing to use any of this stored water for its designated purpose.

Response:

DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, describes how the Corps would continue to work with the WATER Forum so that its members may inform the Corps' decisions during implementation of the 2019 Willamette Basin Review Feasibility Study and resolution of the ongoing Willamette Valley System operations and maintenance consultation.

The WATER Forum includes a Flow Management and Water Quality Team, which provides advice to the Corps' Water Management group on in-season adaptive management. This group was identified to advise the Corps and U.S. Bureau of Reclamation on how to establish a framework to implement the Willamette Basin Review Feasibility Study.

Advisory input also includes establishing the framework for curtailing irrigation and municipal and industrial contracts in very dry years. This process is ongoing. Further stakeholder engagement by the State of Oregon with the support of the Federal agencies is planned in the next few years.

Comment: Alternatives-54

Appendix N outlines the adaptive management plan for implementing the preferred Alternative 5. Although Appendix N states that a water management plan will be prepared annually describing how stored water will be used for fish and wildlife needs and other authorized purposes, no guidelines are set forth explaining how this water management framework will be integrated with the approved reallocation of conservation storage space, and the discussion leans heavily toward strictly meeting flow targets with little consideration of tradeoffs to meet competing objectives. In practice, adaptive management decisions are already being made annually that seek a more realistic balance among objectives, such as deciding to forgo attempting to meet flow targets at Salem earlier in the year in order to store water for use later in the summer for temperature control. The Draft EIS should more clearly acknowledge current adaptive management actions and explain how the water management framework will be integrated and aligned with the objectives of the Feasibility Study and the reallocation in WRDA 2020.

Response:

DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, describes how the Corps would continue to work with the WATER Forum so that its members may inform the Corps' decisions during implementation of the 2019 Willamette Basin Review Feasibility Study and resolution of the ongoing Willamette Valley System operations and maintenance consultation.

The WATER Forum includes a Flow Management and Water Quality Team that provides advice to the Corps' Water Management group on in-season adaptive management. This group was identified to advise the Corps and U.S. Bureau of Reclamation on how to establish a framework to implement the Willamette Basin Review Feasibility Study.

Advisory input also includes establishing the framework for curtailing irrigation and municipal and industrial contracts in very dry years. This process is ongoing. Further stakeholder engagement by the State of Oregon with the support of the Federal agencies is planned in the next few years.

Comment: Water Supply-21

Greater clarity around the water management framework is critical to understanding how reductions in system-wide storage (whether permanent or simply due to reduced reservoir fill in a given year) will impact all users of stored water, particularly in dry years. For all new contracts, the Water Providers support development of a framework that allows all designated purposes to "share the shortfall" through proportionate reduction. Currently, large volumes of water are allocated to specific purposes but are not yet under contract with particular users. It is understood that uncontracted water would be managed first to meet project purposes if reductions are needed during dry years; however, it would be prudent to develop a plan outlining how additional reductions would be managed (such as through proportionate reduction) in the future when more contracts are in place consistent with the demand projections analyzed in the Draft EIS.

Response:

DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, describes how the Corps would continue to work with the WATER Forum so that its members may inform the Corps' decisions during implementation of the 2019 Willamette Basin Review Feasibility Study and resolution of the ongoing Willamette Valley System operations and maintenance consultation.

The WATER Forum includes a Flow Management and Water Quality Team, which provides advice to the Corps' Water Management group on in-season adaptive management. This group was identified to advise the Corps and U.S. Bureau of Reclamation on how to establish a framework to implement the Willamette Basin Review Feasibility Study.

Advisory input also includes establishing the framework for curtailing irrigation and municipal and industrial contracts in very dry years. This process is ongoing. Further stakeholder engagement by the State of Oregon with the support of the Federal agencies is planned in the next few years.

Comment: BiOp-7

Furthermore, the Draft EIS should plainly acknowledge that stored water is not the only source of water that will be used to meet the BiOps' flow targets. Consequently, curtailment of stored water contracts for consumptive users is not the only (or necessarily primary) way to meet any shortfalls. Appendix C of the Feasibility Study provides a much clearer explanation of the fact that meeting the 2008 BiOp minimum flow targets at Salem from April through October would require 4.22 million AF of water, while all of the reservoirs in the WVP combined hold a total of 1.6 million AF. Thus, while stored water can be managed to supplement flows, it must be viewed in the larger context with this limitation acknowledged.

Response:

The FEIS includes a footnote stating that "flow targets are the minimum instream flow, which is comprised of natural flows seasonally augmented with stored water released from dams" in Section 3.8, Fish and Aquatic Habitat, Subsection 3.8.2.4, Riverine Habitat, Streamflow.

Comment: BiOp-8

The 2008 BiOp developed by the National Marine Fisheries Service (NMFS) set forth a series of flow targets based on water year type, noting that the term of the BiOp is through 2023. The NMFS 2019 BiOp analyzing the effects of the proposed reallocation of conservation storage space (2019 Reallocation BiOp) includes five measures as part of a Reasonable and Prudent Alternative (RPA), several of which refer to meeting the 2008 BiOp minimum flow targets "or as revised by future consultations," which would apply to the current reinitiated consultation under the Draft EIS and the subsequent BiOp expected in the next year. The relationship among these BiOps should be clearly explained in the EIS (and/or in the forthcoming BiOp) to enable affected water users to understand how they may be impacted. For example, it would be helpful to understand whether the forthcoming BiOp will entirely replace the 2008 BiOp, or whether the Corps plans to continue making efforts to implement requirements of all three BiOps (2008, 2019, and 2023/2024), and how these requirements will be reconciled if they conflict.

Response:

The Biological Opinions associated with the Proposed Action will supersede the 2008 Biological Opinions' requirements. As such, the Proposed Action and range of alternatives address ESA compliance from date of Record of Decision issuance.

Further, the Corps addresses court-ordered injunction measures intended to improve conditions for fish passage and water quality in the Willamette Valley System (WVS) to avoid irreparable harm to ESA-listed salmonids during the interim period until the completion of the reinitiated ESA consultation through the range of alternatives analyzed in the EIS.

See FEIS Chapter 1, Introduction, Section 1.12.3, Court-ordered Injunction Measures; FEIS Chapter 2, Alternatives, Section 2.8.5, S Interim Operations; and FEIS Appendix A, Alternatives Development.

The FEIS has been updated to include additional information on the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes in Section 1.3.3, Willamette Valley System Endangered Species Act and National Environmental Policy Act History since 2008.

The 2008 Biological Opinion included a Reasonable and Prudent Alternative (RPA) that required the U.S. Bureau of Reclamation and Corps to work through legal and

administrative processes necessary to protect instream flows for ESA-listed species under state law. In compliance with that RPA, the Willamette Basin Review Feasibility Study was formally initiated in 2016.

The goal of this study was to seek Congressional approval to reallocate WVS conservation storage for the benefit of fish and wildlife, agricultural irrigation, and municipal and industrial water supply over a 50-year analysis period, while continuing to fulfill other WVS purposes. The study examined different ratios of storage allocations for fish and wildlife, irrigation, and municipal and industrial uses based on projected demand for irrigation and municipal and industrial uses in 2070 and mainstream flow requirements for fish.

The Willamette Basin Review Feasibility Study addressed the initial step in the process to secure protection of instream flows under state law. In 2019, the Corps initiated its programmatic review of WVS operations and maintenance with a Notice of Intent to prepare an EIS. Unlike the Willamette Basin Review Feasibility Study and the 2019 Biological Opinion processes, the WVS EIS NEPA review is related to operations and maintenance of the WVS, not water storage allocation.

While the WVS EIS Notice of Intent was published in 2019 just prior to the Willamette Basin Review Feasibility Study Finding of No Significant Impact (FONSI), the two NEPA actions are only related in that operations and maintenance under each alternative may directly, indirectly, or cumulatively impact water storage needed for various uses.

All alternatives analyzed in the WVS EIS propose measures to operate and maintain the WVS; they do not address modifications to water supply allocation. If at some point operations change to where allocations could not be met in normal to wet years, a subsequent feasibility study to revisit allocations would be initiated. In 2019, as the Willamette Basin Review Feasibility Study was concluding, the Corps and NMFS were sued for failure to implement the 2008 RPA.

Meanwhile, the Willamette Basin Review Feasibility Study was completed and subsequently presented to Congress. In 2020 Congress approved the reallocation of the storage per the Chief's Report recommendations in the Water Resources Development Act (WRDA). The Feasibility Study underwent appropriate environmental review compliance including, but not limited to, consultation under Section 7 of the ESA and NEPA. A FONSI on the storage allocation was signed by the Corps in early 2020 after Congress issued its approval on reallocation.

Additionally, in 2019, the Corps initiated the WVS Operations and Maintenance EIS and reinitiated ESA consultation with the Services for failing to execute all of the provisions of the 2008 Biological Opinion RPA. Congressional approval of the Willamette Basin Review Feasibility Study in 2020 also included language that the allocations could change up to 10 percent as part of a subsequent ESA consultation, if this change was not from any one source (i.e., fish and wildlife, irrigation, or municipal and industrial water

supply). The Proposed Action submitted to NMFS and USFWS for the accompanying WVS operations and maintenance consultation, which is based on the Preferred Alternative identified in FEIS Appendix A, Alternatives Development, Attachment 1, did not include any changes to the Willamette Basin Review Feasibility Study allocations because any change to the allocations would not affect the Corps' ability to provide flow for fish.

In compliance with the 2019 Willamette Basin Review Feasibility Study Biological Opinion, the Corps and U.S. bureau of Reclamation were required to include contract provisions explicitly stating that water will not be available for irrigation and municipal and industrial uses in dry years. Consequently, the previous NEPA compliance and Willamette Basin Review Feasibility Study 2008 Biological Opinion would not be modified and would remain valid under any alternative.

The Adaptive Management Plan addresses an overarching governance framework that includes implementation of the WVS operations and maintenance ESA consultation, the 2019 Willamette Basin Review Feasibility Study Biological Opinion, 2019 Hatcheries Biological Opinion, and other activities in the region. For example, the Corps would continue in-season adaptive management to meet downstream flow targets, while considering input from the WATER Forum Flow Management and Water Quality Team. The Team is also the group working with the state to establish a science-based approach for managing the WVS in dry years. This process is ongoing.

Comment: BiOp-9

RPA Measure 2 of the 2019 Reallocation BiOp limits issuance of new M&I storage contracts to a total of 11,000 AF until various conditions relating to permanent instream protection of fish and wildlife releases have been met, which the Draft EIS assumes will be accomplished (p. 3-1003). The Draft EIS further explains that, in addition to modeled increases in M&I water use under natural flow water rights, constraints in the ResSim model require it to show the full volume of stored water for M&I and irrigation to be withdrawn every year, even when actual M&I withdrawals vary throughout the year and from year to year. Despite this limitation, the Corps' model shows that Measure 30b flow targets for the mainstem Willamette—where the overwhelming majority of M&I diversions are located—are met nearly all the time, especially during July and August when M&I demands are highest. Given the successful mainstem flow target performance under conditions that assume withdrawal of 73,300 AF under M&I storage contracts, there appears to be little relationship between meeting instream flow targets, permanent instream protection of fish and wildlife flow releases, and the Corps entering into storage contracts in excess of the 11,000 AF limit imposed by RPA 2. Therefore, the Water Providers agree with the Corps analysis that shows the 11,000 AF cap on M&I contracts is unwarranted.

Response:

The Corps did not comment on the validity of an 11,000-acre-foot cap, just that an assumption was made for the alternatives analyses whereby the cap is lifted due to

instream flow protections being in place for the 30-year implementation timeframe (See Section 3.13.3, Environmental Consequences and Appendix J, Section 2.3, Alternatives Analysis).

Comment: BiOp-10

Finally, RPA Measure 3 of the 2019 Reallocation BiOp includes a moratorium on new Irrigation and M&I storage agreements in the Santiam Basin with similar conditions around instream flow protections. Although the Draft EIS assumes that the 11,000 AF cap on M&I contracts would be lifted, no such assumption is described regarding the Santiam Basin moratorium under Measure 3. The Draft EIS should state whether the Corps anticipates that the moratorium on contracts in the Santiam Basin will be lifted or if further actions are expected to be required to do so.

Response:

The Corps assumed that all caps, including the moratorium on irrigation water service contracts and municipal and industrial water agreements in the Santiam River Subbasin, would be lifted within the 30-year implementation timeframe for implementation of any action alternative.

The Corps also noted the assumption that the moratorium would be lifted for municipal and industrial agreements under the No-action Alternative in FEIS Chapter 3, Affected Environment and Environmental Consequences, Section 3.13.3.1, Water Supply, Environmental Consequences, Methodology.

Comment: Socioeconomic Resources-14

Although Section 3.13 and Appendix J of the Draft EIS analyze impacts to water supply throughout the Willamette Basin, the economic analysis in Section 3.11 is limited to Lane, Linn, and Marion Counties, where proposed structural measures would be implemented. The Draft EIS notes the likely financial impacts to water suppliers due to reductions in conservation storage along with general “increases in the cost of living and doing business” in their communities, but then excludes from its analysis other counties in the Willamette Basin where this is likely to occur. Water providers in Benton, Clackamas, Columbia, Multnomah, Polk, Washington, and Yamhill Counties may experience these economic impacts and should be included in the analysis if it is reasonably foreseeable that they will be affected by the proposed action.

Response:

Section 3.11, Socioeconomic Resources, has been updated in the FEIS for consistency with the other sections of Chapter 3, Affected Environment and Environmental Consequences. These consistency modifications include updates to DEIS Section 3.11.7.6, Discussion of Effects by Measure(s), which has been revised to analyze effects by alternative.

The inconsistent evaluation of socioeconomic water supply impacts has been addressed for each of the alternatives as compared to the No-action Alternative, and not compared to the individual measures.

Analysis inconsistencies related to duration, characterization, and the magnitude of effects anticipated from water supply outcomes, have been addressed in Section 3.11, Socioeconomics Resources. Specifically, these modifications account for quantitative (Recreation-related Revenue and Employment Earnings under All Alternatives) and qualitative (Economic Relationship with communities) evaluations by alternative rather than by measure comparison.

Water supply was also analyzed in Section 3.11, Socioeconomics, related to community impacts. Consequently, the FEIS has been modified to identify the analysis area for each impact analysis in Section 3.1, Socioeconomic Resources, Environmental Consequences. Note that the socioeconomics analysis incorporates several resource effects; the FEIS has been updated to clarify the analysis areas that captures these various resources and is not narrowed to three counties (e.g., climate change versus direct effects to recreational resources).

Comment: Socioeconomic Resources-15

Community concerns about water supply are acknowledged, but actual economic impacts related to water supply are insufficiently evaluated. Reservoir drawdowns are described on page 3-869 as increasing the costs of water supply, while spring drawdowns in particular are described on page 3-870 as resulting in “major adverse socioeconomic effects from reduced water availability for agricultural irrigation and M&I purposes.” These statements stand in alarming contrast to the Corps’ characterization of impacts to water supply as “minor” in Section 3.13 and Appendix J and should be reconciled in the final EIS.

Response:

FEIS Section 3.11, Socioeconomics, has been revised to address water supply effects on communities under all alternatives. Regarding irrigation impacts, specifically costs, the FEIS includes qualitative impact analysis to irrigation water users in Section 3.13.3, Water Supply, Environmental Consequences.

A quantitative cost analysis is not included because this EIS is a programmatic review. The Corps addressed that some existing water users would require a backup water source when instream water rights are issued within the Willamette River Basin in the FEIS (See FEIS Section 3.13.3, Water Supply, Environmental Consequences).

It is not under the Corps' control or responsibility to determine how those users obtain rights or a backup water source under state law. This information, including costs associated with state authorizations, are speculative and cannot be analyzed in this programmatic review.

The Corps will continue to collaborate with the state to comply with the Willamette Basin Review 2019 Biological Opinion Reasonable and Prudent Alternative under any alternative selected.

Comment: Socioeconomic Resources-16

Even more concerning, page 3-859 states that while no analysis of financial impacts to M&I and irrigation water supply was conducted for this Draft EIS, a method for computing monetary effects is "anticipated to be prepared for the Final EIS," thus giving the public and directly affected parties no opportunity to review and comment on the methodology or results of the evaluation. Since some of these economic impacts have already been qualitatively presented as "major adverse" effects, understanding the proposed methods and impacts is critical to responsible water supply planning in the basin, and a full presentation of the Corps' methods, assumptions, and analysis should be available for public review.

Response:

The DEIS has been revised to focus the economic effects on impacts to communities from Federal spending and operational outcomes, such as drawdowns, in Section 3.11, Socioeconomics.

Financial implications from municipal and industrial water supply impacts have not been analyzed and was not in scope for the EIS development.

U.S. FISH AND WILDLIFE SERVICE (WANG, CHRISTINA)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_USFWS_Michael Hudson_Attachment.pdf

Comment: Proposed Action-46

The USFWS is significantly concerned with the Preferred Alternative Implementation Timeline (p. 5-38). Planned construction of fish passage solutions needed immediately are spread across the next 20 years; and that may be a best case scenario.

Response:

Comment noted.

Comment: Fish Passage-47

We would like to see upstream and downstream passage solutions for fish at all Federal projects

- Providing upstream and downstream passage at projects provides the opportunity for bull trout and other species to reduce the risk from local threats that may be present both upstream and downstream of the project through connectivity that allows individuals to move

away from the threat. This is the solution that provides the most flexibility for bull trout and other species.

Response:

Although fish passage improvements at all Federal dams could benefit multiple fish species, the purpose and need for the Corps' Proposed Action is, partially, to meet its ESA obligations (FEIS Chapter 2, Alternative, Section 2.4, Purpose of and Need for the Proposed Action) at the Federal projects Congress delegated to the Corps to operate and maintain. The seven action alternatives included in the EIS include different combinations of operational and structural fish passage measures at specific Willamette Valley System dams to meet the purpose and need defined in the EIS.

In addition, the Adaptive Management Plan has been revised in the FEIS to include an assessment and decision path for upstream passage for bull trout at Hills Creek Dam (Appendix N, Implementation and Adaptive Management Plan). Fish passage effects under each alternative are analyzed in Chapter 3, Affected Environment and Environmental Consequences, Section 3.8, Fish and Aquatic Habitat.

Comment: References and Data-77

Remove jargon. E.g., Sec 4.21.2, p 4-302, “This would result in an uptick of illicit collection…”

“Uptick” is synonymous with "increase", but increase is more understandable to a broad audience and hence more inclusive. Using inclusive language is a Federal agency responsibility and should be a Federal agency priority.

Response:

The word "uptick" is not in the FEIS.

Comment: Climate Change-16

Climate change analyses include no reference to species’ climate change vulnerability assessments for bull trout (Dunham 2015) or Pacific lamprey (Wang et al. 2020). Cannot do an adequate assessment of climate impacts on species addressed in EIS without referencing information available from CCVAs.

Given the qualitative nature of the climate change assessment, this statement is rather definitive: "The EIS actions will not exacerbate climate change impact or adversely affect the WVS and its environment." The summary and conclusions do a good job a qualifying the relationships between climate change, the EIS actions and related uncertainty. This statement should also be qualified by framing it relative to uncertainty and the NAA.

Response:

In compliance with the 2019 Willamette Basin Review Feasibility Study Biological Opinion, the Corps and U.S. Bureau of Reclamation were required to include contract provisions explicitly stating that water will not be available for irrigation and municipal and industrial uses in dry years. Consequently, the previous NEPA compliance and Willamette Basin Review Feasibility Study 2008 Biological Opinion would not be modified and would remain valid under any alternative.

Comment: Climate Change-17

The exacerbation of potential impacts from climate change are focused on implementation of actions, and one in particular: deep drawdowns (as referenced below). More information on the potential impacts due to lack of action could be conveyed. For example, the potential impacts of climate change could be exacerbated for species due to lack of passage at projects (e.g., Hills Creek Reservoir)

- P. 3-799, Sec 3.9.2.5.2 – "On the other hand, deep drawdowns (the deep fall drawdown at Detroit) are anticipated to exacerbate climate change effects (longer drier summers) to wildlife species and habitat."

- P. 3-802, Sec. 3.9.2.6.2 – "On the other hand, deep drawdowns (at Cougar and Green Peter) are anticipated to exacerbate climate change effects (longer drier summers) to wildlife species and habitat."

- P. 3-806, Sec. 3.9.2.7.2 – "On the other hand, deep drawdowns (at Cougar, Blue River, Lookout Point, Hills Creek, Green Peter, and Detroit) are anticipated to exacerbate climate change effects (longer drier summers) to wildlife species and habitat."

- P. 3-810, Sec. 3.9.2.8.2 – "On the other hand, deep drawdowns (at Cougar, Blue River, Lookout Point, Hills Creek, Green Peter, and Detroit) are anticipated to exacerbate climate change effects (longer drier summers) to wildlife species and habitat."

- P. 3-816, Sec. 3.9.2.10.2 – "On the other hand, deep drawdowns (at Cougar and Green Peter) are anticipated to exacerbate climate change effects (longer drier summers) to wildlife species and habitat."

Response:

Under the No-action Alternative, the Corps would continue all Willamette Valley System operations and maintenance plans in place as of the date the Notice of Intent to Prepare an EIS was published in April 2019 (84 FR 12237). The effects of not providing additional passage for species was analyzed under the No-action Alternative as well as under various climate change scenarios within the No-action Alternative resource analyses.

Comment: Fish-83

The USFWS finds the USACE's effects analysis to bull trout populations affected by Hills Creek and Cougar Dams inconsistent and difficult to follow (e.g., Tables 3.1-6 (lines 3.8 and 3.24 and supporting text). The USFWS has previously provided review and comment indicating the shortcomings in the analysis conducted. Some of these are reiterated below. The USFWS maintains that bull trout in the Willamette Basin are adfluvial only because they are not afforded passage, and this forced adfluvial life history does not benefit the recovery of bull trout in the Willamette Basin. The USFWS also maintains that restoration of passage within the Middle Fork Willamette and the McKenzie Basins is critical to bull trout and that the benefits of safe and effective passage outweighs the stated risks (increased exposure to recreational fisheries and predatory fish, loss of reservoir habitat, exposure to warmer habitats below dams, etc.). Providing and maintaining connectivity is one of the more important climate adaptation actions that can be taken in the face of a changing climate (e.g., https://www.sciencedirect.com/science/article/pii/S0006320720307369 (and references within)). As a cooperating agency, USFWS is happy to assist USACE with improving these sections for bull trout, and will continue to work with the USACE on developing an improved proposed action for the WVS via the ongoing Endangered Species Act Section 7 consultation.

Response:

The bull trout evaluation included in the DEIS was updated for the FEIS in Section 3.8, Fish and Aquatic Habitat. The Preferred Alternative includes upstream and downstream passage measures at Cougar Dam.

The Adaptive Management Plan has been revised, also included in the FEIS as Appendix N, Implementation and Adaptive Management Plan). The Plan revisions include an assessment and decision path for upstream passage for bull trout at Hills Creek Dam.

The Corps disagrees that the adfluvial life history currently exhibited by reintroduced bull trout populations above Willamette Valley System (WVS) dams "does not benefit" bull trout recovery. Populations above Cougar and Hills Creek Dams (under current passage conditions) have substantially increased since reintroduction (FEIS Section 3.8, Fish and Aquatic Habitat), indicating habitat above these dams provides for vital population functions supporting adult abundance and productivity with many exhibiting adfluvial life history patterns.

Although historically, bull trout moved lower into watersheds, it is uncertain if doing so today benefits these populations due to habitat degradation, fisheries and other anthropogenic factors (FEIS Section 3.8, Fish and Aquatic Habitat, Affected Environment). There is little to no adequate, cool spawning and incubation habitat below WVS dams; the opportunities for genetic exchange among populations is limited and appears highly unlikely for Hills Creek Dam bull trout due to the multiple dams and poor habitat conditions bull trout would encounter when moving between spawning

grounds located at higher elevations and other nearest existing populations located in the McKenzie River Subbasin.

Climate change is expected to further reduce habitat availability and suitability below WVS dams for bull trout based on precipitation and temperature changes predicted (FEIS Section 3.8, Climate Change). The habitat conditions below WVS dams in the McKenzie River Subbasin are more suitable for bull trout than habitat conditions in the Middle Fork Willamette River.

Comment: References and Data-78

p. 3-695/p. E-220, Additional variables not explicitly considered by Schaller et al. (2014) which are important when assessing reservoir use by bull trout are predation and fisheries. – Please provide a reference for this statement indicating that predation and fisheries are additional variables which are important when assessing reservoir use. This is not stated by Schaller et al.

Response:

DEIS Section 3.8, Fish and Aquatic Habitat, Affected Environment, has been updated in the FEIS to document the importance of including fisheries and predation when assessing bull trout effects under each alternative. Both predation and harvest are included as primary threats to recovery of bull trout in the Upper Willamette River.

Predation risk was scored based on the piscivorous fish species present in each reservoir. Local sport fisheries increase the risk of stress, injury, and mortality (e.g., Reis, Ziller, and McCormick 2012 in FEIS Chapter 10, References). Evidence of injury from hook-and-line capture of bull trout has been reported at Hills Creek Dam and Reservoir and in the South Fork McKenzie River (Zymonas et al. 2020; Zymonas et al. 2021 in FEIS Chapter 10, References).

Additional information and citations supporting factors important to measure independent of Schaller's assessment have been included in the FEIS (See Section 3.8, Fish and Aquatic Habitat, Bull Trout Assessment Model).

Comment: Fish-84

p. E-222 - “Lacking emigration and upstream return rates of bull trout at WVS dams, we assume that risks of mortality are high for emigrants passing below dams due to the numerous limiting factors present, prediction in further habitat degradation, and that there would not be spawning below dams.”

- These are small populations that will not likely ever provide the power/rigor to support a quantitative analysis.

- This comment also applies to the adaptive management framework that is in place to assess the need for passage for bull trout at Hills Creek.

- USFWS suggests pursuing another approach to decision support using bull trout experts.

Response:

DEIS Section 3.8, Fish and Aquatic Habitat, Affected Environment, has been updated in the FEIS to document the importance of including fisheries and predation when assessing bull trout effects under each alternative. Both predation and harvest are included as primary threats to recovery of bull trout in the Upper Willamette River.

Predation risk was scored based on the piscivorous fish species present in each reservoir. Local sport fisheries increase the risk of stress, injury, and mortality (e.g., Reis, Ziller, and McCormick 2012 in FEIS Chapter 10, References). Evidence of injury from hook-and-line capture of bull trout has been reported at Hills Creek Dam and Reservoir and in the South Fork McKenzie River (Zymonas et al. 2020; Zymonas et al. 2021 in FEIS Chapter 10, References).

Additional information and citations supporting factors important to measure independent of Schaller's assessment have been included in the FEIS (See Section 3.8, Fish and Aquatic Habitat, Bull Trout Assessment Model).

Comment: Fish Passage-48

P. E-222, “Since existing bull trout populations above Cougar and Hills Creek dams, which are currently stable or increasing, rely on reservoirs for rearing and foraging, we also considered the extent that reservoir conditions would change in each alternative. A fish passage measure which results in a reservoir pool which is largely drained would be expected to significantly affect rearing and forage opportunity. Passage measures which maintain a reservoir year-round were assumed not to significantly affect rearing and forage opportunity.”

- This is an incorrect statement restricted by available information. Bull trout in the Willamette River basin were historically fluvial and did not rely on reservoirs for rearing and forage, and were likely stable as well. The assumption that a drained reservoir impacts rearing and forage opportunity is not necessarily true with adequate fish passage.

Response:

The effects analysis of alternatives on bull trout has been revised for the Biological Assessment, and the update has been added to the FEIS in Section 3.8,3, Fish and Aquatic Habitat, Environmental Consequences. The Corps has reviewed literature on risks for bull trout and based its framework for assessing risks and benefits of the WVS alternatives on bull trout according to peer-reviewed scientific papers.

The commentor is assuming that a shift from the current adfluvial (using reservoirs for forage) to a fluvial life history (relying on below dam river reaches] will result in no change or a positive change for population performance within today's river system. This is possible given the habitat available below Cougar Dam. However, the comment does

not acknowledge that current conditions allow rearing and foraging in reservoirs, which has contributed to bull trout reintroduction and growth above WVS dams.

Further, the comment does not recognize that the historical river system did not provide the same rearing and foraging habitat conditions below dams as current, existing conditions; the additional risks factors below dams (e.g., take in fisheries; competition with hatchery trout stocking), or the distribution of adequately cold spawning and incubation habitat that now largely occurs above dams.

Due to existing habitat conditions compared to historic conditions, there is uncertain in the ability of bull trout to successfully exhibit a fluvial life history using below dam habitat for rearing and foraging and above dam habitat for spawning. Data are not sufficient to fully describe the productivity and adult abundance that would result if reservoir habitat for rearing and foraging in proximity to spawning habitat is largely no longer available (i.e., does not require passage at dams).

Comment: Fish Passage-49

P. E-223, "For alternatives where fish passage is not changed from existing conditions, we categorized the risks as low. This is primarily based on available information showing existing populations of bull trout above Cougar and Hills Creek as stable or increasing, and the assumption that habitat conditions will degrade and known limiting factors will be exacerbated below dams with climate change."

- USFWS does not agree that bull trout isolated above projects "where fish passage is not changed from existing conditions" benefit from that situation and are at lower risk. We have provided previous comments and information to this end, and provide it again herein.

Response:

The effects analysis of alternatives on bull trout has been revised for the Biological Assessment, and the update has been added to the FEIS in Section 3.8.3, Fish and Aquatic Habitat, Environmental Consequences. The Corps has reviewed literature on risks for bull trout and based its framework for assessing risks and benefits of the WVS alternatives on bull trout according to peer-reviewed scientific papers.

The commentor is assuming that a shift from the current adfluvial (using reservoirs for forage) to a fluvial life history (relying on below dam river reaches] will result in no change or a positive change for population performance within today's river system. This is possible given the habitat available below Cougar Dam.

However, the comment does not acknowledge that current conditions allow rearing and foraging in reservoirs, which has contributed to bull trout reintroduction and growth above WVS dams. Further, the comment does not recognize that the historic river system did not provide the same rearing and foraging habitat conditions below dams as

current, existing conditions; the additional risks factors below dams (e.g., take in fisheries; competition with hatchery trout stocking), or the distribution of adequately cold spawning and incubation habitat that now largely occurs above dams.

Due to existing habitat conditions compared to historic conditions, there is uncertain in the ability of bull trout to successfully exhibit a fluvial life history using below dam habitat for rearing and foraging and above dam habitat for spawning.

Data are not sufficient to fully describe the productivity and adult abundance that would result if reservoir habitat for rearing and foraging in proximity to spawning habitat is largely no longer available (i.e., does not require passage at dams).

Comment: References and Data-79:

Comment previously provided that the harvest risk does not necessarily change above and below projects, so the harvest risk/fisheries variable score would be a null variable. USFWS recommended eliminating the decrement to the habitat score in this assessment. The USACE responded:

- A socioeconomic analysis would be needed to support the hypothesis presented in this comment. This type of analysis was not included in the DEIS. ODFW reported an alarming high catch rate for bull trout in Hills Creek (Reis et al. 2012). Bull trout are known to be exceptionally vulnerable to hook and line fisheries, which occur in each WVS reservoir and downstream of WVS dams. In the USACE's assessment, lacking a socioeconomic analysis or additional information, we assumed that when downstream passage is provided at WVS dams, bull trout exposure to fisheries risks increase due to reduced proximity to human populations. Can the USFWS provide information supporting the assumption that harvest risk does not necessarily change above and below projects, so would be a null variable?

- The rationale for increased risk downstream of the projects is confusing and based on assumption, as stated above. Why assume a change when that is not supported by the data presented? In fact, the data presented indicates that the harvest risk may be higher in the reservoir itself.

Response:

The FEIS bull trout effects analysis and results has been revised to reflect the final ESA Biological Assessment in FEIS Section 3.8.3 Fish and Aquatic Habitat, Environmental Consequences.

Comment: Fish-85

p. 3-695, “We included a population above Detroit Dam since USFWS also plans to reintroduce bull trout above Detroit Dam (Hudson 2017). “

- USFWS asked that this statement be revised prior to public review to more accurately reflect our intention, "…may potentially reintroduce…"

Response:

The FEIS has been revised to indicate the potential for reintroduction throughout Section 3.8, Fish and Aquatic Habitat. For example, "...and at Detroit Dam in the North Santiam River Subbasin if the reintroduction is implemented and successful above Detroit Dam."

Comment: Alternatives-101

USFWS would like to see Measure 392 and Measure 722 included in the preferred alternative for Hills Creek Reservoir.

- Providing upstream and downstream passage at projects provides the opportunity for bull trout and other species to reduce the risk from local threats that may be present both upstream and downstream of the project through connectivity that allows individuals to move away from the threat. This is the solution that provides the most flexibility for bull trout and other species.

Response:

Comment noted.

Comment: Alternatives-102

We encourage the USACE to fully incorporate all of the implementation actions that will address the demographic threats identified in the USFWS's 2015 Bull Trout Recovery Coastal Recovery Unit Implementation Plan for Bull Trout (USFWS 2015, pp. A- 85- 87). The WVS dams that are addressed by these actions are highlighted below:

- Action 2.1.1. Continue to document and evaluate entrainment of bull trout at Cougar, Trail Bridge, and Hills Creek dams as changes occur in reservoir operations.

- 2.1.2 Provide appropriate screening to prevent unsafe entrainment of bull trout through dams in the McKenzie and Middle Fork Willamette Rivers Subbasins.

- 2.1.3 Re-establish connectivity by providing safe upstream and downstream passage at Trail Bridge, Hills Creek, Lookout Point and Dexter dams and downstream passage at Cougar Dam. Options for downstream and upstream passage at Trail Bridge Dam are components of EWEB's FERC relicense application awaiting FERC approval. In concordance with the NMFS and Service 2008 Biological Opinion, implement the Terms and Conditions associated with providing downstream fish passage through the USACE dams including assessing survival and efficiency through all available routes (i.e., turbines, spillways, and regulating outlets) and proposing alternatives for reducing mortality to bull trout.

- 2.1.6 Continue to capture and move as appropriate bull trout holding below Hills Creek and Trail Bridge dams until upstream fish passage facilities are constructed and proven effective. Implement measure 1.2.1 from the Upper Willamette Basin Bull Trout Action Plan, which details recommendations for successful salvage of bull trout.

- 2.2.1 Maintain a law enforcement presence in areas occupied by bull trout in order to ensure compliance with angling regulations, and concentrate patrols in known problem areas, including the McKenzie River, South Fork McKenzie, Trail Bridge Reservoir, Cougar Reservoir, Leaburg Lake, Hills Creek Reservoir, and the Middle Fork Willamette River above the reservoir.

- 2.4.1 Continue to provide historical prey base by outplanting excess live hatchery spring Chinook salmon into above dam habitats occupied by bull trout. Juvenile spring Chinook Salmon are an important prey source for bull trout. The construction and operation of dams on the McKenzie River and Upper Willamette River eliminated spring Chinook above the dams for many years. The absence of spring Chinook limited the production of bull trout populations above the dams. Release adult salmon, out-plant viable eggs, or release hatchery fry above Trail Bridge, Cougar and Hills Creek dams until volitional fish passage is provided for spring Chinook.

- 3.1.2 Continue to investigate and implement methods to suppress nonnative fish. Use methods such as reservoir manipulations to control non-native fish, including walleye and various centrarchids, in Hills Creek Reservoir and the McKenzie River.

- 4.2.2 Continue to monitor and evaluate the status of the Middle Fork Willamette River bull trout population. Implement necessary actions to ensure its persistence and the success of the rehabilitation program.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats. Further, the Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS.

Impacts to recreational fish have been identified and will be considered prior to a final decision when balancing all impacts associated with alternative implementation.

Comment: References and Data-80

P. E-220, “The U.S. Fish and Wildlife Service (USFWS) also plans to reintroduce bull trout above Detroit Dam (C. Allen, pers. comm. insert date 2021).”

- Please revise to state “The U.S. Fish and Wildlife Service (USFWS) may potentially reintroduce bull trout above Detroit Dam…”

Response:

Appendix E, Fish and Aquatic Habitat Analyses, bull trout assessment, was revised to state, "Among WVS dams, bull trout (*Salvelinus confluentus*) populations currently exist above Cougar and Hills Creek Dams, and at the time of this assessment were being considered by the USFWS and other stakeholders for reintroduction above Detroit Dam."

Comment: Fish Passage-50

Section 2.2.4.1. Provide Pacific Lamprey Passage and Infrastructure (#52, or in some instances erroneously referred to as #53). This title and section are misleading to readers. To date, the USACE has not completed any upstream lamprey passage facilities and the proposed action does not commit the USACE to providing lamprey passage at any of the 13 dams. The current proposed action only to provide features that benefit lamprey is easily misinterpreted as lamprey passage will be provided. This inaccuracy is also provided in summary tables, which suggest that all of the alternatives “includes lamprey passage measures” or otherwise suggest that lamprey passage is provided (See Table 3.1-6, line 3.24; and Tables 2.4-7 through 2.4-14).

However, as the USFWS understands the proposed action #52, the proposal is to only incorporate design elements that could be beneficial to upstream lamprey passage in the future, when other lamprey-specific structures are added to Adult Fish Facilities used for trap and haul of anadromous salmonids. USACE is not proposing passage for effective lamprey or constructing facilities to collect and pass lamprey upstream as part of this proposed action at any of its 13 WVS dams. While the most recently upgraded facilities do have aspects that are likely to assist in collecting lampreys, passage of lampreys will not happen until other separate, lamprey-specific facilities are constructed. Language and summary tables in the dPEIS should accurately reflect the lack of commitment to lamprey passage, if the USACE does not expand action #52.

The only potential alternative currently in the dPEIS that could improve lamprey passage and increase its distribution is the fish passage restoration at the small dam and drop structures below Fern Ridge Dam on the Long Tom River. USFWS is supportive of this action (measure #639), but suggests keeping it separate from measure #52, which introduces confusion.

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW.

Measure 52 has been revised in the FEIS to remove information on lamprey passage structures in Chapter 2, Alternatives, Section 2.8.4.1, Provide Pacific Lamprey Passage Infrastructure (52). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the WVS while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species. The Corps appreciates the interest of tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Fish Passage-51

Lamprey Passage Planning. In the USFWS Fish and Wildlife Coordination Act Report, developed for the USACE's use in this dPEIS, the USFWS included Recommendations for Pacific lamprey passage, including

1 - Complete an upstream lamprey trap and haul for passage Fall Creek Dam to sustain the recently reintroduced population of Pacific lamprey, and

2 - Create and implement a prioritization framework for Pacific lamprey conservation and reintroduction of lamprey into historical habitats above the USACE dams in collaboration with the USFWS and other partners in the Willamette Basin, aka the WVS Lamprey Passage Plan. The USFWS believes these two items are important commitments the USACE should include in its proposed action, which covers the WVS for the next 30 years. The current alternatives do not address lamprey passage, and as presented are confusing. All alternatives (1- 5) only suggest that lamprey passage features (not effective passage) would occur at one or more of the following WVS dams: Green Peter, Hills Creek or Blue River (depending on alternative). There is no mention of completing passage at Fall Creek Dam, despite effective passage is needed at Fall Creek within ~5 years to maintain the successful reintroduction of Pacific lamprey above Fall Creek Dam.

Despite the purpose and need of the proposed action is to provide fish passage for the next 30 years and specifically names Pacific lamprey, none of the alternatives results in passage at any of the 13 WVS dams. A commitment by the USACE to collaboratively develop WVS Lamprey Passage Plan is needed within the proposed action to address the lack of access to historical habitats for over 60 years and benefit this species in decline.

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed formally by the Tribe, USFWS, or ODFW.

Measure 52 has been revised in the FEIS to remove information on lamprey passage structures in Chapter 2, Alternatives, Section 2.8.4.1, Provide Pacific Lamprey Passage Infrastructure (52). The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the WVS while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species. The Corps appreciates the interest of tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

Comment: Endangered Species Act-17

We recommend the USACE acknowledge that USFWS has significant influence and approval authority over future USACE actions taken under this plan that affect bull trout migration and local populations so that we can ensure that the impacts are consistent with our ongoing ESA Section 7 analysis and that the action supports recovery of bull trout in the Willamette Basin. The AMP does not include USFWS where appropriate and does not adequately identify the important role USFWS and NMFS must have in future decisions to ensure the proposed action and any actions taken via adaptive management meet the intent and conditions of the future Biological Opinions on the WVS.

Response:

The EIS analyses will assist the Corps in understanding the many potential effects of alternative means of operating and changing the projects (e.g., dams, reservoirs, and related facilities) at a programmatic level, as a result of complying with the Endangered Species Act (See FEIS Chapter 2, Alternatives, Section 2.4, Purpose of and Need for the Proposed Action).

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based

on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Fish Passage-52

There is little specificity or clarity in the objectives (as stated under "performance metrics", "targets" or "decision triggers") stated for fish passage, and except for Hills Creek Dam, there is no mention of bull trout or bull trout passage considerations for any of the dams that affect bull trout (Cougar, Hills Creek, Lookout Point, and Dexter dams and the Detroit/Big Cliff complex). This document is intended to guide WVS operations for the benefit of ESA-listed fish, but largely does not consider or address bull trout needs. The document as does not adequately include sufficient detail on monitoring or decision triggers to provide guidance on bull trout passage in the future at any of the dams affecting bull trout. We recommend the USACE work with USFWS to add text that will address bull trout passage considerations in its performance metrics, targets, and decision triggers, and identify and fund studies to address unknowns, risks and uncertainties.

Response:

Bull trout exhibit both fluvial and ad-fluvial life history patterns in the Willamette River Basin and, therefore, monitoring activities to assess effects from implementation of an alternative would require different approaches than described for Chinook salmon and steelhead. An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N, Implementation and Adaptive Management Plan). The Plan has been revised in the FEIS to include monitoring metrics for assessing changes in bull trout performance.

Bull trout do not currently exist in the North Santiam River and, therefore, there are no monitoring objectives included in the Plan. If they are reintroduced in this subbasin, monitoring needs will be considered and developed following the adaptive management process described in Appendix N, Implementation and Adaptive Management Plan.

Comment: Fish-86

Section 5.4.1.1. Text states "During storms and flood risk reduction events, USACE and NMFS may jointly decide to allow the reservoir to fill rather than use the turbines to increase outflows out of Cougar Dam and develop a strategy to manage water releases following this and future storm events." As bull trout are present in this system above and below Cougar Dam, and these future adaptive management decisions affect bull trout passage and critical habitat, USFWS should be included in these discussions. Please revise text to include USFWS.

Response:

The FEIS has been revised to acknowledge the role of both the USFWS and NMFS in water management coordination in Appendix N, Implementation and Adaptive Management Plan, Chapter 4, Adaptive Management Governance.

Comment: Fish Passage-53

Section 5.4.1.1. (COU). Text states: "The goal is to start refill early enough that the reservoir can reach elevation 1571 ft. by summer so that the Cougar Water Temperature Control Tower (WTCT) weirs can be used for downstream water temperature management." If the reservoir is much reduced, use of the WTCT may not be needed for downstream temperatures, and bringing the reservoir up and switching to powerhouse operations during this time will substantially reduce fish passage efficiency and survival. There is no discussion on how the reduction in the reservoir will change the need for existing operations, or what targets/ performance measures will help guide future decisions on this operation to benefit fish passage. There should be an analysis that addresses this trade-off between temperature management and fish passage, and the AMP should include specific criteria to aid in future decisions. We recommend USACE work collaboratively with NMFS and USFWS to better appropriate targets and potential actions for operations at Cougar Dam.

Response:

The comment refers to trade off that would be addressed as a part of real-time management. Coordination to address tradeoffs such as this between temperature management and downstream fish passage would occur in WATER group meetings. Coordinated input from USFWS, NMFS, and other WATER Forum participants would be documented and will inform the appropriate course of action for meeting the range of operational objectives and to minimize conflicts among them.

Comment: Fish Passage-54

Section 5.4.1.1. The following two "targets" are common for 6 dams, lack clarity, and need revision: "Increase in the number of juveniles passing as compared to previous operational conditions (baseline/NAA)." & " Increase in the distribution of fish lengths passing downstream as compared to previous operational conditions (baseline/NAA)." These targets lack specificity

and meaning for future adaptive management. Simply “increasing the number” of fish (by 1? by 10?) regardless of their condition (injured, dead, alive) collected below the dam will not indicate better passage or survival of downstream migrants. It should matter if this increased distribution is representative of live /surviving /uninjured fish, and what level of increase for surviving fish without injury is to better define targets.

The USFWS suggests more appropriate and informative targets should be included, such as “Substantially increase the number of fish passing without delay” and “substantially increase the percentage of fish surviving”. Providing a specific level of increase (e.g., 50%) would be more informative and better frame the decisions that must be made in the future. While these targets presumably are about chinook, there should be some recognition or statement as to how USACE will use this information for bull trout, unless bull trout specific targets can be identified. We recommend USACE work collaboratively with NMFS and USFWS to better determine all targets given the significance of this AMP to operations over the next 30 years.

Response:

The "targets" as quoted in this comment were included in the DEIS and FEIS Appendix N, Implementation and Adaptive Management Plan, for assessing downstream fish passage for Interim Operations. The Plan has been revised in the FEIS with updated metrics and criteria for assessing downstream fish passage for Interim Operations. The Plan has also been revised to include monitoring metrics for assessing changes in bull trout performance associated with implementation of the Preferred Alternative.

Comment: Fish Passage-55

Section 5.5.7.5 - Bull Trout : Text states: “If the review of traps finds that it is feasible to construct and operate an effective trap for bull trout in the tailrace of Hills Creek Dam, then the design and construction process will proceed pending funding authorization. The approximate timing for completion of this trap would be 6.5 years, given funding and assuming 1.5 each for EDR, DDR, P&S, and 1 year for construction. The chosen design concept will influence the final timing of completion of the design and construction process.” The USFWS recommends the USACE: 1) Provide a detailed description of what will be included in the “review of traps” or cite appropriate section for cross-referencing. This review does not appear to be mentioned or described elsewhere in the AMP; 2) Provide a date by when the “review of traps” will be completed, so there is a clear timeline of events and understanding of when bull trout passage will be provided; and 3) provide criteria for a fish passage facility that includes “safe, timely and effective” passage of bull trout and chinook from below to above Hills Creek Dam.

Response:

The Adaptive Management Plan has been revised in the FEIS to state, "A review will be completed to assess the feasibility and likelihood that a safe and effective trap can be operated in the tailrace of Hills Creek Dam to support the trap and transport of bull trout above the dam, and to review effective designs and features. The assessment will

include consideration of water temperatures released from Hills Creek Dam. The review is expected to take 1 year and will begin in 2026." Further detail is not available at this time. If determined feasible under the Plan, then subsequent site-specific design and environmental compliance would occur after this effort and would likely tier to this EIS.

USFS (WARNACK, DAVID)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_USFS_David Warnack.pdf

Comment: Water Supply-33

According to USACE's Preferred Alternative, it appears Detroit Reservoir levels would remain similar to current operations, while Cougar and Blue River reservoirs would experience heavy drawdowns. What about Hills Creek and Lookout Point reservoirs? It is unclear how severely, in terms of depth and time, those reservoirs on the Middle Fork Ranger District would experience drawdowns.

Response:

Summary charts and analysis of reservoir elevations at Hills Creek, Lookout Point, and Fall Creek Dams are available in FEIS Section 3.2, Hydrologic Processes, Middle Fork of the Willamette River Subbasin. Of the three dams, the elevations at Hills Creek Dam would change most under the Preferred Alternative as compared to the No-action Alternative, primarily to meet downstream flow targets on the mainstem Willamette River.

Comment: Water Supply-34

Some reservoirs historically used as water draft sites (e.g. Cougar Reservoir) could become unusable or need to be altered for wildland fire suppression.

The ability for aircraft (e.g. helicopters) to dip out of reservoirs for extended periods of time may change during fire season. Use of water dropping aircraft, such as Scoopers, may be hindered.

The reservoirs are the main site for scooper use for fires on the Willamette. They require approximately 1 mile of water way to gather enough water

It would be helpful for fire managers to know/plan ahead of time when the depth of reservoirs reach a limit that they are no longer safe or functional for aircraft to retrieve water.

Response:

Comment noted.

Comment: Public Health and Safety-8

Prolonged drawdown conditions could increase vegetation/fine fuels making areas more susceptible to fire… Modeling vegetation growth at reservoirs with extended drawdowns could help determine wildfire suitability.

Response:

This comment requests information on site-specific vegetation modeling that is out of scope for the EIS analyses. See FEIS Chapter 1, Introduction, and Chapter 2, Alternatives for descriptions of the scope of analyses, purpose and need statement, Proposed Action, range of alternatives, and resources analyzed because of a potential for impacts under any of the alternatives.

Agencies are not required to analyze or address topics that are not within its scope of review as determined through internal and public scoping processes and documented in the project record. However, the FEIS has been updated to provide more information regarding drawdowns and the potential to contribute fine fuels in Section 3.6, Vegetation.

Comment: Public Health and Safety-9

There is potential for additional fires from dispersed camping, due to loss or changes to developed camping opportunities, and the desire to camp close to water.

Response:

The FEIS has been updated to include information on wildfires in Section 3.6, Vegetation and in Section 3.14, Recreation Resources. The potential for wildfires due to dispersed camping or to changes in water-based recreation opportunities are analyzed in FEIS Section 3.14, Recreation Resources, Environmental Consequences and in Section 3.14.5, Climate Change Effects under All Alternatives.

Comment: Recreation-28

Such substantial impacts to recreation management are expected at reservoirs with heavy and extended drawdown levels (e.g. Cougar Reservoir) that the forest needs active USACE engagement to help plan and fund mitigations for these effects.

The forest manages 12 campgrounds (10 of which have boat ramps), four additional boat ramps, and four day-use sites that are all located on the shores of USACE managed reservoirs under consideration in this EIS.

With consistently lower reservoirs through the summer recreation season, an expected recreation impact will be a substantial increase in recreational use of exposed reservoir bottoms. The Forest Service does not have the resources to effectively control and manage this

use. Additionally, the current approach to restrict all access to reservoir bottoms is untenable and unsustainable at any reservoir that will be less than full pool consistently in the summer recreation season.

The forest has recreation infrastructure around these reservoirs that will no longer be functional and/or desirable under many of the alternatives under consideration. For example, Slide Creek Campground is on the shore of Cougar Reservoir and has a large boat ramp and parking area providing access when the reservoir is at or near full pool. Under the preferred alternative, all of this boating infrastructure will no longer serve any purpose; additionally, the desirability of the campground will be substantially less without nearby water.

Response:

The DEIS has been revised to address impacts under each alternative to agencies managing resources related to recreation opportunities in FEIS Section 3.14, Recreation and Section 3.11, Socioeconomics. These impacts include financial, staffing, and planning resources needed to manage for safety issues and visitor displacement.

Section 3.14, Recreation, acknowledges possible visitor displacement from less desirable land-based recreation opportunities if water-based opportunities are not available at a reservoir during the peak recreation season.

Comment: Mitigation-7

USACE should provide the resources to develop recreation management plans for each reservoir and the resources for implementation of those plans. The recreation management plans may include: identifying sustainable recreation opportunities in the reservoir bottoms; managing recreation access (including both restricting/block access in areas and enhancing access if and where appropriate) USACE should identify long-term functionality of recreation infrastructure, identify future use of impacted recreation sites, provide the resources to either modify or decommission recreation sites that become unusable or undesirable, based on the new reservoir operations.

Response:

Comment noted.

Comment: Wildlife-13

Deep and extended drawdown levels could potentially affect bald eagles and osprey through loss of foraging habitat (less lake area to forage in). Deep and extended drawdown levels could potentially affect western pond turtles through loss of basking habitat

Response:

The Corps analyzed potential effects to wildlife under each of the alternatives including the Preferred Alternative in the DEIS (FEIS Appendix A, Alternatives Development, Attachment 4). Further, the Corps consulted with ODFW and USFWS as Cooperating Agencies in development of the EIS.

Impacts to bald eagles and osprey due to deep and extended drawdown levels was assessed in DEIS and FEIS Section 3.9.2, Wildlife and Habitat, Environmental Consequences. Impacts to northwestern pond turtle was assessed in FEIS Section 3.9, Wildlife and Habitat and FEIS Section 4.9, Wildlife and Habitat cumulative effects.

Additionally, USACE conducted a voluntary conference with the USFWS addressing the northwestern pond turtle. and prepared a Biological Assessment analyzing the effects of the proposed actions on the northwestern pond turtle

Comment: Mitigation-8

Weeds already exist around the reservoir and could spread, although there is not much to mitigate in that case.

Response:

Invasive species management is addressed in Section 3.6, Vegetation, and in Section 3.16, Hazardous Materials.

Comment: Mitigation-9

USACE should monitor for new invasives migrating into the reservoirs and make efforts to keep them from establishing. One mitigating action would be to replant native vegetation that can handle being submerged, such as willows. Refer to Kaweah Reservoir administered by USACE in CA as an example.

Response:

The FEIS has been updated to include information on system-wide vegetation management in Section 1.12.4, Willamette Valley System Vegetation Management Plans, and Section 3.6 2.5, Invasive Plant Species. Replanting is addressed by the Corps Portland District as part of specific restoration projects specific to local ecological conditions.

Comment: Cultural and Tribal Resources-4

There is concern for exposure of cultural resources that have long been submerged by reservoir waters.

Response:

FEIS Section 3.21 and Section 4.21, Cultural Resources, address risk of exposure of cultural resources during drawdowns and subsequent potential for unauthorized collection.

Comment: Public Health and Safety-10

There is concern that extended drawdowns would attract crowds of people and vehicles to reservoir bottoms resulting in unauthorized use, parties, fires, damage to natural and cultural resources, and other illegal activities.

Response:

Comment noted.

WATER CLIMATE TRUST (TIDWELL, STEPHANIE)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_WaterClimateTrust_Stephanie Tidwell.pdf

Comment: Dam Removal-6

Specifically, we are concerned that the Draft PEIS failed to even cursorily evaluate dam removal as the most obvious fish passage solution. When I asked about this glaring absence at an open house in Springfield, Oregon last month, I was told by an Army Corps staff member that, since the original 'flood control' purpose of the dams was Congressionally-mandated, removing them is beyond the scope of the PEIS… However, the Draft PEIS that we are now being asked to comment on completely ignores that the public has requested a no-hydropower alternative, as removing hydro allows for a greater range of operational measures that would be more effective for fisheries recovery, particularly to assist with downstream passage issues.

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority. Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA.

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: NEPA Process-33

This is simply not true. NEPA in fact requires consideration of alternatives that may be outside of the agency's current authorities, particularly if the project is in violation of other federal laws like the ESA (as evidenced by the injunction for Cougar Dam operations, as well as other issues forcing the development of this new PEIS).

Response:

The Corps analyzed a reasonable range of seven action alternatives that compare structural solutions and operational solutions. This range of alternatives includes action outside of the Corps' current authority such as implementation of the Cougar Dam diversion tunnel under Alternatives 2B, 3B, and 5.

The Corps does not propose, address, or analyze the disposal of any purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (FEIS Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of purposes is being considered in other on-going disposition studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS.

Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects under the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: Alternatives-103

An alternative on removing hydropower would trigger analysis of, at minimum, decommissioning Big Cliff and Dexter Dams, as both are 100% for the purpose of hydropower generation and serve no purported flood control purpose. This would also drastically increase the potential effectiveness of volitional fish passage at Detroit and Lookout Point, whereas the current preferred alternative is proposing to (eventually) construct non-volitional passage structures that probably won't work. These critically imperiled salmon runs could well be extinct by then.

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority. Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA. Impacts to all the Corps' Congressionally authorized purposes have been analyzed in the EIS including

effects under the alternatives on fish and wildlife, hydropower, water supply, flood risk management, etc.

Comment: Dam Removal-7

Furthermore, the original Congressional authorization of dam construction for flood control does not preclude the agency from looking at decommissioning, especially when a structure is no longer really serving that purpose, as is currently the case with Cougar dam. I have been there twice recently, and it is a stretch of the imagination to see this remote, rural reservoir as a significant community flood preventative. Even under the proposal to eventually draw it down most of the year for volitional fish passage through the diversion tunnel at the bottom of the dam, far too many fish will not survive passing through the structure. It really needs to go. At absolute minimum, the Corps needs to speed up the timeline on getting there or make some changes to the interim drawdown operations to improve survivability through the interim route agreed to under the injunctive order.

Response:

The seven action alternatives provide a reasonable range of alternatives and include an analysis of operations outside of the Corps' current authorities like the Cougar Dam diversion tunnel under Alternatives 2B, 3B, and 5. The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives including the Preferred Alternative (Alternative 5).

The Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes. Impacts from the drawdown operation at Cougar Dam will be analyzed in a site-specific analysis; coordination with applicable governmental agencies and tribes will occur during that process.

WATERWATCH OF OREGON (POSEWITZ, BRIAN)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_WaterWatchofOregon_Brian Posewitz_Attachment.pdf

Comment: Hydrology-25

1. Reservoir operations should prioritize instream flows for fish, wildlife, and recreation, including but not limited to instream flows needed for ESA-listed winter steelhead and spring Chinook salmon.1 Water provided for instream flows should be fully protected, with instream water rights and contracts for stored water, as recommended in the Willamette Basin Review BiOp (2019) (WBR BiOp).

Response:

Comment noted.

Comment: BiOp-22

2. Reservoir operations should fully incorporate the WBR BiOp as required by the Congressional authorization and the ESA. The alternatives analysis should also assume full compliance with all RPAs in that BiOp. Several sections of the Draft EIS, including those related to flow management in low-water years, are not clear on that topic. (E.g., Section 3.13.3),

Response:

Comment noted.

Comment: Fish-87

3. Reservoir operations should also incorporate, as proposed, other measures that will increase survival and abundance of listed salmon and steelhead, including fish passage improvements and reservoir drawdowns to aid migration. These measures should be balanced with needs for stored water to meet instream flow needs in the spring, summer, and fall.

Response:

The Corps provided several permutations of measures for improving fish passage and survival among the alternatives analyzed in the EIS.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Hydropower-19

Given the potential benefits to fish from both drawdowns and stored water, storage for power production should be de-emphasized, particularly since power production appears to provide limited economic benefit.

Response:

Comment noted.

Comment: References and Data-81

4. The EIS should include more information and analysis on management and protection of stored water for fish and wildlife. Models suggested for use in that process should be independently verified for scientific reliability and rigorously tested against outcomes for fish and wildlife. Absent a scientific basis to do otherwise, management of stored water should continue to use the flow targets set in the 2008 biological opinion.

Response:

Models used to assess fish effects from the alternatives in the WVS EIS were reviewed by the Independent Science Advisory Board (ISAB) (See https://www.nwcouncil.org/reports/isab2023-1/). The review states that "The ISAB determined that the models for spring Chinook salmon and steelhead developed by the four modeling groups include the major processes influencing spring Chinook salmon and steelhead life histories and are scientifically sound."

The models reviewed by the ISAB included those used to assess the effects of changes in flows below WVS dams associated with the alternatives in the EIS on ESA-listed salmon and steelhead. The methods used are documented in DEIS Section 3.8.2.1.6, Supporting Model 2: Flow-Survival Relationships, and in DEIS and FEIS Appendix E, Fish and Aquatic Habitat Analyses. The ISAB Final Review is addressed in FEIS Section 3.8, Fish and Aquatic Habitat, Section 3.8.3, Environmental Consequences, Methodology.

Comment: Water Supply-35

5. The Draft EIS overstates the need for and importance of stored water for municipal and industrial use. (Appendix J, Section 1.1.2.) For example, it refers to a "Growing Communities Doctrine" that has not been recognized by Oregon courts, misdescribes the preference for "human consumption" as being in relation to only instream water rights and as synonymous with municipal and industrial use when it is only a small fraction of such use, and assumes municipal and industrial water demands will grow at the same rate as population when data on the subject shows growth can be accommodated by increased water use efficiency.

Response:

Oregon Water Resources Department (ORWD) is the state agency responsible for state water resources and was a Cooperating Agency for preparation of the WVS EIS (Appendix L, Cooperating Agencies). OWRD provided direction on forecast demands for municipal and industrial uses for EIS analysis purposes.

The FEIS has been updated to remove the reference to the Growing Communities Doctrine as this was supporting information in the Affected Environment.

See FEIS Section 3.13.1.2, Municipal and Industrial Water Supply, and Appendix J, Water Supply, Section 1.1.2, Municipal and Industrial Water Supply.

Comment: Hydrology-26

6. Constraints in the modeling may have affected the alternatives analysis. According to Appendix J, Section 2.3, the alternatives analysis did not alter downstream withdrawals and consumptive use to coincide with different levels of reservoir releases for consumptive use. Moreover, it appears that irrigation use was modeled at significantly less than projected actual use (1.3 percent of the lower Willamette seems significant even if difficult to gauge). Finally, it is not clear why the 2008 BiOp cap on irrigation contracts would remain in place under the NAA but not the alternatives to which it was compared, particularly since the 2019 BiOp cap on municipal and industrial use is assumed to be lifted even under the NAA.

Response:

Prospective in-season adaptive management decision specifics cannot be modeled in HEC-ResSim. Instead, the model requires the Corps to show the full projected demand for the 30-year implementation timeframe for each consumptive use as being fully used

in any type of water year (i.e., wet, normal, or dry). These modeling assumptions/limitations are described in DEIS Section 3.13.3, Water Supply, Environmental Consequences.

These analyses overestimate the impacts to listed species in dry years due to the Willamette Basin Review 2019 Reasonable and Prudent Alternative (RPA) requirement to curtail contracts in dry years for irrigation and municipal and industrial water supply.

The HEC-ResSim modeling for irrigation under the action alternatives accounts for existing live flow users without contracts, existing contract amounts in 2012, and future demand through 2050. The DEIS and FEIS action alternatives also correctly and conservatively assume the removal of the municipal and industrial water supply cap under the 2019 Willamette Basin Review RPA because the Corps is actively working with the U.S. Bureau of Reclamation (BOR) and the State of Oregon to comply with the terms of that 2019 Biological Opinion that will result in this cap lift.

The Corps makes different assumptions about consumptive use caps under the No-action Alternative analysis as compared to the action alternatives for municipal and industrial water supply and not for irrigation because BOR was not a direct party to the 2019 Willamette Basin Review Section 7 Consultation.

Consequently, the BOR's action was foreseeably capped at 95,000-acre feet when the WVS programmatic EIS was initiated in 2019, which is the framework date for the No-action Alternative description (See FEIS Chapter 2, Alternatives, Section 2.10.3, No-action Alternative).

Comment: Water Supply-36

7. The EIS should consider possible changes to rule curves and flood risk management for the benefit of ESA-listed species and other priorities, including whether changes in flood insurance and land use practices that could reduce flood control needs.

Response:

Flood risk management is a primary purpose of Willamette Valley System operations (FEIS Section 1.10.1, Flood Risk Management). A primary constraint in scoping alternatives and measures for the EIS was that there can be no impacts to flood risk management within the 30-year implementation timeframe. The Corps screened potential measures against this constraint, including changes to rule curves, as an example.

Additionally, the Corps does not have responsibility or control over flood insurance or land use in the region. Consequently, changes to these programs and how such changes would impact/inform Corps' operations are both speculative and out of scope for this EIS analysis (FEIS Chapter 2, Alternatives, Proposed Action and Purpose and Need).

Comment: Proposed Action-47

8. The EIS should explain, as to each resource issue raised in the scoping process and considered significant enough to mention, (Section 6.2.), how and where that issue is addressed in the EIS, or the reasons that issue was not addressed.

Response:

Comment noted.

WHALE AND DOLPHIN CONSERVATION, SEATTLE AQUARIUM, WHALE SCOUT, ORCA NETWORK (WEILER, COLLEEN)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_OrcaConservation_Colleen Weiler_Attachment.pdf

Comment: Wildlife-7

However, the information included about the orcas and their dependence on salmon is narrowly focused on fishery management, which is just one part of the suite of challenges facing both species and is not directly related to the operations and maintenance of the WVS. Therefore, we will reiterate the ask in our scoping comments for the USACE to include comprehensive information about the Southern Resident orcas' connection to salmon, particularly spring Chinook, and how operations in the WVS impact Willamette spring Chinook and the Southern Resident DPS… The inclusion of Southern Resident orcas only in connection to federally managed ocean salmon fishing is inadequate for an appropriate analysis and to understand how the WVS impacts prey availability for the orcas. While fisheries management is an important contributor to the abundance and availability of salmon in the ocean, these actions are outside the scope of WVS operations and this draft PEIS. The short section on Southern Resident orcas recognizes that "UWR Chinook are important to the SRKW due to the timing of their return to the mouth of the Columbia and energetic need for SRKW in that time period…. measures that improve production of the salmon stock in freshwater areas can have a potentially large effect on the strength of the return, and thereby would be expected to accrue larger benefits to SRKW."1 We fully agree with this statement and urge the USACE to expand its analysis on how improvements for salmon in freshwater areas would benefit the Southern Residents. We refer again to our scoping comments for more information on the importance of Chinook salmon, including UWR Chinook, to the Southern Resident orcas.

The draft PEIS should focus on the environmental consequences and ecosystem effects of the Alternatives on prey quantity and quality for the Southern Residents. A narrow focus on salmon fisheries management by the Pacific Fishery Management Council (PFMC) does not reflect the impacts from actions in the WVS. We request the USACE modify the section on Southern Resident orcas to appropriately reflect the effects of upstream actions taken in the Willamette watershed.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents compared to salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: Alternatives-94

Additionally, the PEIS should consider a broader range of measures in the Alternatives, including those that would require Congressional deauthorization of hydropower. The USACE should assess the removal or modification of non-flood-control dams (Big Cliff and Dexter) and improved downstream passage measures at Detroit Dam, Hills Creek Dam, and Lookout Point Dam in the context of removal; improvements to fish passage at existing facilities; earlier spill at Detroit Dam for downstream passage; modifications to dam operations to improve habitat conditions below the dams; and an expedited timeline to achieve a timely completion of changes. The Alternatives presented in the Draft PEIS, including the Preferred Alternative, are inadequate to meet the USACE's statutory obligations under the Endangered Species Act (ESA) to ensure that operations and maintenance of the WVS do not jeopardize listed species.

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority. Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing

the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA.

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: Wildlife-8

1) Separate "fishery management and killer whales" in the draft PEIS. The very title of the section (4.1.2.3.6) suggests that fishery management is the only salmon-related action that impacts orcas, and the rest of the text focuses primarily on recent actions by the PFMC to improve prey availability for Southern Resident orcas. While fishery management changes provide short-term impacts to prey availability, improving salmon survival and abundance is a long-term strategy to improve the future quantity and quality of salmon for the Southern Resident orcas and other species and human communities that depend on them. We question why ocean salmon fisheries were included as the main element for Southern Resident orcas, when ample information is available on the broader impacts of prey depletion, as described in our scoping comments.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in

support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan in Section 3.9, Wildlife and Habitat.

Comment: References and Data-56

2) Since the scoping period for the PEIS, the National Marine Fisheries Service (NMFS) has published substantial new information on coastal habitat use by Southern Resident orcas. NMFS has recognized the mouth of the Columbia River as a "high use foraging area", with approximately 50% of the time spent by the orcas in coastal waters between Grays Harbor, Washington and the Columbia River.2 Long-term monitoring of the Southern Residents indicates they are spending less time in their traditional spring and summer habitat in the Salish Sea, and more time foraging in coastal waters.3 This is likely driven by changes in Chinook availability in the Salish Sea, and corresponds to recent research estimating a significant increase in the potential contribution of Columbia Basin salmon, which includes UWR Chinook, to the orcas' diet.4 As the Southern Residents spend more time in the coastal part of their range, they will be more reliant on salmon from the Columbia Basin.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan, critical habitat, and best available information on abundance and range (NMFS 2023) in Section 3.9, Wildlife and Habitat.

Comment: Endangered Species Act-14

3) This research supported the 2021 revision of federally designated critical habitat for the Southern Resident orca DPS to include coastal areas off Washington, Oregon, and California.5 The Final Biological Report accompanying the rule specifically notes that "[d]am and hydropower operations occurring upstream of coastal Southern Resident killer whale critical habitat may have an impact on the essential habitat features, particularly the prey feature."6 These "upstream activities", while not within the boundaries of critical habitat, may affect the essential features of critical habitat, and NMFS states that such activities may require consideration of potential adverse modification on critical habitat. The Alternatives included in the Draft PEIS do not fully consider nor analyze the impacts to Southern Residents or their critical habitat. The Final PEIS should include an assessment of how the Alternatives would impact the essential features of prey and water quality in the Southern Residents' critical habitat, and the subsequent effects on orca recovery.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: Wildlife-9

4) The Draft PEIS accurately notes that Southern Resident orcas specialize on Chinook salmon, and feed on Chinook year-round. The PEIS should refine this information to reflect the dependence, not simply the preference, of Southern Residents on Chinook salmon. The Southern Residents target Chinook year-round even when other species are more abundant and regardless of the overall abundance of Chinook salmon.7 Research published by NMFS in 2021 further confirms the prevalence of Chinook in the orcas' diet: Chinook accounts for approximately 50% to 100% of the Southern Residents' diet, depending on the season.8 In mid-winter through spring, the time of their highest use of coastal waters, Chinook salmon is 70-80% of their diet.9

The Final PEIS should reflect the impacts of prey depletion on the health and recovery of the Southern Resident DPS, as noted in our previous comments, and include additional information on the long-term impacts to individual and population health. The quality and quantity of Chinook salmon directly influences the heath and nutritional status of the orcas, and prey depletion causes negative health indicators including reductions in growth rates and adult length, increased mortality and decreased fecundity, and changes in social cohesion.10 The effects of operations and maintenance of the WVS on the health and abundance of spring Chinook salmon furthers the lack of prey for Southern Resident orcas, contributing to the negative impacts on individual and population health.

Response:

While the NMFS 2021 study provides the statistical diet content, it does not conclude a "dependence" on UWR Chinook salmon. The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: Wildlife-10

5) Aside from the impacts of harvest (both ocean and freshwater fishing), the primary drivers for the decline of salmon are recognized as habitat loss, hydropower, hatcheries, and climate change impacts.11 These activities have ecosystem impacts on the Southern Resident orcas by decreasing the quantity and quality of their prey.12 As noted, only considering the Southern Resident orcas in relation to ocean salmon fishing is inadequate and unrelated to the potential changes in the WVS. As an upstream activity that directly impacts prey resources and water quality for Southern Resident orcas, the Alternatives included in the Final PEIS should reflect this ecosystem-wide impact and appropriately analyze the potential changes.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: References and Data-57

6) Since the scoping period, the Southern Resident population has further declined to 73 individuals. The PEIS should include the most recent population census at the time of publication; available from NMFS and the Center for Whale Research.13

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify

their designated critical habitats. Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan, critical habitat, and abundance at the time the alternatives were analyzed (NOAA 2023) in Section 3.9, Wildlife and Habitat.

Comment: Endangered Species Act-15

The Alternatives presented in the Draft PEIS do not fully address the USACE's statutory requirement to avoid jeopardy for ESA-listed species, both Chinook salmon and Southern Resident orcas, and are therefore inadequate to support the recovery of both… The Draft PEIS provides insufficient analysis of the impacts of the WVS on prey availability for Southern Resident orcas. Changes to operations and maintenance of the WVS will have ecosystem effects on orcas and other species dependent on Willamette River salmon, and there is abundant information available on this connection. To truly assess the environmental consequences of the WVS and the impact of the Alternatives, the Final PEIS should include this information.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: Dam Removal-4

The USACE must consider Alternatives that include dam removal options, which will still allow the WVS to serve its project purposes, including flood control.

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority. Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS.

Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: Proposed Action-36

We urge the USACE to refine the Draft PEIS to include more definite targets and indicators for salmon recovery and the contribution to prey availability of Southern Resident orcas; to ensure transparency and adaptive management are maintained in changes to operation and maintenance of the WVS, and to consider actions that do not just avoid jeopardy for ESA-listed species, but support recovery and long- term survival.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: Wildlife-11

The EIS should consider the historic abundance of Willamette spring Chinook and the overlap with Southern Resident orcas, and assess the potential for this run of salmon to contribute to overall prey availability for Southern Resident orcas. Recovering wild salmon populations throughout the range of the orcas will be vital for their immediate survival as well as long-term recovery, including runs such as the Willamette spring Chinook that were historically much more abundant. Any action that significantly impacts salmon needs to also analyze the effects on prey availability for Southern Resident orcas. The USACE must consider the consequences of maintaining status quo operations in the WVS, which has not led to recovery for Willamette River Chinook and contributes to prey depletion for orcas.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: BiOp-15

The USACE has previously agreed to implement structural and operational changes required to benefit wild salmon in the WVS, as described and scheduled in the 2008 Biological Opinion, but has failed to follow the established timeline and has not carried out these necessary actions21. Status quo operations are failing to result in any recovery of the Willamette spring Chinook ESU22.

Response:

Comment noted.

Comment: Alternatives-95

Changes are necessary to address flow, temperature, and water quality issues, and provide adequate fish passage to the federally-protected, high-quality habitat that is blocked by dams. The EIS should include and analyze alternatives that allow for greater flexibility in hydropower system operations, include more options that benefit wild fish, and prioritize structural changes to help wild fish recover.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives including the Preferred Alternative. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Comment: Dam Removal-5

Although some dams in the WVS are used for flood control and are critical to human safety, modifications to dam operations can benefit wild salmon while maintaining flood control. Other dams are primarily used for hydropower or recreation, and the USACE must prioritize and analyze operational measures and structural changes that may impact these other authorized purposes in the WVS, but are necessary to recover wild Willamette salmon. Dams such as Dexter and Big Cliff are hydropower re- regulation dams that do not serve flood control purposes. The USACE should include alternatives that consider modifying dams not vital for flood control to operate as run-of-river, or analyze the complete removal of these dams to support the recovery of ESA-listed salmon.

Response:

The alternatives included measures that would result in major impacts to some authorized purposes. Measures such as run-of-river operations were screened out if they would increase flood risk or if they eliminated a Congressionally authorized purpose, as described in DEIS and FEIS Appendix A, Alternatives Development.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Impacts from the drawdown operation at Cougar Dam will be analyzed in a site-specific analysis; coordination with applicable governmental agencies and tribes will occur during that process. The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action and the Corps does not have this authority. Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

De-authorization of any dam for hydropower is similarly not under the Corps' authority and is not in the scope of this EIS review (FEIS Appendix A, Alternatives Development, Attachment 1). However, impacts to all the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the proposed action and alternatives on fish, hydropower, water supply, flood risk management, etc.

Comment: Wildlife-12

Measures necessary to fulfill the USACE's duties to further listed species conservation and ensure that activities it authorizes or carries out are not likely to jeopardize the continued existence of those species are set forth in NMFS recovery plans for listed species. The recovery plan for Southern Resident orcas says that "[w]ild salmon have declined primarily due to degradation of aquatic ecosystems resulting from modern land use changes" including hydropower development23. Therefore the USACE should review the recovery plan and use its authorities to rebuild depleted populations of salmon and other prey to ensure an adequate food base for recovery of the Southern Resident orcas.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: Alternatives-96

The USACE must consider how operations in the WVS impact both Willamette spring Chinook and the Southern Resident DPS, and include alternatives that will make real and significant progress to recovering wild salmon. We request alternatives that include an expedited implementation timeline for near-term structural and operational changes in addition to longer-

term solutions; provide greater flexibility in hydropower system operations; and include a full analysis of changes that give salmon recovery a high priority, including how different alternatives would impact the availability of Chinook salmon for Southern Resident orcas.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

WILLAMETTE PARTNERSHIP (RINGGER, EMERSON)

Comment Document: 2023-01-09_PublicComment_WV_DEIS_Willamette Partnership_Emerson Ringgerpdf.pdf

Comment: Out of Scope-7

Thank you for the opportunity to participate in the review process for this project. Attached for your review is a link to a google spreadsheet detailing CTGR's comments thus far.

Response:

Comment noted.

WILLAMETTE RIVERKEEPER (HUTCHISON, LINDSEY)

Comment Document: 2023-02-23_PublicComment_WV_DEIS_WillametteRiverkeeper_Lindsey Hutchison_Attachment.pdf

Comment: Alternatives-104

Willamette Riverkeeper, Cascadia Wildlands, the Center, Oregon Wild, and Oregon Clean Water Action Project have significant concerns about the Corps' draft PEIS and its preferred alternative, Alternative 5. The Alternatives presented in the draft PEIS, including the preferred Alternative 5, are inadequate to meet the Corps' statutory obligations under the Endangered Species Act to ensure that the Willamette Valley System does not jeopardize listed species. The Corps must consider a broader range of measures in the Alternatives analyzed in the PEIS, including those that would require Congressional deauthorization of hydropower or Willamette Valley System dams. In particular, the Corps should include and consider the removal or modification of reregulating dams (Big Cliff, Dexter, and Foster) and subsequent downstream passage measures at Detroit Dam, Hills Creek Dam, and Lookout Point Dam, including one or more of the following measures: decommissioning and removing dams; improving fish passage at existing facilities such as though use of floating fish structures; providing earlier spill at Detroit Dam to assist downstream passage; modifying dam operations to improve habitat conditions below the dams; and implementing changes on an expedited timeline to prevent further harm to listed species.

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority. Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA. Impacts to all the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects under the alternatives on fish and wildlife, hydropower, water supply, flood risk management, etc.

Comment: Alternatives-105

Commenters urge the Corps to seriously consider adopting an alternative that would necessitate hydropower deauthorization. Short of that, Commenters request that the Corps consider Alternative 2A as the preferred alternative, as it will ensure the highest survival rates

for federally threatened Willamette Basin salmonids, allow the Willamette River to be more resilient in the face of climate change, and continue to support power generation and unsurpassed recreation opportunities in the basin. In the alternative, we urge the Corps to consider actions that are not yet authorized by Congress to bolster the effects of its currently preferred Alternative 5.

Response:

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: Alternatives-106

I. The Corps should create and choose an alternative that prioritizes listed species and climate resiliency. After decades of neglect and years of litigation, it is well beyond time for the Corps to create and choose an alternative that prioritizes Upper Willamette Chinook, Upper Willamette steelhead, and bull trout, as well as the Southern Resident orcas that rely on Chinook salmon as their primary source of prey (see section V below). All of the alternatives the Corps has put forth in the draft PEIS are woefully inadequate to protect listed species in the Willamette River Basin and fail to ensure against jeopardy and destruction and adverse modification of their critical habitat. The actions that are necessary for protecting these species and that will ultimately lead to their survival and recovery include actions not yet authorized by Congress, such as hydropower decommissioning.

Response:

Comment noted.

Comment: Fish Passage-56

The Corps must guarantee adequate fish passage, for both spawning adults (upstream) and juveniles (downstream), at every high head dam in the Willamette Valley System to ensure that threatened salmonids, including bull trout, have access to their historical spawning and rearing areas and reduce "relatively high pre-spawning mortality rates."37 The Corps must build and operate up and downstream passage facilities, spillways, other outlets, and floating fish structures, among other structural and operational measures, to increase juvenile and pre-spawning survival.

Response:

Passage was identified in existing information and by cooperators as a critically limiting factor for ESA-listed species. Measure formulation was focused on addressing both upstream and downstream passage for adults and juvenile Chinook salmon and winter steelhead.

The effects to listed fish and other threatened species under each of the alternatives are analyzed in DEIS Section 3.8.2, Fish and Aquatic Habitat, Environmental Consequences (FEIS Section 3.8.3). Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a federally proposed action to ensure its impacts to listed species do not jeopardize their continued existence of a listed species or adversely modify their designated critical habitats.

Comment: Water Quality-49

The Corps must also guarantee that the fish passage plans do not increase water temperature below the dams, through temperature control structures and other means, and make every effort to safeguard against other pollutants that may degrade habitat and increase mortality rates for threatened salmonids.

Response:

Comment noted.

Comment: Dam Removal-8

One fish passage measure the Corps must seriously consider is removing Cougar Dam to open upriver habitat for native salmonids. The McKenzie Core Legacy population is an evolutionarily significant unit of Upper Willamette River spring Chinook salmon and opening their historic

spawning and rearing areas along the McKenzie will increase survival rates and help revive this core population. Removing Cougar Dam would also open spawning habitat for steelhead and bull trout, and generally improve habitat for native salmonids and trout. In analyzing this alternative, the Corps must also analyze other methods of flood control, as Cougar Dam serves a flood prevention function in the Willamette Valley.

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action. The Corps does not have this authority. Because dam removal is not a component of the proposed action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

However, impacts to all of the Corps' Congressionally mandated purposes have been analyzed in the EIS including effects under the alternatives on fish, hydropower, water supply, flood risk management, etc.

The FEIS has been revised to add information on fish and aquatic habitat in Section 3.8. Analyses address effects anticipated under all alternatives to all resident fish in all subbasins (FEIS Section 3.8.3, Fish and Aquatic Habitat, Environmental Consequences).

Comment: Revetments-11

In addition to guaranteeing fish passage, the Corps also must work to protect and restore historical spawning and rearing areas. This includes restoring "floodplain connection and function, off-channel habitat, and channel migration processes to improve rearing habitat."38 The Corps must prioritize removing non-essential levees, bank armoring structures, and other man-made revetments to increase habitat complexity to improve juvenile rearing habitat.

Response:

The FEIS has been updated to include information on revetments in Section 1.7.2, Revetments and Other Structures for Bank Protection.

The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley. The revetments converted to private sponsors to own and maintain are discussed in the FEIS in Section 1.7.2, Revetments and Other Structures for Bank Protection. Projects that propose to alter privately owned revetments, though they are no longer Federally owned and operated, are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Changes to the Rivers and Harbors Act Section 408 statutory program are outside the scope of this EIS.

The Corps would continue to maintain Corps-constructed revetments under all alternatives including the No-action Alternative. In contrast to the No-action Alternative, revetments could be modified to incorporate fish-friendly improvements under the

action alternatives such as adding natural materials but must continue to provide the same level of protection as when originally authorized.

The Corps is also proposing to secure a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These restoration authorities would allow for a potential change in the protectiveness level of revetments studied. However, this collaboration is not part of the scope of this EIS because it has not been initiated.

Comment: NEPA Process-34

The Corps must acknowledge and work to actively incorporate the unique historical and cultural perspectives and vast ecological knowledge held by Pacific Northwest tribes, the original inhabitants and environmental stewards of what is now the Willamette Valley. The Corps should evaluate ways in which tribal governments and communities can have a meaningful, ongoing advisory role in managing and operating the Willamette Valley System given their deep historical and cultural connection to the landscapes and species impacted by the Corps' decisions and unique ability to aid in species recovery and restoration.39

Response:

Analyses of impacts on cultural resources are provided in FEIS Section 3.21, Cultural Resources and in Section 4.21, Cultural Resources cumulative effects. Analyses of impacts on tribal resources are provided in Section 3.24, Tribal Resources and in Section 4.24, Tribal Resources cumulative effects, which acknowledges that all cumulative effects under all resources and alternatives would apply to tribal resources in the analysis area. Tribal perspectives are documented in Appendix O, Tribal Coordination and Perspectives.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect as predicted that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Hydropower-20

As required by Congress, the Corps must study deauthorizing hydropower at some or all of the Willamette System dams.40 The draft PEIS does not analyze this possibility. The Corps must include its plans and timelines for studying hydropower deauthorization of the Willamette Valley System dams and, specifically, how the agency will incorporate the findings from these studies into the Operations and Maintenance Plan. The Corps may find that deauthorizing hydropower at the Willamette Valley Systems dams is the most practical option given that all of the alternatives the Corps is considering would create "long-term, major, adverse effects on economic viability of WVS power generation."41 If true, the Corps must put in place a plan to begin decommissioning hydropower at all or some of the dams and include its plan in the updated Operations and Maintenance Plan to ensure there is not a multi-decade delay in implementing these necessary actions. If the Corps determines that deauthorizing hydropower at some or all of the dams is the practical choice, the Corps must also consider removing hydropower-specific dams, including Big Cliff, Dexter, and Foster dams. The Corps should also consider placing dams into caretaker status.

Response:

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: Climate Change-18

As extreme weather events and the threats of forest fires increase in frequency and intensity, the Corps must analyze and select an alternative that prioritizes climate resiliency. This alternative must not include deep drawdowns behind high head dams, which will lead to warmer water temperatures and less dissolved oxygen in the rivers. Such deep drawdowns will negatively affect the aquatic life in the rivers and leave less water in the system in a time of drought. The Corps must not choose an alternative that would reduce flows across the Willamette Valley System, especially as climate change leads to less water in the system.

The Willamette Valley has also suffered an increasing number of wildfires over the years, a trend that is likely to continue. As the ongoing drought continues in Oregon, the Willamette Valley System can assist by providing power to communities and water for firefighting.

Additionally, the Willamette Valley System is used for municipal and industrial water supplies and for irrigation throughout the Willamette Basin. The Corps cannot risk these water supplies through deep drawdowns and lower flows, especially as less water enters the system. The Corps must ensure that the Willamette Valley System is climate resilient and prepared to withstand less water and warmer temperatures.

Response:

The Adaptive Management Plan addresses an overarching governance framework that includes implementation of the WVS operations and maintenance ESA consultation, the 2019 Willamette Basin Review Biological Opinion, 2019 Hatcheries Biological Opinion, and other activities in the region. For example, the Corps would continue in-season adaptive management to meet downstream flow targets, while considering input from the WATER Forum Flow Management and Water Quality Team. The Team is also the group working with the state to establish a science-based approach for managing the WVS in dry years. This process is ongoing.

Comment: Alternatives-107

Even though Alternative 2A does not include deep drawdowns and is the best alternative for the Basin's threatened fish species, it still falls short, as does the Corps' preferred Alternative 5. However, short of creating a new alternative, the Corps should seriously consider making Alternative 2A the preferred alternative as it has a higher survival rate of listed species and bolsters the Willamette Basin's climate resiliency, which Alternative 5 seriously lacks.

Response:

Comment noted.

Comment: Alternatives-108

The Corps should select Alternative 2A because it will ensure the highest survival rate of bull trout and Upper Willamette River spring Chinook salmon and steelhead and contribute to their recovery. This alternative is also best suited to allow the Willamette River to be resilient to the effects of climate change while also continuing to support hydropower generation and the unmatched recreation opportunities in the Willamette Basin. Alternative 2A, also referred to as the Hybrid Alternative with Cougar Floating Screen Structure, performs the best at meeting the ESA-focused Proposed Action objectives. This alternative was developed to improve fish passage through the Willamette Valley System dams using a combination of modified operations and structural improvements, along with other measures to balance water management flexibility and meet ESA-listed fish obligations. Alternative 2A uses a combination of structural measures for fish passage and temperature control and shifts release of stored water from spring to summer and fall, augmenting instream flows by using power and inactive pools. This alternative was designed to increase access to habitat through additional conservation storage to manage temperatures later in the conservation season. Alternative 2A reduces the risk to the McKenzie Core Legacy Chinook population and provides more habitat gains for bull trout.

Response:

Comment noted.

Comment: Alternatives-109

The Corps decided not to choose Alternative 2A in part because of purported uncertainty associated with the Floating Fish Structure. In particular, the Corps claimed that there was "uncertainty associated with how well the [Floating Fish Screen Structure] would collect fish."42 The Endangered Species Act, however, does not require scientific certainty.43 If effective, the Floating Fish Structure would not only help with survival of migrating salmonids but it would also contribute to the recovery of Upper Willamette River spring Chinook salmon, allowing all four Chinook populations to reach replacement and three out of four to have high persistence. In contrast, the Corps' preferred Alternative 5 would result in fewer Chinook populations with high persistence. This difference in persistence is because there would be an increase in downstream survival for fish populations with a structure at Cougar Dam rather than a deep drawdown operation.

Response:

The Corps has not selected any alterative as its final decision. A final decision will be documented in the Corps' Record of Decision after fully considering all modifications to the DEIS based on public and other input.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency

statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: Fish Passage-57

The Corps must not take the easy way out and should instead choose the alternative that provides the best scientifically supported passage for ESA-listed salmonids, even if there is not 100% certainty at the outset. A Floating Fish Structure that operates at a large range of depths like what would be needed at Cougar Dam can be a viable option for fish passage if the Corps decides to make it one. Floating fish screens have been effective at other dams, including at the Lewis River Hydroelectric Project in southwest Washington.44 The Corps hides behind a lack of certainty instead of creating an opportunity for significant gains in Upper Willamette fish passage through a structure that the Corps has the ability to authorize and construct.45 Newer methods naturally lack "perfect" data or certainty. In reality, the Floating Fish Structure—if implemented properly—is likely to result in a better outcome for listed salmonids, hydropower production, and recreation. Alternatively, if the Corps attempts to create a floating fish structure and is unsuccessful, the Corps could still go back to drastically drawing down Cougar Reservoir to allow for the fish passage planned in Alternative 5. Alternative 2A does not eliminate the Corps' ability to draw down Cougar at a later time, but it does require the Corps to work on creating a structure that could protect more fish and could be the blueprint for other high head dams.

Response:

The EIS describes seven alternatives to operate and maintain all 13 dams and reservoirs, in addition to an alternative of maintaining existing operations (No-action Alternative) (Chapter 2, Alternatives). Twenty-four resources with potential impacts from implementation of any alternative were analyzed to allow the Corps decision-maker to make an informed decision on which alternative to implement.

Under the National Environmental Policy Act, the agency Record of Decision (ROD) presents preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions. The ROD explains all the essential considerations balanced by the agency in making its decision and explains how those considerations entered into the alternative implementation decision (40 CFR

1505.2). This balancing requirement addresses issues raised by all parties, including the public, tribes, and Cooperating Agencies.

Regarding statutory missions, impacts to all of the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from each alternative on fish, hydropower, water supply, flooding, etc. Congressionally authorized purposes are described in Chapter 1, Introduction, Section 1.10, Congressionally Authorized Purposes.

The Corps used the best available scientific information to analyze the effects of different fish passage measures among multiple alternatives, including a floating surface collection at Cougar Dam (Measure 392) (Section 3,8, Fish and Aquatic Habitat). Uncertainty is accounted for in the fish performance metrics used to compare alternatives. The Adaptive Management Plan (Appendix N, Implementation and Adaptive Management Plan) describes how measures would be implemented, assessed, and decisions made to achieve defined criteria.

An updated version of the Adaptive Management Plan has been included in the FEIS (Appendix N, Implementation and Adaptive Management Plan). Metrics, criteria, and an approach to assess near-term fish passage operations have been revised to identify success. Metrics include assessing population-level performance by monitoring cohort replacement rates. Fish passage at several dams would be occur from operations under the Interim Operations until long-term measures are implemented.

Comment: Climate Change-19

Alternative 2A is also the best alternative to ensure that the Willamette River Basin is resilient in the face of increasing threats associated with climate change. The Basin has already felt the effects of prolonged drought, wildfire, and power outages associated with extreme weather events and fire. Alternative 2A would not risk local hydropower generation since Hills Creek and Cougar dams would be able to operate islanded from the rest of the power system, providing power to Oakridge and Blue River communities during power system outages resulting from weather events or fire, which are greatly increasing due to climate change. Additionally, under Alternative 2A, reservoirs will stay higher for more of the conservation season, which could be important during wildfire events in the area. Higher reservoirs would assist in aerial firefighting as the water could be obtained with a helicopter bucket. This higher reservoir would also allow for flows at Salem to be higher than the No Action Alternative, which could be necessary as Oregon has been more prone to drought over the years.

In contrast, under Alternative 5, Cougar Reservoir would be significantly drawn down, decreasing system-wide storage by 64,000 acre-feet. This deep drawdown in the fall and spring would compromise Cougar Reservoir's ability to serve communities under outage conditions, which have become more common. This would result in temporary but major adverse effects on transmission services to Blue River, which has been at risk from major weather and wildfire events. Drawing down storage at Cougar Reservoir to allow for fish passage would require other reservoirs to release additional water to meet mainstem flow targets, which would make the

area more vulnerable to wildfire events, in part because there would be less water available to fight fires. Finally, Alternative 5 would lead to lower flows through Salem and create a greater drought risk for the Willamette River Basin.

Response:

Comment noted.

Comment: Hydropower-21

Alternative 2A would contribute to an overall increase in annual hydropower generation by 4 aMW, which could power 3,185 households annually. In contrast, Alternative 5 would decrease annual hydropower production by 18 aMW, enough to power 14,334 households annually. This equates to Alternative 2A providing 22 aMW more power than Alternative 5. Nevertheless, both alternatives would stress the long-term viability of Willamette System power generation; however, there are viable, cost-effective options for power replacement services, such as properly-sited wind and distributed solar, in addition to demand reduction efforts through energy efficiency and conservation. Further, hydropower is neither a carbon-neutral nor zero-emission energy source. Decomposing organic material built up in dam-created reservoirs produces the potent greenhouse gas methane, more so than natural lakes.46 Water level drawdowns lower pressure in reservoirs and can lead to greater methane release.47

Response:

Comment noted.

Comment: Recreation-29

Finally, Alternative 2A does not eliminate recreation at Cougar Reservoir. Alternative 2A would result in minor to moderate benefits in reservoir recreation and continue to provide recreational opportunities for the surrounding communities and visitors. This is in stark contrast with Alternative 5, which forecloses any meaningful recreation opportunities through deep drawdowns during peak recreation seasons.48

Response:

Impacts on water-based, land-based, and river-based recreation opportunities have been revised in the FEIS, Section 3.14, Recreation Resources, When making its decision based on analyses in an EIS, Council on Environmental Quality regulations state, “An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…” (40 CFR 1505.2(b)).

The Corps is required under Congressional mandate to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and

Chapter 2, Alternatives, including recreation. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all authorized purposes.

Comment: NEPA Process-35

NEPA requires that in preparing an EIS, the Corps must "rigorously explore and objectively examine all reasonable alternatives."49 The Corps' EIS must evaluate a "reasonable range" of alternatives, which is dictated by the "nature and scope of the proposed action" and must be sufficient to permit the agency to make a "reasoned choice."50 The analysis must include the alternative of no action, as well as alternatives not within the federal lead agency's jurisdiction.51

Here, the Corps' scope of the proposed action is unreasonably narrow. According to the draft PEIS:

The purpose of the proposed action is to address the continued operations and maintenance of the WVS in accordance with authorized project purposes; while meeting Endangered Species Act (ESA) obligations to avoid jeopardizing the continued existence of listed species.

The project's purpose, or the goal of the project, is to continue to operate and maintain the WVS for the authorized purposes of flood risk management (FRM), hydropower generation, irrigation, navigation, recreation, fish and wildlife, water supply, and water quality.52

The Corps should be considering actions beyond continued operation and maintenance that may be warranted, including dam removal, hydropower deauthorization, and placing dams in caretaker status.

Further, NEPA requires the Corps to consider alternatives that may be outside of the agency's current authorities. CEQ has explained that "[a]lternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies. Section 1500.1(a)."53 However, when asked why the Corps did not consider dam removal in this draft PEIS—a document that will guide agency action for the next few decades—the Corps has claimed that it has not considered options that are not currently authorized by Congress. This reasoning is flawed because Congress cannot know what action(s) should be authorized in the Willamette Valley System without the expert agency, the Corps, guiding them by analyzing and presenting viable options. The Corps is currently hiding behind Congress to avoid seriously considering decommissioning one or more of the Willamette Valley System dams.

Without the Corps taking the lead, the purposes and authorized uses of the Willamette Valley System dams may never change because decision-makers will be unaware that changes must be made. It is legally required, entirely reasonable, and well-beyond time for the Corps to take a hard look at the Willamette Valley System dams and consider the opportunities for returning river segments, or entire rivers, to their natural flow state.

Response:

The seven action alternatives provide a reasonable range of alternatives and include an analysis of operations outside of the Corps' current authorities such as the Cougar Dam diversion tunnel under Alternatives 2B, 3B, and 5. The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1).

Although deauthorization of hydropower is outside of the Corps' authority, the possibility of deauthorization of the hydropower purpose is being considered in other on-going studies following Corps and Congressional protocols. These studies and a report to Congress are the appropriate methods for addressing hydropower deauthorization issues in the Willamette Valley with Congress.

Meanwhile, the Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS.

Further, impacts to all Corps' Congressionally mandated purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes. Impacts from the drawdown operation at Cougar Dam will be analyzed in a site-specific analysis; coordination with applicable governmental agencies and tribes will occur during that process.

Comment: Dam Removal-9

The EWEB Commissioners' decision creates a unique opportunity for the Corps to investigate the possibility of decommissioning and removing Cougar Dam and opening many miles of pristine habitat for the federally listed salmonids in the area. The Corps must study the possibility of dam removal on the South Fork McKenzie to protect the threatened species that rely on the river and to bring a large portion of the McKenzie River back to its natural state.

Response:

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: Alternatives-110

Under the Corps' preferred Alternative 5, hydropower and recreation at Cougar Dam become negligible. While Alternative 5 may provide more certainty associated with fish passage, there are still unknowns that come with operating parts of the dam that were never meant to be used continuously. Even if the fish passage operations work exactly as the Corps hopes, there will still be lower survival of fish populations than other alternatives.

Response:

Comment noted.

Comment: Dam Removal-10

b. The Corps must consider removing Big Cliff, Dexter, and Foster dams. The Corps must consider removing Willamette Valley System dams that are currently only used for hydropower production and/or reregulation. For example, Big Cliff Dam is a re- regulating dam for Detroit Dam and is used to assist Detroit Dam in meeting electricity demands. In addition, Dexter Dam is a re-regulating dam for Lookout Point Dam, used to assist in meeting electricity demands. Similarly, Foster Dam is a re-regulating dam for Green Peter Dam that is used to assist in meeting electricity demands but, if removed, could provide access to fish habitat on the South Santiam River and important tributaries, including tribal cultural sites. Foster Dam in particular poses a high safety risk to downstream communities in the event of seismic and flood hazards. The main purpose of the re-regulating dams is to deliver steady flows to the river and dampen the extreme effects of hydropeaking. If power production is removed as a purpose of the Willamette Project, and if the re-regulating dams, Big Cliff, Dexter, and Foster, are removed, it will require modified operations at Detroit, Lookout, and Green Peter dams to reduce rapid unnatural flow variations caused by hydropeaking. By choosing Alternative 5, the Corps will be choosing to make Willamette Valley System hydropower economically unviable and reduce the amount of electricity that can be generated by the Willamette Valley System. Accordingly, the Corps must consider removing Willamette Valley System dams that are currently only used for hydropower production and/or reregulation. Indeed, Congress has already directed the Corps to study "deauthorizing hydropower as an authorized purpose, in whole or in part, of the Willamette Valley hydropower project." While it may be expensive in the beginning, removing Big Cliff, Dexter, and Foster dams would make more financial sense going forward as the Corps will no longer need to pay for upkeep of the dams and will not have continuing costs associated with the dams.

Response:

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action because it would eliminate most if not all authorized purposes, including flood risk management. The Corps does not have this authority. Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS.

Application of this screening criteria provided a reasonable range of alternatives, eight including the No-action Alternative, that were more narrowly tailored to accomplishing the objective of continuing Congressional direction for the system but in a way that meets requirements of all applicable laws and treaties including the ESA.

The Corps does not propose, address, or analyze the disposal of the hydropower purpose in its EIS because deauthorization of this Congressional purpose is not within the scope of the Proposed Action (Appendix A, Alternatives Development, Attachment 1). The possibility of deauthorization of the hydropower purpose is being considered in other on-going studies.

The Corps is required under Congressional authorization to manage the Willamette Valley System for eight authorized purposes as described in FEIS Chapter 1, Introduction, and Chapter 2, Alternatives. Because of this requirement, all eight purposes are addressed in the EIS. Further, impacts to all Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the alternatives on fish, hydropower, water supply, flood risk management, etc. The analyses demonstrate the level of effect that would occur to each authorized purpose anticipated under each alternative.

When making its decision based on analyses in an EIS, 1978 Council on Environmental Quality regulations state, "An agency may discuss preferences among alternatives based on relevant factors including economic and technical considerations and agency statutory missions…An agency shall identify and discuss all such factors…which were balanced by the agency in making its decision…" (40 CFR 1505.2(b)).

Corps leadership will assess these effects analyses to make an informed decision about a selected alternative, which will necessarily involve consideration of effects to, and a balance of those effects on, all eight authorized purposes.

Comment: Revetments-12

The Corps must prioritize using nature-based methods to provide fish and wildlife habitat in the river and riparian areas… In the 2016 Upper Willamette River Chinook and Steelhead Recovery Plan 5-Year Review, NMFS included "removal of non-essential levees and other bank armoring structures along the Willamette River" as a high priority action item because they reduce "habitat complexity and therefore rearing habitat." Despite this, the draft PEIS does not include a plan or timeline for removing these structures.

Response:

The FEIS has been updated to include information on revetments in Section 1.7.2, Revetments and Other Structures for Bank Protection.

The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley. The revetments converted to private sponsors to own and maintain are discussed in the FEIS in Section 1.7.2, Revetments and Other Structures for Bank Protection. Projects that propose to alter privately owned revetments, although they are no longer Federally owned and operated, are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Changes to the Rivers and Harbors Act Section 408 statutory program are outside the scope of this EIS.

The Corps would continue to maintain Corps-constructed revetments under all alternatives including the No-action Alternative. In contrast to the No-action Alternative, revetments could be modified to incorporate fish-friendly improvements under the

action alternatives such as adding natural materials but must continue to provide the same level of protection as when originally authorized.

The Corps is also proposing to secure a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These restoration authorities would allow for a potential change in the protectiveness level of revetments studied. However, this collaboration is not part of the scope of this EIS because it has not been initiated.

Comment: Hydrology-27

Additionally, the Corps does not mention the benefits of restoring floodplain habitat, nor does the Corps provide any plans for studying restoring floodplain habitat in the Willamette Valley. The Corps must consider restoring floodplain habitat when they remove revetments and naturalize banks. Extended river flows and floodplain inundation "provide increased recharge to the underlying aquifer." "Active and connected floodplains also promote carbon storage in the soil…" and "contribute to the functionality, biodiversity, and resilience of river systems broadly." During floods, healthy floodplains benefit communities by slowing and spreading flood water that could harm people and property. Floodplains also act as a natural filer, "absorbing harmful chemicals and other pollution" making rivers healthier for all of the living species that use and rely on the water. Flooding also creates fertile soil for crops by depositing sediment and nutrients in floodplains, and historic flooding being one of the main reasons the Willamette Valley is known for its bountiful soil. FEMA promotes the benefits of natural floodplains, stating that the "considerable economic, social, and environmental value [that floodplains provide] are often overlooked when local land-use decisions are made." The benefits of floodplains include fish and wildlife habitat protection, natural flood and erosion control, surface water quality maintenance, groundwater recharge, biological productivity, and higher quality recreational opportunities. The Corps must consider restoring floodplains throughout the Willamette Basin in coordination with removing manmade revetments and naturalizing banks.

Response:

The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley (See revised Figure 1.1-2 in FEIS Chapter 1, Introduction). The FEIS has been updated to include additional information on the revetments converted to private sponsors to own and maintain in Section 1.7.2, Revetments and Other Structures for Bank Protection.

Projects that propose to alter these revetments, although they are no longer Federally owned and operated are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Under all alternatives, the Corps would continue to maintain revetments it owns. Revetments must continue to provide the same level of protection as when originally authorized under all alternatives, though the Corps proposes to do so by incorporating more natural materials and fish friendly improvements.

The Corps would also look for a non-federal sponsor to collaborate with on a separate project that would be completed under its ecosystem restoration authorities. These authorities would allow for a potential change in the protectiveness level of the revetments studied under any alternative.

Comment: Revetments-13

Currently, the Corps' plan for relying on nature-based methods to remove revetment and naturalize banks is vague, saying that nature-based methods will be included "to the extent the project purpose is maintained… while maintaining the authorized project purposes." (2-54). The Corps must establish a timeline for removing constructed revetments and improving nature-based fish and wildlife habitats in river and riparian areas.

The Corps claims that it will consider nature-based engineering options as part of maintenance activities, but the Corps fails to explain how often these maintenance activities will take place, where they will occur, or if there are any specific plans or goals for naturalizing these areas. The Corps claims it requires a non-federal sponsor to alter a federal project for ecosystem restoration purposes and that the sponsor must share the cost of the project, acquire all necessary real estate permissions, and agree to operate and maintain the project in perpetuity. The Corps states that the non-federal sponsor requirement "severely limits the ability for USACE to carry out large scale changes under" the program. (2-55). The Corps needs to bring this issue to the legislators who can grant more authority to the Corps to perform these projects without a non-federal sponsor. Revitalizing and restoring these habitats should be a priority for the Corps, especially considering the listed species that rely on these habitats.

Finally, the Corps must actively seek out non-federal partners for these projects to ensure that bank naturalizing happens as quickly and meaningfully as possible. There are many entities that the Corps could partner with, including the many watershed councils in the Willamette River Basin. The final EIS must include the Corps' plans for seeking out these co-sponsors and timelines and benchmarks for using nature-based methods to restore habitats that are currently being harmed by hard-surface revetments.

Response:

The FEIS has been updated to include information on revetments in Section 1.7.2, Revetments and Other Structures for Bank Protection.

The Corps owns and maintains only a portion of Federally constructed revetments in the Willamette Valley. The revetments converted to private sponsors to own and maintain are discussed in the FEIS in Section 1.7.2, Revetments and Other Structures for Bank Protection. Projects that propose to alter privately owned revetments, although they are no longer Federally owned and operated, are subject to the statutory requirements of Section 408 of the Rivers and Harbors Act as defined by Congress. Changes to the Rivers and Harbors Act Section 408 statutory program are outside the scope of this EIS.

The Corps would continue to maintain Corps-constructed revetments under all alternatives including the No-action Alternative. In contrast to the No-action Alternative, revetments could be modified to incorporate fish-friendly improvements under the action alternatives such as adding natural materials but must continue to provide the same level of protection as when originally authorized.

The Corps is also proposing to secure a non-Federal sponsor to collaborate on a separate project that would be completed under the Corps' ecosystem restoration authorities. These restoration authorities would allow for a potential change in the protectiveness level of revetments studied. However, this collaboration is not part of the scope of this EIS because it has not been initiated.

Comment: Wildlife-14

However, the information included about the orcas and their dependence on salmon is improperly, narrowly focused on fishery management, which is just one part of the suite of challenges facing both species and is not directly related to the operation and maintenance of the Willamette Valley System. We, therefore, ask the Corps to include comprehensive information about the Southern Resident orcas' connection to salmon, particularly spring Chinook, and how operations of the Willamette Valley System that affect the spring Chinook population also affect the Southern Resident orcas. By discussing Southern Resident orcas only related to federally managed ocean salmon fishing, the Corps has failed to adequately analyze the impacts of the Willamette Valley System on prey availability for the orcas. While the management of ocean salmon fisheries is an important factor affecting the abundance and availability of salmon for the Southern Residents, these actions are outside the scope of Willamette Valley System operations and this draft PEIS.

The short section on Southern Resident orcas recognizes that "UWR Chinook are important to the SRKW due to the timing of their return to the mouth of the Columbia and energetic need for SRKW in that time period. measures that improve production of the salmon stock in freshwater areas can have a potentially large effect on the strength of the return, and thereby would be expected to accrue larger benefits to SRKW."66 We fully agree with this statement and emphasize the importance of Chinook salmon, including Willamette River spring Chinook, to the Southern Resident orcas.

The final PEIS must properly analyze the impacts of the Alternatives on prey quantity and quality for the Southern Residents.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA. The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify

their designated critical habitats. Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan, critical habitat, best available information on abundance at the time the alternatives were analyzed (NMFS 2023) in Section 3.9, Wildlife and Habitat.

Comment: Wildlife-15

1) Separate "fishery management and killer whales" in the draft PEIS. The very title of the section (4.1.2.3.6) suggests that fishery management is the only salmon-related action that impacts orcas, and the rest of the text focuses primarily on recent actions to improve prey availability for Southern Resident orcas. While fishery management does affect prey availability, improving salmon survival and abundance to support the Southern Resident orcas and other species and human communities that depend on them requires a holistic, long-term strategy to address the threats. We question why ocean salmon fisheries were included as the main element for Southern Resident orcas, when ample information is available on the broader impacts of prey depletion.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been

updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: Wildlife-16

2) NMFS has published substantial new information on coastal habitat use by Southern Resident orcas. In particular, NMFS has recognized the mouth of the Columbia River as a "high use foraging area" for the Southern Residents, who spend approximately 50 percent of their time foraging in coastal waters between Grays Harbor, Washington and the Columbia River.67 Long-term monitoring of the Southern Residents indicates they are spending less time in their traditional spring and summer habitat in the Salish Sea, and more time foraging in coastal waters.68 This is likely driven by reduced Chinook salmon availability in the Salish Sea, and corresponds to recent research estimating a significant increase in the potential contribution of Columbia Basin salmon, including Upper Willamette spring Chinook, to the orcas' diet.69 As the Southern Residents spend more time in the coastal part of their range, they will rely more on salmon from the Columbia Basin, including Upper Willamette spring Chinook.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: Endangered Species Act-18

3) NMFS's coastal habitat use research supported the 2021 revision of federally designated critical habitat for the Southern Resident orcas to include coastal areas off Washington, Oregon, and California.70 Specifically, NMFS noted that "[d]am and hydropower operations occurring upstream of coastal Southern Resident killer whale critical habitat may have an impact on the

essential habitat features, particularly the prey feature."71 While not within the boundaries of critical habitat, these "upstream activities" may affect the essential features of critical habitat, and NMFS stated that such activities must be analyzed to determine any potential adverse modification on critical habitat. In the draft PEIS, the Corps failed to fully consider and analyze the impacts of the Alternatives on Southern Residents or their critical habitat. In the Final PEIS, the Corps must address the effects of the Alternatives on the essential features of prey and water quality in the Southern Residents' critical habitat, and the subsequent effects on orca recovery.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: References and Data-82

4) In the draft PEIS, the Corps accurately notes that Southern Resident orcas specialize their diet on Chinook salmon, and feed on Chinook year-round. However, in the final PEIS, the Corps should refine this information to reflect the Southern Residents' dependence on, not simply the preference for, Chinook salmon. The Southern Residents prey on Chinook year-round, even when other species are more abundant and regardless of the overall abundance of Chinook salmon.72 Research published by NMFS in 2021 further confirms the prevalence of Chinook in the orcas' diet: Chinook accounts for approximately 50% to 100% of the Southern Residents' diet, depending on the season.73 In mid-winter through spring, the time of their highest use of coastal waters, Chinook salmon is 70-80% of their diet.74 The final PEIS must properly reflect the effects of the Willamette Valley System as including prey depletion for the Southern Resident orcas and include additional information on the long-term impacts on orca survival and recovery. The quality and quantity of Chinook salmon directly influences the health and

nutritional status of the orcas, and prey depletion has negative health effects such as reduced growth rates and adult length, increased mortality and decreased fecundity, as well as changes in social cohesion.75 The operation and maintenance of the Willamette Valley System affects the health and abundance of spring Chinook salmon, further depleting a primary source of prey for Southern Resident orcas, contributing to the negative impacts on individual and population health.

Response:

While the NMFS 2021 study provides the statistical diet content, it does not conclude a "dependence" on UWR Chinook salmon. The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

Further, NMFS is a Cooperating Agency in the development of this EIS. The ESA consultation process, therefore, informed the availability of this important prey species for Southern Resident killer whales.

The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: Wildlife-17

5) Aside from the impacts of harvest (both ocean and freshwater fishing), the primary drivers for the decline of salmon are recognized as habitat loss, hydropower, hatcheries, and climate change impacts. These activities harm the Southern Resident orcas by decreasing the quantity and quality of their prey. As noted, only considering the Southern Resident orcas in relation to ocean salmon fishing is inadequate and unrelated to the potential changes in the Willamette Valley System. As an upstream activity that directly impacts prey resources and water quality for Southern Resident orcas, the Alternatives included in the Final PEIS should reflect this ecosystem-wide impact and appropriately analyze the potential changes.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

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Comment: Wildlife-18

The alternatives presented in the draft PEIS do not fully address the Corps' statutory requirement to avoid jeopardy for either Chinook salmon and Southern Resident orcas, and are, therefore, inadequate to support the recovery of both species. The Corps must consider alternatives that include dam removal options, which will still allow the Willamette Valley System to serve its project purposes, including flood control.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

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are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

The Corps does not propose, address, or analyze dam removal in its EIS because this action is not within the scope of the Proposed Action. The Corps is not considering dam removal as part of its Willamette Valley System operations and maintenance program under this review (Appendix A, Alternatives Development, Attachment 1). Because dam removal is not a component of the Proposed Action, no alternatives include this potential action and subsequently, no impacts associated with dam removal are identified in the EIS. However, impacts to all the Corps' Congressionally authorized purposes have been analyzed in the EIS including effects from the proposed action and alternatives on fish, hydropower, water supply, flood risk management, etc.

Comment: Wildlife-19

The draft PEIS fails to adequately analyze the impacts of the Willamette Valley System on prey availability for Southern Resident orcas. Changes to the Willamette Valley System will have ecosystem effects on orcas and other species dependent on Upper Willamette River salmon, and there is abundant information available on this connection. To truly assess the environmental consequences of the Willamette Valley System and the impact of the Alternatives, the Corps must include this information in the final EIS.

We urge the Corps to refine the draft PEIS to include more definite targets and indicators for salmon recovery and the contribution to prey availability of Southern Resident orcas; to ensure transparency and adaptive management are maintained in changes to operation and maintenance of the Willamette Valley System, and to consider actions that do not just avoid jeopardy for ESA-listed species, but support recovery and long-term survival.

Response:

The Corps analyzed potential effects to listed fish and other threatened species under each of the alternatives. Additionally, the Corps has prepared a Biological Assessment in support of NMFS and USFWS Biological Opinions issued under the ESA.

The ESA requires consultation with NMFS and the USFWS on a Federally Proposed Action to ensure its impacts to listed species do not jeopardize their continued existence or adversely modify their designated critical habitats.

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The DEIS and FEIS focused on fisheries management because this action is under the purview of the Corps. Studies support that Chinook salmon from the Willamette River are a small source of prey for Southern Residents than salmon from the Columbia River. This information is incorporated into the FEIS analyses in Section 3.9, Wildlife and Habitat and Section 4.9, Wildlife and Habitat cumulative effects. The FEIS has also been updated to include information on the Southern Resident Killer Whale Recovery Plan and critical habitat in Section 3.9, Wildlife and Habitat.

Comment: Endangered Species Act-19

In the over two decades since bull trout and Upper Willamette salmonids were federally listed as threatened, the Corps has shown reckless disregard for these species and their critical needs. For many years, the Corps' failure to provide adequate fish passage through the Willamette Valley System dams and mitigate water quality issues has caused "substantial, irreparable harm to the salmonids." It took a court order to get the Corps to start acting to mitigate these serious issues, after the Corps vigorously defended its "business as usual" approach to operating and maintaining the Willamette Valley System. The Corps' position does not strike confidence that the Corps considers protection of federally listed species to be a priority. The Corps must demonstrate its commitment to following and prioritizing the consultation under section 7 of the ESA with the Service for bull trout and with NMFS for salmon, steelhead, and orcas. The Corps can no longer ignore the reasonable and prudent alternatives and terms and conditions required by the Services to avoid jeopardy and destructions and adverse modification of critical habitat.

Response:

Comment noted.

Comment: Endangered Species Act-20

In addition to the federally listed species that depend on the Willamette River Basin, the Corps must adopt a plan for when other species become federally listed. When a species is listed, the Corps must take immediate action to ensure its actions do not cause jeopardy or destruction or adverse modification of critical habitat. In essence, the Corps must actively work to prevent extinction. In 2020, the Xerces Society petitioned the Service to list the Western Ridged mussel as an endangered or threatened species under the Endangered Species Act. If this species is listed, the Corps must reinitiate consultation under section 7 of the ESA and not wait until the next PEIS is created in thirty-plus years. Willamette Riverkeeper is actively studying freshwater mussels throughout the Willamette River Basin to help determine the extent to which dams and other barriers restrict movement of host fish, harm plants, and alter water levels in a way that harm these species, which can live over 60 years without human intervention. The Service is currently conducting a status review after finding that the petition presented "substantial scientific or commercial information indicating" that listing the western ridged mussel may be warranted. The Service found that the western ridged mussel is threatened by "habitat

destruction, modification, and curtailment of range; impacts to water quantity, water quality, and natural flow and temperature regimes; aquatic invasive species; and disease."

Response:

The last EIS for the WVS was completed in 1980, and the Corps initiated consultation with NMFS and USFWS shortly after each of their jurisdictional species were listed in the 1990s. Like all Federal agencies subject to the ESA, the Corps does have a plan for future listings in that it will comply with all applicable laws.

If western ridged mussels are listed under the ESA, any Federal agency, including the Corps, planning actions that may affect this listed species would be required to consult with the USFWS to ensure the Proposed Action does not jeopardize this species or adversely modify its designated critical habitat. In this case, the Corps would be required to reconsult under ESA Section 402.16(a)(4) under any Biological Opinion that is concurrent with the listing and that has an action that may affect the species.

If listed, this consultation requirement would apply to any Corps action proposed in the WVS because the species is known to occur in reaches affected by project operations and maintenance.

Comment: Endangered Species Act-21

Populations of Pacific lamprey have declined drastically throughout their historic range due to stresses including passage barriers, contaminants, and dewatering for power hydropeaking. Many Pacific Northwest tribes hold deep cultural ties to Pacific lamprey and have been harvesting lamprey as a food source since time immemorial. Pacific lampreys were listed as an Oregon State sensitive species in 1993 and given further legal protected status by the state in 1996 through restriction of harvest and harvest methods. The Oregon Pacific lamprey Species Management Unit is not currently listed under the ESA but was deemed "vulnerable" per its state status and "at risk" of federal listing in the Oregon Department of Fish and Wildlife's Native Fish Status Report. The Corps must take a hard look at the Willamette Valley System's threats to lamprey populations and work to achieve long-term persistence of Pacific Lamprey and their habitats and support traditional tribal cultural use of Pacific Lamprey throughout their historic range in the Willamette Valley. The Corps must specify in the final PEIS how it is prepared to address additional needs of listed species and how it plans to address other species that may be listed in the next thirty-plus years. If the Corps cannot do so, then it needs to be prepared to create a PEIS whenever a species is listed to ensure the operation and maintenance of the Willamette Valley System is not degrading critical habitat and is protecting listed species.

Response:

The Corps has not proposed to reintroduce lamprey above dams in addition to the previous efforts at Fall Creek Dam under any of the alternatives. The Corps recognizes that a proposal for reintroduction of a native species would need to be developed

formally by the Tribe, USFWS, or ODFW. Measure 52 has been revised in the FEIS to remove information on lamprey passage structures in FEIS Chapter 2, Alternatives, Section 2.8.4.1, Provide Pacific Lamprey Passage Infrastructure.

The intent of the measure is to provide lamprey-friendly design concepts at adult fish facilities constructed to provide passage for ESA-listed species. However, Measure 52 is limited in that design features cannot adversely impact ESA-listed species utilizing the adult fish facilities. One example of these design features is rounded corners.

The purpose and need for the Proposed Action is for the Corps to continue with operations and maintenance of the WVS while remaining in compliance with its authorized purposes and without jeopardizing ESA-listed species. The Corps appreciates the interest of Tribes and regional stakeholders in Pacific lamprey population status in the region and is committed to continuing conversations about efforts to benefit the non-ESA-listed Pacific lamprey species. However, as a non-ESA-listed species, specific lamprey passage and management measures are not within the scope of this programmatic EIS review and are not being proposed at this at time.

The programmatic EIS acknowledges that ESA requirements must continue to be met over the 30-year implementation timeframe. The FEIS has been updated to include information on lamprey in Section 3.8, Fish and Aquatic Habitat.

WILLAMETTE RIVERKEEPER (HUTCHISON, LINDSEY)

Comment Document: 2022-12-07_PublicComment_WV_DEIS_WillametteRiverkeeper.pdf

Comment: Deadline Extension Requests-2

I am writing to request an extension of the comment period by at least 30 days. We are requesting this extension for several reasons: first, there are four in-person meetings scheduled for January 9-12 and the information received at those meetings may create additional questions and comments that require more than 7 days to craft; second, this is an incredibly large and technical document that took the Corps years to create and this comment period falls during the holiday season when many people are not in the office, in order to ensure everyone has time to comment and dig through this document and the appendices, an additional 30+ days is crucial; and third, this EIS will be guiding the Corps for the next 30+ years and in order to comment thoroughly and accurately, additional time is needed to understand the alternatives and the DEIS as a whole. Willamette Riverkeeper is requesting that USACE extend the comment period for the Willamette Valley System Draft EIS by at least thirty days to ensure that the public has time to thoroughly understand and comment on the document. This extension will allow the public to participate in this process fully

Response:

The Draft EIS published on November 25, 2022, initiated a 55-day comment period to close on January 19, 2023 (87 FR 72482). Based on public requests to extend the comment period, the Corps announced a 35-day extension in the Federal Register on January 13, 2023 (Federal Register: Environmental Impact Statements; Notice of Availability 88 FR 2357). The Corps also provided the extension information to contacts on its public distribution list. The full 90-day comment period ended on February 23, 2023.

Comment: NEPA Process-1

the Final EIS will be in effect and control USACE's operations and management of the Willamette Valley System for the next 30+ years and the public will not be able to comment again.

Response:

Implementation of a selected alternative based on this EIS review does not preclude the potential for an updated programmatic review of the Willamette Valley System based on possible future major Federal actions as defined by the Corps' National Environmental Policy Act Implementing Regulations. Further, additional site-specific NEPA reviews will be conducted as needed. The public will have an opportunity to comment in response to these NEPA analyses.

YAMHILL SOIL AND WATER CONSERVATION DISTRICT (BOYER, BARBARA)

Comment Document: 2023-02-22_PublicComment_WV_DEIS_Yamhill SWCD_Andy Bleckinger_Attachment.pdf

Comment: 3

The completed DEIS should contain the following: Provide consistent adequate flows to supply clean irrigation water for the county’s farmers during irrigation needs in the spring, summer, and early fall seasons.

Response:

While the storage allocation for irrigation remains the same as authorized by Congress in WRDA 2020 under all alternatives, the Corps does not guarantee the quantity nor quality of the water.

Comment: Hydrology-12

Prevention of floods during the winter and spring months that flood farmland and erodes the river’s banks.

Response:

The Corps is not proposing to alter the flood risk management operations of the WVS under any of the alternatives.

Comment: Water Quality-21

Include a management plan that will carefully release the stored waters in the dams during the spring season to prevent the degradation of water quality needed for fishing, wildlife, and recreational use for Yamhill County residents.

Response:

FEIS Section 1.11.2, Water Control Annual Planning, describes the annual conservation plan developed to manage Willamette Valley System operations for its multiple authorized purposes, including water quality, fisheries, and recreation. The outcome of this plan would affect all users in the project area, which is described as the subbasins in Willamette River Basin in FEIS Section 1.4.1, Geographic Scope.

Comment: NEPA Process-15

To meet these needs and the larger needs of the Willamette River Basin, we urge the CORPS to work with other federal and state agencies to achieve common basin goals. One of these is USDA NRCS's SNOTEL Water and Climate Information System that gathers snow and rainfall amounts that provides data for filling the Willamette River Basin's thirteen dams and reservoirs at the appropriate times.

Response:

Comment noted.

PUBLIC COMMENT CORRESPONDENCE

Painting by Lee Jensen, USACE Employee, 1991-2001 (USACE Portland District Media Images).

From: outlook_90A43E7186332743@outlook.com
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [EEMSG-SPAM: Suspect] [Non-DoD Source] My alternative selection
Date: Saturday, January 7, 2023 8:55:20 AM

Alternative 1 seems to make the most common sense. It will increase energy supply using clean hydro. It will enhance irrigation for farmers that produce our food. The ESA rules apparently do not come with funded mandates; however, with increasing demand for two basic necessities, i.e., energy and food, increases for both of these make sense even though expensive.

Unless and until alternate energy supplies are actually on line it is foolish to select any alternative that would diminish current hydro-electric sources.

There is less disruption to humans, their lifestyles, jobs and culture and therefore I vote for Alternative One.
Sent from Mail for Windows

From:	Clayton Brown
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[EEMSG-SPAM: Suspect] [Non-DoD Source] Willamette Valley Dams Proposal
Date:	Saturday, December 3, 2022 10:11:43 AM

If I may, I wish to add a simple anecdote to the discussion/argument over dam modifications to save fish species. I was conversing with a cousin who said, "So you put the fish over the wellbeing of people and their livelihood?" Luckily, I was somewhat bright that day so I responded, "People are intelligent, they will find another livelihood. The fish's only choice is to live or die and we are the ones making that choice, not them".

As for me, I am simply unable to understand the thought processes, (If they exist), of people who are indifferent to the damage we are doing to our Mother Earth.

Clayton Fredrick Brown ***9fred99@gmail.com***
920 SW River DR ***503 910 0213 (c)***
Dallas, Oregon 97338

From: Greg Zash
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [Non-DoD Source]
Date: Saturday, January 21, 2023 3:33:03 PM

To whom it concerns
My name is Greg zash, I live in the city of Coburg Oregon. I have lived in Oregon for over 60 years and fished its rivers and lakes about 50 of those years.
I have been reading about the plan to draw down Green Peter and Lookout Point resivors in the Fall of this ant a little but a lot.
I fish for for multiple species of fish every year.
I am writing this message in the hopes that these draw downs will not as drastic as planned!
Drawing these resivors down to the planned level will devastate the other species of fish which draw a lot of recreational fishing!
Please reconsider the deep draw down in these resivors.
Please feel free to contact me if you eould to talk further about this.
Thank you
Greg
Gregzash@gmail.com

From:	Daniel King
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source]
Date:	Saturday, January 7, 2023 9:58:42 AM

When are we going to start using geothermal energy to produce electricity?! If we keep the dams we need more routes for the migratory fish, and more shallow wetlands for all wildlife!

From:	michael zemba
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] 30 year plan.
Date:	Sunday, January 22, 2023 8:04:43 PM

Hi my name is Michael, I have some concerns about your plan to lower the lakes low pool. First of all I drove out to lookout point today January 22 to go fishing and the boat ramp was closed because of low water and this proposal hasn't passed yet. Second my fishing license keeps getting more expensive and the bodies of water that are going to be affected will cut my fishing time down drastically not to mention the unknown effect that it will have on the fish that I'm trying to catch. I didn't buy a fishing license to wonder if I will get to use it or not and I certainly didn't think I was paying just to screw myself over. Thanks

Sent from my iPhone

From:	Travis Inglis
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Concern regarding proposed drawdowns to Lookout Point and Green Peter
Date:	Thursday, January 19, 2023 9:41:55 PM

To whom it may concern,
I am writing to express my concern regarding the proposed extreme drawdowns to Green Peter and Lookout Point reservoirs. The proposed drawdowns will greatly impact boating and recreational on each reservoir . Over the last several years the lakes were well below their current water control diagram, thus rendering the ramps difficult or unable to be used . With the new proposed water control diagrams and extreme drawdowns the ramps will be unusable for a vast majority of the year. In the event of a prolonged drought the water control diagrams will be even less likely to be followed and maximum pool will never be reached. This will greatly impact boating and recreation on both reservoirs, especially during the warmer months. Fishing will greatly be impacted, as the extreme water levels will likely have a negative impact on the current robust fish populations in each reservoir. The inability to use each reservoir will also impact local business that draw additional income during spring and summer months when boating is at its peak.
Please carefully reconsider the new proposed extreme draw downs as I think you would find many boaters and fisherman will be opposed to the new water control charts.

Thank you.

Sincerely,

Travis Inglis
--
Travis Inglis D.O.
Emergency Medicine Resident
Arrowhead Regional Medical Center

From: diegowalsh@comcast.net
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [Non-DoD Source] Dam Management Comments
Date: Sunday, December 4, 2022 6:17:18 PM

To Whom It May Concern,
I want to express my strong opposition to any plan that would reduce hydro-electric production, reduce drinking water storage, impact flood control and irrigation capabilities and reduce the recreation options on the reservoirs.
The loss of the hydro-electric production that powers 14,333 homes is ridiculous to say the least. All we hear about anymore is we need to go green. I guess that only counts when it suits a particular political goal! Also reducing hydropower generation will I'm confident cause rates to rise. I'm tired of the government putting fish before people.
Regards

Jim Walsh
PO Box 5673
Eugene, Oregon
97405

541-520-0117
diegowalsh@comcast.net

From:	Michael Ringwald
To:	CENWP-PME-Williamette-Valley-System-EIS
Cc:	Michael Ringwald
Subject:	[Non-DoD Source] Dams
Date:	Saturday, December 3, 2022 6:16:10 AM

Please do not tear down any Dams in Oregon, we are short of water the last few dry years, also really need all the electric power that these dams
produce.

From: C Church
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [Non-DoD Source] Detroit dam
Date: Monday, January 9, 2023 2:38:04 PM

The fact that water is released to the point of Detroit Lake becoming a river is a huge disadvantage to sportsman who fish year round, should be reason enough to leave it full year round. The other issue is that the lake is drained as soon as "tourist" season is coming to an end. This by itself kills the economy of small towns in this canyon. Releasing water in December makes sense, but draining the entire lake prior to winter is not how it should be and kills the means that many of us in this canyon use to make a living.

From:	Bryce Falk
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Draft Programmatic Environmental Impact Statement
Date:	Sunday, January 8, 2023 7:45:46 PM

Hi there USACE,

I was made aware that you were requesting comments for the Programmatic Environmental Impact Statement. Adding fish passage to Cougar reservoir and regulating water temps for fish is amazing! In my opinion, I think it would be incredibly beneficial to prioritize steelhead and Salmon. In Oregon, there is a lack of cold-water refugees due to climate change.

The PGE fish passage facility on the Clackamas river has incredibly helped out those Salmon and steelhead populations. But the fish passage needs to be done well. Good fish passage required very little human involvement and handling.

https://www.google.com/amp/s/www.koin.com/news/oregon/salmon-flood-upper-clackamas-river-in-largest-run-since-1958/amp/

Thanks for reaching out for comments.

-Bryce Falk

From:	Carolyn Hewwitt
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Enviromental Impact
Date:	Tuesday, January 10, 2023 7:40:34 PM

Hello,
I am writing this email beacuse I wasnt able to attend the public info and feed back sessions yesterday and today.
I am hoping my statement and response to The Army Corps of Enginers may be taken under consideration where it concerns this plan up for discussion, and implementation of routing water differently to adapt to the concern and fact of our lower water tables, and how to continue the water needs of our communities.
My vote for the method in where we take care of a comprehensive strategy would involve implementing Alternative 2A.
I take this position because of my concern for the Chinook in the spring that survive in the Middle Fork of the Willamette, their prospects for a long term healthy sustainable exsitance.
Thank you
Carolyn Hewitt
Po Box 391
Dexter Ore. 97431
naturescarolyn@yahoo.com
360-764-0681

From:	Ben Jones
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Fwd: Green Peter draw down
Date:	Tuesday, January 10, 2023 8:55:56 AM

Sent from my iPhone

Begin forwarded message:

From: Ben Jones <jonesbens@yahoo.com>
Date: January 10, 2023 at 8:25:23 AM PST
To: Mike Cochran <cmichaelzma@gmail.com>
Subject: Green Peter draw down

My thoughts on the Green Peter draw down .
The drainage system know as the Santiam River system has been known historically as the valleys most prolific salmon habitats .
There are cave dwellings with parietal drawings of salmon over 9000 years old .
The motivations of the individuals who are pushing this draw down and have secured a court order are not without merit .
I would imagine that this is an attempt to bring back those glorious days of basically undisturbed habitat for indigenous plants and animals .
I believe that the avenue this very one sided court order is taking is poorly conceived and will harm more of Oregons wild life than it will help.
Though many of Oregons residents don't see our game and fish department in a favorable light , they have done in my opinion an amazing job (very difficult) of protecting, counting , and maintaining our wild life.
Look at how well represented ODFW has been on the appointed represtation for this project , I see in the original group , not one person appointed , this points to exactly the problem with the entire thing .
The " Complaintant " had two appointees .
The truth is folks we now have dams and millions of people in this state , we have new managed species of non indigenous fish .
Green Peter reservoir is a success , it is by far one of the best fisheries for multiple species of fish , crappie , small mouth and large mouth bass , trout , Kokanee salmon , perch and more
ODFW has spent a lot of Oregon's taxpayers money to maintain and monitor this resource. This attempt to bring back something that does not exist anymore is going to destroy what we now have. Anyone can see that pays attention that flushing that reservoir is a big mistake, and not even the counsel that is appointed can say what the outcome will be , the amount of snow, runoff, and rainfall is not predictable.
Please review the reality of this action , it's uncertainty , it's political agenda driven cause , it's certain disruption of what is a successful part of Oregon's resources and beauty.

Sincerely
Ben Jones
Oregon resident / fisherman / voter

From: Deb Romano
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [Non-DoD Source] Green Peter
Date: Saturday, January 7, 2023 8:50:23 AM

Dear Sirs,
I am writing this email because I am concerned about the changes that are going to take place at Green pewter. This is a world class bass fishery. I am fearful that these new plans will impact the survival of the fish. Please reconsider anything that will impact this great fishery. Attached is a picture of my son who competed in a tournament last year. The smile says it all.
Sincerely,
Deb Romano

Sent from my iPhone

From: Steven Sands
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [Non-DoD Source] Green Peter and Lookoubt Point Drawdowns.
Date: Saturday, January 21, 2023 9:45:55 PM

You, like me, know this proposal is ludicrous. This will do nothing for any meaningful salmon populations. It's a waste of so many resources. Mainly fish, water and time. Green Peter has another reservoir below it. What are the salmon smolts going to do there?--
-Steven Sands

From:	Justin Blackmore
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Green Peter and Lookout point reservoirs.
Date:	Thursday, January 19, 2023 6:34:07 PM

I am writing in regards to your proposed water use changes one Green Peter and Lookout Point reservoirs. I am deeply disturbed by the recent changes in water management going on throughout the state especially considering the drought conditions we continue to face and lack of water as a resource. Each year we see low water conditions is many of our lakes throughout the state. One that hit home most was the changes to Wickiup reservoir in the name of saving a frog. I see the same thing on the table for both of these reservoirs. Wickiup is no longer a viable recreation site anymore due to excessive draw downs. The fishery is all but dead and the recreation access has been ripped away along with less water for irrigation. What you are proposing is not in the best interest of the public and is focusing on one tiny aspect of the overall watershed. You will be eliminating large portions of these ecosystems and removing recreation access and enjoyment for thousands of people that enjoy these bodies of water. In essence you are killing off these reservoirs value in the hopes of protecting a fish that you know is struggling from hundreds of other problems that this will not fix and likely will fail resulting in not one loss but multiple. Failing both fisheries and the people that recreate on these reservoirs. Please do not move forward with these proposed changes.

Thank you,

Justin Blackmore
Lifetime Oregon Resident and Angler

From:	jamham1988
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Green Peter and Lookout Point Destruction
Date:	Thursday, January 19, 2023 5:50:07 PM

Lookout Point is an extremely popular bass fishery that is fun for people of all ages. I ha e grown up fishing that reservoir for many years and I've brought many friends and family members there to fish as well.

Green Peter is another reservoir is another bass fishery that many of us love to fish. While I haven't spent many years there, I've recently had some amazing fishing trips with friends and family. The year of 2022 showed many of us that Green Peter is a world class smallmouth fishery that should NOT be destroyed. I have attached a few photos of some world class sized smallmouth bass that I caught in this reservoir throughout 2022. There are very few places in the world that have a smallmouth bass fishery like this place. Destroying to let some salmon pass through would be a major disaster.

I was born and raised in Oregon. And throughout my life here, many of you have spent so much time and money focusing on raising salmon. You have destroyed great bass fisheries such as Fall Creek Reservoir in hopes of spreading the salmon population. You are destroying so many great memories for many people. You are destroying the future fun times to be had with many of our children fishing the same waters as we once did. Please stop. Smallmouth bass, largemouth bass, crappie, bluegill, etc. They all matter to us just as much as trout and salmon matter to you. Please stop destroying our future happiness.

Sincerely,
Julius Hamilton

From: smith0897
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [Non-DoD Source] Green Peter and Lookout point
Date: Thursday, January 19, 2023 8:18:52 PM

To whom this concerns

I am a member of Mid Valley Bass club and am concerned or more like disgusted with the disregard concern for the public use of these water ways for families during the summer time. This draw down of these lakes should not be done just to fix a ODFW problem that they created by their poor management of the salmon population. That is what needs fixing. This will also be a hardship on the towns around these places because people will not be stopping for gas and food on the way home.

I know this won't mean much to you but thanks anyway
Brian Smith
Sent from my Galaxy

From:	Mike Cochran
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Green Peter Drawdown.
Date:	Monday, January 9, 2023 10:02:10 AM

Hello,

My concerns on the drawdown is that it will completely destroy the recreation we currently have at Green Peter Reservoir.

- **What will it do to the thriving Kokanee that eat the Zooplankton to survive and grow?**
- **What will it do to the Trophy Bass we currently enjoy? (It has taken well over 15 years to get to this amazing fishery.)**
- **Will all the fish be flushed into Foster or just the endangered species?**
- **Has a plan like this ever worked and benefited a similar fishery/ recreation?**
- **What will be the economic impact on the current retailers around the area?**
- **How do we know the Hatchery adult Chinook that was taken to the headwaters actually had a successful spawn?**
- **How many months will the Reservoir be below 920', making the boat ramps unusable?**

The bottom line of my thoughts ; My family and many friends use Green Peter every Month of the year, it is an amazing outdoor escape in our backyard. There are countless youngsters who are going to miss out (including my grandchildren) on a needed resource that is not replaceable in the foreseeable future if this plan is implemented.

Mike Cochran

From:	Chris Parks
To:	CENWP-PME-Williamette-Valley-System-EIS
Cc:	Jhtmckay@gmail.com; STAVROS, Steven; David Flores; Josh Marthaller; tanner messner
Subject:	[Non-DoD Source] Green Peter- Willamette Valley Reservoirs
Date:	Sunday, January 8, 2023 6:43:04 PM

Hello Army Corp,

I'm writing the following email on behalf of the Emerald Bass based out of Eugene, Oregon. Our club was founded in the State of Oregon in 1975, we currently have aprox 75 members throughout the State. The Club and members are deeply concerned about the future of some of the World Class fisheries we have here in the Willamette Valley.

We went through this with Fall Creek Reservoir aprox 15 yrs ago when the lake became managed as a "flow through" Winter reservoir. The resident fish in the lake did not survive and we lost what was an excellent resource that was close to Eugene/Springfield area. The resource has not been the same since.

There has been the same speculation on plans to do this at other Reservoirs as well which would be an extremely devastating loss.

There were several questions that we at this time don't fully understand, can these possibly be reviewed:

What plans are in place to ensure the resident fish survive these new proposals?

What water levels are being proposed and for what duration of time?

How is the Corp partnering with ODFW?

Is there a way to put plans in place that are equitable for all parties that utilize these resources?

We believe there are ways to manage these wonderful resources without having detrimental effect to the resident fish populations that have existed in these Reservoirs for the last 60-80 years.

We'll like to see if there is a way to collaborate with all parties involved so all these resources can continue to be enjoyed by all that visit them and not just one small special interest group.

Thank you for your time and consideration in protecting our Wildlife & Fisheries

Chris Parks

Emerald Bass Club - President
541 517 6423

From:	LONNIE UNDERWOOD
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Green Peter, Lookout
Date:	Saturday, January 21, 2023 4:26:03 PM

I am writing you regarding the proposed drawdowns of Lookout and Green Peter reservoirs. While the drawn may or may not help the Salmon fishery, it will destroy the bass fishing if Fall Creek is any indication. It will also hurt the use of the reservoirs for other recreational purposes, pushing boaters into other areas that are already overcrowded. Green Peter is becoming a world class smallmouth fishery as well as a very good kokanee fishery. I'm sure this drawdown will decrease tourism in Sweet Home also. Please re consider this proposal and find an alternative solution.
Thanks,
Lonnie

From: Ben Jones
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [Non-DoD Source] Hello
Date: Tuesday, January 10, 2023 8:51:51 AM

Sent from my iPhone

From:	Eric Rosso
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Lookout Point & Green Peter
Date:	Thursday, January 26, 2023 10:45:31 AM

It's recently come to my attention that you people intend to destroy the Bass fisheries in Green Peter, and Lookout point. You say it's for salmon, and steelhead, but we all know (by now) that is utter bullshit/a lie. You've done the same stupid shit to Fall Creek, Lookout, Dorena, and Cottage Grove, and what did we get out of it? A huge divot in our annual fishing spend, and the destruction of a world-class Largemouth Bass, and Crappie fisheries! That's all we got!!!

I'm sure some state/federal suck-ass got a kick-back or two out of it, but you people are HARMING THIS STATE! Worse yet, the shit you're doing isn't even helping Salmon, or Steelhead! Like seriously, did any of you even bother to consider what smolt feed on while they are in our lakes? They don't just go around sucking up bug larvae. THEY EAT THE FRY, AND FINGERLINGS OF OTHER FISH! In case you were wondering, in lakes like Fall Creek, that means "LARGEMOUTH BASS, AND CRAPPIE FRY/FINGERLINGS"! Understand now, why getting rid of Bass, and Crappie is a FUCKING STUPID IDEA?

The fish get into the lakes. I don't know how, but they do it. They also get out of the lakes too. Albeit not easily, and most of the smolt get trapped in the lakes, but a good number of them do make it out. To me, this means that the issue is the design of the dams. An issue best remediated by either a means of open passage that goes through the dams, or a canal that circumvents the dams. Opening the gates (and draining the lakes) just eliminates winter fishing opportunities, and destroys the lake's residential fisheries. STOP DOING IT!!! You're not helping! You are fucking us (and yourselves, as the funds that pay for your offices come from our income taxes) over! We had much higher returns (of native fish) when we retained 30-50 more feet of water in Fall Creek, Lookout, Dorena, and Cottage Grove during the winter months.

If you want to make a policy change that will help everyone, lock down the gates, and only let out what water YOU NEED TO, in order to facilitate power generation, to keep the lakes from flooding, and keep the riverbeds wet enough for whatever winter runs we have, to get to where they need to go. While improving the dams (in the ways I've suggested) would be really expensive (and create a lot of jobs), closing the gates would be relatively cheap, and do just as much good.

Sincerely, Eric Rosso

From:	Colby Pearson
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Lookout Point Green Peter
Date:	Thursday, January 19, 2023 4:44:56 PM

Do not proceed with the proposed strategy!

This would be another failed management strategy and would ruin both fisheries which are phenomenal trout, Kokanee and bass fisheries as they are.

Do not proceed.

Colby Pearson

Sent from my iPhone

From:	Diane Engdahl
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] LOP/ Earthen dam concerns -management plans
Date:	Saturday, January 7, 2023 10:58:37 AM

Hi,
If you are planning lower water levels for these dams, it doesn't seem like planning would make much difference, because we have more frequent unplanned, unexpected and extreme weather events. If combined with even moderate earthquakes.
Is liquification of a dam bank possible? I think any likelihood of this needs to be reconsidered because old risk points are probably out of date and fall well behind the predictions defining the extreme end of events, due to the latest factors found to be greatly accelerating climate change and the impact that has to our weather systems.

An enormous amount of energy is being unleashed much earlier than expected from the Greenland ice melt, impacting the weather patterns and THAT data should become integrated into your data modeling for potential record / catastrophic rainfall, erosion and packed earth dam tolerances.
I wouldn't think any data sets for dam tolerances created using previous historic regional rainfall would be very valid without some acknowledgement of this extreme process taking place and the potential impact it may have. There needs to be new risk management modeling based on the most recent data from the latest extreme weather events, for an understanding of the variables affecting dam structures, and earthen packed dams, not from data gathered earlier than 2000, 2001.
If new research has been done I would like to read it, can you forward a link please?

What is the likely scenario for LOP Dam If our area receives a storm like CA is experiencing now, in early January and the water breaches the top of lookout dam, is it projected to fail?

I've read that packed earth dams can then fail/erode within one hour of water breaching the top.
Can you please tell me if my property is at risk should a breach occur on the packed earth dam at LOP? My address is 82237 Rattlesnake Rd Dexter Oregon. My mom has a packed earth dam right above her house in CA where the property owner planted pines which grew tall then died and I've been learning about how weak these dams are, and at risk with even mid sized earthquakes, record saturation events and how fast they fail.
My other question is , would Hwy 58/ route of escape from rattlesnake rd remain intact?

Especially looking at the Oroville , CA dam failure/partial failure in 2017, where 170,000 people were evacuated. It seems to me, despite the salmon project and upgrades, that ALL the people in Lowell, Dexter, Jasper, Springfield, Eugene, Glenwood, Goshen will be quickly

inundated if LOP fails, could these areas evacuate in time, if we got a record rain event like CA is getting now and how does the new plan relate to this possibility?

Thank You,

Diane

Diane Schell-Engdahl
Director, Oregon Bee Sanctuary
Flower Breeder

82237 Rattlesnake Rd Dexter Oregon
Dexter, Oregon
541-228-8412
(not for publication)

From: David Davidson
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [Non-DoD Source] Major changes to the dams
Date: Sunday, December 4, 2022 6:21:46 AM

My opinion would be to go back the old ways of of using the reservoirs. Making electricity & recreation. Building bigger and better hatcheries keep trying to make a stronger salmon. There is no wild salmon left I don't think that any one can prove that there is. So just keep improving the hatcheries and making stronger Salmon if possible and Using the dams for flood control, producing electricity, Recreation and more and better hatcheries.

Thank you
David Davidson
jds3315@gmail.com
541 954 3314
PO Box 191
Oakridge OR 97463

From: WRIGHT Deanna * DLCD
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [Non-DoD Source] Oregon NFIP floodplain coordinator inquiry - Willamette Valley System Draft EIS
Date: Tuesday, January 10, 2023 4:48:45 PM

Hello,

I am Oregon's National Flood Insurance Program (NFIP) coordinator at DLCD. I understand the EIS to not result in any changes to:

- Floodplain Mapping (boundaries to existing Special Flood Hazard Areas, or Base Flood Elevations (BFEs).
- Flood carrying capacity or alteration of a watercourse

These are some minimum NFIP regulations that come to mind contained in the Code of Federal Regulations (CFRs). I assist communities in the NFIP (256 in Oregon) and provide technical assistance to their staff on floodplain management, permitting, and compliance so that they remain in good standing with the NFIP. I also coordinate and partner with other agencies (USACE, OEM, DEQ, FEMA) within my scope of work on floodplain regulations or topics in my role at DLCD.

Please reach out to me if you have any floodplain related questions and enter my comment into the record. Happy to have a follow up phone call to if that is necessary.

Thank you,

Deanna Wright, CFM
National Flood Insurance Program (NFIP) Coordinator
Oregon Department of Land Conservation and Development | Planning Services Division
635 Capitol Street NE, Suite 150 | Salem, OR 97301-2540
Cell: 971-718-7473 | Main: 503-373-0050
deanna.wright@dlcd.oregon.gov | www.oregon.gov/LCD

From:	JUSTIN DIMMICK
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Public Comment regarding Dams
Date:	Tuesday, January 10, 2023 1:41:03 PM

The Army Corps of engineers need to keep these reservoirs as close to full as possible. Lowering them to mud flats and stumps, takes away the scenic value of the lake and surrounding area. These lakes are important habitat for a variety of species of fish, bass, crappie, walleye, pikeminnow, trout, kokenee, and many others. These fish are just as valuable as a resource as salmon. Local small communities around these reservoirs depend on revenue from tourists who come to fish, swim, boat, and camp near these "lakes". Stop caving in to special interest groups. These out of touch groups have no idea what real world problems are being created by draining the reservoirs.

From:	Teressa O"Caer
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Public comment reservoir
Date:	Monday, December 5, 2022 1:49:56 PM

Hi Folks,

I read the details carefully and I see the dilemma.

I would vote against the Preferred Alternative because of the reduction hydropower and the reservoir draw down.

I think it best to protect hydropower production, irrigation and the fish as much as possible.

Perhaps Alternative 1 will do all that at $104M.

Please keep up the good work trying to sort this out.

Best,
Teressa O'Caer

From: P.W. May
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [Non-DoD Source] Public Input Willamette River System
Date: Wednesday, January 11, 2023 10:17:28 AM

Greetings: MWRNA! In my opinion make the Willamette River Navigable Again.

Early on the Willamette river was a highway for goods and services as far up river to Eugene down to Portland. Imagine, if now, we could use it again to keep more traffic off the highways and at the same time provide passenger and tourism traffic on the Willamette again.

The possibilities are endless. What a boom to the small Cities along the way.

Regards,

"Let right be done"

P.W. MAY
971-237-6880

KBO

From:	Doug Warren
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Re: Water Level Bell Chart - Army Corp Plans
Date:	Thursday, January 19, 2023 11:00:56 AM

This email is in concern to your new water plan on Lookout point and Green Peter. Both these lakes are highly used recreation areas. This proposal is the craziest thing I have ever heard. You need to stop the idea of this and while we are at it start putting water in Dorena, Cottage Grove, Galesville also. I have quietly set by and watched the gross miss management of all our lakes in Oregon.

Sincerely
Doug Warren,

From:	Lindsey Hutchison
To:	Knudson, Nicklas B CIV CPMS (USA); CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Request for extension - Willamette Valley System Draft EIS
Date:	Wednesday, December 7, 2022 1:27:35 PM

Hello Nicklas,

My name is Lindsey Hutchison and I am Willamette Riverkeeper's Staff Attorney. I am contacting you in regards to USACE's Draft Programmatic EIS for the Willamette Valley System, with comments due January 19, 2023.

I am writing to request an extension of the comment period by at least 30 days. We are requesting this extension for several reasons: first, there are four in-person meetings scheduled for January 9-12 and the information received at those meetings may create additional questions and comments that require more than 7 days to craft; second, this is an incredibly large and technical document that took the Corps years to create and this comment period falls during the holiday season when many people are not in the office, in order to ensure everyone has time to comment and dig through this document and the appendices, an additional 30+ days is crucial; and third, this EIS will be guiding the Corps for the next 30+ years and in order to comment thoroughly and accurately, additional time is needed to understand the alternatives and the DEIS as a whole.

Willamette Riverkeeper is requesting that USACE extend the comment period for the Willamette Valley System Draft EIS by at least thirty days to ensure that the public has time to thoroughly understand and comment on the document. This extension will allow the public to participate in this process fully as the Final EIS will be in effect and control USACE's operations and management of the Willamette Valley System for the next 30+ years and the public will not be able to comment again.

If you have any questions or concerns, please let me know.

Thank you,
Lindsey Hutchison

--
Lindsey Hutchison, Staff Attorney
Willamette Riverkeeper
Email: lindsey@willametteriverkeeper.org
(she/her/hers)

From:	Abaor
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Reservoir drawdown
Date:	Thursday, January 26, 2023 12:00:54 PM

This is a response to the request for feedback on the proposal to draw down the water levels of Green Peter and Lookout reservoirs.

A reference to the Fall Creek drawdown is cited in this request. Before proceeding with these actions it would be beneficial to report of the success or failure of the Fall Creek efforts. The loss of warmwater species in Fall Creek is well known. Was this action effective in achieving the desired result?

The history of efforts to help one species by sacrificing others has never proven to be beneficial to anyone. The loss of recreational access is a temporary consequence and can be tolerated. However the destruction of fish species that eliminate outdoor activities for many future generations can not be acceptable. Especially when there is no evidence that this action will provide the desired result. I can see no possible reason to encourage these efforts.

From:	eric strickler
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Save the Oregon reservoirs and fisheries
Date:	Friday, January 20, 2023 9:41:54 PM

To whom it may concern,
The Oregon reservoirs such as Green Peter, Lookout Point, Dorena, Cottage Grove, Foster, Fall Creek, Detroit, Fern Ridge just to name a few are a wonderful part of Oregon and a resource that we desperately want to continue using all year long.
Long ago when these reservoirs were put in, the management made the decision to not put in fish ladders or allow a way for the salmon runs to continue further up these streams.

The idea that a quick fix of lowering lake levels to an extreme point to allow fish to start using these areas of the rivers again is; not reliable, not a good long term solution, slows the economy as people will not be recreating as much, causes harm to current fish populations, requires the additional of diesel generators to be used where hydropower generation is stopped, will cause increased erosion in the banks of the reservoirs, and on and on.
The current lake populations of Bass, Blue Gill, Crappie, Kokanee, etc will suffer far more from this extreme lake drain events that will benefit the Salmon.

By taking a course of action that will allow Salmon to use fish ladders, such as the ones used on the Columbia power generating dams, there is more benefit to; the fish (current and future populations), the environment (reduction of generator power, erosion), the economy (as fishing/camping/hiking/boating) will continue to be used at normal or possibly higher frequency if populations are able to stabilize, and is long term sustainable.

Please fight the courts, asking for more time to allow for building the necessary long-term solution needed to see success for the Salmon and for maintaining the reservoirs that we cherish so much in Oregon.

Thanks for listening.
Eric Strickler
541-740-5367

Sent from my Verizon, Samsung Galaxy smartphone
Get Outlook for Android

From:	John Cissel
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Willamette dam EIS
Date:	Saturday, December 3, 2022 10:03:08 AM

It is imperative that USACE do everything it can to maximize hydropower. It is widely recognized that we are in a climate emergency and that we need to decarbonize our economy. According to state of Oregon official reports over 70% of total energy consumed in Oregon comes from fossil fuels. To convert all or most of that to non-fossil electricity requires a four- or five-fold increase in noncarbon electricity generation. That is a monumental challenge and we can not afford to lose any hydropower. Please maximize hydropower. If climate change continues unabated future fish habitats and populations will be drastically altered regardless of measures proposed to help fish.

Thank you.

John Cissel
Eugene, OR

From: Cat Koehn
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [Non-DoD Source] Willamette Dams
Date: Tuesday, January 10, 2023 9:22:11 AM

Sent from my iPhone

From:	Eva Jurney
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Willamette Valley System Draft EIS
Date:	Saturday, January 14, 2023 10:32:41 AM

Thank you so much for coming to Sweet Home.
I attended the presentation at the Senior Center in Sweet Home OR on Wed evening (1/11/2023) Below are comments about the presentation.
1. Having tables in the back of the room with an 'expert' at each for discussion with the audience after the presentation was a good strategy.
2. The presenters should have had a microphone. Many in the audience wore hearing aides and the presenters were stressed by having to project their voices in such a large space.
3. The slides were unreadable.
First there was too much information on each slide. I guess your A-V person doesn't know about the 28 words or less per slide recommendation as well as other criteria for producing an effective slide.
Second, I was sitting approx. 1/2 back into the room, and I have excellent vision,and even for me the text was a blur. So my only visual frame of reference was the handout.which was not a duplicate for the slide presentation.

4. There was no way to read the handout which has useful information before the presentation. Had I had that handout to review before I would have known more about the project. In retrospect I realize the presentation was designed to be an introduction.....Not to engender discussion during the presentation but to divert the queries to the tables in the back.

The challenge for you continues to be how to translate your engineering/ EIS format/multiple agency contributions into a 45 minute presentation for people who are not engineers. It would be helpful if you had someone on your staff who was skilled at this type of communication. Basically I don't think a one and done approach is effective. And yet I understand that producing something with multiple dates/times is not practical and will not happen. It is a fraught process.

Again thank you for coming.

From:	WAYNE Schmidt
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Willamette Valley System Draft EIS
Date:	Tuesday, January 10, 2023 2:24:13 PM

U.S. Army Corps of Engineers, Portland District:

I attended your public information meeting today in Eugene, and offer these comments on the draft EIS.

In sum, I support your Preferred Alternative.

Public support for Corps projects relies on trust and confidence in your competence and expressed values. Today, Eric Peterson's summary did that for me.

In my pre-retirement life (National Wildlife Federation), I got paid for wading through and critiquing mammoth draft EIS's. No more. So I'll confess to not reading one page of your tome – just the summary hand-out at the meeting. But that, plus brief questions answered by Greg (Coast Fork Subbasin fisheries) and Kathryn (base assumptions regarding climate change, Cascadia fault, 500-year floods (i.e., 1861—1862 West Coast storms)), assured me that your team knows what it's doing.

So, thank you for all your efforts to fairly "rebalance the benefits" of the Willamette Valley System. It's way past due.

Sincerely,

Wayne Schmidt
357 S. 22nd St.
Cottage Grove, OR 97424
WayneASchmidt@msn.com

From:	jh
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Willamette Valley System EIS
Date:	Friday, January 20, 2023 6:51:36 AM

I'd like to comment on this operation and the future of Foster and Green Peter Reservoirs. I only knew of lawsuits by environmental groups who seem to want to take out the dams, not this EIS thing. Then I heard that Foster Reservoir can't be filled now til mid May or close to it, because of some lawsuit and thought "shoot", a low rain spring and that means no water recreation in our two months of sun we get in Oregon, because they won't have time to fill. It's devastating to think of losing Foster as a summer recreation lake for those of us who love water and kayaking, swimming, which is me, and have limited resources, so Foster is about it, as far as water recreation around here. I kayak or row my raft up both rivers feeding Foster, swim in more remote spots along the shores, as far from speed boats as I can get, love going up there as often as I can when it finally fills for the summer. I couldn't care less about fishing. The only fish I eat are sardines. If you want more fish to survive, quit letting all those fishermen kill them, is my thought. When swimming in the reservoir or the river up there (Santiam is too cold for swimming unless its hot), I routinely clear out fish line, fish hooks, bobbers, all kinds of leftover deadly fishing crap. It's everywhere. I'm not a fan. Please consider the other people, like me, the water lovers, who do not have money to travel to some other far off lake, to kayak, birdwatch from the water, swim, free dive, find some peace from the cars and concrete that make up Albany, Oregon and pretty much everywhere now seems like. Don't ruin Foster Reservoir for us, please. We don't have a lot of time in Oregon to get out on the water and feel the sun. I'm a native Oregonian if that makes any difference.

Jody Harmon
Albany, Oregon
541-404-7939

From: Joe LaFleur
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [URL Verdict: Neutral][Non-DoD Source] comment on dams and salmon
Date: Wednesday, January 18, 2023 3:49:56 PM
Attachments: Japanese Drift Net Fishing.doc

SALMON RUNS

The concern for the loss of our salmon runs is certainly valid, but much of the blame is being misplaced. For decades I have heard people blaming the dams for this loss while ignoring the "elephant-in-the-room": **commercial fishing.**

I grew up on the banks of the lower McKenzie River near Bellinger Boat Landing. Our family has been here since 1952. I am a professional scientist. I have been a registered geologist in the State of Oregon since registration began in 1977. Being a geologist, I rely more on observation than on unproven hypotheses. I feel obligated at this time to share what I have observed regarding the loss of our salmon run on the McKenzie.

All the time I was growing up we had splendid spring runs of Chinook salmon all up and down the river. I fished for salmon on the lower river. The best salmon hole was just above Bellinger Boat Landing. There were times when you would see a salmon jump every 30 seconds. When they were spawning in the gravel beds, we would wade out amongst them and fish for trout using a single artificial salmon egg on a small hook. It was like walking into a herd of cattle. One could watch the crowded backs of the spawning salmon swarms from the bank. These spawning beds are on the lower McKenzie well below all of the dams.

I observed these prolific spring salmon runs all the way from grade school through college. After graduating from the U of O, I was drafted and sent to Vietnam. When I returned home from Vietnam in 1969, we still had a good salmon run that spring. Then I went to the University of Colorado for graduate school. When I got back from Colorado in early 1972, the salmon were essentially gone. The big spring runs just did not happen anymore.

I asked my dad what happen to our salmon. He told me this: ***"Researchers tagged our salmon and found that after they migrate downstream to the ocean, then they go up to the coast of Alaska and live offshore of the Aleutian Islands for five years. After 5 years, they form a school and head back to the river they were born in. But now the Japanese have started using 50-mile long drift nets off the coast of Alaska and they caught our returning school."***

For decades I have heard people blaming the dams for the loss of our salmon, but that theory does not fit the observable facts. The hypothesis that the dams impeding upstream migration is to blame does not address the fact that the historic swarms of spawning salmon on the lower river were downstream from all the dams. And after all the dams were in place, we still had prolific salmon runs up and down the river. The fish ladders and side channels installed by EWEB and The Army Corps of Engineers work well.

Another part of the blame-the-dams theory is the contention that the dams are responsible for a water temperature increase; which, in turn is detrimental to hatching of the salmon eggs and development of the fry. The warming of water by the dams cannot explain the loss of our salmon run on the lower McKenzie.

The primary cause of warmer water downstream is because there is an increase in shallower, slower moving parts of the river. When we were kids floating the river on inner-tubes, we were very much aware that the water coming out of the Walterville Power Canal was notably colder than the water in the rest of the river there. That was because the water in the canal was moving at a swifter average speed and had a greater average depth. Before the dams were built, there were places in the lower river where we would have to get out and walk our drift boat through the shallows during the summer low water. Since the dams were built, the Army Corps of Engineers has maintained a higher flow rate during the summer, resulting in a cooler water temperature in the lower McKenzie than what we had before the dams were built.

Because our former spawning beds here on the lower McKenzie are far downstream from the dams, we cannot blame the dams for migration impediment; and, because the dams are providing us a greater, cooler summer flow here, we cannot blame the dams for impairment of egg hatching and fry development. Those theories cannot be applied here. These facts bring me back to the "elephant-in-the-room**"**: **commercial fishing.**

In the field of geology, coincidence of timing is paramount in the investigation of cause and effect. For example, the timing coincidence of extinction of the dinosaurs and evidence of a massive meteor impact. The timing coincidence between the loss of our salmon runs and the introduction of 50-mile long drift nets is an observation I have been telling people about for many years. Before writing up what my dad told me, I thought it best to verify it. A drift net 50 miles long seems pretty incredulous; but, certainly capable of catching an entire returning school of salmon. Thanks to the internet I was able to verify what my

dad told me a half a century ago. (See attached or go to https://emagazine.com/is-it-true-that-some-commercial-fishing-nets-are-40-miles-long/)

It is sad to say, but I am confident that expensive revamping of the dams and declaring Chinook salmon to be an endangered species are not going to restore our salmon runs. As long as our salmon have to survive commercial fishing at sea, these efforts on our rivers will not solve the problem.

It is regretful that EWEB has decided to destroy Leaburg Lake on the McKenzie River near Vida. Locals as well as visitors have enjoyed having that small, easily accessible lake to recreate on and it has been a real haven for waterfowl. The McKenzie consists of about 75 miles of free-flowing river. It is pointless and very expensive to remove Leaburg dam and take away such a valuable, multiuse little lake in our community.

Joe LaFleur
Oregon Registered Geologist No. 518

Attachments:
1) Article about Japanese driftnets
2) Photo of self with salmon caught near Bellinger Boat Landing

From: Laurie Porter
To: CENWP-PME-Williamette-Valley-System-EIS
Cc: Laurie Porter
Subject: [URL Verdict: Neutral][Non-DoD Source] contacts for the draft EIS comments
Date: Tuesday, January 10, 2023 12:49:16 PM
Attachments: image001.png

Good Afternoon,
The CRITFC lamprey team is reviewing the current draft of the WVS PEIS. I had a question from the CRITFC member tribes as to who from the tribes received the letters/emails under the 'tribal consultation' (pages 6-4,6-5), as we are tracking down comments from that time period. Are you able to provide me with the names/emails of who would have been contacted? Or, is it in the documents somewhere?
Thanks,
Laurie

Laurie Porter
Lamprey Project Lead, Columbia River Inter-Tribal Fish Commission

P: (503) 731-1262 **C**: (971) 269-9412
E: porl@critfc.org **W**: www.critfc.org

700 NE Multnomah St, Suite 1200
Portland, Oregon 97232

PUTTING FISH BACK IN THE RIVERS AND RESTORING THE WATERSHEDS WHERE THEY LIVE

From:	Alan Overwater
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[URL Verdict: Neutral][Non-DoD Source] DATE for Public input on 13 dams?
Date:	Monday, January 9, 2023 6:47:51 PM

Hello,

I saw an article in the Statesman on the 13 damns and needing public input. The article gave the days, times and locations but not the DATES. I would like this info please. Also, in reguards to the plans, has climate change been taken into account? Specifically, if there are no dams, with higher temperatures, wouldn't more rivers in the future evaporate? Due to less snow pack and demands for irrigation? Would removing dams in the long run affect salmon due to rivers running dry? And if you have thought through the effects of global warming, what are the statagies that will be put in place so that EVERYONE has EQUAL access to fresh, clean drinking water. I would appreciate any and all info on this.

Thank you,
Alan Overwater

Sent from Yahoo Mail on Android

From: COUTURE Ryan B * ODFW
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [URL Verdict: Neutral][Non-DoD Source] FW: Dexter Fish Facility - Draft EA Comment Extension
Date: Wednesday, December 14, 2022 4:34:17 PM

FYI

****My email address has changed – ryan.b.couture@odfw.oregon.gov****

From: Barajas, Emily K CIV USARMY CENWP (USA) <Emily.K.Barajas@usace.army.mil>
Sent: Tuesday, November 29, 2022 8:31 AM
To: Foster, Ross CIV USARMY CENWP (USA) <Ross.Foster@usace.army.mil>; COUTURE Ryan B * ODFW <Ryan.B.COUTURE@odfw.oregon.gov>; Piaskowski, Richard M CIV USARMY CENWP (USA) <Richard.M.Piaskowski@usace.army.mil>; Rerecich, Jonathan G CIV USARMY CENWP (USA) <Jonathan.G.Rerecich@usace.army.mil>
Cc: Taylor, Gregory A CIV USARMY CENWP (USA) <Gregory.A.Taylor@usace.army.mil>; Lipski, Curtis L CIV USARMY CENWP (USA) <Curtis.L.Lipski@usace.army.mil>; Nikiforets, Yuliya V CIV USARMY CENWP (USA) <Yuliya.V.Nikiforets@usace.army.mil>; Dorsey, Garrett L CIV USARMY CENWP (USA) <Garrett.L.Dorsey@usace.army.mil>
Subject: Re: Dexter Fish Facility - Draft EA Comment Extension

Good morning Ryan,

Our team was not aware of the recent studies of the NZMS below Dexter. Thank you for bringing that to our attention. Please make sure that this information also goes to the Willamette Valley Operations and Maintenance EIS Team – the public commenting period is open until 1/19/2023 - here's a link Corps seeking public comment on Willamette Valley Draft Programmatic Environmental Statement > Portland District > Public Notices (army.mil).

The Dexter EA was specific to the construction portion of the upgrade and the contract required invasive control measures including cleaning equipment prior to it entering the site – the EIS will capture the ongoing processes in the WV.

As for the HACCP, we did not create one for the EA. Admittedly, I was not familiar with the program. A quick search showed me that this could be a beneficial program but not one that is a required at this time. I would recommend you discuss the possible need for this with the onsite supervisory fish biologist.

Please let us know if you have any other questions,

Emily Barajas

Environmental Resource Specialist

From: Foster, Ross CIV USARMY CENWP (USA) <Ross.Foster@usace.army.mil>
Sent: Monday, November 28, 2022 2:33 PM

To: COUTURE Ryan B * ODFW <Ryan.B.COUTURE@odfw.oregon.gov>; Piaskowski, Richard M CIV USARMY CENWP (USA) <Richard.M.Piaskowski@usace.army.mil>; Barajas, Emily K CIV USARMY CENWP (USA) <Emily.K.Barajas@usace.army.mil>; Rerecich, Jonathan G CIV USARMY CENWP (USA) <Jonathan.G.Rerecich@usace.army.mil>
Cc: Taylor, Gregory A CIV USARMY CENWP (USA) <Gregory.A.Taylor@usace.army.mil>; Lipski, Curtis L CIV USARMY CENWP (USA) <Curtis.L.Lipski@usace.army.mil>; Nikiforets, Yuliya V CIV USARMY CENWP (USA) <Yuliya.V.Nikiforets@usace.army.mil>; Dorsey, Garrett L CIV USARMY CENWP (USA) <Garrett.L.Dorsey@usace.army.mil>
Subject: RE: Dexter Fish Facility - Draft EA Comment Extension

Thanks Ryan.

Emily and Jon, please take a look below and get back with me separately when you get a sense for what this means for the facility rebuild project.

-Ross

Ross Foster, P.E.
Project Manager
USACE, Portland District
☏ COM: 503-808-4866
☏ MOBILE: 503-308-2905
Ross.Foster@usace.army.mil

From: COUTURE Ryan B * ODFW <Ryan.B.COUTURE@odfw.oregon.gov>
Sent: Monday, November 28, 2022 2:30 PM
To: Foster, Ross CIV USARMY CENWP (USA) <Ross.Foster@usace.army.mil>; Piaskowski, Richard M CIV USARMY CENWP (USA) <Richard.M.Piaskowski@usace.army.mil>
Cc: Taylor, Gregory A CIV USARMY CENWP (USA) <Gregory.A.Taylor@usace.army.mil>; COUTURE Ryan B * ODFW <Ryan.B.COUTURE@odfw.oregon.gov>
Subject: [URL Verdict: Neutral][Non-DoD Source] RE: Dexter Fish Facility - Draft EA Comment Extension

Greetings Ross and Rich,
Not sure if you're aware, but an OSU group doing surveys in the M. F. Willamette recently found New Zealand Mud Snails (NZMS) below Dexter at the Jasper Boat Ramp.

I had a meeting last week with our Aquatic Invasive Species (AIS) folks, and gave them a quick update on Dexter and the rebuild plans/timeline. They suggested I reach out to you folks to:

1) Give you an update on the finding of the NZMS, and
2) Ask if you've completed a HACCP Plan as part of the EA for Dexter

ODFW is working on additional sampling (eDNA) throughout the watershed. I can keep you posted on the results of that work. Let me know if you have any info I can pass along to our

AIS folks
Thanks
Ryan

Ryan Couture
Hatchery Coordinator
West Region-South Hatcheries
541-757-5228 (office)
541-207-2049 (cell)
Ryan.b.couture@odfw.oregon.gov

From: Foster, Ross CIV USARMY CENWP (USA) <Ross.Foster@usace.army.mil>
Sent: Friday, September 30, 2022 8:21 AM
Subject: Dexter Fish Facility - Draft EA Comment Extension

Hello,

The U.S. Army Corps of Engineers has extended the deadline for public commenting until October 13, 2022. More information is available at https://www.nwp.usace.army.mil/Locations/Willamette-Valley/Dexter/Dexter-Fish-Facility/ and Environmental Assessment of Dexter Fish Facility Upgrades Open for Public Comment > Portland District > Public Notices (army.mil).

If you have any questions about the project, please contact us at either of the following locations:

Email: dexterfishfacility.upgrade@usace.army.mil

Hard Copy Mail:
Ross Foster, U.S. Army Corps of Engineers
Attn: PM-E, PO Box 2946
Portland, OR 97208-2946

From: Jennifer Fairbrother
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [URL Verdict: Neutral][Non-DoD Source] Re: Public Notice: Willamette Valley System Operations and Maintenance DPEIS, Willamette River Basin (HUC6: 170900), Oregon
Date: Wednesday, November 23, 2022 12:10:54 PM

Hello,

Thank you for providing notice that the Draft EIS for the WVS is available for review and comment. I'm requesting a hard copy of the DEIS and associated documents. Please mail them as soon as possible to:

Jennifer Fairbrother
26998 S Harms Rd
Canby, OR 97013

Thank you. I hope that you have a lovely Thanksgiving.

JENNIFER FAIRBROTHER
Conservation Director | Native Fish Society
PO Box 1536, Oregon City, OR 97045
Cell: (541) 602-0696 | Office: (503) 344-4218
nativefishsociety.org • Facebook • Twitter • Instagram

On Wed, Nov 23, 2022 at 11:52 AM CENWP-PME-Williamette-Valley-System-EIS <willamette.eis@usace.army.mil> wrote:

> Please see the attached public notice to interested parties for the Willamette Valley System Operations and Maintenance Draft Programmatic Environmental Impact Statement.
>
> Please note that the Federal Register is anticipated to include a Notice of Availability on Friday, November 25, 2022 for the Draft PEIS.
>
> On Friday, November 25, 2022, the Draft Programmatic Environmental Impact Statement will be available for public view on the USACE project website at: https://www.nwp.usace.army.mil/Locations/Willamette-Valley/System-Evaluation-EIS/
>
> Thank you, and have a Happy Thanksgiving!

From:	Maria Mokrai
To:	CENWP-PME-Williamette-Valley-System-EIS; CENWP-PME-Williamette-Valley-System-EIS
Subject:	[URL Verdict: Neutral][Non-DoD Source] Salem Creekside Rotary
Date:	Friday, January 20, 2023 4:41:03 PM
Attachments:	BROCHURE 2[2305843009259070446].pdf Brochure orange 2021.pdf Program Speaker Guide 2022-3.doc

Good afternoon Mr. Knudson,

We have been reading about a plan to reshape management of 13 dams and reservoirs in the Willamette River Basin and are interested in learning more about the upcoming proposals. We read that you will be hosting in person meetings in the Willamette Valley and hope that you will be able to join us at Salem Creekside Rotary in March and inform our community as to the progress of this delicate project to save the salmon, while protecting homes and farming lands. Oregon has been gravely affected by weather conditions these last few years and led to changes to the way we manage our lands and state.

We meet at Danny's on the Green, Creekside Golf Course, Thursday's at 12:10 pm. We are a small, dedicated group trying to help our community and areas around the world. Attached are two of our documents about our club and a speakers guide. Looking forward to hearing from you.

Yours in Rotary Service,

Maria Mokrai

The Rotary Club of Salem-Creekside

www.clubrunner.ca/salemcreekside.

Club #51080 - District 5100

Immediate Past President 2020-2022

(503-983-3162)

From: scott mckenzie
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [URL Verdict: Neutral][Non-DoD Source] Willamette Valley Dams
Date: Sunday, January 8, 2023 12:37:06 PM

Are there intentions to remove any if the dams storing water in the Willamette Valley? How will they plan to provide the water for farming and replace the power generated by the facilities?

Sent from Yahoo Mail on Android

From:	Jennifer Fairbrother
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[URL Verdict: Neutral][Non-DoD Source] Willamette Valley System EIS - Comment Deadline Extension Request
Date:	Friday, December 16, 2022 2:23:58 PM

Dear Mx. Knudson and whom it may concern -

Thank you for publishing the WVS PEIS for public review and comment. I appreciate the obvious time and effort that went into a document of this scale and magnitude. I also understand that the Corps is operating under a court-ordered deadline to receive an approved Biological Opinion from NMFS by the conclusion of 2024.

Given the magnitude and time scale that this programmatic plan will have on the system and the wide-ranging public and political interest in this topic, I am requesting an extension of the comment deadline beyond January 19th for the following reasons:

- Scale: This EIS covers operations at thirteen dams in the largest watershed contained within the boundaries of the state of Oregon covering three fish species listed under the Endangered Species Act. Implementation of programmatic actions will cover several decades of work and operations by the Army Corps.
- Size of the analysis: The DEIS is highly technical and includes extensive references. The document and associated appendices comprise thousands of pages.
- Holidays: The comment period extends over numerous federal holidays and other cultural/religious holidays. Many individuals had already scheduled personal time off during this time period. In combination with weekends, the comment period for such an extensive document is short.
- Past engagement: Many groups, including Native Fish Society, Northwest Environmental Defense Center, and WildEarth Guardians have dedicated extensive staff capacity over the past five years on issues pertaining to WVS operations and fish recovery. We would like to be able to undertake an adequate review of the DEIS given our longstanding interest in engaging on these issues. I believe that other individuals and organizations would also appreciate and benefit from and extended comment period.

Thank you for your consideration. Wishing you and your loved ones a safe and joyful end to 2022.

Cheers,

JENNIFER FAIRBROTHER
Conservation Director | Native Fish Society
PO Box 1536, Oregon City, OR 97045
Cell: (541) 602-0696 | Office: (503) 344-4218
nativefishsociety.org • Facebook • Twitter • Instagram

From:	Casey Kulla
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[URL Verdict: Neutral][Non-DoD Source] Willamette Valley System Draft EIS
Date:	Friday, January 13, 2023 7:36:46 AM
Attachments:	USACE WVS DEIS Kulla comments.pdf

Please accept the comments attached as a .pdf and as in-email text. - Casey

==========

Thank you for the opportunity to comment on the draft Environmental Impact Statement for operation of the Willamette Valley System and with regards to Endangered Species Act-listed animals, and for the public events at which you've made your technical staff available to answer questions and accept concerns. My comments are submitted in my role as state forest policy coordinator for Oregon Wild, whose mission is to protect Oregon's wildlands, wildlife, and waters for future generations.

State and private land management efforts:
The persistence of threatened and endangered fish is central to our mission at Oregon Wild. In fact, we're deeply invested in the Oregon Department of Forestry's private forest habitat conservation plan for listed aquatic species and the State Forest programmatic habitat conservation plan for aquatic species. These parallel efforts on Oregon Board of Forestry Land and private timber land are vital for the persistence and thriving of anadromous fish; this is land where the land managers are accepting responsibility for their role in fish decline and the need for restoration. When the US Army Corps of Engineers built a series of flood control dams and haphazardly added revetments to properties along the Willamette River, you also became responsible for that decline by a combination of cutting off habitat and altering the seasonal river levels.

As you see, the state of Oregon and private landowners are moving forward to protect fish. When you examine your alternatives, including the Preferred Alternative, in light of the ongoing litigation against USACE, I hope you will consider the listed fish species first, rather than flood control first. The flood control mission, arguably unnecessary, must come after promoting and restoring fish populations, both in the upper reaches and in the lower, floodplain Willamette River.

Avoid tech-heavy solutions:
When you consider the Alternative Measures, please give weight to long-lasting, non-structural solutions to opening up habitat and passage and please give less value to flood control behind concrete. Long-lasting habitat and passage that does not require technological, human-managed solutions are the best solutions.

When you consider the alternatives, please give weight to appropriate seasonal flow for fish and consider with less weight hydropower production. Your own natural resources staff can provide the best flow (both volume and seasonality) for fish. Managing for hydropower and flood control rather than for natural seasonal flow is part of what got us here, to a dam-related decline in fish.

Natural Flood Risk Management:
You've committed to maintaining your mission of flood risk management even as you attempt to

find an alternative measure that safeguards the persistence of the listed fish species. Please consider your floodplains as the basis of your flood risk management. Hold Oregon's floodwaters in the natural flood storage facilities: the floodplain. Now, there is the expensive route to natural flood storage: purchasing farmland and reconnecting it to the river for water storage. That takes time and money. But, the Willamette River's floodplain contains many meander scars just sitting there, waiting all winter to be filled with fresh mountain water. I encourage you to turn your gaze away from the concrete storage that is your problem and towards the natural storage: the floodplain of the Willamette. When you do that,you take the edge off of peak flows and you can focus your attention to fish persistence.

Tribes:
As you mentioned in your presentation, tribal consent has always been important but tribes have long been neglected, ignored, and pushed aside. Tribal needs, perspectives, and management for fish are essential. Embrace your nine federally-recognized tribes whose traditional homelands overlap with what we call Oregon. Listen to them, and demonstrate that you've listened by adapting your plans (both interim and long-term) to their expert advice. Finally, show the public, federal judges, litigants, and the Services that you've listened and adapted by pointing to exactly what in your plans you changed.

Forests and nutrients:
At Oregon Wild, we work to protect and restore forests across Oregon. We've known for 20 years that Pacific Northwest forests depend upon nutrients from the ocean, brought upstream by anadromous fish and distributed across forests by raptors and mammals (Zhang Y, Negishi JN, Richardson JS, Kolodziejczyk R. Impacts of marine-derived nutrients on stream ecosystem functioning. Proc Biol Sci. 2003 Oct 22;270(1529):2117-23. doi: 10.1098/rspb.2003.2478. PMID: 14561274; PMCID: PMC1691481). The thousands of years of marine-derived nutrients feeding our forests have been cut short by dams impeding the passage upstream of these fish, in our lifetimes. The US Army Corps of Engineers dam-building in the Upper Willamette and revetments on the lower Willamette starve the ecosystems upon which we all depend.

You were directed to build dams and revetments within many of our lifetimes, and these dams and revetments are starving our forests. Forest restoration will be incomplete until the nutrient cycle is restored. In other words, effective fish passage is essential to forest health.

Thank you for your time and the opportunity to comment. Please adopt an Alternative that reconnects fish and forests, reduces reliance on technology, reintroduces seasonal flow regimes, uses natural flood control management, and emphasizes tribal management.

Casey Kulla
State forest policy coordinator
Oregon Wild
ck@oregonwild.org

From:	Emerson Ringger
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[URL Verdict: Neutral][Non-DoD Source] Willamette Valley System Draft EIS
Date:	Monday, January 9, 2023 10:36:33 AM

Hello,

Thank you for the opportunity to participate in the review process for this project. Attached for your review is a link to a google spreadsheet detailing CTGR's comments thus far.

Sincerely,

Emerson Ringger

Link:
https://docs.google.com/spreadsheets/d/1Kzj84lfu8ACNcCi4rkZ-fYECdPtZ7rou/edit?usp=sharing&ouid=109441832168775809588&rtpof=true&sd=true

Emerson Ringger (she/her)
Partner, Community Water Solutions | Willamette Partnership
1300 SE Stark Street, Suite 212, Portland, OR 97214

T: (503) 922-6484 | W: **willamettepartnership.org**

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P.O. Box 724
Salem, OR 97308
December 4, 2022

Army Corps of Engineers
Public Comment
P.O. Box 2946
Portland, OR 97208-2946

Regarding Programmatic Environmental Impact Statement:

Native salmon and steel head are important. Extinction of salmon and steel head most be avoided and addressed.

The primary, most obvious problem is the out of control predation by predators: specifically seals and sea lions. Due to the over population of seals and sea lions, the salmon and steel head are being decimated.

An easy low cost, to the beleaguered taxpayers, solution is to allow sportsmen/sportswomen to hunt the over populated seals/sea lions. The resulting meat/protein could be provided to individuals in public/taxpayer supported institutions: jails, penitentiaries, mental hospitals.

The plan to remove Willamette Basin dams will be exorbitantly expensive mistakes. Our growing population needs reservoir water for agriculture, and human consumption, recreation and power generation.

I appreciate your consideration of my public comment regarding this matter.

Thank you.

Sincerely,

K R Heuberger

K. R. Heuberger

January 7, 2023

875 Lebanite Drive

Lebanon, Oregon 97355

U.S.Army Corps of Engineers

Attn: CENWPE-PME-E/Willamette EIS

PO Box 2946

Portland, Oregon 97206-2946

To Whom it may concern,

I am writing this as a retired Dam Operator at Foster Dam from 1986 until retirement in 2013. These are the things I saw, heard and learned. I operated the fish handling equipment at Foster and Green Peter when it was operating at Green Peter. I was on duty when events happened in the electrical distribution system giving me a clear picture of what happens during a high power event for example in the winter.

The first topic is Sockeye Salmon, every Sockeye that was in the fish ladder was summarily killed and disposed of. The reason given was no diseases from the Sockeye getting transmitted to the Chinook Salmon. That is interesting considering these fish have shared the Willamette River for thousands of years.

The second topic is Chinook Salmon, now for some history. I have seen the fin clipped satisfying tribal considerations and for a time some went to the gleaners. The rest of the fin clipped Chinook were just destroyed, they were put into the diversion channel used during dam construction or sent to a processor to be made into fish food for the hatchlings at the hatchery. I know this because I used to operate the fish hopper on to the truck on the roadway deck and watch as the water valve was opened and listening to the fish flopping around in the tank and then watching the fly population from the south side of the South Santiam River. There were so many flies it looked like a low lying fog bank, and from above I was told other fish went to be processed into fish food for the small fish at the hatchery.

The fin clipped Chinook is the small fry getting their fins clipped, they come from salmon that are native. A meeting in Sweet Home twenty plus years ago explained that scientifically there was no difference between fin clipped and native Salmon. The point is spawning native fish becomes fin clipped in the hatchery and necessarily needs to be destroyed, really? Testimony in Sweet Home years ago indicated they are the same, then destroy the fin clipped. The fish go to the ocean and deal with the same predators and yet the fin clipped are inferior?

Every time people with the brains get involved it seems the fish population goes away. There needs to be a real discussion on the Native Steel Head run on the South Santiam. If you believe it is a native run you need to do a deep dive into the records.

I now need to discuss electrical power generation. A little background on my part, I trained as an electrician in the US Navy, then nuclear power school which consolidated Electrical training with operations in a nuclear environment, then as an instructor in the training I had received, followed up by nuclear operations on a submarine with training before getting to the submarine on batteries-qualified as a battery charging electrician. After submarine duty I followed up with advanced electrical training. After schooling again I followed up with being a leading electrician on my crew followed by advanced qualifications- EOOW/EWS (Engineering officer of the watch/Engineering watch supervisor) which was nuclear plant supervisor over all operations and maintenance while on duty. My last job was as Training coordinator meaning I trained on all theory, testing, including oral boards and certification of those trained on my crew. I entered the Corps of Engineers in 1979 and worked up to L grade operator. I have probably operated in all situations that can effect electrical operations, starting in Montana until I settled at Foster dam. To GOD goes all the glory, I have multiple suggestions that have been awarded, multiple sustained superior performance awards, the District Operator of the year Award and the Division Operator of the Award. There are not many things I haven't seen, or evolutions I have not performed. I understand the system at Foster/Green Peter, the BPA dispatchers knew this also that I understood the systems.

The point of all this is to introduce what is not spoken of thus far. First on the discussion is the letter from the NORTHWEST POWER POOL (WILLAMETTE

VALLEY/SOUTHWEST WASHINGTON AREA VOLTAGE STABILITY OPERATING PROCEDURE). This talks about the drop in voltage in this area with voltage instability from cold weather loads with reduced local area generation, the primary concern is to prevent a blackout or voltage emergency. This simply means with the electrical loads being inductive in nature driving the voltage down as loads increase beyond 7,000 megawatts the risk of a UVLS (Under Voltage Load Shedding Relays) operation which will cause a black out. I could spend hours going into the weeds but I believe this document has been distributed. The other document is (WILSSWA VOLTAGE STABILITY 1998-1999), I had not seen an amended document or documents before I retired in 2013. In summary the voltage in the Foster area will drop to levels that will require action to prevent a trip during a cold weather event and high loads, period. I have seen this already which I will discuss in the next paragraph.

During the 1990's there was a cold weather event and the voltage was getting quite low so the voltage control was increased on the generating units that were condensed but that was not enough. The only course of action left was to take the generating units from condense to generate and to add positive reactivity and the voltage was restored to a safe level. I was the operator on duty and I had two Green Peter units running. I later discussed this operation with two BPA engineers at Foster project and they agreed.

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from power outages from a high power (cold weather) outage coupled with extremely low voltage, extremely high power flow with large inductive reactance.

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There is one thing no body talks about and that is all the governors on all the operating hydro units are on a 5% speed droop so when the frequency starts to drop all the operating hydro units operating in parallel will start picking up load to

maintain the frequency at levels more acceptable until more generation is added to fully recover the system to normal conditions. This is huge and it helps maintain our electrical systems that we all enjoy at this time.

There is no doubt in my mind that this whole process is to remove all real renewable energy sources like Hydro. The national average on the so called 'renewable' energy, that is solar or wind is only available perhaps 20% of the time and only when the sun is shining or the wind is blowing. There is much information on the big problem of inverter tripping. This means that if the energy storage issue is solved or providing energy to the grid, inverter tripping will shut it all off and therefore where is the reliability compared to hydro, coal and nuclear power energy sources? Inverters are devises meant to convert DC power to AC power. I personally saw this play out on a back to back system out of state.

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Respectfully Yours,

Ronald E. Edwards/Retired

Willamette Valley System Draft Programmatic Environmental Impact Statement

US Army Corps of Engineers
Portland District

From:
Clark Tiedke

Place Stamp Here

U.S. Army Corps of Engineers
Attn: CENWP-PM-F/Gail Saldana
P.O. Box 2946
Portland, OR 97208-2946

Please analyze modifications to existing or new boat ramps for all reservoirs. This should be part of your economic analyze.

For More Information or to Provide Additional Comment
website: https://www.nwp.usace.army.mil/Locations/Willamette-Valley/System-Evaluation-EIS/
email: willamette.eis@usace.army.mil

January 11, 2023

Meeting in Sweet Home

This topic is addressed about the operations at Green Peter and Foster during the Deep Drawdown and other work that will be done during this time frame. My concerns are based on the potential harm that will be caused with voltage control issues and the potential harms which will occur on the operations of the electrical systems undervoltage protection systems.

I am concerned because as a care giver and understanding what some people need that are fragile (health issues) and needing electrical equipment to support life. I am a retired operator who has worked for 27 years at this facility and 34 years in power generation in total for the Corps of Engineers.

I submitted two letters addressing these concerns, one written on Sept. 3, 2022 which included experiences that shaped my thinking and a written debrief, the second written on December 11, 2022. I also provided a document written to prevent a "blackout" or "voltage emergency" and my question is, have these questions and concerns been addressed?

I am willing to discuss my concerns so as to prevent a low voltage high reactive current trip causing a power outage and potential harm to the equipment being used to support life.

January 7, 2023

875 Lebanite Drive

Lebanon, Oregon 97355

U.S.Army Corps of Engineers

Attn: CENWPE-PME-E/Willamette EIS

PO Box 2946

Portland, Oregon 97206-2946

To Whom it may concern,

I am writing this as a retired Dam Operator at Foster Dam from 1986 until retirement in 2013. These are the things I saw, heard and learned. I operated the fish handling equipment at Foster and Green Peter when it was operating at Green Peter. I was on duty when events happened in the electrical distribution system giving me a clear picture of what happens during a high power event for example in the winter.

The first topic is Sockeye Salmon, every Sockeye that was in the fish ladder was summarily killed and disposed of. The reason given was no diseases from the Sockeye getting transmitted to the Chinook Salmon. That is interesting considering these fish have shared the Willamette River for thousands of years.

The second topic is Chinook Salmon, now for some history. I have seen the fin clipped satisfying tribal considerations and for a time some went to the gleaners. The rest of the fin clipped Chinook were just destroyed, they were put into the diversion channel used during dam construction or sent to a processor to be made into fish food for the hatchlings at the hatchery. I know this because I used to operate the fish hopper on to the truck on the roadway deck and watch as the water valve was opened and listening to the fish flopping around in the tank and then watching the fly population from the south side of the South Santiam River. There were so many flies it looked like a low lying fog bank, and from above I was told other fish went to be processed into fish food for the small fish at the hatchery.

The fin clipped Chinook is the small fry getting their fins clipped, they come from salmon that are native. A meeting in Sweet Home twenty plus years ago explained that scientifically there was no difference between fin clipped and native Salmon. The point is spawning native fish becomes fin clipped in the hatchery and necessarily needs to be destroyed, really? Testimony in Sweet Home years ago indicated they are the same, then destroy the fin clipped. The fish go to the ocean and deal with the same predators and yet the fin clipped are inferior?

Every time people with the brains get involved it seems the fish population goes away. There needs to be a real discussion on the Native Steel Head run on the South Santiam. If you believe it is a native run you need to do a deep dive into the records.

I now need to discuss electrical power generation. A little background on my part, I trained as an electrician in the US Navy, then nuclear power school which consolidated Electrical training with operations in a nuclear environment, then as an instructor in the training I had received, followed up by nuclear operations on a submarine with training before getting to the submarine on batteries-qualified as a battery charging electrician. After submarine duty I followed up with advanced electrical training. After schooling again I followed up with being a leading electrician on my crew followed by advanced qualifications- EOOW/EWS (Engineering officer of the watch/Engineering watch supervisor) which was nuclear plant supervisor over all operations and maintenance while on duty. My last job was as Training coordinator meaning I trained on all theory, testing, including oral boards and certification of those trained on my crew. I entered the Corps of Engineers in 1979 and worked up to L grade operator. I have probably operated in all situations that can ffect electrical operations, starting in Montana until I settled at Foster dam. To GOD goes all the glory, I have multiple suggestions that have been awarded, multiple sustained superior performance awards, the District Operator of the year Award and the Division Operator of the Year Award. There are not many things I haven't seen, or evolutions I have not performed. I understand the system at Foster/Green Peter, the BPA dispatchers knew this also that I understood the systems.

The point of all this is to introduce what is not spoken of thus far. First on the discussion is the letter from the NORTHWEST POWER POOL (WILLAMETTE

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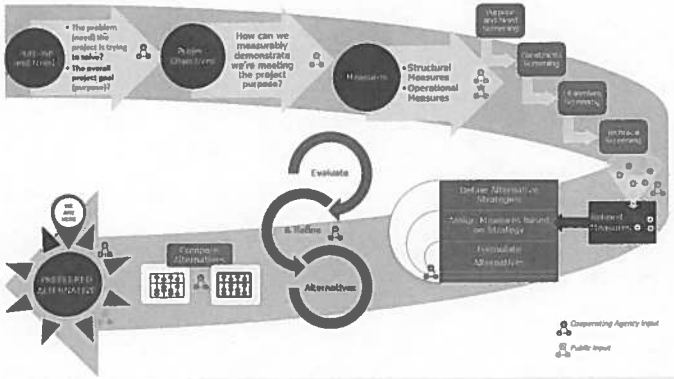
Ronald E. Edwards/Retired

Alternatives Development Process

Alternatives are different **combinations of measures** formulated to meet the Programmatic Environmental Impact Statement (PEIS) objectives to varying degrees.

A **measure** is **feature** or an **activity** that can be implemented at a specific geographic site to address one or more of the PEIS objectives. Measures are the building blocks of alternative plans and are categorized as structural and operational.

Structural Measures are new structures or physical modifications to existing structures such as temperature control towers, fish facilities, or major modifications to a dam so that it can operate in a way not originally designed for. **Operational Measures** are modifications to how a dam is operated such as how high the reservoir is filled or from which outlet water is released through the dam.



PROGRAMMATIC EIS OBJECTIVES

1. Allow greater flexibility in water management (related to refill, drawdown timing, and other water management measures
2. Increase opportunities for the creation of nature-based structures during maintenance of USACE-owned revetments (structures that help prevent bank erosion).
3. Allow greater flexibility in hydropower production.
4. Increase anadromous ESA-listed fish passage survival at WVS dams.
5. Improve water management during the conservation season to benefit anadromous ESA-listed fish and other authorized project purposes.
6. Reduce pollutant levels to restore impaired water quality associated with the WVS dams to benefit anadromous ESA-listed species.
7. Reduce spawning and rearing habitat competition caused by hatchery fish.

US Army Corps of Engineers
Portland District

Willamette Valley System Operations and Maintenance Environmental Impact Statement

CONSTRAINTS SCREENING

Potential alternative measures were eliminated from consideration for the following reasons:

Flood Risk Management: Measures with potential adverse flood risk effects.

Dam Safety: Measures that would compromise dam safety that could not be mitigated.

Measures included in Action Alternatives

These are examples and don't necessarily reflect all measures the WVS EIS is assessing.

UPSTREAM PASSAGE MEASURES

Measures to allow fish migrating upstream to be transported above Willamette Valley System barriers. Includes only structural measures in multiple locations depending on the alternative.

Adult Fish Collection Facilities

Proposed locations vary by alternative

Lamprey Passage

Include features for lamprey passage in new adult fish facility design.

Restore passage at drop structures

Proposed locations vary by Alternative

WATER QUALITY MEASURES

Measures to improve management of instream temperature and control total dissolved gas (TDG). These include **operational** or **structural** measures in multiple locations depending on the alternative.

Structural TDG Control

Example: *Diagram of flow deflector to control TDG*

Operational Temperature Control

Surface spill to provide warmer water or modify existing outlets to provide flexibility in depth/ temperature of releases

Structural Temperature Control

Construct Water Temperature Control Towers

DOWNSTREAM PASSAGE MEASURES

Measures to allow fish to migrate past Willamette Valley System barriers to downstream river reaches. Includes **operational** or **structural** measures in multiple locations depending on the alternative.

Operational Passage

Deep drawdowns: reservoir is lowered as much as possible during migration season so fish can more easily find outlets to migrate downstream through the dam.

Operational Passage

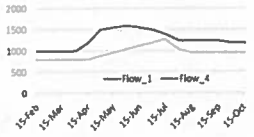
Surface spill to allow fish to pass over the dam to migrate downstream. Only works for parts of some migration seasons as reservoir must be full enough to reach spillway.

Structural Passage

Construction of a floating fish collection screen to capture fish as they try and migrate through the dam. Collected fish are then transported downstream.

FLOW MEASURES

Measures to benefit reservoir refill or to improve conditions downstream for fish survival. Includes **operational** measures in multiple locations depending on the alternative.



Reservoir Refill Example: Maximize filling of the reservoirs during the refill season by reducing minimum flows to Congressionally authorized minimum. Variable flow based on reservoir refill rates.

Fish Survival Example: Release water for aquatic needs downstream based on seasonal conditions. Flow targets incorporate magnitude, seasonal variation, and annual hydrologic conditions. This includes opportunistic and adaptable water releases for real-time water temperature management.

MEASURES COMMON TO ALL ALTERNATIVES

Measures which would be implemented regardless of the action alternative selected (they do not provide a basis for comparison among alternatives). Includes both **operational** measures and **structural** measures in multiple locations.

Measure	Action Location	
Use water from the inactive pool to augment downstream river flows	Blue River; Cottage Grove; Dorena; Fall Creek	
Use water from the power pool to augment downstream river flows	Cougar; Green Peter Hills Creek; Lookout Point	
Add gravel below dams	Basin-Wide	 *Gravel bar on the North Santiam River*
Adapt hatchery program	Basin-Wide	*McKenzie River Fish Hatchery near Leaburg, Or* 
Maintain revetments using nature-based engineering or alter revetments for aquatic ecosystem restoration	Basin-Wide	 *Rock Rip Rap near Corvallis, OR*
Maintain existing and new adult fish release locations above dams	Basin-Wide	*Ex. outplanting site: fish released through pipe* 

SUITE OF NEAR-TERM OPERATIONS

On September 1, 2021, the U.S. District Court for the District of Oregon issued an injunction (*NEDC v. USACE*) ordering USACE to implement injunction actions intended to improve conditions for fish passage and water quality in the Willamette Valley System to avoid irreparable harm to ESA-listed salmonids until the completion of the reinitiated consultation. USACE is analyzing the continuation of a suite of operations like, if not identical to, those ordered by the Court in *NEDC v. USACE* until structural measures at a particular location in the selected alternative are constructed. The operations, modeled after the injunction, have been slightly refined through adaptive management during implementation. The duration of a near-term operation ultimately would depend on an implementation order of the measures developed in an implementation plan.

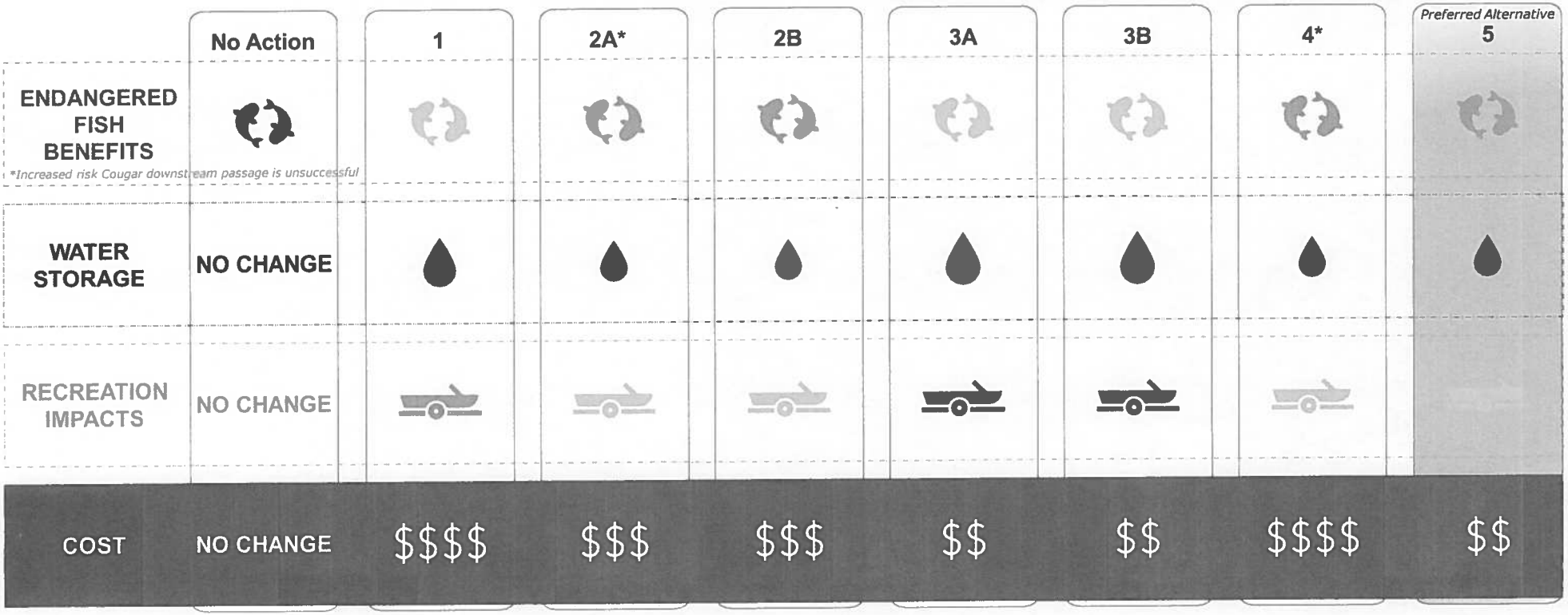
US Army Corps of Engineers
Portland District

Alternatives Comparison

Legend

- High benefit to ESA-listed fish
- Medium benefit to ESA-listed fish
- Low benefit to ESA-listed fish
- Increased Water Storage
- Reduced Water Storage
- Low Impact to Recreation
- Med Impact to Recreation
- High Impact to Recreation

Alternative	Category	Description
No Action	Current O&M	Practices as of April 2019
1	Storage-Focused	Increases the probability of refilling WVS reservoirs
2A	Integrated (Hybrid Structural and Operational)	Water Management Flexibility and ESA-Listed Fish using a combination of operations and structures.
2B		Water Management Flexibility and ESA-Listed Fish (Same as 2A except for downstream passage at Cougar - deep drawdown proposed)
3A	Operations Focused	Different combinations of spring drawdowns and spill with fall drawdowns
3B		
4	Structures Focused	Fish passage and temperature control structures
5	Refined Integrated	Water Management Flexibility and ESA-Listed Fish (Same as 2B, except refined flow regime proposed)



Project Background

For 50 years, the U.S. Army Corps of Engineers (USACE) has managed the complex system of **13 interrelated dams and reservoirs, riverbank protection projects, and hatchery programs** within the Willamette Valley System (WVS) to balance the objectives of the system given by Congress. Together, the dams in the system are operated for the following purposes, which vary depending on the dam: flood damage reduction, hydroelectric power, irrigation, navigation, water quality, fish and wildlife, industrial and municipal water supply, and recreation.

The most recent National Environmental Policy Act evaluation for **operations and maintenance (O&M)** in the WVS was an Environmental Impact Statement (EIS) completed in 1980.

USACE is developing a new Programmatic EIS because **since the last EIS in 1980:**

- Operations have been modified;
- Several Willamette Valley fish species have been listed as threatened under the Endangered Species Act (ESA), and these species need improved water quality and upstream and downstream fish passage.
- New information on environmental impacts in the WVS has become available.

The **benefits and trade-offs** are analyzed in the new Draft EIS through the development of alternatives and analysis of potential environmental impacts of continued O&M of the WVS.

Cooperating Agencies

US Army Corps of Engineers
Portland District

Purpose and Need

"The purpose and need for the Willamette Valley System Programmatic Environmental Impact Statement is continued operations and maintenance of the in accordance with authorized project purposes; while meeting Endangered Species Act obligations to avoid jeopardizing the continued existence of listed species."

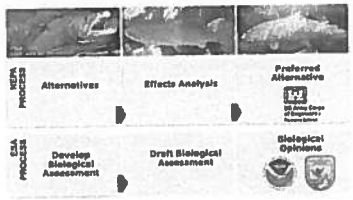
Each Alternative analyzes impacts to following resource areas:

- ☐ Air Quality
- ☐ Cultural Resources
- ☐ Economics
- ☐ Endangered Species
- ☐ Environmental Justice
- ☐ Fish and Wildlife
- ☐ Vegetation
- ☐ Wetlands
- ☐ Water Quality
- ☐ Water Supply
- ☐ Recreation
- ☐ Social Considerations
- ☐ Hydropower

AUTHORIZED PROJECT PURPOSES

Authorized Purpose	Dam and Reservoir: Detroit	Big Cliff	Green Peter	Foster	Cougar	Blue River	Hills Creek	Lookout Point	Dexter	Fall Creek	Dorena	Cottage Grove	Fern Ridge
Flood Control	✔		✔	✔	✔	✔	✔	✔		✔	✔	✔	✔
Irrigation	✔		✔	✔	✔	✔	✔	✔		✔	✔	✔	✔
Navigation	✔		✔	✔	✔	✔	✔	✔		✔	✔	✔	✔
Hydropower	✔	✔	✔	✔	✔	✔	✔	✔	✔				
Fish and Wildlife	✔		✔	✔	✔	✔	✔	✔		✔	✔	✔	✔
Water Quality	✔		✔	✔	✔	✔	✔	✔		✔	✔	✔	✔
Recreation	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Water Supply	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

ESA & NEPA



Under **NEPA**, federal agencies are required to consider the potential impacts of their proposed actions. This includes impacts on **ESA-listed species** and their habitats.

The NEPA process for the WVS involves:

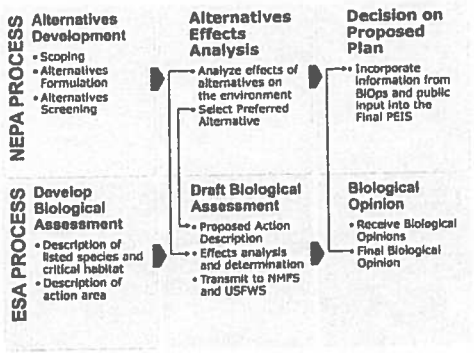
- ☐ A system-wide evaluation of the environmental impacts of how USACE operates and maintains the WVS.
- ☐ Incorporating measures to meet ESA obligations into operations and maintenance of the WVS.

Aquatic Threatened & Endangered Species in the Willamette River Basin

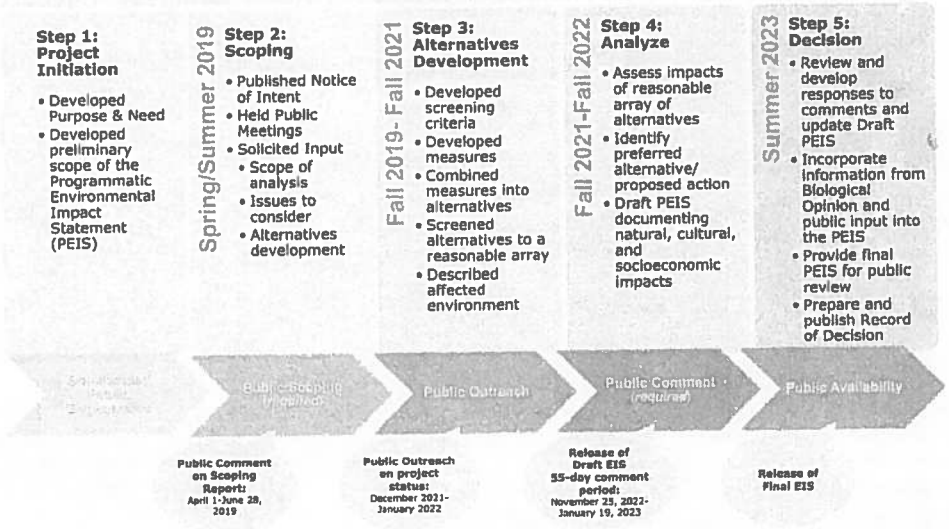
- Bull trout
- Upper Willamette River winter steelhead
- Upper Willamette River spring Chinook salmon

Under **ESA**, federal agencies like USACE are required to consider effects of their proposed actions on **threatened and endangered species** in a project area.

The **US Fish and Wildlife Service (USFWS)** and the **National Marine Fisheries Service (NMFS)** have jurisdiction over the ESA and listing threatened and endangered species. USFWS and NMFS (the **Services**) work with other federal agencies to protect threatened and endangered species and their habitats.



EIS Timeline



FOS/GPR ISLAND EVENT

15 August 2006

No criticism is intended toward anyone or any organization in my presentation. I am going to try to present the events as they happened through my eyes and the reasoning I used. I hope this is helpful and perhaps a reminder that in our business anything can happen at any time and how we react will either make it better or worse. I was not privy to any indications outside of the one line I am using. One of the things that almost tripped me up was not all indications or information is helpful. I will point this out in the presentation.

0830 hrs 15 Aug 06:

FOS/GPR Powerhouses conditions are as follows:

FOS U1 was running with breaker XP-1 and XP-01 closed and breaker XP-02 closed with the unit generating approx 5.5 MW power and 0 MVARS. The system I could see was set up with Power Breaker 2M38 closed (PP&L/Foster) and the B188 disconnect was closed. FOS station service was set up normally with breakers XP01 & XP02 closed, breakers XQ-1 & XQ-2 closed with XQ-T open. The line voltage was running at 119 KV and had been all morning.

GPR U1 & U2 were running condensed at about -1 MW and +10 MVARS each. The Fish unit was carrying about 670 KW with station service in normal line up which are breakers XJ0, XQ-1, XQ-2, XQ-F closed and breaker XQ-T open. The generator breakers XJ-1 and XJ-2 were closed and BPA Power Circuit breaker 1342 was closed.

0837 hrs:

I was on top of the dam watching the work on the high speed gear box on Foster Spillway gate #2 when the code call indicated a Foster alarm. By the time I got to the power house perhaps four or five minutes had elapsed and when I walked through the power house door I noticed all the over head power house lights were off. I walked into the control room and on the SCADA FOS U1 was at full load at approximately 9.8to 9.9 MW and -2.3 MVARS. The GPR U1 & U2 had come out of condense and were running at approximately 6 MW and +5 MVARS each with the SCADA speed adjust level at -.8 on GPR U1 and -1.0 on GPR U2, which is the normal condense setting for both units. The plants appeared to be stable so I needed to find out what was up in the plant so I didn't get a rude surprise while I was working out my problem.

My inspections showed me that everything in the plant was normal as follows, Foster breakers XP-1, XP-01, XP-02, XQ-1, XQ-2 were closed and XQ-T was open. My alarms were typical for a station service transfer and there were no relay targets so I reset my alarms so I did not have to contend with them. On the floor below the control room the only frequency meter in the plant was showing me 59.6 Hertz. In the control room the

Green Peter breakers XJ1, XJ2, XJ0, XQ-1, XQ-2, XQ-F were closed with the XQ-T breaker open and the BPA breaker 1342 closed. What I was seeing was simply my plant lineups were normal. The PP&L breaker 2M38 was closed but the event recorder showed that it had opened and reclosed.

All I had to worry about now was what I was seeing, FOS U1 was at 9.9 MW and – 2.3 MVARS and GPR U1 & U2 were at about 6 MW each and about +5 MVARS with a line voltage of 123 KV. I went back downstairs and my frequency was starting to droop to 59.5 Hertz. I called the BPA real time dispatcher and I asked him if he had a disturbance in progress and he said no and then I told him that I thought I was islanded. He immediately called Monroe dispatcher and asked him the status of our system line up and after a minute, it was determined that I was not islanded because all of the breakers were closed and the pathways were intact.

0854 hrs:

Nothing was getting better, just very slowly the frequency was going down and the load was going up. I called Mr. Voldbaek over to the control room and quickly briefed him on what was happening and that I wanted him to be my witness when I started operating.

Approximately 0913 hrs:

The frequency had drifted down to 59.4 Hertz and the load was picking up on the FOS U1 to maximum and I knew that if I had a relay action I would probably go black at Foster because of the high load (personal experience) and I needed to protect the project and myself. I wanted to take control of the project and make changes but did not because I had not ascertained for certain that I was islanded or there was a system disturbance and any actions on my part could actually take out the whole system. I called the BPA dispatcher and told him my concerns and that with what was happening, a black start plant would be more than I could handle all at one time and that I needed to do something. He said to "do what you have got to do". I was counting on the unit governor speed droop settings to allow me to pick up on Green Peter units to slowly move the load from Foster to Green Peter. My assumption was the power settings on the operating units was a function of the load and the droop settings on the unit governors. With the green light I carefully bumped up the speed on the Green Peter units and they started assuming load and the load on the FOS U1 started to go down. I now knew for sure I was islanded so I quickly checked the frequency and it had returned to 59.6 Hertz. Mr. Voldbaek went downstairs for me to watch the frequency and I bumped up Green Peter until they were at about 8.5 Mw each and the Foster Unit #1 was at about 6 MW and the frequency was now 60 Hertz + or -.

I called BPA dispatcher and told him I had verified we were islanded, had restored the frequency, my Foster unit was safe and I would be restoring voltage. The real time dispatcher Maurice Brown informed me that they had determined also at that time that I was islanded. I restored the voltage on the line by lowering the Green Peter voltage, normally we are boosting to hold voltage up but when all that load was shed the inductive component was gone and my line voltage had no place to go but up.

0916 hrs:

The frequency was 60 Hertz + or – and the line voltage was back to 120 KV and now it was time to catch up on the logs. During this time there were different phone calls to RCC and BPA to keep them informed about what was going on.

0941 hrs:

BPA dispatcher Maurice Brown informed me that Pac West was going to need to deenergize their line so Pac West could close in their system because they did not have a synchroscope to parallel with and asked if I could stand it and I said sure. Mr. Voldbaek reminded me of my cardinal rule and that is 'protect the station service bus', with everything that had happened, everything would go wrong. The only way I could see deenergizing the line was either I or the PP&L dispatcher deenergizing the line by opening PP&L breaker 2M38. I picked up load on the Green Peter units and dropped the load on FOS U1, opened XP-1 to isolate the station service and unit from the line and opened Foster spillway gate #4 to make up for the water lost from the unit to meet river flow requirements.

1026 hrs:

The BPA dispatcher at Monroe had worked out switching so that switching would be conducted at Fry sub and would not effect my system as the first plan reported to me by BPA dispatcher Maurice Brown. It was revealed that BPA had a line section out and Pac West also took out a line section. Thus, FOS/GPR was islanded.

1047 hrs:

With the events that had taken place so far, I was going to protect the Green Peter station service and there were no operators available. Therefore, I had the K grade electronics man, Joe Stutzer, transfer the station service at Green Peter to the fish unit by opening breaker XQ-1 and closing breaker XQ-T and then isolate the fish unit by opening XQ-F.

1118 hrs:

Victory!! During a conference call with Dispatcher Maurice Brown and a dispatcher from Pac West, I lowered load slowly on Green Peter units to slowly lower the frequency so a PP&L employee could sync and close a breaker at Fry substation. I was now back on line and connected to the system.

Lessons Learned:

I found out that we could carry 22 MW to 23MW of load and maintain the system just fine when FOS U1 was carrying 5.5 MW load and something like this happens. All of the equipment worked without fault and the maintenance support was excellent.

The over head lights being out at Foster was a red herring, interesting information but caused time to be spent checking out the plant for unseen problems while trouble shooting.

BPA dispatchers are a great asset when up to my neck in alligators and every person at Foster was willing to do anything they were asked to do. Without every one helping me, I would have had a more difficult time dealing with something that could have been disastrous.

We need better indication at Foster. We need a line frequency meter in the control room that gives reliable indication and ditto for a line voltmeter.

The hardest thing for me to do was to do nothing. Admiral Rickover had a saying for operators, "when something starts happening, stick your hands underneath you and then when you pull them out you will have had time to see and think your way to make the right decision".

I think also communications broke down for a little bit but when the communications are working, everything else works.

Personal Observations:

My concerns are simple, if the demand had been 10MW higher with the 5% speed droop, my Foster Unit would have overpowered.

I could not take unilateral action initially during something like this because I could not see the big picture. Only the dispatcher sees that picture and during a major disturbance any changes in the wrong direction could conceivably take down the whole system or tear up our own equipment.

My personal impression is that everything worked just like theory said it would. My Navy experience helped me because I was familiar with operating a plant not tied to a power system with the reasonable expectation of success when I operated the system.

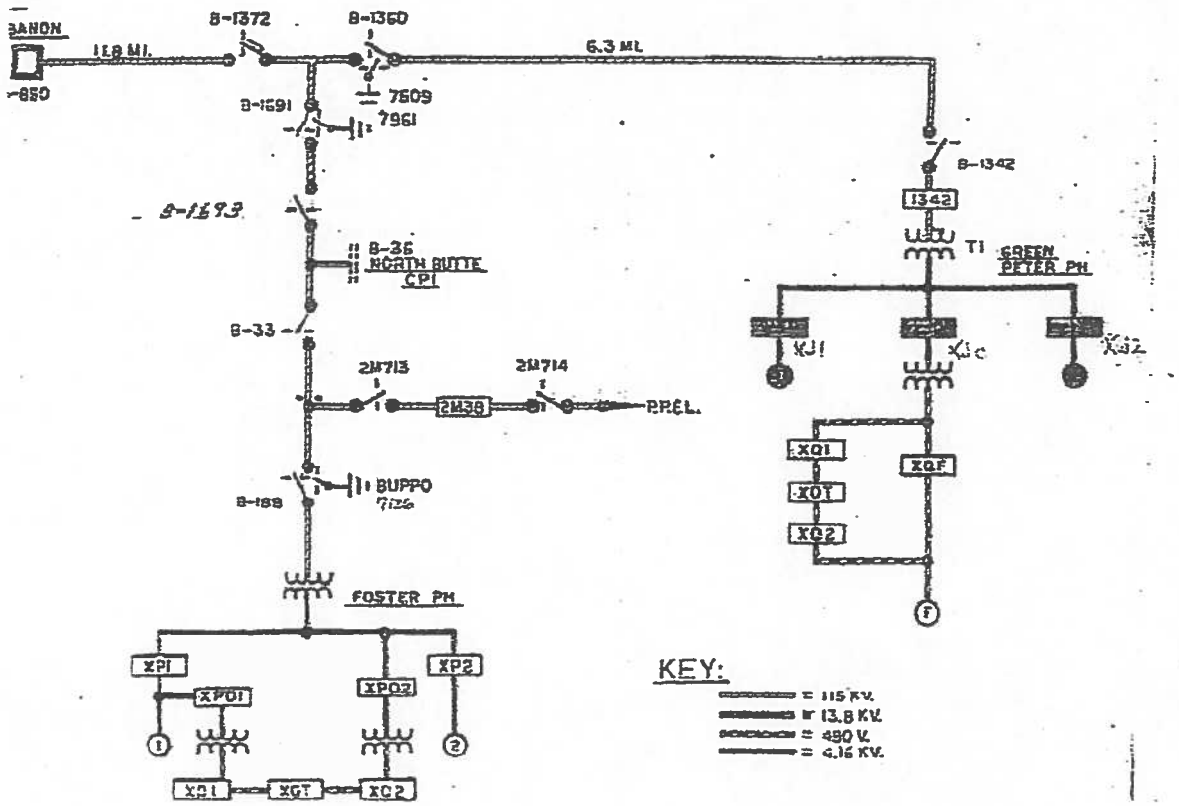
Kudos:

My primary help came from real time dispatcher Maurice Brown and Monroe dispatcher Mike Brown. Things were flying fast and furious and I did not log in all that these men did to help keep me informed. They are very good at what they do.

Respectfully,

Ronald E. Edwards/Operator/Foster

P.S.
The following is a web site that is a good review, the section power tutors is a good basic refresher of the things we learned so long ago.
http://www.o-t-s.com/


BANON
-850
11.8 MI.
B-1372
B-1360
6.3 MI.
7609
B-1591
7961
B-1342
1342
T1
GREEN PETER PH.
B-1393
B-36
NORTH BUTTE
CP1
B-33
2M713
2M714
2M38
PREL.
BUPPO
B-188
FOSTER PH.
XP1
XP01
XP02
XP2
XQ1
XQT
XQ2
XQF
KEY:
= 115 KV.
= 13.8 KV.
= 480 V.
= 4.16 KV.

NORTHWEST POWER POOL

WILLAMETTE VALLEY/SOUTHWEST WASHINGTON AREA VOLTAGE STABILITY OPERATING PROCEDURE

I. Purpose

Cold winter weather loads coinciding with reduced local area generation could expose the Willamette Valley/Southwest Washington (WILSWA) area utilities to voltage instability. This procedure describes the key indicator and provides the instructions to coordinate efforts in the WILSWA area to prevent a "blackout" or "voltage emergency" due to a voltage collapse. It reflects principles of operation agreed to by the Bonneville Power Administration (BPA), PacifiCorp Electric Operations (PEO), Portland General Electric (PGE), Clark Public Utilities (CPU), and the Eugene Water & Electric Board (EWEB). Cowlitz PUD has volunteered to participate in parts of this procedure in order to help furnish relief in the event of an electrical emergency. It is expected that judgement will be used to determine variances to these procedures as appropriate and necessary to the specific conditions (i.e. more or less severe action will be determined by such factors as weather, temperature, load pick-up rates, etc.).

II. Definitions

1. WILSWA, Willamette Valley/Southwest Washington area: The area south of Chehalis, Washington; west of the Cascades; and north of (and including) Eugene, Oregon. This constitutes the area of concern for this procedure.

2. Utilities, WILSWA area utilities: Utilities participating in this procedure: the Bonneville Power Administration (BPA), PacifiCorp Electric Operations (PEO), Portland General Electric (PGE), Clark Public Utilities (CPU), Eugene Water & Electric Board (EWEB), and Cowlitz PUD (COPD) where specifically noted.

3. WOCS, West of Cascades South: This is the sum of power flows on the transmission lines that cross the Cascades into the WILSWA load area. The lines included in this summation are listed below.

   Big Eddy - Ostrander 500 kV
   Hanford - Ostrander 500 kV
   Ashe - Marion 500 kV
   Buckley - Marion 500 kV
   John Day - Marion 500 kV
   McNary - Ross 345 kV
   Big Eddy - McLoughlin 230 kV
   Big Eddy - Chemawa 230 kV
   Parkdale - Troutdale 230 kV

14. Load Curtailments under Level 4: The following tiers of load curtailments will be used under Level 4 conditions.

    a. Tier 1 Load Curtailment: The automatic tripping of load at sites where UVLS relays have been installed as listed in Appendix 1.

    b. Tier 2 Load Curtailment: Curtailment of customer load by WILSWA area utilities with 24 hour dispatching centers. These utilities and their prorata shares of load curtailments are shown in Appendix 2.

    c. Tier 3 Load Curtailment: Curtailment of customer load when the need for ongoing curtailments is expected to last 3 hours or more. The utilities involved in, and their prorata shares of, load curtailments are shown in Appendix 3.

III. Procedure

1. Level 0: Winter Operating Conditions
   This level is continuous from November 15th through April 30th.

    a. ALL: Verify the reliable operation of all critical lines and substation equipment. Availability of capacitor groups is particularly important.

    b. BPA: Monitor for at risk conditions. Automatic monitoring of the WOCS path flow will be done by BPA's dispatch computers.

    c. ALL: Verify that UVLS relays are enabled and that the DSI's, and other affected sites, are aware of their potential to operate.

    d. ALL: If risk conditions (ambient temperatures below 15 degrees Fahrenheit or WOCS greater than 6600 MW) are expected then a conference call to discuss appropriate operation and asses the level of risk will be initiated by the Northwest Power Pool (NWPP) Coordinating Group with all affected parties as conditions warrant.

2. Level 1: Risk Assessment
   This alarm level occurs when the flow on the WOCS path is greater than 6800 MW (monitored and alarmed at BPA).

    a. BPA: Assess the system and the probability of the WOCS exceeding 7000 MW. If the probability of exceeding 7000 MW is high then immediately go to the "Level 2" alarm. Otherwise, remain in "Level 1" and continually monitor system conditions.

    b. BPA: Notify WILSWA area utilities that we are in a "Level 1" operating condition.

c. ALL (involve Generation Schedulers): All economically possible generation in the WILSWA area increased and load decreased.

3. Level 2: <u>At risk of voltage collapse for an N-1 contingency</u>
This alarm level occurs when the flow on the WOCS path is greater than 7000 MW (monitored and alarmed at BPA) or if a "Level 1" alarm was reached and the WOCS path appeared that it would exceed 7000 MW. At this level, all actions short of firm loadshedding should be implemented.

   a. BPA: Notify WILSWA area utilities that we are in a "Level 2" operating condition.

   b. PSE: arm their Foss Corner UVLS relays.

   c. ALL: Immediately put all possible capacitors in service, increase other boosting reactive output and make other appropriate voltage adjustments, all within voltage limits. Other main/sub grid (not distribution) voltages should be maintained at peak load period (maximum) voltage schedules. The voltage schedule should be lowered at generating sites if a high schedule would force switching shunt capacitors west of the Cascades out of service. However, it may not be possible to maintain schedules this high during high loads.

   d. ALL (involve Generation Schedulers): Take immediate action to increase generation levels on all possible units in the WILSWA area and at Centralia. Also, maximize the availability of generators as far away as McNary. When maximizing generation, work with BPA's Power Supply and be sure that the BPA generation is minimized, within hydro constraints, at The Dalles, John Day and McNary. Also, reduce import on the Pacific DC Intertie (PDCI) as much as possible.

   e. ALL: If practical, block all automatic transformer load tap changer action. This prevents restoration of load and the resulting high side voltage degradation following a critical contingency. Proper regulation of voltage will be done manually.

   f. ALL: A conference call to discuss appropriate operation will be initiated by the Northwest Power Pool Coordinating Group with all affected parties as conditions warrant.

   g. ALL: WILSWA area utilities should be prepared to immediately curtail loads upon notification from BPA's dispatchers or if the power system voltage appears to be collapsing.

   h. BPA: When the WOCS path flow drops below 6800 MW, notify the WILSWA area utilities so actions can be taken to return to "Level 0" operating conditions. It may be desirable to take some actions as soon as possible after the WOCS gets below 7000 MW, as long as the actions do not cause it to exceed the 7000 MW level again. For

example, it may be desirable to get the river back to normal as soon as possible in order to prepare for the next load peak.

4. Level 4a: Critical System Conditions (Initial Response)
This level is achieved when the UVLS relays operate or when the WOCS path exceeds 7600 MW if conditions dictate. At 7600 MW the system becomes at risk with no contingencies. (The "Level 4" designation is consistent with the level designations used in the Puget Sound Voltage Stability Procedure)

   Under these conditions there may be insufficient reliability to bear another major contingency.

   Note: Any loads shed by automatic or manual action are likely to require restoration (rotation to other loads) within 15 to 30 minutes to avoid cold load pick up problems.

   a. BPA: Immediately notify WILSWA utilities with 24 hour dispatching (PGE, PEO, CPU, EWEB, and Cowlitz) that the system is in "Level 4" and that the UVLS relays could operate under these conditions.

   b. ALL: If voltage collapse began to occur (discussed in section IV), prior to coordination with BPA and other utilities, immediate unilateral action must be taken by each utility to reduce loads. DSI aluminum loads at Vanalco, Reynolds-Longview and Reynolds-Troutdale will have been tripped, possibly along with other sites identified in Appendix 1, by UVLS relays. These are the Tier 1 Load Curtailments.

   c. If this alarm level was reached due to a contingency then perform the following actions.

      1) BPA: Attempt to restore the line(s) that tripped.

      2) BPA: If line restoration is successful then return to an appropriate alarm level that WOCS path loading and system voltage conditions dictate. Update WILSWA area utilities of current system conditions.

   d. If this alarm level was reached due to a contingency and line restoration is unsuccessful then perform the following actions.

      1) BPA: Upon system readjustment (and within 15 minutes), allow restoration of at least 75 percent of the tripped aluminum loads if restoration will allow WOCS to remain below 7600 MW.

      2) BPA: Restore as much DSI load as possible without allowing WOCS flows to exceed 7600 MW. If WOCS will be above 7600 MW after restoring 75 percent of the tripped DSI load then load curtailments will be required as specified in "Level 4b" below. After required load curtailments have been made, restore the

remaining portion of the 75 percent of the tripped DSI loads. Any ongoing DSI load curtailments will be shared between all area DSI's.

5. Level 4b: Critical System Conditions (Ongoing)
Conditions will be continually assessed by BPA in conjunction with WILSWA area utilities so that appropriate actions can be taken to maintain adequate reliability while minimizing load restrictions. Voltage collapse could occur during morning or evening load pick-up with critical lines or generation out of service. During critical outages, the WOCS loading must be kept below the appropriate level as noted below.

   a. Monitoring for Curtailments.

      1) BPA: Monitor WOCS loading.

         Critical N-2 contingency: Area loads/generation will be controlled to keep the WOCS loading at or below 6800 MW to prevent steady state voltage collapse.

         Other critical outages 500-kV, cross-Cascades lines, and/or generation west of the Cascades: WOCS limits will be determined cooperatively and area loads/generation controlled to stay within these limits.

      2) ALL: Monitor key system voltages. Notify BPA if any voltages go below the pre-determined critical voltage so that appropriate actions to reduce net loads can be taken. "Critical" is defined as the voltage that is never considered acceptable for normal power system operation. Specific voltages to monitor include Ostrander, Pearl, Keeler, and Allston.

   b. Implementing Curtailments: The total amount of curtailment is automatically calculated by the BPA dispatch computer based on transmission line loading across the Cascades. The BPA dispatcher will notify all curtailing utilities as soon as possible when load curtailment requirements change or if curtailments are no longer required. If curtailments are required then the following steps will be taken.

      1) BPA: Tier 2 load curtailments: Request a reduction of WILSWA area DSI's by up to 25%.

      2) BPA: Tier 2 load curtailments (continued): If additional curtailments are required, request proportional load curtailments from the utilities listed in Appendix 2. Each utility's prorata share of the load curtailments based on its December 1990 peak is shown in Appendix 2. Load curtailments must be accomplished within 15 minutes to allow restoration of 75% of the tripped DSI load.

      3) Curtailments Lasting Over 3 Hours (Tier 3 load curtailments)

BPA: If additional load curtailments are required, and are expected to last 3 hours or more, request proportional participation from the utilities listed in Appendix 3 that are not participating in Tier 2 load curtailments. The BPA dispatcher will call a designated person in BPA's Lower Columbia Area Office as soon as possible who will begin a phone tree to request that each utility reduce load by an amount specified by the BPA dispatcher for the actual conditions. Each utility's prorata share of the load curtailments based on its December 1990 peak is shown in Appendix 3. Each utility must take action to reduce their load by the amount specified within an hour. As soon as this has been done, the BPA dispatcher must be informed so that other load curtailments can be adjusted accordingly.

c. Ongoing Emergency Response: Ongoing operational assessment will be done as soon as practical and the procedure modified to fit the actual situation. Coordination must occur between utilities' dispatchers and technical staff.

IV. Identification of Impending Collapse

Following is a list of identifiers that could point to imminent voltage collapse.

1. Voltages are below schedule with no reactive reserve. This is the best indicator of an impending collapse. Key voltages to monitor include the 500 kV busses ranging from Meridian up through Olympia and Satsop.

2. Larger than expected changes in voltage for minor changes in system conditions.

3. Voltage is steadily decreasing and standard control actions aren't helping.

4. Abnormally high reactive flow into the WILSWA area.

5. Voltage below established critical levels. These levels must be determined by each utility specifically for the location.

6. Note: for some conditions, collapse can start occurring at voltages 5-10% below normal voltages. The key is to identify nonstandard voltage responses and/or the inability to properly control voltage.

V. Summary of Action to Prevent or Respond to Voltage Collapse

Listed below are actions that can be taken to aid in preventing and or arresting voltage collapse.

1. Maximize shunt capacitance even to the point of bucking with generators.

2. Maximize power generation in the WILSWA area.

3. Maximize the number of generating units available for VAR support.

4. In general, from a theoretical (but not practical) point of view, voltage should be maximized where there are high levels of shunt capacitive and/or high percentages of induction motor load. Voltages should be maintained at minimum levels where loads are predominantly resistive. This may not work where there is a high "thermostat effect". Voltage reductions should be accomplished as close to the loads as possible. Ultimately, lower class voltages may need to be sacrificed to maintain voltages of higher class.

5. Maximize higher level voltages to increase VAR output from shunt capacitors and to reduce major line reactive losses.

VI. Restoration

1. Blackout: This would be caused by the cascading loss of lines into the WILSWA area as they trip due to high currents and low voltages.

   NWPP restoration guidelines and procedures should be followed. Assuming that the blackout is confined to the WILSWA area, load may be restored by thoughtful restoration of BPA lines feeding the area. Opening of major sections of the electric grid must be done to allow re-energization of appropriate amounts of load. Care must also be taken to avoid severe overvoltages that can occur when energizing main grid transmission lines without adequate load on them.

2. Voltage Emergency: This is shown by system voltages settling to unacceptably low levels or by oscillation between unacceptably low voltages and higher ones as loads cycle. In this condition there is no ability to control the voltage.

   Action must be taken to regain control of voltage. Assuming that all possible generating and reactive resources have been utilized, this will require tripping load. Coordinated assessment and action will be necessary. BPA will take the lead.

APPENDIX 1
WILSWA Area Undervoltage Loadshedding Program
(Tier 1 Load Curtailments)

Utility	Bus Monitored		Lowest Scheduled	Relay Arming	Relay	Tripping	Load		SCADA Relay	Relay
	Substation Name	--Nominal-- (kV)	--Operating-- (kV)	Voltage (% of Operating)	Time Delay (sec)	Voltage (kV)	Shed (MW)	* Restoration	Restore Voltage (PU)	Time Delay
BPA	Alcoa	115	115.0	92%	5.0	105.8	57.0	SCADA		
BPA	Alvey	115	118.0	92%	5.0	108.6	12.0	SCADA		
BPA	Cascade Steel	115	116.0	92%	5.0	106.7	17.0	manual		
BPA	Lexington	115	115.0	92%	5.0	105.8	69.0	SCADA		
BPA	Longview	115	115.0	92%	8.0	105.8	58.0	SCADA		
BPA	Longview	230	234.0	90%	3.5	210.6	139.0	SCADA		
BPA	Salem	115	117.0	92%	8.0	107.6	25.0	SCADA		
BPA	Tahkenitch	115	116.0	92%	8.0	106.7	43.0	SCADA		
BPA	Tillamook	115	116.0	92%	5.0	106.7	42.0	SCADA		
BPA	Troutdale	230	236.0	90%	3.5	212.4	62.0	SCADA		
BPA	Wauna	13.8	13.5	92%	8.0	12.4	53.0	manual		
CPUD	Hazel Dell	115	115.0	90%	3.5	103.5	60.0	SCADA		
CPUD	Ross Feeder #2	115	115.0	92%	5.0	105.8	100.0	SCADA (BPA)		
EWEB	Bertelsen	115	118.7	92%	5.0	109.2	15.6	SCADA		
EWEB	Comin	115	119.2	90%	3.5	107.3	23.0	SCADA		
EWEB	Dillard	115	119.3	92%	8.0	109.8	33.0	SCADA		
EWEB	Spring Creek	115	118.9	92%	5.0	109.4	18.0	SCADA		
PAC	Hollywood	115	115.0	92%	5.0	105.8	33.3	SCADA		
PAC	Lyons	69	62.1	90%	3.5	55.9	19.9	SCADA		
PAC	Mallory	115	115.0	90%	3.5	103.5	14.9	SCADA		
PAC	Queen Ave	69	62.1	90%	5.0	55.9	38.8	SCADA		
PAC	Sweet Home	115	103.5	92%	8.0	95.2	35.1	SCADA		
PAC	Vernon	115	115.0	92%	8.0	105.8	38.2	SCADA		
PGE	Bethel South	115	115.0	90%	3.5	103.5	22.7	AUTO	99%	13 min.
PGE	Boring	59.8	58.5	90%	3.5	52.7	18.7	AUTO	99%	18 min.
PGE	Cumelins	59.8	58.5	90%	3.5	52.7	10.7	AUTO	99%	16 min.
PGE	Fairview	115	115.0	92%	8.0	105.8	22.4	AUTO	99%	20 min.
PGE	Glendoveer	115	115.0	92%	8.0	105.8	41.3	SCADA		
PGE	Harbarton	115	115.0	92%	5.0	105.8	13.5	SCADA		
PGE	Hogan S	115	115.0	92%	5.0	105.8	23.3	AUTO	99%	19 min.
PGE	Middlegrove	59.8	58.5	90%	3.5	52.7	38.5	AUTO	99%	14 min.
PGE	Newberg	115	115.0	92%	8.0	105.8	35.0	SCADA		
PGE	Orenco	115	115.0	90%	3.5	103.5	24.6	AUTO	99%	10 min.
PGE	Oswego	115	115.0	92%	8.0	105.8	26.7	SCADA		
PGE	Orchard	59.8	58.5	90%	3.5	52.7	18.8	AUTO	99%	11 min.
PGE	Rivergate S	115	115.0	92%	5.0	105.8	35.5	SCADA		
PGE	Salem	59.8	58.5	90%	3.5	52.7	23.2	SCADA		
PGE	Scoggins	59.8	58.5	90%	3.5	52.7	13.9	AUTO	99%	17 min.
PGE	Sellwood	115	115.0	92%	8.0	105.8	24.6	AUTO	99%	22 min.
PGE	St Helens	115	115.0	92%	5.0	105.8	30.5	SCADA		
PGE	Station H	115	115.0	92%	5.0	105.8	81.2	SCADA		
PGE	Sullivan	59.8	58.5	90%	3.5	52.7	15.8	AUTO	99%	15 min.
PGE	Wilsonville	59.8	58.5	92%	8.0	53.8	26.7	AUTO	99%	21 min.
						Total:	1554			

* All SCADA and manual restoration for main grid initiated load shedding is coordinated through BPA.
If restoration is localized within a utility's system, coordination thru BPA is not required.
Automatic restoration is staggered at one minute intervals between feeders at a pickup voltage of 99.0%.
"Manual" refers to onsite restoration

APPENDIX 2

WILSWA Area Tier 2 Load Curtailment Allocations

Curtail up to 25% of the power demand at Vanalco, Reynolds-Troutdale, and Reynolds-Longview Direct Service Industries. If further load reductions are required, request the following utilities to provide the additional load curtailments using the prorata shares specified below.

	Dec, 1990 Peak Load	Percentage of Tier 2 Total
PGE	3698 MW	51.4%
PEO (PP&L)	1260 MW	17.5%
Clark Public Utilities	959 MW	13.3%
Cowlitz County PUD	658 MW	9.1%
EWEB	623 MW	8.7%
TOTAL:	**7198 MW**	**100.0%**

APPENDIX 3
WILSWA Area Tier 3 Load Curtailment Allocations

Curtail up to 25% of the power demand at Vanalco, Reynolds-Troutdale, and Reynolds-Longview Direct Service Industries. If further load reductions are required, request the following utilities to provide the additional load curtailments using the prorata shares specified below.

	Dec, 1990 Peak Load	Percentage of Tier 3 Total
PGE	3698 MW	43.6%
PEO (PP&L)	1260 MW	14.8%
Clark Public Utilities	959 MW	11.3%
Cowlitz County PUD	658 MW	7.7%
EWEB	623 MW	7.3%
Central Lincoln	308 MW	3.6%
Springfield Utility Board	187 MW	2.2%
Clatskanie	128 MW	1.5%
McMinnville	128 MW	1.5%
Tillamook	119 MW	1.4%
Consumers	99 MW	1.2%
Emerald	98 MW	1.2%
Salem	91 MW	1.1%
Lane Electric	77 MW	0.9%
Columbia River	58 MW	0.7%
TOTAL	**8491 MW**	**100.0%**

WILSWA Voltage Stability 1998 – 1999

Introduction

Power flow studies were undertaken to determine the risk for voltage instability in the Willamette Valley and Southwest Washington Area (WILSWA) for the 1998/99 winter load season. The objective of the study was to obtain an "indicator" to predict the level at which voltage instability occurs and "alarm" values that will alert the WILSWA utilities of the possibility of voltage instability. These "alarm" values define various levels of risk for voltage instability.

To validate study assumptions for a 1998/99 extreme cold winter, historical SCADA data for West of the Cascades South (WOCS) path flow was used. Data from 1989 (an extreme cold winter) was examined to give an indication of possible WOCS path flow for a 1998/99 1-in-20 load condition.

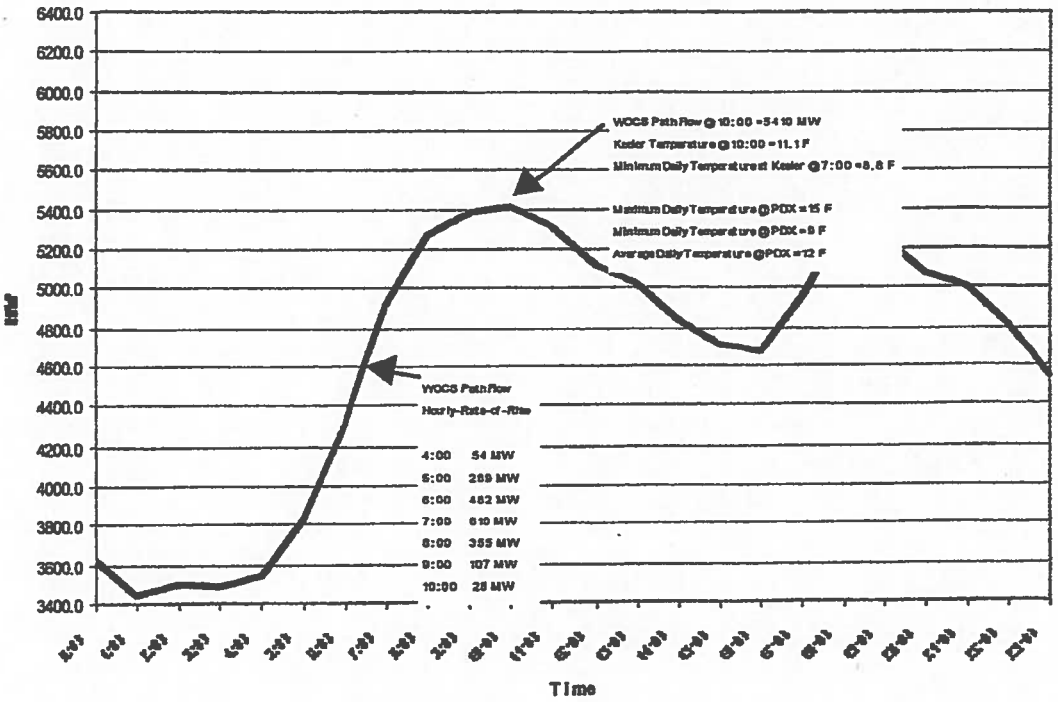
Historical Data

The 1989 historical WOCS path flow and 1990 WILSWA area load values were used and extrapolated to predict this year's values. The extrapolation was based on the WILSWA utilities load growth since 1989. The objective was to determine possible WOCS path flow and WILSWA area load for an extreme cold winter (1-in-20). In addition, a WOCS hourly rate-of-rise was obtained after review of WOCS path flows from 1989 to 1997. This rate-of-rise is used to determine how fast the WOCS flow can change for a hourly period during an extreme cold winter morning load. A conservative value of 800 MW was found. The eleven lines that define the WOCS path are:

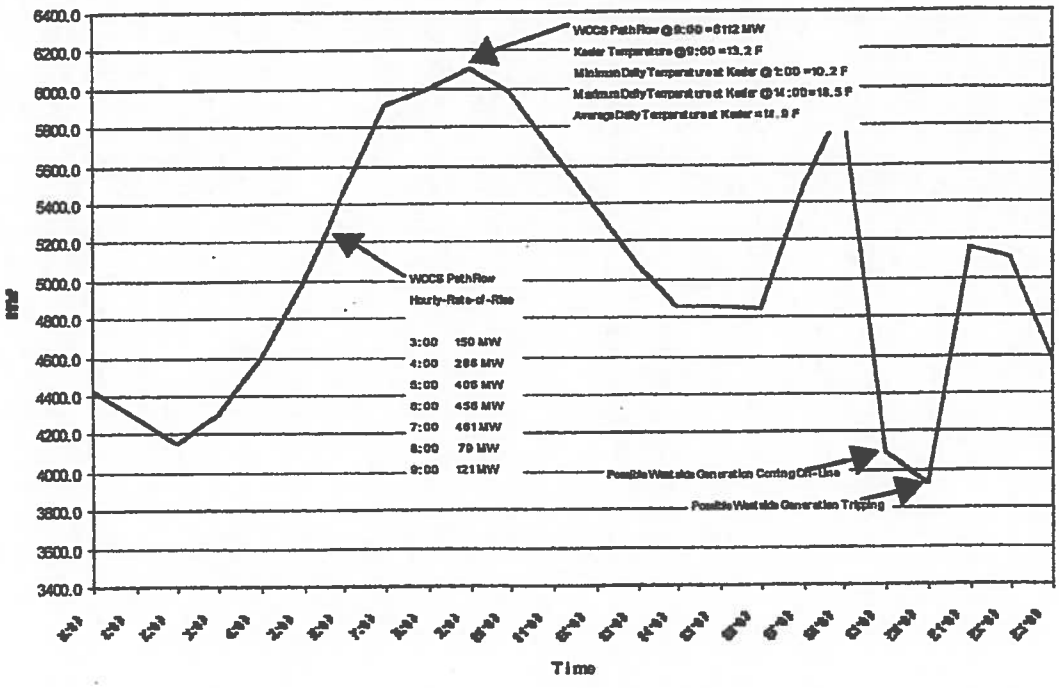
- Big Eddy – Ostrander 500-kV
- Ashe – Marion 500-kV
- Buckley – Marion 500-kV
- Hanford – Ostrander 500-kV
- John Day – Marion 500-kV
- McNary – Ross 345-kV
- Big Eddy – McLoughlin 230-kV
- Big Eddy – Chemawa 230-kV
- Parkdale – Troutdale 230-kV
- Midway – N Bonneville 230-kV
- McNary – Santiam 230-kV

The peak WOCS path flow measured in February 1989 was for an exceptionally cold winter. During the winter of 1989 the WOCS flow reached a level of 5410 MW at a temperature of 11.1 degrees F at BPA's Keeler Substation. The low temperature for that day at BPA's Keeler Substation was 8.8 degrees F (see graph for 2/3/89). The following WOCS graphs are for some of the significant historical data mentioned and used above. In particular the graphs are for the cold winter days of 2/3/89 (1-in-20 winter), 12/21/90 (1-in-20 winter), 1/11/93 (highest WOCS flow) and 2/2/96 (high hourly rate-of-rise).

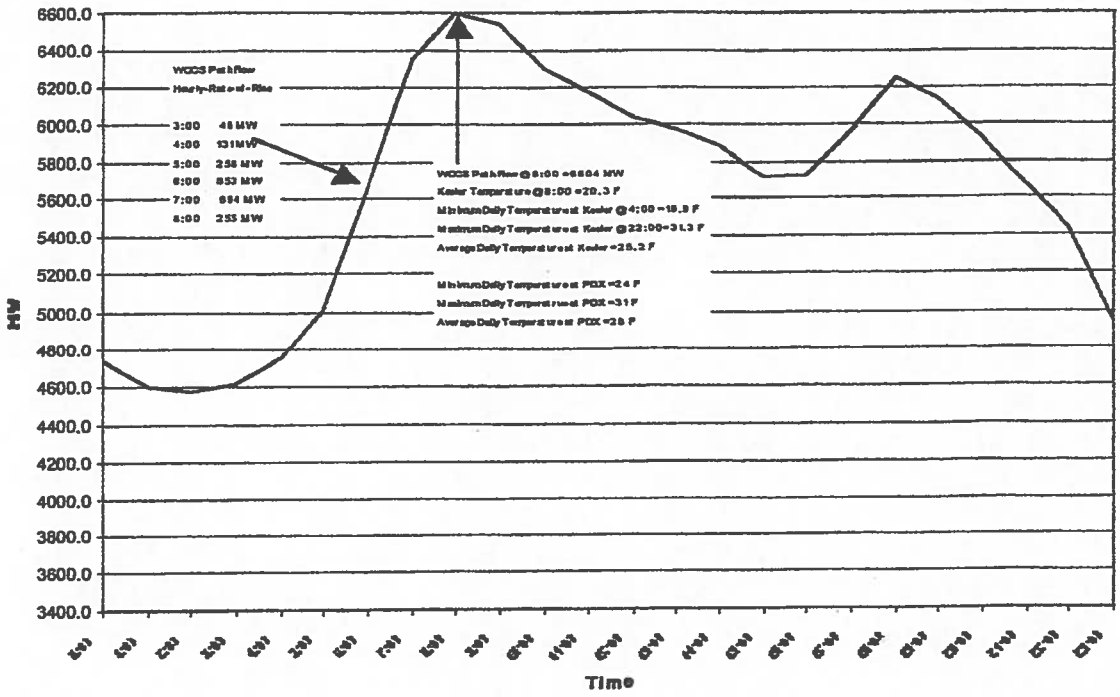
WEST-OF-CASCADES-SOUTH PATH
February 3, 1989



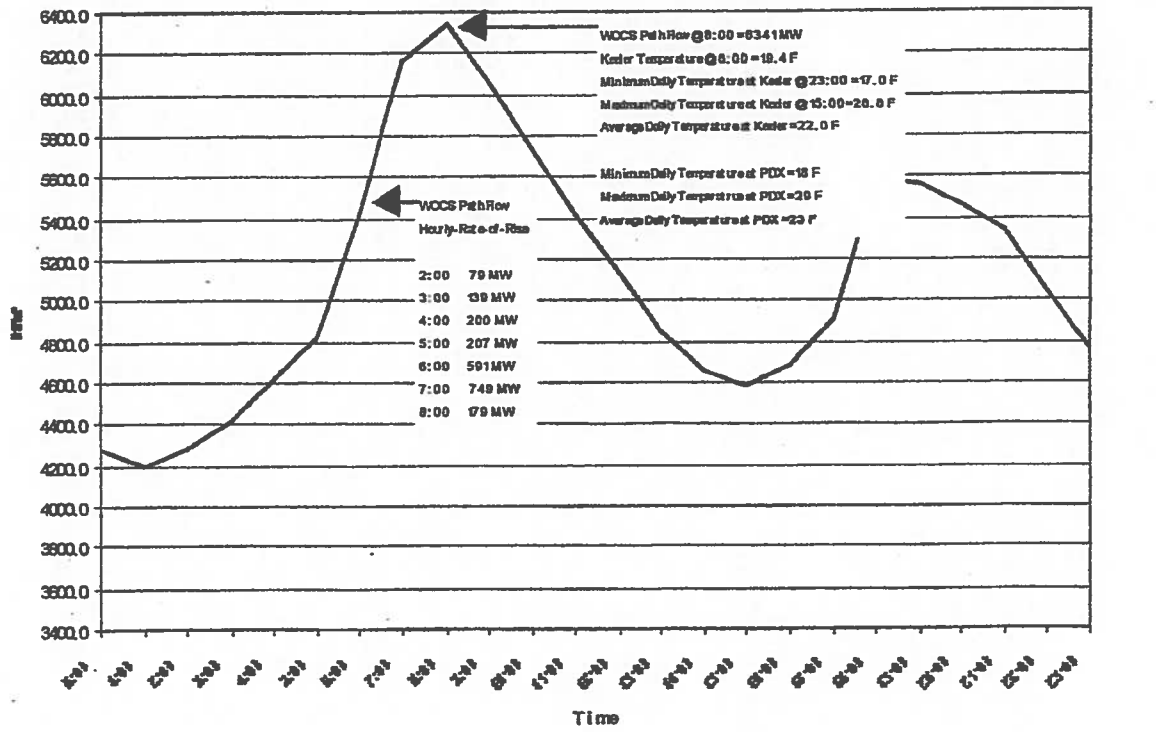
WEST-OF-CASCADES-SOUTH PATH
December 21, 1990



WEST-OF-CASCADES-SOUTH PATH
January 11, 1993



WEST-OF-CASCADES-SOUTH PATH
February 2, 1996



Methodology

Two factors need to be considered when extrapolating the 1989 historical data to the upcoming winter operating season. These two factors are changes in local area generation and load growth.

The only major changes in the local area generation since 1989 have been the removal of the Trojan nuclear plant (net 1080 MW) and the addition of River Road (250 MW) and Longview Fiber (60 MW). This results in a net generation decrease of 770 MW.

WILSWA load data was not readily available for February 1989 but was available for December 1990, an equally severe winter period. A value of 8491 MW was obtained from historical information (refer to Appendix 2 of the 1991 WILSWA Voltage Stability Operating Procedure). To determine the net increase in load from 1989 to the present, the approximate WILSWA load for 1989 was obtained from the 1990 actual load data by subtracting the load growth for that year (i.e., 1989 to 1990). Therefore, the WILSWA area load for 1989 is calculated to be about 8162 MW.

Load growth percentages were supplied by PGE, EWEB, PacifiCorp, Clark PUD and Cowlitz PUD to calculate new load levels. An area load of 10,268 MW for 1999 (1-in-20 load level) can be expected in WILSWA using historical loads and load growth percentages supplied by the utilities. Therefore, the net increase in load since 1989 is 2106 MW (approximately a 26% increase).

The total adjustment to the WILSWA area is then 2876 MW. This adjustment is an approximation since not all of the decrease in generation or increase in load will appear solely on the WOCS path. The WOCS path does not include all the lines serving the WILSWA area. The net effect on the WOCS path will depend on where the increased load is served from and where the loss of generation is replaced.

Power flow Results

Power flow studies show the worst case scenario assumes that the Northwest Power Pool (NWPP) region east of the Cascades meets the increased load and loss of generation. In this case 80% of the total WILSWA changes apply to the WOCS path. The best case scenario assumes that generation to the north of WILSWA accommodates the total net change. In that case only 55% of the total WILSWA changes apply to the WOCS path. The results of these cases indicate that the West of Cascades South (WOCS) path was the most reliable and consistent indicator for predicting when a voltage collapse would occur.

Alarm levels were found by stressing the system with increased WILSWA area loads and serving the load from three different locations. The areas where the increased loads were served from are: the south (California); the north (Canada); and east of the cascades (Grand Coulee). For each of these scenarios six levels of import on the DC Intertie were studied ranging from 0 MW to the maximum of 3100 MW. This gave a broad range of generation and flow patterns to cover a wide variety of operating conditions.

The studies indicate if the WOCS path reaches 6800 MW action should be taken to protect against the worst N-2[1] contingency, 7000 MW for N-1[2] and 7600 MW for no contingencies. This implies the system is potentially at risk for the upcoming winter, for no contingencies, if extra heavy winter conditions are encountered.

Alarm Levels and Explanation of System Limits

Three alarm levels for possible voltage collapse were found based on power flow contingency analysis. The three alarm levels and corresponding WOCS path flows are:

Level	WOCS path flow	Transmission System State
• Alert	6800 MW	N-2 Condition
• Action	7000 MW	N-1 Condition
• Emergency	7600 MW	N-0 Condition

The **Alert Level** occurs when the WOCS path reaches 6800 MW. At this level the system is at risk for the UVLS relays to operate for an N-2 contingency. This level also coincides for a no contingency (N-0) condition when the historical rate of rise for the WOCS path of 800 MW is taken into account. At this level if the double line loss of Ashe – Marion and Buckley – Marion, Coulee – Schultz 1&2 or Coulee – Raver 1&2 occurs then expect the Under Voltage Load Shedding (UVLS) relays to operate.

The **Action Level** occurs when the WOCS path reaches 7000 MW. At this level the system is at risk for the UVLS relays to operate for an N-1 contingency. At this level if the single line outage of Ashe – Marion, Buckley – Marion, Big Eddy – Ostrander, Chief Joe – Monroe, Paul – Olympia or Paul - Satsop occurs then expect the UVLS relays to operate.

The **Emergency Level** occurs when the WOCS path reaches 7600 MW. At this level the system is now at risk for no contingencies (N-0). If the WOCS flow continues to increase then a slow uncontrollable voltage collapse should be expected. This will cause the UVLS relays to operate. The studies indicate that this collapse will begin in the Olympia/Satsop area.

---

[1] N-2 contingencies are: Ashe – Marion & Buckley – Marion, Coulee – Schultz 1&2 or Coulee – Raver 1&2

[2] N-1 contingencies are: Ashe – Marion, Buckley – Marion, Big Eddy – Ostrander, Chief Joe – Monroe, Paul – Olympia or Paul – Satsop

Conclusions

A 1-in-2 normal winter load level for 1998/99 should result in a WOCS path flow of 6592 MW. At this level, WILSWA should be at no risk for voltage instability. However, for an extreme cold winter, such as a 1-in-20, a WOCS path flow of 7764 MW can be expected (based on power flow models). At this WOCS path flow, voltage instability is a likely occurrence for an N-0 state (no system outages). Under Voltage Load Shedding (UVLS) relays are likely to operate. Then the system would be subject to cold load pickup. To address cold load pickup concerns a manual restoration program will be required to rotate individual feeders.

An extreme cold 1998/99 winter season can expose WILSWA to risk of voltage instability should an N-2 contingency occur for a WOCS path flow of 6800 MW or N-1 contingency for a WOCS path flow of 7000 MW. At a WOCS path flow of 7600 MW, WILSWA is at risk of voltage collapse for an N-0 condition. Once again UVLS relays may operate if these WOCS path flows are reached for the contingencies mentioned previously.

An assessment of historical data (WOCS flow and WILSWA area load) validates power flow assumptions for an extreme cold winter season (1-in-20). That is, loads in the WILSWA can reach 10,268 MW (1-in-20) after being modified by individual utility growth rates from 1990's historical value of 8,491 MW. In addition, historical data for WOCS flow shows that for a cold morning load pick-up the rate-of-rise can be at least 800 MW per hour. With this information, a level of 6800 MW for the WOCS flow with no contingencies can change by 800 MW for an extreme cold winter morning.

Finally, an extrapolation for the upcoming winter operating season from the severe winter of 1989 shows the WOCS flow ranging from about 6992 MW under the best circumstances to about 7711 MW for the worst. This range is dependent upon where the increase in load for WILSWA is being supplied by generation.

Summary of Actions/Procedures:

A NWPP procedure is being developed which outlines actions to take at each alarm level in more detail.

Alert Level: (WOSC = 6800 MW)

- Prepare system for cold weather operation.
- Equivalent to "Level 1" of 1991 Operating Procedure.
- Schedule a conference call to discuss local forecasts and potential risk for subsequent days.
- The dispatchers judgement will be used in determining the level of risk based on temperature, forecast, and rate of rise.

Action Level: (WOSC = 7000 MW)

- Approximately equivalent to "Level 4a" of 1991 Operating Procedure.
- Take all possible actions short of load tripping.

Emergency Level: (WOSC = 7600 MW)

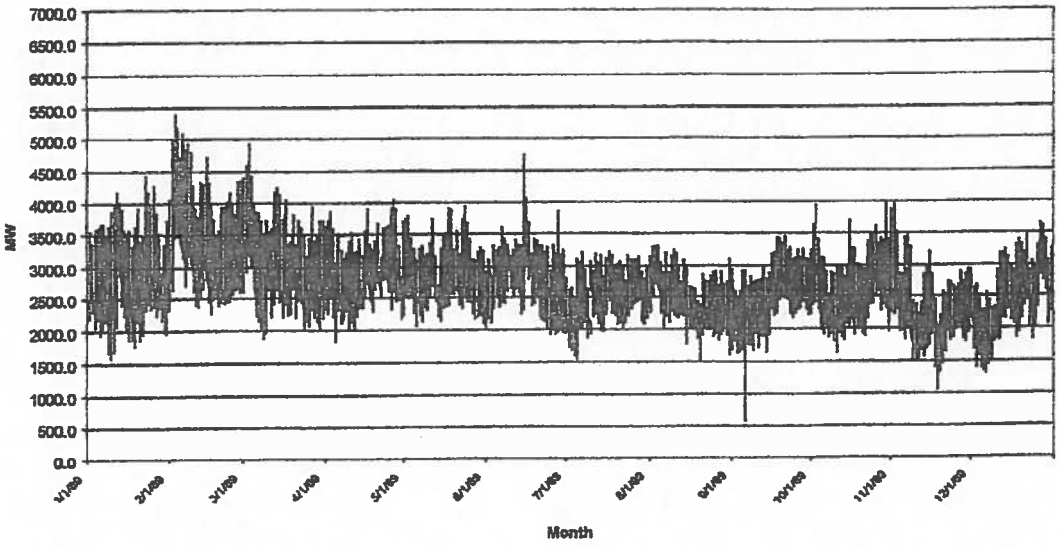
- Approximately equivalent to "Level 4b" of 1991 Operating Procedure.
- Take all possible actions regardless of economic impact.

For any of the alarm levels above, if the UVLS operates and the voltage continues to be in an uncontrollable decline then trip the DSI pot-lines at Reynolds-Longview, Vanalco, and Reynolds-Troutdale until the voltage is stable.

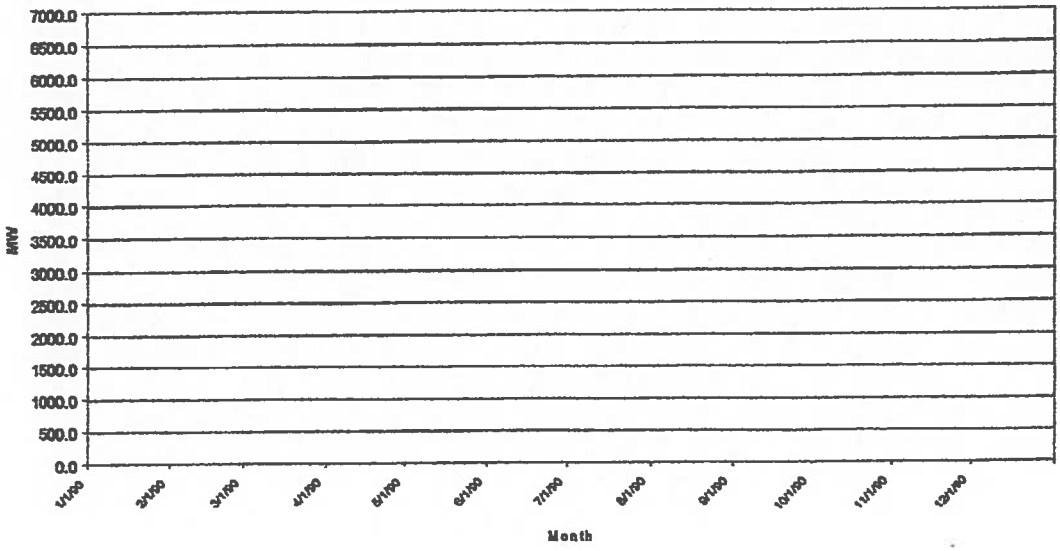
APPENDIX

Graphs for WOCS path flows for 1989 through 1998 follow:

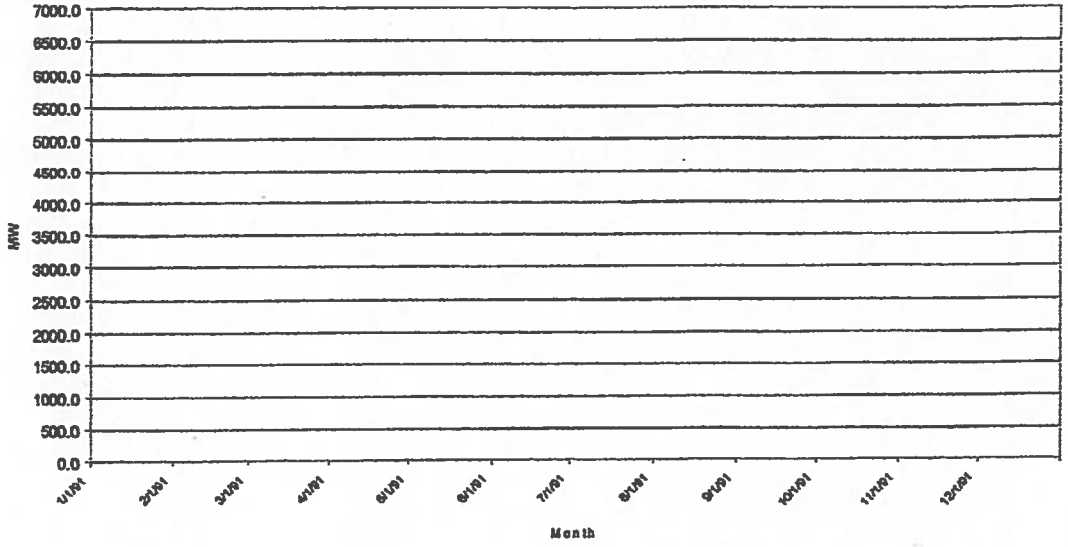
WEST-OF-CASCADES-SOUTH PATH
1989



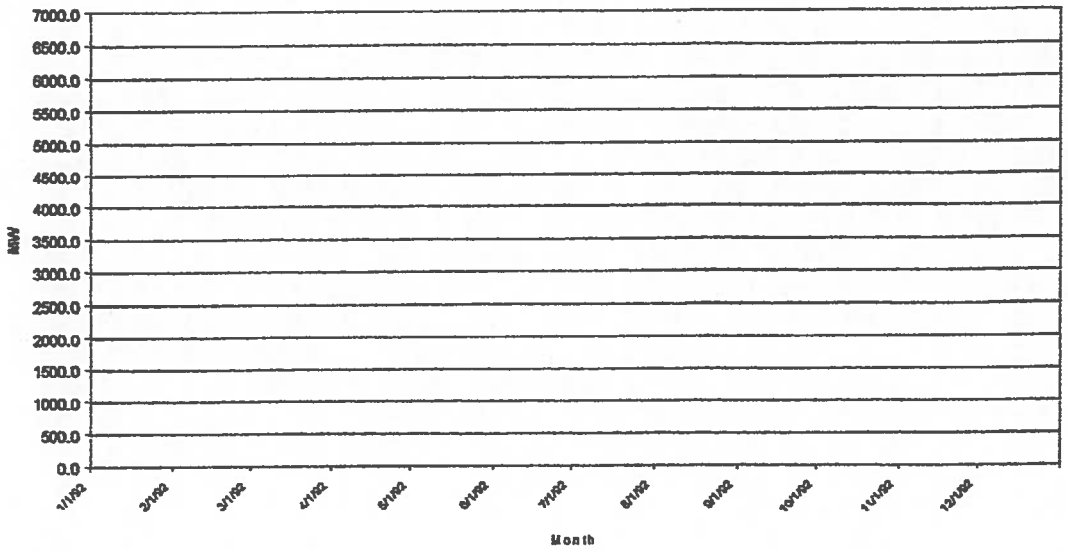
WEST-OF-CASCADES-SOUTH PATH
1990



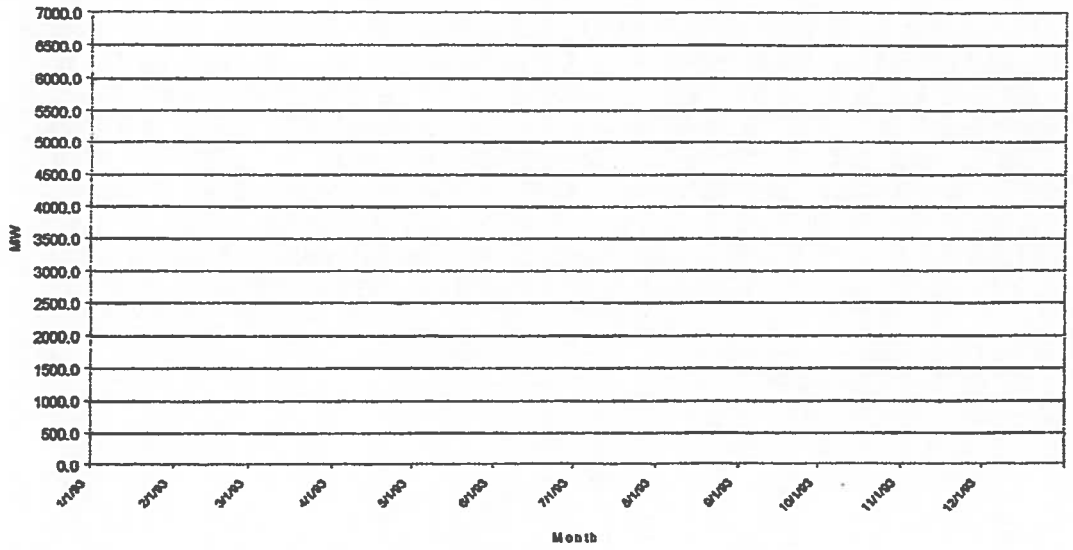
WEST-OF-CASCADES-SOUTH PATH
1991



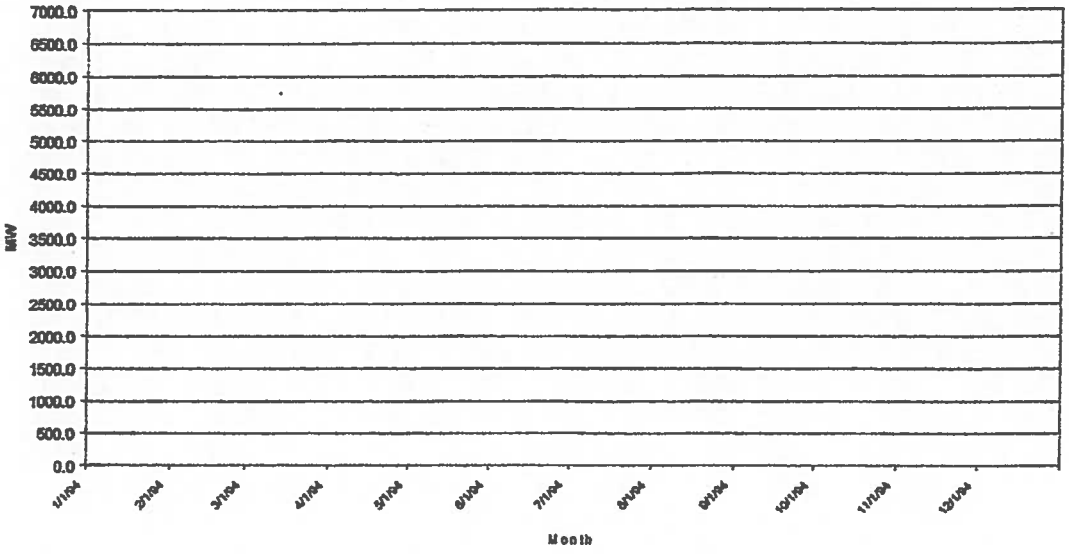
WEST-OF-CASCADES-SOUTH PATH
1992



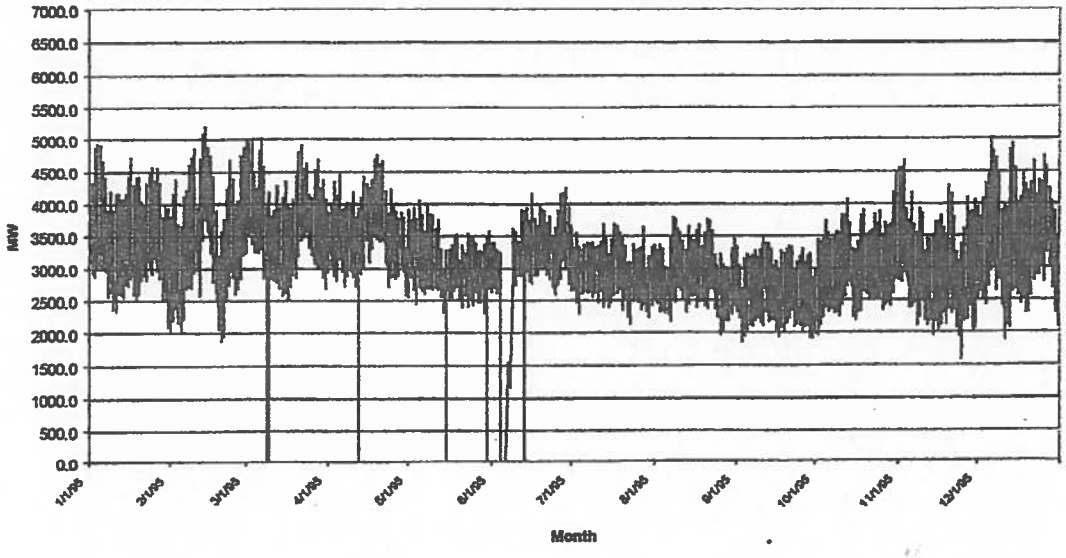
WEST-OF-CASCADES-SOUTH PATH
1993



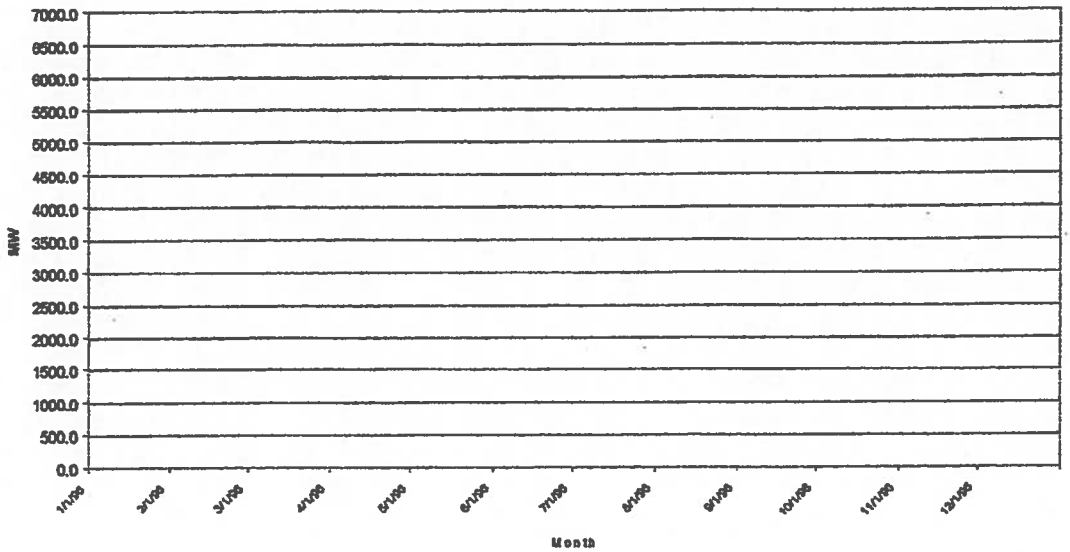
WEST-OF-CASCADES-SOUTH PATH
1994



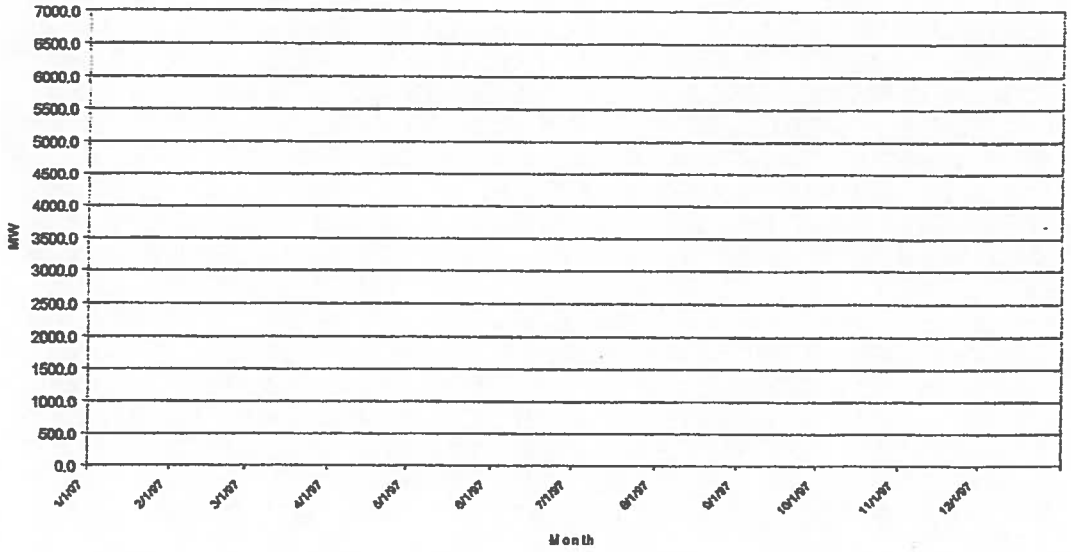
WEST-OF-CASCADES-SOUTH PATH
1995



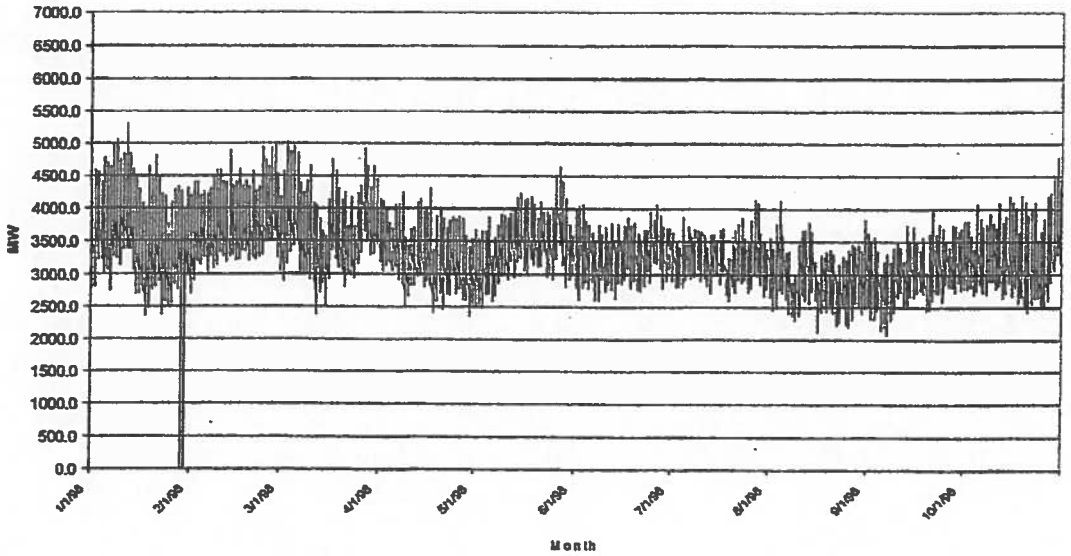
WEST-OF-CASCADES-SOUTH PATH
1996



WEST-OF-CASCADES-SOUTH PATH
1997



WEST-OF-CASCADES-SOUTH PATH
1998



1-31-2023

U.S. Army Corps of Engineers
P.O Box 2946
Portland, OR 97208-2946

Dear sir/madam:

RE: EIS Plan
Public Comment

I appreciate that you are taking time and treasure to explain your efforts to promote the survival of Salmon in the Foster and Green Peter dam areas.

In the article written by the New Era published 1-18-2023 it mentioned that there are other species of fish in the waters behind the Green Peter dam which include bass and Kokanee. Do these other species create a threat to the salmon population if they are not adequately fished by sports fisherman?

In your research do you believe that without some control over the amount of salmon fished will survive in the path that salmon take in their life cycle to return to their spawning area?

I appreciate your research efforts.

Respectfully Submitted,

Susan Burchard

Mrs. Susan Burchard
P.O. Box 795
Foster, Oregon 97345

Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

POWER SERVICES

Official File

February 3rd, 2023

In reply refer to: PG-5

Liza Wells
Deputy District Engineer for Programs and Project Management
Portland District, United States Army Corps of Engineers
333 SW First Ave.
Portland, OR 97204

Dear Ms. Wells,

The Bonneville Power Administration (Bonneville) appreciates this opportunity to comment on the Draft Programmatic Environmental Impact Statement (Draft PEIS) for operations and maintenance of the Willamette Valley System.

Bonneville is participating in the development of the Draft PEIS as a cooperating agency, focusing on its expertise on the hydropower purpose of the Willamette Valley System, including hydropower generation and marketing, and electric transmission facilities and operations.

As contemplated by the Cooperating Agency Memorandum of Understanding between Bonneville and the Corps, Bonneville would like to take this opportunity to present its views on the Draft PEIS, particularly where it believes the PEIS would benefit from additional analysis. In addition to the themes discussed in this letter, Bonneville will provide the Corps with specific updates and revisions related to hydropower generation and transmission analysis in the Draft PEIS, as part of Bonneville's ongoing participation in this PEIS process as a cooperating agency. Bonneville continues to acknowledge and thank the Corps staff and leadership for its engagement and collaboration with Bonneville in the preparation of the Draft PEIS.

The Draft PEIS evaluated alternatives to achieve multiple objectives; however, none of the action alternatives to restore naturally spawning salmon and steelhead above Willamette Valley dams would maintain economical hydropower as a residual benefit of the system.

The Corps constructed the Willamette Valley System to primarily provide flood protection for Oregon communities. The system's storage capacity also provides benefits for recreation, water supply, and water quality. As the Draft PEIS notes, hydropower is a residual benefit of the Willamette Valley System, available after the Corps has optimized operations for other project purposes. The current action alternatives in the draft PEIS have outcomes which reduce the availability of hydropower generation while multiplying its costs.

Although the Draft PEIS clarifies some of the challenges of maintaining economical hydropower as a benefit of the Willamette Valley System, Bonneville believes that the Final PEIS would benefit by including specific elements to more completely capture the scope of those challenges, as well as identifying steps towards addressing them. Accordingly, Bonneville has three requests for inclusion in the Final PEIS:

- Bonneville continues to request that the Corps include in the final PEIS its implementation plan for the consideration of de-authorization and cost allocation updates at these projects. Bonneville notes the recent mandate from Congress in the 2022 Water Resources Development Act directing system-wide disposition studies of the power purpose of the Willamette dams by June 2024. Bonneville also offers the following considerations for the disposition studies:

    - Disposition studies will inform potential congressional deauthorization of power at the Willamette dams. If Congress does deauthorize power, the Corps may be able to design less costly and more effective passage routes for juvenile salmon.

    - Disposition study analysis should also inform needed cost allocation updates. Significant operational changes and the shifting economics of managing hydropower and flood control at Willamette Valley projects make cost allocation updates necessary. The Draft PEIS estimates the annual benefit of flood protection to be at least $1 billion and power generation to be $26 million, yet power's cost allocation averages around 40 percent. If the disposition studies, as part of assessing whether hydropower is in the federal interest, do find net economic value for remaining hydropower generation at one or more of the Willamette dams, the Corps and Bonneville should use that analysis to implement the needed appropriate cost allocation between flood risk management and power.

    - Meeting Congress' timeline for completing disposition studies by June 2024 should support implementation planning for the Final PEIS and help inform Bonneville's decisions for continued investments in the dams' power facilities. It will be important for the Corps to limit the scope of the disposition studies and focus only on the effects of deauthorizing hydropower.

- The Corps should revise the PEIS analysis to fully include the impact of the continuation of the near-term operations in the planned implementation of the final preferred alternative. The most significant impact on hydropower is the provision to continue the operations of the 2021 Oregon District Court injunction until the Corps completes structural measures, which, for some of the measures, would be well into the 2040s under the Draft PEIS implementation schedule. The current analysis does not reflect these operations which stand to reduce the value of hydropower generation by nearly a third. The Final PEIS should include revised estimates for the remaining value of hydropower generation that incorporates the near-term measures. Because these estimates are also

necessary for the disposition studies directed by Congress, their inclusion will help inform both Congress and the Final PEIS.

- Bonneville continues to urge the Corps to update structural cost estimates. The estimated costs of structures for fish passage and water temperature seem to be quite conservative. The Corps states in the Draft PEIS that it is basing cost estimates on conceptual designs and that actual costs could likely more than double. Additionally, recent economic events of inflation, constrained supply chains, and escalated interest rates make the Draft PEIS estimates likely out of date.

Again, Bonneville appreciates the Corps' collaboration during the preparation of the PEIS. This represents an important milestone for the future management of the Willamette Valley System. The system continues to provide substantial regional value through flood risk management, water supply, and recreation as its operations evolve to benefit fish and wildlife. We submit these comments with the objective of resolving the anticipated major, adverse impacts presented in the PEIS to economic and reliable power generation.

Sincerely,

William J. Leady P.E.
Vice President for Generation Asset Management
Bonneville Power Administration

cc: Beth Coffey
Director of Programs
Northwestern Division, USACE

Brad Thompson
Chief of Planning, Environmental Resources and Fish Policy
Northwestern Division, USACE

Jesse Kintz
Senior Policy and Project Lead, Power Generation, Bonneville

To: US Army Corps of Engineers
From: Casey Kulla, vegetable farmer, river island in the Willamette (Grand Island)
Date: Monday, February 13, 2023
Re: Willamette Valley System Draft EIS
Sent: willamette.eis@usace.army.mil

Thank you for the opportunity to comment on the draft Environmental Impact Statement for operation of the Willamette Valley System and with regards to Endangered Species Act-listed animals, and for the public events at which you've made your technical staff available to answer questions and accept concerns. My comments are submitted as a career vegetable farmer who lives and farms with my family on a river island in the lower Willamette River (Grand Island, between Dayton and Salem). I own and farm on land in the Floodway, and the 100 yr and 500 yr Floodplains.

Reopen channels
As a farmer, landowner, and resident on a river island surrounded by revetments, disconnected meander scars, and long-abandoned floodplains, I ask you to reopen channels and remove revetments. Allow the natural floodplain to do the flood control rather than holding water behind concrete to reduce flood risk.

Challenge the $1 billion in annual flood control savings
When you say that the dams saving $1 Billion annually for downstream communities, I hope you are considering the tremendous risk to the persistence of salmon, which has a cost to humans in perpetuity. I hope you are considering the lost value of having floodwaters on the landscape in a seasonally appropriate manner; my farm fields exist upon soil and in an ecosystem that was flood-derived, and the loss of soil deposition impacts the fertility of the landscape and my fields. The inundation is good for reducing soil-borne diseases and keeping some weeds at bay. The ecosystem needs floodwaters in winter. However, your management of water also has a cost to farmers when you release floodwaters in the late spring, a time that is unusual for flooding. Cherry trees in bloom or bee hives in fields get flooded by the lack of appropriate seasonality. Please consider all the costs when you cite figures like $1 Billion in flood control savings.

Flood plains (past, existing, and future) are flood control
Ancient and recent past floodplains of the lower Willamette *are flood control* and should be used as such. Allowing floodplains to fill is the most effective strategy for reducing flood risk to communities. Meander scars are ready to serve their purpose. Reconnecting the floodplain is much cheaper than having to comply with the ESA, after all. I encourage you to add an alternative that includes flood plains, restoration of banks and riparian areas, and removing revetments. Embrace the watery ways.

Irrigation: no one is going to use costly allocated irrigation water; return this to fish
In my community, us farmers all know that we're not going to use the allocated irrigation water that you have in the System, because it costs too much. I hope you will consider this and return that allocation to fish for downstream use.

Non-seasonality is killing us; flooding needs to be seasonally appropriate for fish & farmers
Mentioned above but emphasized here: seasonally-appropriate flood dynamics need to be reinstated. Farmers and fish know that winter is flood season, and when you hold back water in winter but release water during spring, you mess with our seasonal cycles. Plants are dormant in winter and flooding does not harm them, but plants that are awake, bee hives in fields, and worked up fields are messed with in spring when you release water outside of the seasonally-appropriate times.

Flooding is recreation & hunting
You have an awful task: you built reservoirs and now have economies built around them, even though those structures are harming fish and floodplains downstream. But, please know that seasonal flooding is fun, it is recreation, and it is hunting down in the floodplain. Whole economies can spring up around a regular floodplain inundated in winter.

Main-stem flooding is community building
When we talk about flooding & the costs versus the savings, I hope you can understand that neighborhoods & islands that live with flooding build community across differences because of the flooding. Your advanced forecasting systems mean we have time to pull tractors out of fields, get animals to high ground, park cars on the dry side of seasonal channels, and help our neighbors. You may think you are helping protect communities, but you are also drying up the lifeblood of our rural landscape by eliminating those opportunities to come together.

Avoid tech-heavy solutions:
When you consider the Alternative Measures, please give weight to long-lasting, non-structural solutions to opening up habitat and passage and please give less value to flood control behind concrete. Long-lasting habitat and passage that does not require technological, human-managed solutions are the best solutions.

When you consider the alternatives, please give weight to appropriate seasonal flow for fish and consider with less weight hydropower production. Your own natural resources staff can provide the best flow (both volume and seasonality) for fish. Managing for hydropower and flood control rather than for natural seasonal flow is part of what got us here, to a dam-related decline in fish.

Natural Flood Risk Management:
You've committed to maintaining your mission of flood risk management even as you attempt to find an alternative measure that safeguards the persistence of the listed fish species. Please consider your floodplains as the basis of your flood risk management. Hold Oregon's floodwaters in the natural flood storage facilities: the floodplain. Now, there is the expensive route to natural flood storage: purchasing farmland and reconnecting it to the river for water storage. That takes time and money. But, the Willamette River's floodplain contains many meander scars just sitting there, waiting all winter to be filled with fresh mountain water. I encourage you to turn your gaze away from the concrete storage that is your problem and towards the natural storage: the floodplain of the Willamette. When you do that,you take the edge off of peak flows and you can focus your attention to fish persistence.

Tribes:
As you mentioned in your presentation, tribal consent has always been important but tribes have long been neglected, ignored, and pushed aside. Tribal needs, perspectives, and management for fish are essential. Embrace your nine federally-recognized tribes whose traditional homelands overlap with what we call Oregon. Listen to them, and demonstrate that you've listened by adapting your plans (both interim and long-term) to their expert advice. Finally, show the public, federal judges, litigants, and the Services that you've listened and adapted by pointing to exactly what in your plans you changed.

You were directed to build dams and revetments within many of our lifetimes. Together, we can right the wrongs, heal the scars, and fix the mistakes in even less time. It will take hard work, creativity, and a willingness to pivot, but we can do it. The fish don't have time; we have to get to work now.

Thank you for your time and the opportunity to comment. Please adopt an Alternative that reconnects the Willamette River to floodplains and meander scars, reintroduces seasonally appropriate flow regimes, uses *natural* flood control management in place of concrete and technologies, and emphasizes tribal management.

Casey Kulla
Farmer, Oakhill Organics and Walnut Rise
Grand Island, Oregon
casey@caseykulla.com

To: Nicklas Knudson, Project Manager
U.S. Army Corps of Engineers

From: Stephen P. Maher, SW Regional Director
Oregon Chapter, Backcountry Hunters and Anglers (ORBHA)

Date: 14 February 2023

Subject: ORBHA Comments on USACE's Willamette Valley System Draft PEIS

Dear Mr. Knudson,

My name is Stephen Maher. I am an architect, and angler, and a Southwest Regional Director for the Oregon Chapter of Backcountry Hunters and Anglers (ORBHA). On behalf of the board and our members, thank you for the opportunity to review and comment on the *Draft Programmatic Environmental Impact Statement for the Willamette Valley System Operations & Maintenance*. We hope you will consider the following comments.

- The Upper Willamette Basin Chinook salmon, winter-run steelhead, and bull trout populations have been hit hard over the last century—particularly over the last few decades. Populations in some tributaries have become virtually extinct. A sizable share of that reduction can be attributed to dams that cut off access to significant spawning habitat. The Corps is in a unique position to address this specific barrier with modifications to its dams that will allow effective upstream and downstream fish passage. We are encouraged that the Corps is now proposing meaningful changes in operations that should be a real benefit towards population recoveries.

- The PEIS timelines for completion of the projects—and the beginning of fish passage—seem to be quite long considering the urgency of the issues (20 or more years, in some cases). If current trends continue, the fish that these projects are intended to help may well be gone. Furthermore, funding for the projects will be linked to the timelines. In other words, longer timelines will likely lead to delayed funding. The ORBHA urges the Corps to reduce these times as much as reasonably possible to successfully complete the projects.

- Given the breadth of the PEIS scope, it is understood that some projects will need to be prioritized. ORBHA strongly encourages the Corps to prioritize the projects targeting the severely declining winter steelhead population. Completion of the work at Cougar Dam is another worthwhile endeavor. As documented in the latest NOAA Fisheries 5-Year assessment of threatened fish species in the Upper Willamette Basin (2016), only the McKenzie River Chinook salmon population remains large enough and genetically stable enough to be considered a healthy population.

    - Specifically regarding Cougar Dam: there remains potential for sediment release into the McKenzie River. ORBHA supports Alternative 5. If this option is selected, we urge the Corps to take all prudent steps to minimize the impact of released sediment into the mainstem McKenzie River.

Thank you for all the work you do for our fisheries and for considering our comments on the Draft PEIS.

Sincerely,

Stephen P. Maher

McKenzie River Guides Association

P.O. Box 464

Walterville, Oregon 97489

February 17, 2023

TO:

U.S. Army Corps of Engineers; Attn: CENWP-PME-E/Willamette EIS;

P.O. Box 2946; Portland, OR 97208-2946;
(willamette.eis@usace.army.mil)

SUBJECT:

McKenzie River Guides Association (MRGA) comments on

Draft Programmatic EIS-0540: Willamette Valley System

Operations and Maintenance; Oregon

WHO WE ARE:

MRGA is a not-for-profit corporation (501c4) founded in 1931 to aid in the conservation, restoration, and management of the fish life in the McKenzie River, to encourage optimal game and fish management, and to promote public participation in guided McKenzie River trips. MRGA has 145 members, 40% are active guides, the remainder are mission-supporting Associates. Each year, MRGA guides serve clients who enjoy more than 2,000 recreation service user days fishing for trout, salmon and steelhead, and floating on the McKenzie River. A reasonable estimate is that annually MRGA guides serve over 1000 angler clients contributing over a quarter million dollars to the local economy.

MRGA appreciates the opportunity to comment on the WVS-DPEIS and compliments USACE on its efforts in pursuing a challenging and important planning effort.

COMMENTS:

1. MRGA strongly supports the inclusion of the "Suite of Near-term Operations" (Table 2.2-11) in all alternatives.

We recommend that USACE work with U.S. District Judge Hernandez to develop the "suite" into a complete Alternative to be considered in a supplemental DPEIS to DPEIS-0540.

2. Deep Fall and Spring Reservoir Drawdown to the Diversion Tunnel (DT) at Cougar Dam (Final measures 2.2.3.1 and 2.2.3.3) as called for in Alternatives 2B, 3B, and 5-the Preferred-would result in pool levels of 1,330' (Tables 2.2-7, and 2.2-8), 120' lower than the "1,450 pool" established by the USACE as the minimum pool level to prevent high turbidity levels and high rates of sediment transport downstream of Cougar Dam as occurred in 2002-2004 during construction of the Cougar Dam water temperature control tower (WTCT) (USACE DEIS: Cougar Dam Downstream Passage; January 2019). Pools of 1,330' could easily conflict with the Oregon Turbidity Rule: OAR 340-041-0036 which states in part *"No more than a 10% cumulative increase in natural stream turbidities may be allowed"*, with some exceptions. High possibility or probability of violating the turbidity rule by implementing alternatives 2B, 3B, and 5 (Table 3.3-4) would call into serious question stated environmental consequences of these Alternatives in Chapter 3 (Tables 3.2-4, and 3.1.6). This would cast doubt on the overall sufficiency of the DPEIS-0540. Chapters 6 (6.3) and 7 (Table 7.8-1) document past (4/24/20) and future (as needed regarding Clean Water

Act-CWA- section 404 permitting) coordinating meetings with Oregon DEQ which are unlikely to address the turbidity matter discussed here in a timely way.

At a minimum, USACE and ODEQ should meet immediately on the matter of deep drawdowns to DT to clarify likely compliance or non-compliance with the Turbidity Rule and implications for CWA 404 permitting.

If the turbidity issue raised here is valid, then Alternatives 2B, 3B and 5 are unlikely to meet Objective 6 (page 2-6). Further, paragraph 3, page ES-35 states: "Without detailed investigation and designs, the dam safety and operational feasibility of drawing down to the diversion tunnel annually for fish passage is uncertain". With high uncertainty about Alternatives 2B, 3B, and 5 meeting turbidity standards and fish passage requirements, their usefulness in this DPEIS appears deeply suspect. That in turn would jeopardize the integrity of the entire DPEIS process.

We believe USACE should fully exhaust every feasible option for using the regulating outlet (RO) at 1,505' (1,517'? -page 2-29) for successful fish passage. If successful fish passage using the RO appears reasonable and uncertainties about drawdown to the DT remain, then Alternative 3 A should receive much deeper consideration as the basis for a Preferred Alternative.

3. Recreation in the DPEIS is considered mostly in and around reservoirs, neglecting specifically the long-established river guiding and outfitting industry MRGA represents which operates mostly on the McKenzie, Middle Willamette, and North and South Santiam, rivers. Non-MRGA river-based recreation activities are relevant as well. These activities including raft-based summer float trips and multi-season river-boat based fishing for trout, salmon and steelhead are heavily influenced by (mostly unannounced) fluctuating river levels resulting from USACE reservoir/dam management decisions. DPEIS alternatives

all have different effects on river flow levels, hydrologic processes and river infrastructure as indicated in Table 3.1-6. Due to the programmatic level of analysis, this listing of environmental effects is generally qualitative and of limited value in determining effects on boating and river- boat guided fishing. Summary hydrographs are produced to describe the changes to the flow and surface elevation with the implementation of each of the alternatives (i.e., Figure 3.2-163 and Figure 3.2-165).

The latter figure shows, for example, that there is a 95% chance flow would be above 2,000 cubic feet/second-CFS- between July and mid-October each year and a 5% chance it would be below that level for the same period at Vida. Such information facilitates the understanding of specific variance of flow patterns among alternatives at one site. However, necessary information would be flow volumes by alternative listed as CFS and gauge height for specific monitoring sites on the Middle Willamette, McKenzie, and North and South Santiam rivers by season relevant to river guiding and outfitting and other river-based recreation.

We believe a supplemental DPEIS is necessary that fully discloses the effects (environmental consequences) of the alternatives (including but not limited to economic, and river flow data at points relevant to river recreation users) on "below-dam" river guiding and outfitting and other river-based recreation. This is based on the fact that such necessary and sufficient information is lacking in Chapter 3., and relevant material claimed by USACE to be in Appendix B, Hydrologic Processes Technical Information has not been available after several requests.

SUMMARY:

1. We recommend that USACE work with U.S. District Judge Hernandez to develop the "suite" into a complete Alternative to be considered in a supplemental DPEIS to DPEIS-0540.

2. At a minimum, USACE and ODEQ should meet immediately on the matter of deep drawdowns to DT to clarify likely compliance or non-compliance with the Turbidity Rule and implications for CWA 404 permitting.

3. We believe USACE should fully exhaust every feasible option for using the regulating outlet (RO) at 1,505' (1,517'? page 2-29) for successful fish passage. If successful passage using RO appears reasonable and uncertainties about drawdown to the DT remain, then Alternative 3A should receive much deeper consideration as the basis for the Preferred Alternative.

4. We believe a supplemental DPEIS is necessary that fully discloses the effects (environmental consequences) of the alternatives (including but not limited to economic, and river flow data at points relevant to river recreation users) on "below-dam" river guiding and outfitting and other river-based recreation.

Ethan Nickel

/s/

President

McKenzie River Guides Association

From:	Bruce Spain
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[EEMSG-SPAM: Suspect] [Non-DoD Source]
Date:	Saturday, February 18, 2023 8:58:09 AM

Proposed reservoir drawdown in the Willamette Valley Basin. I am totally against the extreme drawdowns of these reservoirs due to long term effects it will have on irrigation, local economy, and recreation. Salmon populations have dropped, but instead of the focus being on the reservoirs, the focus should be on the mouth of these rivers and the number of seals and sea lions decimating the salmon populations.

From:	John Steele
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Willamette Valley System Draft EIS
Date:	Tuesday, February 21, 2023 6:55:50 AM

To whom it may concern,
Thank you for extending the comment period for the Willamette Valley System Draft EIS. I would like to submit additional comments during this extended period and they are the following.

Focus on one environmental factor that is known to have the greatest impact on fish: Temperature. Build temporary siphon units draped over spillways, similar to those used during dam maintenance activities. Place these on dams of moderate heights to modulate downstream water temperatures during low summer flows and during fall reservoirs' temperature inversion events. The following are possible advantages to this approach:
- Temperature is a known key factor in fish migration independent of water flow.
- Water flow will not be changed and thus avoid any additional conflicts of water usage.
- Design and install siphon tubes: According to the contractor who built the water temperature tower on Cougar reservoir, these can be built in two pieces, trucked to a dam's location and assembled in place at a considerable cost saving.
- Modulating only one variable, e.g. temperature, allows the determination of its effectiveness without having other factors, such as changes in water flow, producing unknown/indeterminate 'experimental noise' that would mask any outcome achieved by modulating downstream temperature outflows.
- Once you have perfected temperature modulation, then you can start modulating water flow to find its optimal effect.
- Addressing downstream water temperature will send a clear message that the Corp is following the irrefutable scientific evidence regarding water temperature and moving forward its goal of restoring fish populations.

Thanks,
John Steele
34882 Spillway Rd
Cottage Grove, Or 97424
nonstopchange@gmail.com

U.S. Army Corps of Engineers
Attn: CENWP-PME-E / Willamette EIS
P.O. Box 2946
Portland, OR 97208-2946

Thank you for this opportunity to comment on the Willamette Valley System Operations and Maintenance Draft Programmatic EIS (PEIS). It is clear the Corps has invested considerable time and effort into producing this document. While the analysis is extensive, there are numerous omissions and inconsistencies that render the proposed action inadequate to guide project operations, modifications and maintenance over the next 30 years. My comments and an addendum follow. Questions raised in the addendum are part of my comments.

General Comments

1. **PURPOSE AND NEED.** DEIS Section 4.1 fails to identify the Corps' intent to use the preferred alternative as the proposed action in the ESA Section 7 consultation taking place between the Action Agencies (Corps, BPA, and the Bureau of Reclamation) and NMFS and FWS under court order (No. 2:18-cv-00437-HZ), to be completed and a remanded Biological Opinion issued by December 31,2024. Currently, this purpose is not described until Appendix A, Section 2.8.

   It appears that the Corps is also attempting to resolve the causes for NMFS' Jeopardy finding (June 28, 2019) regarding the Willamette River Basin Review Feasibility Study with this PEIS. According the Appendix J, the Corps anticipates a 2050 level of development in its modeling (Res-Sim) of all alternatives considered, increasing water use for irrigated agriculture from the current 50,000 acre-feet of contracted Corps storage to over 250,000 acre-feet. By including the 2050 build-out in all alternatives, it is not possible to identify the streamflow and fish habitat effects of this action. Flow diminishment is not the only effect of issuing water service contracts. The Corps would attempt to store the water needed to meet water service contracts, thereby limiting efforts to reduce storage to improve fish passage survival.

2. **ENDANGERED SPECIES**. The DEIS underplays the role of the WVS in the statuses and potentials for recovery of species listed under the Endangered Species Act, particularly Upper Willamette River (UW) Chinook salmon and steelhead. The DEIS should be revised to clearly demonstrate that the preferred alternative does not appreciably reduce the species likelihood of survival and potential for recovery, does not adversely modify the species designated critical habitat, and minimizes the take of listed species. As presented, the preferred alternative is inadequate to achieve this goal. To measure success, the Corps proposes to use a single metric, recruits per spawner, with a goal of achieving R/S greater than one. A broader range of performance metrics should be adopted and fish passage success evaluated in accordance with NMFS' fish passage criteria. Because the WVS is a major contributor to these fishes' current statuses, the

Corps should clearly state its intent to manage the project to improve their statuses and likelihood for recovery and adopt metrics to measure such improvement.

3. **FISH PASSAGE.** The DEIS claims to focus on fish passage, yet offers only a long and expensive process leading to two-way trap and haul systems. Expanded operational measures, such as longer term and deeper drawdowns and improving regulating outlet fish passage and total dissolved gas performance, are not considered. The rationales for the proposed floating fish collectors and their construction schedules are poorly defined. Lusardi and Moyle (2017) warned that two-way trap and haul systems, in which adults are collected in traps downstream from the dams and transported to release sites upstream and juveniles are collected near the dams using large machines, floating surface collectors, and transported to release sites downstream. Juvenile collectors at high-head dams typically show low fish collection efficiency. Life-cycle models used in the PEIS to estimate the likely population trajectories following implementation of each alternative use favorable assumptions for collector effectiveness (e.g., fish collection efficiency >50%) which are unlikely to be achieved. Currently, non-structural juvenile passage measures are being evaluated throughout the system. Until these and other operational measures are fully evaluated it would be unwise to design and install juvenile collectors.

4. **NARROW RANGE OF ALTERNATIVES CONSIDERED.** Because the Corps has chosen not to consider alternatives that might require changes in the WVS' Congressional authorization, the potential benefits of such changes have not been analyzed. This limits the potential for avoiding jeopardizing and adverse modification of the UW Chinook salmon and steelhead critical habitats, and other potential benefits of project operations.

5. **RESEARCH, MONITORING, AND EVALUATION and PERFORMANCE GOALS.** The DEIS presents a series of actions, crafted and modeled to meet specific objectives, but there is a general lack of defined RM&E and no defined check-ins during which measure implementation and performance are evaluated, and changes developed as needed to meet performance objectives. Because the Corps proposes that this EIS guide operations and maintenance for the next 30 years, a set of fish population viability criteria should be adopted and the project's performance periodically reviewed every 5 years.

6. **CLIMATE CHANGE**. The DEIS presents extensive data on ongoing climate change including modeling work done by the Corps for this DEIS, identifies a series of risks, including unusual and unseasonal flood and drought risk, yet offers no change in project operations to better manage such risks. This lack of proposed adaptations to changing hydrologic conditions also has implications for UW Chinook salmon and steelhead. (See Addendum)

7. **OPERATIONAL MEASURES TO LIMIT TDG PRODUCTION.** The only interim measures considered to reduce adverse total dissolved gas concentrations downstream from project dams is spreading spills across multiple spillway bays. This is insufficient.

This issue is most acute in the North Santiam River downstream from Detroit and Big Cliff Dams where both UW Chinook salmon and steelhead spawn and rear and where high rates of spill can generate harmfully high concentrations of TDG. During the fall and winter of 2021-22 the Corps operated Detroit reservoir in an effort to reduce the magnitude of spills to the extent practical. This effort was mostly successful at maintaining episodic TDG concentrations downstream below 120% throughout the winter. [1] This interim measure should be continued as completion and evaluation of structural TDG reduction is at least 5 years away. The Corps should also commit to managing refills in a manner that reduces the potential for adverse fill and spill operations in the spring.

There is a general lack of discussion of spill operations to manage reservoir surcharges. As spills have an array of effects downstream, from contributing to the Corps' Environmental Flow program, to generating harmful concentrations of TDG downstream, a detailed discussion of surcharge and spill management is needed.

8. **REVETMENTS.** The DEIS does not propose any specific measures aimed at increasing flood plain connectivity and side-channel fish habitat. Numerous studies, including work produced by the Corps, have identify the loss of such habitat in the Willamette Valley as limiting anadromous fish production, and regional entities have invested in an ongoing program to increase flood plain habitat (Willamette Focused Investment Partnership). As the Corps constructed and currently maintains 100 miles of revetments along the mainstem and tributaries of the Willamette River, the Corps should include a program of revetment modification to increase flood plain connectivity and side-channel habitat in this DEIS, either directly or in partnership with others.

9. **DURATION OF THE PROPOSED ACTION.** The Corps proposes that the EIS and subsequent Biological Opinion to be issued to cover it have a 30-year life with construction projects conducted through 2044. As the statuses of the fish, notably their abundances, are in decline, and the climate continues to change, a 30-year planning horizon is unrealistic. Further, developing successful fish passage, particularly at high-head dams is an iterative or adaptive management process with the results of prior measures helping to identify potential improvements. .A better approach would be to view the process as iterative, 5 to 10-year time steps during which measures are implemented, their effects monitored, and the need to revise or add measures evaluated.

10. **MEASURES NOT CONSIDERED.** In large measure, the lack of an emphasis on species recovery and an excessive reliance on existing operations, limits the range of measures considered, thereby rendering the DEIS insufficient. The preferred alternative includes only minor operational changes, choosing instead to solve fish passage limits

[1] The severity of harms to aquatic life due to elevated TDG increase with frequency, duration, and magnitude of the high TDG events. At concentrations below about 120%, harms tend to be mild and at 130% and above exposure can cause severe injury or death to Chinook salmon and steelhead.

imposed by the dams and reservoirs through structural measures, mostly floating surface collectors located at or near the dams. These would take decades to complete, with the last scheduled to be completed in 2044. They are bewilderingly expensive (c. $400 million, each) and the likely success of such measures is arguable. A recent survey of such systems at high-head dams (Kock et al. 2019) found a wide of success, from very low to high. While there has been considerable technological advancement in the design of such structures, such as the use of computational fluid dynamics to site and models to size floating surface collectors, high rates of successful passage cannot be assured.

It is important to recognize that fish collection efficiency (FCE), a measure of fish collection success (number captured in the collector/number released), has been measured differently by different studies, depending on the purpose of the study. To evaluate the potential effectiveness of floating surface collectors at the WVP, FCE_{res}, the ratio of fish captured at the floating surface collector to those released at or above the head of reservoir is the performance metric of interest. It is unclear whether the Corps life-cycle modeling used FCE_{res} or other measures of FCE. FCE also varies by species. For example, the fixed surface collector at North Fork Dam on the Clackamas River that collected over 90% of the steelhead and coho salmon juveniles released at the head of the reservoir, collected only 60% of the Chinook salmon juveniles released (reported in Kock et al. 2019). As other, less successful collection systems show similar low FCE_{res} for Chinook salmon, it is reasonable to assume that Chinook are harder to collect than steelhead or coho. **Review of life-cycle modeling conducted for this DEIS (Appendix E) shows that overly optimistic FCE values were used, particularly where Chinook salmon were the target species.**

An issue missing in the evaluation is the importance of reservoir travel time to FCE and juvenile passage survival in general. In brief, the longer juvenile salmon and steelhead reside in a reservoir the lower their likelihood to pass successfully. Reservoir residence exposes juveniles to water quality, disease, predation, residualization, and competition limits on successful dam passage. The longer juveniles remain in the reservoirs, the lower their likelihood of successfully passing the dams. Juvenile residence time is lower when reservoir storage is lower and when flows are high (Kock et al. 2015). Minimizing reservoir residence time should be an objective to achieve high passage survival.

Due to the inherent uncertainty in estimating juvenile passage survival and the potential benefits of large, expensive, structural measures such as FSCs, the preferred alternative should be one of experimental design. Initially, this experiment should focus on modifying existing facilities (e.g., TDG control, juvenile passage survival improvement) and operations (spills to pass fish and temporary powerhouse shutdowns to limit entrainment). An intensive RM&E program, such as that developed to evaluate ongoing interim measures, is needed to determine if such measures are adequate to support species recovery. If not, additional measures, such as FSSs may be needed. This could reasonably be accomplished within 7 years of ROD issuance.

For at least the first five years of operation under the preferred alternative the focus should be on using existing facilities, or modified existing facilities to pass fish. For the first five years of operation under such an alternative, all of the Interim Measures adopted under Case 3:18-cv-00437-HZ should continue and the following measures considered or adopted.

a. **Year-round deep drawdown.** At present, operational measures, using existing project facilities to pass fish are underway. These include deep drafts and the use of regulating outlets to pass fish from the fall through winter, and spilling water over project spillways to pass fish in the spring and summer. Data collected during these operations and evidence from the Fall Creek reservoir drawdown as well as other high-head flood-control reservoirs in the region (e.g., Mud Mountain Dam) show year-round deep drawdown can provide safe and effective juvenile passage, reduce heat storage and subsequent water temperature issues, and provide more normative flows downstream. By comparison, juvenile collectors at high head dams often have low FCE, limiting the fraction of incoming juveniles that successfully pass the dam (Kock et al. 2019). **Among the alternatives considered should be deep, permanent drafts at several reservoirs – Green Peter, Cougar, and Lookout Point. Year-round drawdowns at these reservoirs should be analyzed both independently and collectively.** As the Corps has been authorized to evaluate de-authorization of power generation at the WVS, such operations should be evaluated as part of that effort as well. The possibility that such substantial changes in project operations would require Congressional authorization prior to implementation is insufficient cause not to evaluate them.
    i. This would mean permanently lowering the reservoirs to within 20 feet of their lowest outlet, storing additional water only when needed to reduce downstream flood risk, and managing the release of such surcharges to minimize adverse TDG conditions downstream to the extent practical.
    ii. As the regulating outlets would be the primary route of discharge and fish passage, outlet modifications should be considered at all ROs to reduce TDG production and improving fish passage survival. Approaches such as spillway flip-lips and modification of RO outfalls to broaden the impact area of the discharge stream to reduce plunge depth and thereby reduce gas saturation should be considered.
    iii. Reservoir residence time would be minimized, increasing survival to the dam and dam passage efficiency (non-turbine passage) would dramatically increase. Successful passage would primarily be dependent on performance of the ROs, which should be improved as necessary.
    iv. This would substantially reduce the stored water available to augment downstream flows and limit flat-water recreation during the summer and fall.
    v. Hydroelectric power generation would only occur when surcharges raised the reservoirs above the minimum power pool. Generation and dependable capacity of the system would decline.

vi. By not refilling the reservoirs, such measures would increase spring flows in both the affected tributaries and the mainstem Willamette River. Flows in the affected tributaries and the mainstem Willamette River would be less modified by project operations, returning the rivers to more normative conditions.
vii. Permanently lowering the pools would also increase available flood storage, thereby reducing downstream flood risk and increasing climate resilience.
viii. At Cougar Dam the regulating outlet channel would need to be redirected into the river channel upstream from the adult trap. Design and construction would likely take at least five years, delaying potential implementation.
ix. These and other likely effects should be analyzed in detail.
x. **The preferred alternative should adopt year-round minimum pool operations for at least one of the large storage reservoirs within the fishes' range for five years. Given the physical plant modifications necessary to provide year-round minimum pool operations at Cougar Dam, and the fact that reintroduction efforts are just getting underway at Green Peter Dam, Lookout Point Dam is likely the best choice as the test bed. Data collected during this operation would inform future decisions regarding operations and the need for new passage systems throughout the WVS.**
xi. Cursory evaluation suggests that Lookout Point would be the prime location for such an experiment: spring Willamette River flow benefits would extend from Lookout Point Dam to the river mouth, enhancing conditions for both returning adult and outmigrating juvenile Chinook salmon and steelhead; downstream needs for stored water could be met by releases from Hills Creek reservoir; and the need for structural improvement (RO modification to improve juvenile passage survival and to reduce TDG production) would be small.

b. **Improving fish passage survival at existing facilities.** Preliminary evidence from the interim operations has shown that fish are often injured passing through project regulating outlets and channels and going over spillways. Where DPE is high but injury rates are too high, efforts should be made to identify the causes of injury and remedial action taken. This could include measures from smoothing spillways and regulating outlet channels, to modifying RO mouths to spread the spill stream which would dissipate impact energy.
c. **Project modifications to reduce TDG production.** The high rate of TDG production at several WVS dams limits the range of operations that are safe for fish. The preferred alternative only considered modifications to reduce TDG at the Detroit/Big Cliff complex. As regulating outlets and spillways are the preferred routes for fish passage, **measures should be developed to reduce TDG production throughout the system, from reducing spill rates when possible, to modifying spillways and ROs to reduce TDG production.**

d. **Petition ODEQ for a waiver from the state standard for TDG.** The state standard for TDG is 110% of the saturation concentration. This standard is unobtainable during spill at WVS dams, particularly during floods and post-flood surcharge reduction operations. Further, efforts to meet this standard during spill operations for fish passage can limit the hours of operation, reducing effectiveness. For voluntary spill operations to facilitate fish passage the TDG limit should be increased to 120% of saturation. Such a waiver could be viewed as experimental and of a limited duration, say 5 years, to allow for monitoring and evaluation. There is precedent for such waivers (letter of January 13, 2020 from Richard Whitman, ODEQ Director, to Oregon Environmental Quality Commission; and 85 FR 63834). Hopefully ODEQ and EPA would agree to expedite the process.

e. **Detroit and Big Cliff Dams.** Operating Detroit reservoir at a long-term low water surface elevation is unlikely to be feasible due to socio-economic concerns and the value of stored water. Hence, operational fish passage measures are limited to using the dam's regulating outlets and the spillway with limited changes to reservoir storage. Spring operation of the spillway has shown promise and is adopted in the preferred alternative. However, the approximate date when the Corps would open the Detroit Dam spillway in the spring and the hours of operation to provide fish passage are unclear. "Late spring" is indicated, suggesting June. This is inadequate as it would increase reservoir residence time for earlier arrivals which begin arriving in February. **Continuous spill over the surface spillway should occur as soon as practical after the reservoir water surface elevation is 1.5 feet or more over the spillway crest (el 1541), which generally occurs in mid-April and continue spilling for the next 30 days.** In 2022, the highest number of juvenile salmon collected in the rotary screw trap situated downstream from Big Cliff Dam occurred during the last two weeks of April, immediately after the spillway had been opened. Large numbers likely also passed in early May, but the trap was not fished for much of this time due to high flows.

   Spilling water over the spillway or through the ROs, the outfalls of which are situated in the spillway, produces high levels of TDG and efforts to meet the state standard downstream can limit the hours of operation of both for fish passage purposes. Further, high TDG concentrations in the Big Cliff forebay is likely more harmful to juvenile Chinook salmon and steelhead than downstream from Big Cliff Dam because juvenile residence time in the forebay lasts for days while exposure to harmful TDG concentrations downstream from Big Cliff would affect actively migrating juveniles for a few hours as high concentrations of TDG monitored immediately downstream from Big Cliff Dam have been shown to dissipate by the time the water reaches the Minto trap, about 4 miles downstream (USACW 2011). **Hence, reducing juvenile exposure to adverse TDG conditions should include modification of Detroit Dam's spillway and regulating outlets to reduce TDG production. The design for such measures should aim to improve juvenile fish passage survival as well.**

Specific Comments

My comments focus on the treatment of ongoing interim operations and on the preferred alternative. As stated above, I do not support adoption of the preferred alternative as presented.

1. Section 2.2.6. Should be revised to state that adopted interim operations will continue until structural measures and associated operations **have been shown to provide at least as much benefit to the species as the interim operations**, at which point they should be employed when structural measures are out of service.
2. Table 2.2-11. Detroit/Big Cliff. Should include discretionary operations aimed at controlling the magnitude of spills. This measure proved beneficial but insufficient to avoid project-generated harmful concentrations of total dissolved gas (TDG) downstream. In testing conducted during 2021-22 this measure mostly maintained TDG below 120% while storage was available. In keeping with its flood risk management objective, the Corps should continue to use its discretion in an effort to limit the magnitude and duration spills to limit the production of TDG in concentrations known to be harmful to fish (>120%). **This measure should continue until structural TDG abatement is in place and shown capable of limiting TDG production.**

   By adopting Interim Risk Reduction Measures (IRRM) that limited available summer flood storage while maintaining the previous refill trajectory, the Corps has increased the risk of fill and spill at project dams. Fill and spill events at the Detroit/Big Cliff complex have caused toxic TDG conditions in the past. **See Addendum**
   a. Appendix D, 2.2 TDG. This analysis is focused on the frequency that operations under each alternative would result in TDG concentrations of 110% or more, the current state standard. No discussion of fish effects, tolerances, seasonal changes in fish health risk, or operational measures to reduce those risks is presented. The duration analysis of project-caused TDG risk (Appendix D, Figure 2-38) would be improved by presenting monthly analyses as fish harms vary seasonally.

3. 2.2.3.1 Deeper Fall Reservoir Drawdown for Downstream Fish Passage (#40). The minimum duration of deep drawdowns should be 30 days for at least the first 5 years of operation and data collection. Changing the duration of deep drawdowns could be considered through the adaptive management program and that program should be revised to include NMFS and FWS in an advisory role. Notes of all such meetings should be taken and made available on a publicly accessible website.
4. Table 2.2.11. Lookout Point deep drawdown. The table states that the target drawdown elevation would be 750 ft, but Table 2.2-7 lists el 762 as the target. Please explain. As the analysis for this action specified 750 ft., that should be the draft target. Also, as this measure has not yet been implemented, detailed evaluation should be conducted over the first 5-years of operation prior to defining long-term operations.
5. Section 2.2.5 Suite of Near-term Operations. Page 2-39. The statement: "These operations are designed to improve fish passage and water quality until the structural

measures under an alternative can be implemented," is insufficient. **The Corps should commit to continuing these interim measures until their performance is equaled or exceeded by new measures and NMFS and FWS agree with that assessment.** Similarly, if a measure isn't effective, or causes unacceptable adverse effects, the same decision process should be used to modify or discontinue it.

6. Section 2.2.6. The Corps should ensure that its contractors conform to EPA's menu of current best management practices (BMPs) to protect water and soil resources.
7. Section 2.2.6.1. Detroit Selective Withdrawal Tower. This is a good idea as the benefit to Chinook reproduction would extend downstream past Mehama. However, the proposed in-the-wet construction would be difficult and environmentally risky. Sediment and anaerobic water liberated during dredging could adversely affect downstream water quality during the construction period. Construction in the dry, using a coffer dam would be simpler and less environmentally risky but would require a narrower and lower reservoir operating range during construction. The Corps should reconsider the method of construction. Also, the design and operation should consider and work to limit juvenile attraction and entrainment, particularly during spring and summer when the spillway should be used as much as possible to pass fish and manage discharge temperatures.
8. Section 2.2.6.2 Foster Fish Ladder Temperature Improvement (#479). Available evidence shows that this measure would likely be effective. This measure should be implemented as soon as possible. The time-line for this action is not shown on the construction schedule for the preferred alternative Figure 5.4-1.
9. Section 2.2.6.6 Construct Structural Downstream Fish Passage (#392). This section assumes that FSCs or FSSs would provide safe and effective fish passage at WVS's high-head dams. Given the sizes of project reservoirs in relation to their inflows, reservoir residence time would likely remain very high (weeks to months). In general, the higher the juvenile residence time in the reservoirs, the lower their survival. Hence, prior to making the decision to build juvenile collectors, thorough evaluation of operational passage measures, including deep drawdowns, should be conducted. It will likely take another 5-7 years to develop sufficient data to make this determination. Where it is determined that operational measures are infeasible, or insufficient to support a viable salmonid population upstream, juvenile collection systems may be warranted. As handling stress reduces juvenile survival, systems to avoid or minimize handling, such as juvenile bypass systems, should also be considered.
10. Section 2.2. Response to Climate Change
    a. Very little is presented in regard to the Corps' program to improve the project's resilience in the face of climate change, though substantial gate and other structural improvements are underway improving the resilience of project dams.
    b. The Corps' reluctance to consider measures that would alter current Flood Risk Management limits the WVS's potential benefits during prolonged drought or other climate emergencies. As presented in Appendix F, climate-related risks are increasing. **See Addendum**.
11. Section 2.4.2.3 Maintain Revetments considering Nature-based Engineering or Alter revetments for Aquatic Ecosystem Restoration. This section is inadequate and incomplete. The Recovery Plan (ODFW, NMFS 2011) identifies the loss of floodplain connectivity and side channel habitat as limiting factors. Backwater and side-channels are

prime juvenile salmon habitat. Floodplain and side channel connections are a focus of work being done under the auspices of the Oregon Watershed Enhancement Board (OWEB) and its Willamette Special Investment Partnership. Over half of the mainstem Willamette is cutoff from its historical floodplain. Although Corps constructed and maintained revetments are only partly responsible for this lost habitat, absent a clear commitment to increase floodplain connectivity and side-channel habitat lost due to Corps-constructed and maintained revetments, the primary adverse effect of the program would remain unmitigated. **The Corps should either propose specific floodplain restoration projects, set specific floodplain/side-channel connection length goals within specified intervals, or commit to contributing funding to OWEB's SIP program throughout the life of its proposed action**. The Corps mentions the need to obtain local sponsors to cost-share ecosystem restoration projects as limiting its ability to mitigate revetment effects. Addressing Corps-caused adverse effects on species limiting factors is necessary and cannot be restricted by the actions of third parties. The Corps should place such projects or OWEB contributions in its annual budget submittals with or without local commitment.

Preferred Alternative

It is difficult to fully assess the preferred alternative because descriptions of the actions are scattered among the previous alternatives and its effects are analyzed in DEIS Sections 3 and 5 and several appendices. Section 2.4 would be improved by providing a full list of measures included and then analyzed in Section 3.

12. Section 2.4.11. Alternative 5. Neither the referenced section 2.3.1.1 or section 2.3.1.2 exist.
13. Appendix A. Page A-21-22. Water management during the conservation season under the preferred alternative is unclear. The concept of managing operations to meet both downstream flow and temperature goals is laudable, perhaps workable, but it is unclear how it would be implemented. Does the Corps intend to provide weekly modeled flow, temperature, and reservoir storage alternatives to the WATER team to inform its decisions? What weight would the WATER team's recommendations have as compared to model-driven operations? To be clear, modeled outcomes of alternative operations are very valuable to refill and conservation season water management, but cannot replicate the 'expert system' provided by the WATER team which should make flow management decisions.
    a. WUA is weighted usable area, not wetted usable area.
    b. Although the analyses presented are voluminous, it isn't clear why the 2008 BiOp targets as therein described are not desired. Does modeling show a substantial decrease in available summer storage to meet summer and fall tributary flows following the existing regime? Please explain.
14. Appendix A, Page A-22 "Where feasible and funding is available, monitoring activities will be recommended and implemented to assess the stated benefits and inform future

flow management." This is inadequate. Spawning surveys downstream from project dams should be conducted annually, as part of a RM&E program, fully funded by the Corps.

15. Appendix A, Page A-26 2.1.2 Measure 30b. Refined Integrated Temperature and Habitat Flow Regime. Although the proposed mainstem Willamette River minimum flow regime (Measure 30b) for abundant water years is very similar to the flow regime prescribed in the 2008 BiOp, minimum flows would be substantially reduced during normal and low water years below those currently prescribed. Further, in April, April though August runoff predictions using the River Forecast Center's ESP model carry wide confidence bands, meaning confidence is fairly weak. In fact, the Corps itself makes this argument in its response to concerns raised over refill operations at Detroit this spring (2022). [2] As suggested in Appendix A, Section 2.1.2 it would be entirely possible to estimate a low water year in April, only to be clearly in an abundant water year by early June, as occurred in 2022. By mid-June, when runoff is well known, so is reservoir storage and available storage should guide operations. The Corps should work with the RFC to develop better 30 to 90-day streamflow and runoff predictions to improve project operations in the spring. Rather than establishing hard operating rules, it would be better for the WATER team to make decisions regarding reducing mainstem and tributary flow targets, considering the latest hydrologic data and predictions, storage data, and Res-Sim model outputs. A point not lost on the WATER team is that maintaining fish friendly mainstem flows in the spring may have consequences on the stored water available to meet summer and fall flow and temperature objectives.
16. Appendix A. Table 2-2. Reducing tributary minimum flows during low-water, low-storage years, particularly during the summer, may be necessary to maintain sufficient water to meet Chinook salmon spawning flow needs in the fall and to avoid severe water temperature conditions. However, the proposal to substantially reduce tributary minimum flows when storage falls below 90% of the storage rule curve would result in very frequent reductions in minimum flows. Even in average water years, reservoir storage is often below 90% of the rule curve due to depletions to meet downstream needs, including minimum flows. Both the severity and the frequency of these minimum tributary flow reductions should be reduced, particularly during the spawning seasons for UW Chinook salmon (Sept – Oct) and steelhead (Mar – May). **Instream flow studies conducted by the Corps show that summer flow augmentation (July – August) does not provide a fish habitat benefit and could be reduced.**
17. Appendix A. Section 2.7.3.1 Scheduled/Routine Maintenance. The Corps should commit to revising each of the operations manuals listed in this section as needed to conform with final actions taken under the consultation within 18 months of ROD issuance. Similarly, following construction project completion and testing (e.g., Detroit temperature tower), operating manuals should be developed and project personnel trained in their operation.

[2] "Seasonal water supply forecasts carry substantial uncertainty as described below…. Therefore, by basing decisions on April conditions, one is still faced with extremely variable outcomes later in the year." Excerpted from: Federal Experts' Response to Plaintiffs' Proposed Additional Operational Changes for TDG Abatement below Big Cliff Dam, August 25, 2022

18. Appendix A. Section 2.8.1 Overview 2021 Court Ordered Interim Injunction. This clear commitment to continue measures adopted under court order until replaced by measures adopted under the preferred alternative should occur in the body of the DEIS, not just this Appendix. Also, the Corps should commit to continuing effective interim measures until new measures implemented under the proposed action have been shown to be at least as effective.
19. Appendix B Page B-62. "The downstream maximum rules are in effect year-round, but typically only govern the ResSim program decision making during a winter flood event. Smaller flood events may occur during the **spring refill season** or late in the drafting season as well and **need some regulation to manage.** …" Emphasis added.

    How does the Corps intend to manage spring and summer surcharge and high TDG risk? (See Addendum).

20. Section 3.8.1.6.1 "Passage for ESA-listed salmonids and steelhead at Detroit Dam/Big Cliff Dam Complex. Only adult hatchery origin UWR Chinook salmon are outplanted above Detroit Dam." Elsewhere, this section supports the Recovery Plan's (ODFW and NMFS 2011) a split-basin approach to managing the fishery, in which hatchery origin adults provide the bases for fisheries downstream from the dams where they may also spawn, while only wild fish would be transported upstream, preserving their genetic integrity. The current management scheme is necessitated by CRR values less than 1 for Chinook salmon released upstream of the reservoir, meaning that under current project conditions, the returning progeny of fish placed upstream would not equal the number of adult fish transported. At present, the low CRR of wild Chinook makes transporting wild fish to locations upstream of Detroit reservoir risk mining their populations. **To provide a potential for species recovery, passage survival must be increased. Spilling water through the upper ROs in the fall and over the spillway in the spring should be continued. The current wild fish sanctuary river reach between the Minto Dam and Big Cliff Dam, a steep, mostly bedrock portion of the river, is both limited in spawning habitat and presents a survival risk due to episodic high TDG concentrations.**

    To be consistent with the Recovery Plan, once CRR has been shown to exceed 1, only unclipped adult steelhead and Chinook salmon collected at the Minto trap should be transported to sites upstream from Detroit reservoir. Modifying fishery management would require developing a consensus among the Corps, ODFW, NMFS, and FWS. As such, the Corps should demonstrate its support for fishery management that comports with species Recovery Plans in this EIS.

21. Section 5.4.1 and Appendix N. Implementation of the Preferred Alternative. Overall, implementation of the proposed fish passage and water quality improvement structures is too slow and the rationale for the priorities displayed in the schedule unexplained (Figure 5.4.1).

a. No timeline for construction of the permanent temperature matching system at the Foster trap is presented. As the need for this structure has been demonstrated, final design and construction should be expedited.
b. Appendix N, Section 2.1. "While these (court-ordered) actions are tracked in this Implementation Plan, the structural injunction measure will undergo a separate NEPA process that will assess the direct, indirect, and cumulative impacts of their effects on the human environment." To expedite implementation of these measures, compliance with NEPA should be provided by way of Categorial Exclusions if possible, or brief EAs if not.
d. Appendix N, Page N-52. The proposed performance metrics are inadequate and call into question the life-cycle modeling performed to evaluate effects. The Corps intends to measure dam passage survival (DPS) of only juveniles detected in the dam forebay (Figure 5-3). This measure of success would ignore fish losses that occur within the body of the reservoir. The Corps should adopt measures of DPS that measure survival from reservoir entry to the unimpounded river, including all of the reservoir and the downstream re-regulating pool and dam.Adult fish collection at the base of Green Peter Dam isn't currently needed. Adult fish needed to seed habitat upstream are being collected at the Foster trap and that could continue. Ongoing monitoring could determine if a new trap is needed within 5-7 years of ROD signing.
e. Juvenile fish passage using existing dam facilities and modified operations is currently being implemented. Given the extraordinary cost and delay in developing new structural juvenile collection systems, these and other primarily operational measures described above would likely be more cost-effective. Until the effectiveness of those measures is known, developing juvenile collection systems (FSSs and FSCs) at Detroit, Cougar and Lookout Point dams at this time is premature. **Within 7 years of ROD issuance, and following at least 5 years of implementing aggressive operational measures, the Corps, in consultation with NMFS, FWS, and ODFW should determine if operational measures are sufficient to support species recovery and, if needed, initiate design/construct projects to meet juvenile passage needs.**

22. Section 5.5 Adaptive Management Plan. This plan is incomplete. Both performance evaluation and the development of remedial action should engage the regulatory agencies (NMFS and FWS) and interested parties (e.g., municipalities). The Corps should commit to periodic check-ins at pre-determined intervals to track measure implementation and performance.
23. Appendix E. Life Cycle Modeling. Alternative 5, the preferred alternative, was not modeled. This was likely due to time constraints as the preferred alternative was developed late in the process. Given the overly high fish passage efficiency attributed to floating screen structures (FSS) and floating surface collectors (FSC), it is likely that life cycle modeling of Alternative 5 would provide similar results to that for Alternative 4, which presented a high species viability (VSP) score. For reasons given below, these modeling results are unreliable.
24. Appendix E, Page E-47. "… it is important to recognize that the collectors discussed in the EIS and the BA have yet to be successfully implemented and there is considerable

risk and uncertainty about the realized effectiveness of these structures." I agree. The referenced study by Koch et al. (2021) shows that FSCs have highly variable fish collection efficiencies (from head of reservoir), ranging from about 2% to over 90% at one project. This wide range of FCEs suggest that the life-cycle model used to compare the VSP scores should also carry very wide ranges of possible outcomes. Further, the majority of the structures investigated by Kock et al. (2019) were FSCs, rather than FSSs, which likely perform differently, thereby adding to model error.

25. Appendix E, Table 1-42. The FCE values presented are unlikely to be achieved and should not be used in life-cycle modeling. The referenced Kock et al. (2019) study presented FCE values for head of reservoir releases, forebay releases, and near collector entrance releases. This is clearly not a single population of data and it is unsurprising that the results of using Kock et al.'s regression equation to obtain FCE estimates for proposed FSSs are unrealistic. For example, the value given for steelhead in Table 1-42 is greater than 1, an impossibility. The value given for Chinook salmon is a negative value, which is also impossible. The Kock et al. study likely has value in sizing fish collectors, but the regression for FCE should not be used in life-cycle modeling.
26. Appendix E, Page E-411. "Alternatives that relied solely on operational passage, 3a and 3b, did poorly compared to the other alternatives. It is beyond the scope of this report to detail differences between structural and operational passage at high head dams; however, it appears much of the inefficiency inherent in operational passage (as expressed in the FBW) comes from periods of time when the reservoir elevations are not ideal for passage through regulating outlets or via spill." This statement assumes that operational passage would be constrained to follow existing reservoir storage rule curves. Year-round deep drawdowns were not considered. As described above, reservoir and dam passage survival would be greatly improved by deep, year-round drawdowns, which were not analyzed.
27. Appendix J. The flow duration analyses presented is not very useful in identifying and comparing the streamflow related fish habitat effects of the alternatives. Either fish-use seasonal evaluations, or monthly analyses would provide a better opportunity to evaluate fish habitat effects. Side-by-side comparisons would be more useful than displaying each alternative separately.

CONCLUSION

The DEIS is inadequate.

- It fails to fully disclose the purpose of the action (e.g., storage reallocation).
- The range of operational measures considered was truncated by extensive reliance on existing operating criteria.
- Very little evidence was provided to demonstrate that operational measures to pass juvenile UW Chinook salmon and steelhead would be inadequate, largely because a limited range of operational measures were considered.
- The proposed duration of the action is too long. It focuses on measure implementation goals rather than fish passage success metrics. In doing so it fails to recognize the experimental/iterative nature of achieving successful fish passage at high head dams.
- The preferred alternative should be incremental, implementing actions, evaluating their effects, and revising or replacing the action as shown to be needed.

- The life-cycle model used to compare the likely success of those alternatives that were evaluated is unreliable. It assumes very high fish collection efficiencies for proposed floating screen structures that are unlikely to be achieved.
- It fails to focus on the Corps' obligation to further species recovery efforts.
- The preferred alternative's reliance on extensive structural measures (temperature towers, TDG abatement, floating screen structures and floating surface collectors) that would be very costly and require Congressional approval, makes it both expensive and uncertain to occur.
- Deep drafts, a less expensive and potentially highly effective juvenile passage measure. were not thoroughly investigated.

Sincerely,

Richard Domingue, Professional Hydrologist, NMFS ret.

References:

Lusardi R.A., Moyle P.B. 2017. Two-way trap and haul as a conservation strategy for anadromous salmonids. Fisheries, 42(9): 478–487.

ODFW and NMFS. 2011. Upper Willamette River Conservation and Recovery Plan for Chinook salmon and steelhead. Prepared by Oregon Department of Fish and Wildlife (ODFW) and the National Marine Fisheries Service (NMFS) Northwest Region, August 5, 2011

Kock, T.J, N.E. E. Verretto, N.K. Ackerman, R.W. Perry, J.W. Beeman, M.C. Garello, and S.D. Fielding. 2019. Assessment of Operational and Structural Factors Influencing Performance of Fish Collectors in Forebays of High-Head Dams. Trans. Am. Fish Society. January 2019.

Kock, T.J., Beeman, J.W., Hansen, A.C., Hansel, H.C., Hansen, G.S., Hatton, T.W., Kofoot, E.E., Sholtis, M.D., and Sprando, J.M., 2015, Behavior, passage, and downstream migration of juvenile Chinook salmon from Detroit Reservoir to Portland, Oregon, 2014–15: U.S. Geological Survey Open-File Report 2015-1220, 30 p., http://dx.doi.org/10.3133/ofr20151220.

U.S. Army Corps of Engineers. 2011. Willamette Basin Annual Water Quality Report, 2010 Water Year. Portland, OR

Addendum

Reservoir Refill, Spills

and Climate Resilience

The Corps has chosen not to consider actions that might modify operations in a manner that it considers could potentially affect its FRM actions. While it is reasonable for the Corps to reject actions likely to limit its ability to manage flood risk absent detailed investigation, hydrologic work presented in the DEIS makes it clear that such changes could provide meaningful benefits (e.g., Appendix B, Table 7-2). Further, the changing climate shows that there are risks not considered when operations were originally devised.

There are beneficial operational measures the Corps could adopt now without any additional flood risk, such as delaying refill when appropriate. Others, such as extending the duration that surcharges (storage above the minimum conservation pool (rule curve)) is allowed to persist to improve the likelihood of refill in dry years, require additional study. Given the scope and scale of the analyses presented in support of the DEIS, the Corps clearly has the expertise to conduct detailed flood risk assessments of alternative operations. These measures should be further evaluated for flood risk and adopted when appropriate.

Refill

Refilling the WVS's large storage reservoirs incurs two risks; low conservation season storage, and forced spills due to large freshets when the reservoir is full, termed: fill and spill. Both of these risks have implications for aquatic resources. In the event of low conservation season storage, downstream minimum flows could be reduced, and discharge temperature control made more difficult. In the event of filling and spilling, high to toxic levels to TDG may be generated.

The Corps refills its projects using fixed storage reservation diagrams or rule curves, designed decades ago to capture water under a range of conditions, recognizing that at times the reservoirs would not fill, and at other times, fill and spill.

<u>Likelihood of refill/Conservation season storage</u> Work presented in Appendix B on extending the duration that surcharges are allowed to persist during refill (February through May) from the current 7 – 10 days to 14 days demonstrates potential increases in conservation season storage. Extending the duration of surcharges also has the potential to reduce the magnitude of spills that cause high TDG production. The Corps has chosen not to conduct the detailed flood-risk analyses that would be needed to adopt this measure. Other approaches to increasing the likelihood of refill, such as an earlier start date during dry years, have also not been considered. In large measure, this is due to the difficulty of predicting spring runoff in the primarily rainfall driven Willamette Valley in January, when the action would have to occur. Accelerating refill beyond 14 days would require improvement in Willamette Valley runoff forecasting skill.

Fill and spill Spring flood events in the Willamette valley tend to be smaller and more localized than the large winter rain on snow events, but damaging events do occur (e.g. April 2019 event downstream from Dorena Dam). Even smaller fill and spill events should be viewed as generally undesirable because such spills can be harmful to the fish and other biota downstream by generating toxic concentrations of TDG (e.g. May and June 2022 downstream from Big Cliff Dam). The following assessment focuses on operation of Detroit reservoir but should be reviewed for each of the large storage reservoirs operating under Interim Reservoir Risk Management limits.

Due to a set of increasingly restrictive storage limits set since the reservoir operations were established, the ability of the dams to attenuate spring freshets has been reduced. For example, the original operating plan set el 1569 as full pool at Detroit reservoir and allowed an additional 3 feet or about 11,000 acre-feet for summer flood control storage. By 2011 (Corps Scheduled Water Control Diagram), the full conservation pool had been reduced to el 1563.5 to be achieved on or after May 4 but allowed almost 30,000 acre-feet for summer flood control storage above the maximum conservation pool. This target "full-pool" elevation has since been reduced by an Interim Reservoir Risk Management (IRRM) limit of el 1558.5, a 17,500-acre-foot reduction in available storage. Yet, no change in refill trajectory has been implemented, nor apparently any reservoir flood storage space maintained available to attenuate spring freshets. This means the reservoir is both "full" several days earlier than would have previously been the case, and when full, no summer flood control volume is available to attenuate freshets. As the Corps is aware, refill following these rules resulted in about 3 days of high spill at the dams and toxic (>130%) TDG conditions in the North Santiam River downstream from Big Cliff Dam in early May 2022 during winter steelhead spawning. Toxic TDG concentrations during spawning are particularly harmful because spawning fish remain near their redds for days, increasing the duration of exposure and the likelihood of injury or mortality.

By accelerating refill without setting aside a live storage volume for summer flood control, the IRRM limits have increased the probability of spring and summer fill and spill operations at Detroit/Big Cliff. Such spills can generate harmful to toxic levels of TDG. **The Corps should either allow surcharge above the IRRM limit, if dam-safety permits, or delay refill until the risk of fill and spill has substantially declined to reduce downstream high TDG events. Such a refill delay decision would consider forecasted inflows (e.g. NOAA River Forecast Center's (RFC) 10-day forecast), prevailing climatic conditions, and probability of refill estimates. The existing WATER process as described on page 3-43 would seem well-suited to this task.**

Not all high TDG-generating events can be avoided, but thoughtful refill management could reduce their occurrence during steelhead spawning. To be clear, delaying refill to reduce the risk of fill and spill operations would not in any way increase flood risk, it would reduce it.

While I have only taken the time to review operating limit changes through time at Detroit reservoir, all projects operating under IRRM likely also have a somewhat increased probability of fill and spill operations due to the loss of available summer flood storage. But the issue is

perhaps most acute at Detroit because refill is a high priority and the need to avoid fill and spill is high due to high TDG production and the presence of listed fish.

Climate Resilience

The lingering snowpack and atmospheric river events of May and June 2022 were unusual events when viewed through the lens of the historical record. However, over the past 43 years in North America, the frequency of unusual heat and precipitation events is increasing rapidly: "The yearly trends of the risk of a 100-y high-temperature event show an average 2.1-fold increase over the last 41 y of data across all months, with a 2.6-fold increase for the months of July through October. The risk of high rainfall extremes increases in December and January 1.4-fold, but declines by 22% for the spring and summer months (PNAS 2022).

Over the past 30 years (1986-2016), mean annual temperatures have increased by 1 to 2° F throughout the Pacific Northwest and precipitation in the Willamette Valley has increased by about 5% (Appendix F, Figures 3-2 and 3-3). Also, "… the Pacific Northwest has experienced a moderate increase in the precipitation falling during extreme events. This indicates that extreme events have been becoming increasingly intense over the past decades. The observed trends in heavy precipitation are supported by well-established physical relationships between temperature and humidity. These increases in annual and extreme precipitation depths and volumes have various implications for reservoirs, particularly those intended for flood risk management." Page F1-12.

The Corps' CHAT model and vulnerability assessment (VA)(Appendix F, Chapter 7) suggest possible higher runoff volumes and peak flows during the winter and spring with less change from current norms during the summer with prolonged drought as a vulnerability.

The VA also suggests physical plant modifications to allow a greater range of safe operation to increase WVS resiliency in the face of an uncertain hydrologic future. The Corps has undertaken gate improvements in recent years that have improved climate resilience. By increasing structural resilience such measures benefit all project purposes.

However, improving physical system performance is not the only mechanism available to increase WVS resilience in the face of climate risks. Increasing operational flexibility, using real-time and forecasted climate and hydrology data to inform operations, particularly during refill, would improve WVS response to changing hydrologic conditions at low cost.

The Corps should also seek to improve refill-season runoff forecasting to better manage refill for all project purposes. Operations evaluations should take place every 5-7 years throughout the 30-year life of the preferred alternative to incorporate new information, forecasting improvements, and lessons learned. It would benefit the WVS's climate resilience to adopt more flexible operations as forecasting skill allows.

PNAS. 2022. Saahil Shenoya, D. Gorinevsky, K. Trenberth, and S. Chua. Trends of extreme US weather events in the changing climate. PNAS 2022, Vol.119, No.47

Columbia River
BASSMASTERS

2/11/2023

To Whom It May Concern,

We, the members of Columbia River Bassmasters, are concerned about the proposed plan to draw down the water levels at Green Peter reservoir.

We have two main points we wish to implore to you:

1. The recreational impact on the reservoir will be significant, as boaters and bank anglers alike will have problems accessing the lake. We as outdoor sports enthusiasts pay taxes and wish to use places like Green Peter to recreate. Your proposed course of action would result in the loss of this location to recreate. The economic impact to other small communities nearby will be significant, as there won't be as many people coming through to use the lake.

2. The loss of fish habitat is our second point of issue. Drawing down the reservoir would cause significant damage to bass and other warm water species that need shallow water to properly complete the spawn cycle. Taking the water down a significant amount would have an unknown impact on the fish, their habitat and their ability to return to the populations they are now.

We the members of Columbia River Bassmasters implore the Army Corp of Engineers to please manage the water infrastructures we have and not create a situation that will negatively impact our fisheries. Sport fish deserve management too.

Sincerely,

COLUMBIA RIVER BASSMASTERS

Barajas, Emily K CIV USARMY CENWP (USA)

From: Hawe, Kate M CIV (USA)
Sent: Thursday, February 23, 2023 10:03 AM
To: Judith Marshall
Subject: Responses to WVS EIS Questions

Hello Jody:

We have developed responses to each of your questions, noted below. Additionally, we have added each of the issues you identified to our FEIS tracking system so that we will capture clarifications when we develop the FEIS.

Thank you again for pointing out these important considerations.
Sincerely,
Kate Hawe
NEPA Lead

Q: Will you please define reach replacement for me? It is not in the glossary nor in the text. I think understanding this will help my overall understanding of the EIS and impacts to ESA-listed fish.

USACE considers replacement potential (i.e., whether each generation produces enough juveniles to at least replace itself) to mitigate for the effects of the project without consideration of factors outside of its authority to address (e.g., ocean conditions). This definition is provided in section 3.8.2.1. Methodology.

Q: Will you also please explain what it means for fish species' population to remain with high persistence which is defined as a low risk of extinction? What does this mean about the species' populations to return to the numbers before the WVS was constructed?

Persistence means that there is a high probability that adult abundance will not fall below an unacceptable number of spawning individuals annually. Extinction risk is the inverse of persistence. The EIS analysis for assessing the effects of alternatives on Chinook and steelhead populations provides results for metrics consistent with NOAA Fisheries Viable Salmonid Population approach for assessing ESA-listed salmon species, and was chosen due to a primary goal of the EIS to address ESA obligations. The analysis was not completed to assess Chinook and steelhead abundance under alternatives relative to estimates of abundance prior to dam construction.

Q: Also not defined is the McKenzie Core Legacy population. What is this?

This is a NMFS construct. NMFS has indicated that the McKenzie is especially important as a genetic conservation bank. https://www.fisheries.noaa.gov/resource/document/upper-willamette-river-conservation-and-recovery-plan-chinook-salmon-and

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From: Judith Marshall <jody8111@comcast.net>
Sent: Wednesday, February 22, 2023 9:58 AM
To: Hawe, Kate M CIV (USA) <Kate.M.Hawe@usace.army.mil>
Cc: Jody Marshall <jody8111@comcast.net>
Subject: Re: [Non-DoD Source] Willamette Valley System Draft EIS

Hi Kate,

My question is both. I would like to understand what those terms mean as part of developing my comments. My comments will also include a suggestion that these definitions be offered in the document or described somewhere.

Thank you,
Jody

On Feb 21, 2023, at 4:39 PM, Hawe, Kate M CIV (USA) <Kate.M.Hawe@usace.army.mil> wrote:

Hello Jody:

We could use some clarification before answering your questions. Do you require answers to help you develop and submit formal comments by the close of the comment period?

Since the comment period ends on Thursday at 11:59 p.m., we want to be responsive if this will help you prepare comments. If not, we will address your concerns as formal responses in the Final EIS.

Thank you,
Kate Hawe

From: Judith Marshall <jody8111@comcast.net>
Sent: Tuesday, February 21, 2023 2:49 PM
To: CENWP-PME-Williamette-Valley-System-EIS <willamette.eis@usace.army.mil>
Cc: Jody Marshall <jody8111@comcast.net>
Subject: [Non-DoD Source] Willamette Valley System Draft EIS

Hi -

Will you please define *reach replacement* for me? It is not in the glossary nor in the text. I think understanding this will help my overall understanding of the EIS and impacts to ESA-listed fish.

Will you also please explain what it means for fish species' population to remain *with hight persistence* which is defined as a *low risk of extinction*? What does this mean about the species' populations to return to the numbers before the WVS was constructed?

Also not defined is the *McKenzie Core Legacy population*. What is this?

Thank you.

Jody Marshall
jody8111@comcast.net

The Confederated Tribes of the Grand Ronde Community of Oregon

Natural Resources
Phone (503) 879-2424
1-800 422-0232
Fax (503) 879-5622

47010 SW Hebo Road
Grand Ronde, OR 97347

Confederated Tribes of Grand Ronde Comments on the Willamette Valley System Operation and Maintenance Draft Environmental Impact Statement

Submitted via email to: willamette.eis@usace.army.mil

Date: February 21, 2023

The Confederated Tribes of Grand Ronde (CTGR) respectfully submit these comments on the Willamette Valley System Operation and Maintenance Draft Environmental Impact Statement (DEIS). We appreciate the Corps' willingness to discuss the dams and the DEIS with CTGR over the last several months.

The operation of the Willamette River Basin dams has driven the Upper Willamette River (UWR) Chinook and steelhead to the brink of extinction. That is unacceptable. The Corps must act urgently to right this historic wrong.

The Corps' preferred alternative in the DEIS will continue this path to extinction. The preferred alternative is too slow, too uncertain, and too half-hearted to change the trajectory. Fortunately, the Corps has the authority and expertise to choose a different path. We encourage the Corps to choose a path that restores salmon and fulfills promises to the Native people of the Willamette River Basin.

I. The Corps' Willamette River Basin dams are driving salmon to extinction

A. Upper Willamette River salmonids are threatened with extinction

The Willamette River Basin once supported tremendous salmon runs and a large salmon fishery. After decades of declining numbers, the National Marine Fisheries Service (NMFS) listed UWR Chinook and steelhead as threatened under the Endangered Species Act in 1999. UWR Chinook salmon and steelhead are the only species of anadromous salmonids to historically inhabit the Willamette above the falls.

Today, by any measure, the numbers are dire. Less than 10,000 wild Chinook salmon return each year to the Upper Willamette River basin, an approximately 97% reduction of the historic estimates of 300,000–450,000 Chinook."[1] UWR Chinook in most subbasins have a "very high risk of extinction," according to NMFS, and their populations are decreasing.[2]

[1] Fourth Declaration of Kirk Schoeder in Support of Plaintiffs' Motion for Permanent Injunctive Relief, *Northwest Env. Defense Center v. U.S. Army Corps of Engineers*, Case No. 3:18-cv-00437-HZ, at 4.
[2] *Id.*

Less than 3200 late run winter steelhead – considered to be the native run that historically crossed Willamette Falls – returned on average from 2008 to 2020. This is a nearly 70% reduction from the 1970s when data was first available,[3] and a fraction of the historical runs before dam construction. In 2017, just 822 Winter steelhead crossed Willamette Falls, a dangerously low number.

B. Upper Willamette River dams block access to recovery

The dams were built beginning in the 1940s–the primary purpose was flood control. According to Bonneville Power Administration (BPA), the dams "generate a small amount of power relative to their operating costs."[4] The dams contribute less than 2% to the Federal Columbia River Power System[5] and the cost of this power is three times more expensive. As discussed below, the Willamette dams will produce even less power at higher cost in the future.

Over 90% of the historic spawning, incubation, and rearing habitat for UWR Chinook has been blocked by dams in the Middle Fork Willamette River subbasin. Approximately 70% of UWR Chinook historic habitat in the North and South Santiam River subbasins and approximately 16% in the McKenzie River subbasin is blocked by dams. If the fish could reach it, the blocked habitat is high-quality and relatively intact, located primarily on National Forest Service land.

The Corps traps a limited number of adult Chinook and steelhead and hauls the fish in trucks above the dams for release. Adult salmon trapped and hauled have high mortality rates.[6]

Offspring of these trucked fish must outmigrate downstream through the reservoirs and generally pass through the dam turbines or deeper outlets. In addition to the mortality imposed by passing through the dams, reservoirs are harmful to juvenile salmon due to: stagnant water, which creates long travel times; more abundant predators; increased exposure to diseases and parasites; and poor water quality.[7]

C. The Corps violated the Endangered Species Act

On August 17, 2020, the U.S. District Court for the District of Oregon ruled that the Corps violated its duties under the Endangered Species Act: "**Far short of moving towards recovery, the Corps is pushing the UWR Chinook and steelhead even closer to the brink of extinction. The record demonstrates that the listed salmonids are in a more precarious condition today than they were at the time NMFS issued the 2008 BiOp.**"[8]

The strongly worded opinion by Judge Hernandez reflects the disappointing history of the Corps' inaction.

In 1999, UWR Chinook salmon and steelhead were listed as threatened under the Endangered Species Act. Nine

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[3] *Id.* ("Abundance of winter steelhead by run type is not available prior to 1971, so historic abundance is unknown. However, over 10,000 late run winter steelhead—those returning after February 15 (late run) are considered to be the native run—returned on average in 1971–1988 compared to an average of about 3,200 in 2008–2020, a decrease of almost 70%").

[4] BPA Fact Sheet, Power from the Willamette Basin dam, Aug 2019. https://www.bpa.gov/-/media/Aep/about/publications/fact-sheets/fs-201908-Power-from-the-Willamette-Basin-dams.pdf

[5] Willamette Valley System Operation and Maintenance Draft Environmental Impact Statement at 3-870 ("the WVS only provides some 2 percent of the total BPA generation capacity").

[6] First Declaration of Kirk Schroeder in Support of Plaintiffs' Motion for Permanent Injunctive Relief, *Northwest Env. Defense Center v. U.S. Army Corps of Engineers*, Case No. 3:18-cv-00437-HZ, at 11.

[7] *Id.* at 12.

[8] Opinion and Order, *Northwest Env. Defense Center v. U.S. Army Corps of Engineers*, Case No. 3:18-cv-00437-HZ.

years passed before NMFS produced a Biological Opinion (BiOp) in 2008, in which NMFS concluded that the continued operation of the dams as proposed by the Corps would jeopardize the continued existence of UWR Chinook and steelhead.

NMFS set forth 96 measures necessary to avoid jeopardy of the species (called Reasonable and Prudent Alternatives or RPA). NMFS provided strict deadlines for completing many of the measures. Judge Hernandez stated, "The BiOp is unequivocal; the Corps needed to implement the entire RPA—especially the measures addressing downstream passage and water quality issues—to avoid jeopardizing the listed salmonids and adversely modifying their critical habitat. The Corps, however, has failed to carry out several of the most important [measures]."[9]

Together with the 2008 BiOp, NMFS also issued an Incidental Take Statement ("ITS") that authorized the take of the listed species pursuant to the terms and conditions set out in the ITS. The ITS specifies mortality limits allowed for downstream passage for juvenile UWR Chinook. For example, the Corps was allowed to kill up to 65% of juvenile UWR Chinook salmon at Detroit and Big Cliff dams in the North Santiam subbasin. The Corps has consistently killed more fish than allowed, as described below.

Finally, in 2018, three environmental groups–Northwest Environmental Defense Center, WildEarth Guardians, and Native Fish Society–sued the Corps and NMFS for violating the Endangered Species Act. The Court held:

1. The Corps violated ESA Section 7(a)(2) by failing to take action necessary to avoid jeopardizing the continued existence of UWR Chinook salmon and steelhead. The populations continue to decline and the Corps' failure to implement the RPA measures are the cause of that decline.
2. The Corps violated ESA Section 9 because its continued operation of the dams is killing–causing "take" of–more juvenile salmon than permitted in the Corp's ITS in each subbasin. For example, the ITS allowed the Corps to kill up to 32% of juvenile UWR Chinook salmon at Cougar dam, but the dam killed 89%.
3. The Corps violated ESA Section 9 by failing to reinitiate consultation after failing to meet the ITS limits.

The Court also issued an injunction that requires the Corps to implement various interim measures to benefit salmonids until NMFS completes the new BiOp. The injunction measures are a good start, but the Corps must do more to protect salmon. We encourage the Corps to leave the injunction measures in place, conduct thorough monitoring of the results, and quickly move toward improving upon the injunction measures for fish passage.

II. The preferred alternative should focus on immediate operational measures to improve volitional juvenile outmigration

A. Deep drawdown is necessary for successful volitional fish passage

NMFS concluded that "lack of passage is one of the single most significant adverse effects on both the fish and their habitat."[10] Each dam is unique and there are complex opinions on how to improve juvenile passage through reservoirs and dams. The solutions are built on the following principles:

- Juvenile salmonids spend too much time and energy migrating through slow-moving reservoirs. The reservoirs also contain more predators and disease pathogens than a free-flowing river. We can **increase**

[9] *Id.*

[10] Opinion and Order, *Northwest Env. Defense Center v. U.S. Army Corps of Engineers*, Case No. 3:18-cv-00437-HZ.

the speed of migration through the reservoirs by reducing the size of the reservoirs via drawdowns or increasing flow with more spill.

- Passage through turbines causes high mortality. We can **increase juvenile passage through regulating outlets or spillways** to avoid the turbines. In addition, most juvenile salmon–up to 98%–migrate at night. We can **turn off the turbines at night** to reduce mortality by the spinning turbines.
- Juvenile salmon typically swim near the surface. They do not dive to find deeper outlets through the dams. We can **reduce the depth of the reservoirs** to within 20 feet of the outlets to allow the fish to find the safest outlets.

Deep drawdown is the best way to achieve volitional passage for juvenile salmonids. Deep drawdown meets the biological needs of juveniles because it is the closest operational measure to a naturally-flowing river.

The proof is in the numbers: Deep drawdown of Fall Creek reservoir, for example, during juvenile migration "results in a roughly ten-fold increase in the adult salmon that later return to Fall Creek"[11] compared to a fuller reservoir.

Fall Creek dam and reservoir during deep drawdown in 2015.[12]

Currently, the Corps performs deep drawdowns at some of the dams for short periods of time. For example, since 2011 the Corps has conducted deep drawdown at Fall Creek dam for two weeks of the year in the winter. Judge Hernandez ordered the Corps to extend the deep drawdown to six weeks.

B. The preferred alternative should maximize deep drawdown

The preferred alternative should maximize deep drawdowns for all suitable reservoirs. Fortunately, drawdown is consistent with flood risk management. Lower reservoirs have room to manage storm events. In addition, low reservoirs provide less flood risk in the case of earthquakes.

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[11] https://www.nwp.usace.army.mil/willamette/fall-creek/drawdown/

[12] https://www.nwp.usace.army.mil/willamette/fall-creek/drawdown/

While drawdown measures must balance numerous physical and biological factors, the Corps must prioritize protecting ESA-listed species over hydropower production. The Corps made the argument to Judge Hernandez that it cannot curtail hydropower because hydropower is an authorized use. The Court rejected that argument and issued an injunction that required the Corps to, among other things, curtail hydropower by completing longer drawdowns. The Flood Control Act authorizing the dams included broad goals but did not dictate how the Corps would accomplish those goals.

It is impossible to tell from the DEIS how the Corps weighed hydropower production when developing the alternatives. The final EIS should clearly spell out the maximum drawdown possible in depth, duration, and seasonality that would benefit the species. The final EIS should include a discussion of how much hydropower the Corps aims to produce under each alternative and how that production impacts salmonids.

The preferred alternative should include at a minimum the downstream passage measures (#40) from alternative 3B, which includes deeper fall drawdown at Lookout Point, Hills Creek, Cougar, Blue River, Green Peter, and Detroit. The preferred alternative should also include spring passage measures (#720) for Hills Creek, Cougar, Green Peter, and other dams that benefit salmonid passage.

Limiting drawdown to a few weeks in the fall adversely affects the diversity of life histories for salmonids. Juvenile fish are in the reservoirs in nearly every month of the year and the survival rate drops the longer the fish remain in the reservoirs. The preferred alternative should explicitly evaluate a range of frequency (spring and fall) and duration (months) of drawdown.

In addition, refilling reservoirs greatly affects fish passage timing and survival. The final EIS should evaluate the impact of draft and refill operations and consider options to avoid refill where possible.

Specifically the preferred alternative in the final EIS should include the following actions:

- **Cougar** - The Corps should implement Cougar drawdown faster. The preferred alternative would delay the drawdown to the diversion tunnel at Cougar until 2040, even though this vital action has been proposed for years. While the Corps proposes construction to modify the tunnel, it should not take nearly two decades. Time is not on our side. The Corps should include the following into the preferred alternative: 1) fish passage through the diversion tunnel is operational by 2028, not 2040; 2) the Corps need not wait to complete the disposition study; 3) after the hydropower disposition process for Cougar is complete, the Corps should operate Cougar as run-of-the-river.
- **Detroit** - The Corps should immediately implement deeper drawdown to the regulating outlet in the spring and fall. If the Corps must sustain the recreational use of power boats for political reasons, the Corps could refill the reservoir in the summer to support some boat ramps. This approach may require the construction of a fish collection structure and a temperature control structure. If drawdown is successful, reevaluate whether structures are needed.
- **Lookout Point** - The Corps should complete its landslide risk assessment in early 2023 and then implement deeper drawdown in the spring and fall, as required by the injunction. The Corps should monitor results to evaluate whether a fish collection structure is needed in the future.
- **Hills Creek** - The Corps should implement adult outplanting above the dam and deeper drawdown for juvenile passage as soon as possible. The Corps should monitor results to evaluate whether a fish collection structure is needed in the future.

- **Green Peter** - The Corps should implement fall and spring deeper drawdown as soon as possible.

C. The preferred alternative's structural solutions are too slow and too uncertain

The preferred alternative proposes to build juvenile fish passage structures at Detroit in 2036, Lookout Point in 2044, and Foster in 2032. These actions are not even certain–the Corps says the dates are "best-case scenario" and funding dependent. The decade-long delay is incompatible with fish recovery and should be changed in the final EIS.

The Corps should quickly implement and monitor aggressive volitional fish passage prior to investing in very expensive structural projects like juvenile fish collection facilities, which are unproven for high-head dams and may take decades to deploy.

Deep drawdown is already happening, partially, under the interim injunction measures. Data will be available soon. If deep drawdown is not successful, the Corps could build the fish collection structures later.

III. The final EIS should accurately describe the fact that hydropower from the Corps' dams is not profitable

Because hydropower production drives many of the Corps' operating decisions, the final EIS should provide an honest assessment of the value of hydropower. The description of hydropower in the DEIS leaves out the punchline: Upper Willamette River Basin hydropower does not make economic sense.

Under the preferred alternative, the dams would lose a stunning $714 million over 30 years because the cost of generation far outweighs the revenue.[13] The DEIS stated there "would be a $939 million reduction in Net Present Value to -$714 million." Killing salmon to lose money deserves a deeper analysis. The final EIS should fully describe the impact on ratepayers and spell out alternatives for a more logical approach.

In a massive understatement, the Corps noted that losing hundreds of millions of dollars is generally not "cost effective."

> Given Table 3.12-4 amounts, the current cost-effectiveness of WVS projects is marginal relative to average market prices and other alternative resources. Recent court-ordered changes in operations at several WVS projects are likely to significantly increase the Cost of Generation at several WVS generation facilities while also significantly reducing the amount of electricity generated. Future capital requirements for generating unit modernizations and structural measures are expected to further diminish the cost-effectiveness of WVS projects' power production. *Generally, Bonneville does not regard as cost effective measures that would result in a production cost higher than value of electricity generated at individual or group projects.*[14]

The dams, according to Bonneville Power Administration (BPA), "generate a small amount of power relative to their operating costs."[15] The dams contribute less than 2% to the Federal Columbia River Power System[16] and

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[13] https://www.nwp.usace.army.mil/Locations/Willamette-Valley/System-Evaluation-EIS/ at 3-939.

[14] *Id.* at at 3-927

[15] BPA Fact Sheet, Power from the Willamette Basin dam, Aug 2019. https://www.bpa.gov/-/media/Aep/about/publications/fact-sheets/fs-201908-Power-from-the-Willamette-Basin-dams.pdf

the cost of this power is three times more expensive.

The dams are economic losers for BPA and the cost is going to continue to rise. BPA stated:
"The Willamette dams are expected to have a levelized cost of generation of $30.83 per MWh over the next 30 years as they exist today, *before any additional fish mitigation measures are constructed or implemented.* Any additional fish mitigation measures would drive the cost to generate power from the Willamette dams even higher."[17]

The Public Power Council, which represents consumer-owned utilities (municipal, public utility districts, and rural electric cooperatives) that mainly rely on BPA for wholesale power, raises serious concerns about the economic impacts of the Willamette Valley dams. "We've got to do something about these Willamette projects," Scott Simms, director of the Public Power Council, stated. "They are very costly and potentially more costly in the future."[18]

The total power produced by the Corps' dams is small in relation to the damage the dams inflict on salmon. And the power production will likely decrease in the future. The DEIS shows the annual power production is 184.4 MW (the total in the table below includes the private Dorena dam).

Table 1.7-1. Annual Power Production (aMW)

Project	Average Annual Generation (aMW)	Peak Cap (MW)
Big Cliff	11.4	21
Cougar	17.8	28
Detroit	47.2	127.8
Dorena*	3.2	8
Dexter	9.9	17
Foster	12.6	23
Green Peter	29.3	93
Hills Creek	18.6	34
Lookout Point	37.6	138
Total:	**187.6**	**477**

To put 184 MW in context, the John Day dam capacity is 2,485 MW and Grand Coulee dam capacity is 6,809 MW. The recently approved Obsidian Solar project in Lake County, Oregon, will produce 400 MW of energy. In Morrow County, the Wagon Trail Solar Project is proposed to produce 500 MW.

The final EIS should contain a detailed evaluation of the cost of the hydropower and the impact on ratepayers, considering a range of additional fish mitigation measures proposed in the DEIS and the upcoming BiOp. The Corps fails to disclose the low economic value of hydropower, which prevents a fair assessment of hydropower's benefits versus the tremendous harm to fish and wildlife.

IV. The alternatives analysis violates NEPA by failing to evaluate a no-hydropower alternative

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[16] Willamette Valley System Operation and Maintenance Draft Environmental Impact Statement at 3-870 ("the WVS only provides some 2 percent of the total BPA generation capacity") and 3-927.

[17] BPA Fact Sheet, Power from the Willamette Basin dam, Aug 2019.

[18] https://www.newsdata.com/clearing_up/supply_and_demand/corps-to-study-deauthorizing-power-generation-at-three-willamette-project-dams/article_f8ea825e-4586-11eb-9037-97028194cdf4.html

NEPA requires that every EIS analyze a reasonable range of alternatives and take a hard look at the environmental consequences of each alternative so that decision-makers and the public can readily understand the implications of the choices before the agency. The final EIS should include a no-power alternative and fully evaluate the different operation measures if the dams are not managed for hydropower.

Removing hydropower is a reasonable alternative given the dire state of salmon health, warming water in reservoirs due to climate change, and–most obviously–the fact that hydropower production has no economic justification for these dams. It is not sustainable to lose hundreds of millions of dollars.

Removing hydropower is also a reasonable alternative because Congress has required the Corps to study deauthorizing hydropower. Congress passed the Water Resources Development Act (WRDA) of 2020, which required the Corps to study deauthorizing power as a purpose of Cougar, Detroit, and Big Cliff dams. WRDA 2022 requires the Corps to analyze the effects of "deauthorizing hydropower as an authorized purpose, in whole or in part, of the Willamette Valley hydropower project."[19] Because the Corps is currently studying a major operational alternative, the Corps should include it in the final EIS.

V. The final EIS should include robust monitoring and inclusive adaptive management

The final EIS should provide more details on monitoring and adaptive management. Monitoring the effectiveness of new measures will be a critical part of decision making moving forward. We encourage the Corps to invest in a robust monitoring program that is at a scale and duration to provide data to answer the necessary questions.

CTGR participated in the WATER process after the 2008 BiOp. We encourage the Corps to develop a better and more inclusive process to work with federal, state, and tribal partners.

VI. The final EIS must evaluate the environmental justice impact of salmon declines on CTGR and other Tribal Nations.

The DEIS discussion of environmental justice is wholly inadequate. If the Corps continues to operate the dams in a manner that drives UWR Chinook and steelhead to extinction, that is an ultimate injustice. The Corps must conduct a robust analysis to assess the full environmental justice implications of operating the dams and the impact on the CTGR, CTGR tribal members, and other Tribal Nations. The Corps must consider the disparate impacts that CTGR and other Tribal Nations have faced due to the Corps' construction and operation of the dams. The disparate impact analysis must inform any decision by the Corps and be included in the preferred alternative.

Instead of addressing the stunning impact of extinction, the DEIS spends pages evaluating, for example, how construction projects may affect sedimentation or the jobs of people working in the reservoirs. The Corps must address the primary issue of dams driving salmon toward extinction.

On February 11, 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The Executive Order makes it the responsibility of each Federal agency to "make achieving environmental justice part of its mission in identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income

[19] https://transportation.house.gov/imo/media/doc/Sus_01_xml.pdf

populations." Accompanying this order was a Presidential Memorandum stating that "each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low- income communities, when such analysis is required by the [National Environmental Policy Act]." The Corps must analyze the health, economic, and social effects of the dam operations and salmon impairment on the CTGR community. The DEIS fails to fulfill this duty.

VII. Additional technical comments

Comment: Passage at the regulating outlets at Detroit dam has not been assessed. Alternative 3 draws down to 1330 which is much closer to RO outlet and within the optimal range of passing juvenile salmonids. This would likely be a more effective passage route for downstream fish passage. Alternative 3 for Detroit should be included in the preferred alternative.

Comment: As previously mentioned, fish passage at the regulating outlets at Detroit dam has not been assessed. Unlike many of the other projects in the basin, Detroit has two sets of regulating outlets at elevation 1330 and 1260. Drawing reservoir levels down to elevation 1290 in the fall would likely be the optimal outlet for fish passage. The preferred alternative should include drawdown to elevation 1290 and fish passage and survival assessments should be conducted.

Comment: Alternative 3 calls for a spring drawdown to 780, while the injunction measure calls for spring spill. Unlike other dams in the basin, Green Peter dam is equipped with a very low regulating outlet. The 780 elevation will leave an 80 foot pool and may pose on optimal opportunity to pass fish downstream. Though spill can be very effective to pass fish, there is not enough data to determine which will have higher passage efficiency for salmonids and other native fish species. The preferred alternative should include assessing the effectiveness of spring drawdown as called for in Alternative 3.

Comment: Fish and Wildlife have been identified as an Authorized Use for the Willamette Project dams. This is broader than the Endangered Species Act, as the DEIS does not provide sufficient alternatives to address non-listed fish and wildlife species, particularly Pacific lamprey *Entosphenus tridentatus*, Western ridged mussel *Gonidea angulata*, and Western pond turtle *Actinemys marmorata*, all of which have been severely impacted by the operations of the Willamette Project.

Comment: Levees and revetments that are Corps authorized, and hence fall under the "408 Program," continue to disconnect floodplain, off-channel, riparian, and wetland habitats to the detriment of a wide spectrum of fish and wildlife species and their habitats. The Corps should review the 408 Program to determine if there is any Program flexibility that would allow currently non-functional structures to be discontinued from Program coverage. If structures are non-functional, then the current level of protection would not change. This would provide a greater opportunity by project sponsors for levee set-backs and/or revetment modification or removal, which could reduce downstream flooding by allowing instream flow to laterally expand across a greater extent of the historic floodplain.

Comment: The Corps should complete an effective Trap and Haul facility, specific to Pacific lamprey, to pass returning adult Pacific lamprey from the base of Fall Creek Dam into the stream reaches above the reservoir. Pacific lamprey were successfully reintroduced above Fall Creek Dam over the past decade by efforts of the Confederated Tribe of the Grand Ronde Indians. Adult Pacific lamprey were transferred from Willamette Falls for seven years to riverine reaches above Fall Creek Reservoir: spawning was documented in these reaches, and juvenile Pacific lamprey were later collected in outmigrant monitoring trap immediately below the dam. The Corps recently incorporated many significant features necessary to collect adult Pacific lamprey within the new AFF for salmonids; however, a permanent, lamprey-specific passage structure within that fishway to pass adult

Pacific lamprey has not been completed. Structures such as a wetted wall or inclined ramp into a lamprey-specific holding tank, (such as those that exist at Bonneville Dam or PGE's River Mill Dam), are potential solutions to address passage via Trap and Haul at Fall Creek Dam. Similar efforts to complete lamprey passage at the Cougar AFF, Foster AFF and re-establish lamprey above Cougar Dam, Foster Dam and possibly other WVS dams, should also be initiated.

Comment: Determine the impacts of the annual complete reservoir drawdown on Pacific lamprey because the annual full drawdown of Fall Creek reservoir for salmonid passage may impact larval and juvenile Pacific lamprey that may be stranded in the sediments. In coordination with the Tribe and other experts, evaluate the potential to reduce the ramping rate to slow the change in reservoir elevation during the drawdown, especially in areas of the reservoir that contain fine sediment deposits with little to no slope, or other strategies that would limit impacts to rearing Pacific larvae in the sediments.

Comment: Work with the Tribe and other experts to create a prioritization framework for Pacific lamprey conservation and reintroduction of lamprey into historical habitats above the Corps dams. Historically, Pacific lamprey distribution in the Willamette largely reflects anadromous salmonid distribution. Such a framework would include assessment of habitat availability and suitability for all life stages of Pacific lamprey and evaluate the potential for completing upstream passage for lamprey at its new AFF and evaluating downstream passage routes for outmigrating Pacific lamprey at the WVS dams (including an evaluation of predation risks from large populations of non-native fish residing in some reservoirs). Assess availability and suitability of off-channel habitats in reaches downstream of WVS dams. In reaches with relatively low presence of offchannel habitat, or where the lack of disturbance limits the creation of new off-channel habitats, prioritize the restoration of existing off-channel habitats (e.g., dredging and excavation, re-introducing disturbance by increasing up- and downstream connectivity of habitats, and removal of successional plant species). Prioritize floodplain restoration areas where capacity of floodplain expansion would have low risk existing infrastructure. Off-channel habitats are important rearing habitats for juvenile salmonids and Pacific larval lamprey.

Comment: Set up a formal monitoring plan to document the role of geomorphology, flows, and cottonwood in the Willamette floodplain to determine the effects of different dam operations on black cottonwood.

Comment: Create functional flows with a combination of increased minimum flow and flow ramping to improve the health of established Cottonwood trees and increase seedling recruitment.

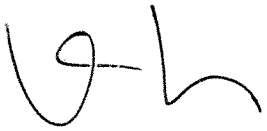
Comment: In coordination with the Tribe and other experts, modify operations to provide a more normative (pre-dam) hydrograph, particularly freshets and peak flows that (1) connect floodplain and off-channel habitat, and (2) initiate sediment transport and hence restore existing and creating new riverine and off-channel habitats.

Comment: The preferred alternative identified in the draft EIS includes future operational and/or structural fish passage (up and downstream) at multiple WVS dams, geared largely towards ESA protected Chinook salmon (Oncorhynchus tshawytscha), winter steelhead (Oncorhynchus mykiss) and bull trout (Salvelinus confluentus). Given that passage is focused on Chinook, steelhead and bull trout, the dams investigated for passage are those likely to provide the greatest benefit to those three species, without much consideration to the migratory requirements of other native aquatic species at the remaining WVS dams and the continued impacts to these species from operation and maintenance of these dams into the future.

VIII. Conclusion

The Confederated Tribes of Grand Ronde are committed to salmon recovery in the Willamette River Basin. Now is a critical time to make progress after many years of neglect. We are hopeful that the Army Corps will work in partnership with the CTGR to make necessary changes to protect Upper Willamette River Chinook and steelhead from extinction.

hayu-masi (Many thanks)



Chris Mercier
Tribal Council Vice Chairman

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TO ENCOURAGE FLY FISHING
AS A METHOD OF ANGLING

McKenzie Flyfishers Comment on USACE's Willamette Valley Project Draft PEIS

On behalf of the McKenzie Flyfishers, thank you for the opportunity to review and comment on the Draft PEIS for the Willamette Valley System Operations and Maintenance. We offer the following comments for your consideration.

The current situation calls for prompt action. As you are well aware, upper Willamette Basin Chinook salmon, winter steelhead, and bull trout have undergone drastic reductions in number over the last century, and particularly in the last several decades; with populations in some tributaries having become almost or effectively extinct. (Ford, 2022) A sizable share of that reduction can be attributed to dams that cut off access to prime spawning habitat. The Corps is therefore in a unique position to reverse a substantial portion of the decline by modifications to its dams that will allow effective upstream and downstream fish passage. We are encouraged that the Corps is now proposing large and meaningful changes in operations that should make a big difference towards population recoveries. We also understand that many in the Corps share our concerns, and that neither they nor we want to let these threatened iconic fauna go extinct on our watch. None of us want coming generations to look back and say that we were the ones who allowed these keystone species, after having survived for millennia in this landscape, to disappear forever.

The pace of actions must be consistent with the urgency of the problem. We understand that the Corps' Willamette Valley System is large and complex, with major work planned for many of its component dams. Nevertheless, the PEIS timelines for completion of the projects and the beginning of fish passage are alarmingly long—at least 20 to 25 years, or more in some cases. They stand out head and shoulders above everything else as the major drawback to the entire plan. Simply put, if trends continue, the fish these projects are intended to help may well be gone by then. Moreover, the timing of funding that the Corps will receive for these projects will be linked to the timelines. Longer planned timelines in the final PEIS and other documents will surely lead to delayed funding. We strongly urge you to make every effort to reduce these times as much as possible.

Prioritization of projects. Realizing that in a project assemblage this big some things will have to be prioritized, we advocate for making two of them the top priorities. One project that should be prioritized includes the measures and operations aimed at halting the steep slide in the winter steelhead population, which is in particularly dire straits and in danger of near-term extirpation. The other project deserving a top priority is completion of the work at Cougar Dam. The reason is that—as documented in the latest National Marine Fisheries Service 5-year assessment of threatened fish

species in the Upper Willamette Basin--only the McKenzie River Chinook salmon population remains large and genetically intact enough to be considered by fishery managers as a “legacy” or “stronghold” population. As such, it should be able to quickly take advantage of new spawning territory, and potentially be capable of seeding recovery within the entire Upper Willamette basin. So the odds and potential magnitude of success here are greater than elsewhere. Success here would be a big win for the fish, and for the Corps.

Compression of timelines. Completion of tasks within large organizations like the Corps, or its cooperating partners, that may be characterized as administrative in nature can be notoriously sluggish. But we know from experience that they don’t have to be. When leaders and personnel are motivated to make something happen quickly, it can be done. This is a ripe area for shortening project timelines.

One of the ways that the long timelines here may be substantially compressed is by performing some essentially administrative steps in the process concurrently, rather than sequentially. Using downstream passage at Cougar Dam as an example, the first step in the proposed timeline (Appendix N, Figure 2-4) is continuing the in-progress, 6-year RO modification work (itself consisting of 4.5 years of administrative tasks) for 5 years from 2023 to 2028; followed by a 2-year period of “Check-ins” and assessment; followed by 1.5 years of preparing the Engineering Design Report (EDR); followed by 2 years of preparing the Detailed Design Report (DDR); followed by 2 years to prepare Plans and Specifications (P&S). That adds up to about 11.5 years of administrative work between now and actual Diversion Tunnel Construction—estimated to take another 5 years—will even start. Surely many of these tasks can begin well before the prior ones in the sequence are completed, if the staff is motivated to reach its goal before extirpation of the fish it is trying to save makes the whole effort moot.

Sediment issues. Finally, for the Cougar Dam project, some words need to be said about potential sediment release into the McKenzie River. If the draft PEIS Preferred Alternative 5 is ultimately selected for Cougar Dam, which we support, we urge the Corps to take all prudent steps—incorporating lessons learned at Cougar Dam during the 2002-2004 deep drawdown, at nearby Fall Creek Dam in recent years, and at other dams in the Pacific Northwest that have been breached or otherwise faced a similar situation—to minimize the impact of released sediment into the mainstem McKenzie River. If done correctly it should be possible to avoid potential harm to the river’s biota, as well as bolster acceptance of the operations by local communities.

Sincerely,

Arlen Thomason

David Thomas

Co-Chairs, Conservation Committee

Reference Cited:

Ford, M.J. 2022. Biological Viability Assessment Update for Pacific Salmon and Steelhead Listed Under the Endangered Species Act: Pacific Northwest. NOAA Fisheries. Technical Memorandum NMFS-NWFSC-171.

From:	Jim Quiring
To:	CENWP-PME-Williamette-Valley-System-EIS
Cc:	Jim Quiring
Subject:	[Non-DoD Source] Willamette Valley System Draft EIS - Protect our salmon and steelhead
Date:	Wednesday, February 22, 2023 9:29:25 AM

To: USACE

February 22, 2023

Protect our Willamette Basin salmon and steelhead.

These wild runs of salmon and steelhead have come to our rivers in the Willamette Basin since time immemorial and represent an important part of our Oregon's environmental and cultural heritage.

Our human actions have put their future in jeopardy, and we now have the responsibility to do everything we can to support their survival. We must work together and quickly - their time is slipping away.

Protect our Willamette Basin salmon and steelhead.

For Oregon's future,
Jim Quiring

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155, 14-D12
Seattle, WA 98101-3144

REGIONAL
ADMINISTRATOR'S
DIVISION

February 22, 2023

Nicklas Knudson, Project Manager
U.S. Army Corps of Engineers
Portland District
Block 300
333 Southwest First Avenue
Portland, Oregon 97204

Dear Nicklas Knudson:

The U.S. Environmental Protection Agency has reviewed the U.S. Army Corps of Engineers Draft Programmatic Environmental Impact Statement for Willamette Valley System Operations and Maintenance (CEQ Number 20220172; EPA Project Number 19-0023-COE). EPA has conducted its review pursuant to the National Environmental Policy Act and our review authority under Section 309 of the Clean Air Act. The CAA Section 309 role is unique to EPA and requires EPA to review and comment publicly on any proposed federal action subject to NEPA's environmental impact statement requirement.

EPA is a cooperating agency on this project and provided both scoping comments on June 27, 2019, and input on preliminary DPEIS documents. We appreciate that USACE incorporated many of our comments in this DPEIS.

The DPEIS evaluates the potential environmental impacts associated with continued operation and maintenance of the WVS for specific and authorized purposes while meeting the Endangered Species Act and other regulatory requirements. The last WVS PEIS was completed in the 1980s. Because of modifications in operation of the system, new information on environmental effects, and court-ordered measures to improve conditions for fish passage and water quality, the decision was made to initiate a new WVS PEIS analysis. The geographic and temporal scopes of the proposed action include:

- 13 dams and reservoirs on the Willamette River and sub-basins of its tributaries including North and South Santiam, McKenzie, Middle and Coast Fork Willamette, and Long Tom. Each of the dams or reservoirs has up to eight authorized purposes, including flood control, irrigation, navigation, hydropower, fish and wildlife, water quality, recreation, and municipal and industrial water supply.
- Revetments along the banks of the mainstem Willamette and its tributaries.
- Fish hatcheries and adult fish collection facilities.
- 30-year implementation period.

The DPEIS identifies and evaluates seven action alternatives and a No Action Alternative. These alternatives are suites of measures for WVS management options for flow, water quality, fish passages, gravel augmentation and operation and maintenance of adult fish facilities among others. The DPEIS identifies Alternative 5 (Refined Hybrid Integrated Water Management Flexibility and ESA-Listed Fish) as the agency's preferred alternative. The agency's preferred alternative will include measures to

improve conditions for ESA-listed fish while providing more flexibility for USACE to meet other authorized purposes.

EPA identified environmental concerns and deficiencies in the analysis that should be addressed in the Final PEIS. In addition to our input on administrative drafts of the DPEIS documents, EPA has recommendations related to our concerns that the proposed action and its tiered projects may result in adverse impacts primarily to water quality, aquatic resources, and cultural resources. Specifically, the proposed action and projects, as well as future tiered projects could result in:

- Exceedances of state temperature Total Maximum Daily Load targets downstream of the dams, affecting fish. Reservoirs do not generally cool in the fall and exceed criteria for spawning, e.g., at Long Tom River.
- Exceedances of state Total Dissolved Gas in the WVS, e.g., at Foster Reservoir.
- Sediment accumulation in reservoirs and dams caused by deep reservoir drawdown.
- Inaccurate assessment of risks to human health and the environment due to insufficient reservoir and dam assessment data on several water quality parameters, e.g., turbidity, Harmful Algae Blooms, and methyl mercury. Scarce data on methyl mercury, for example, impact implementation of the Mercury TMDL for the Willamette Basin.
- Additional impacts to cultural resources because of ongoing major effects at all reservoirs resulting from reservoir water level fluctuations and other impacts.

EPA appreciates that the USACE will conduct separate NEPA analyses for individual projects tiered to the approved PEIS. These projects may result in significant impacts on resources within the Willamette Basin. It will be important to clarify whether land use and resource management plans will also be tiered to the approved PEIS since they are not being considered under the No Action Alternative of this DPEIS. As the approved PEIS has the potential to impact a variety of resources in the decision area over its 30-year lifespan, EPA recommends the USACE coordinate with other federal and state agencies, affected tribes, and other impacted parties, particularly adjacent landowners to the projects, to ensure the approved PEIS is implemented in a manner protective of human health and the environment. The enclosed Detailed Comments provide more details of these and other concerns, as well as recommendations for the FPEIS.

Thank you for the opportunity to review the DPEIS for this project. If you have questions about this review, please contact Theo Mbabaliye at (206) 553-6322 or mbabaliye.theogene@epa.gov, or our NEPA manager, Rebecca Chu, at (206) 553-1774 or chu.rebecca@epa.gov.

Sincerely,

Andrew J. Baca
Director

Enclosure

U.S. Environmental Protection Agency Detailed Comments for the Willamette Valley System Operations and Maintenance Draft Programmatic Environmental Impact Statement Benton, Lane, Linn, Marion Counties, OR February 23, 2023

The NEPA Process

To provide clarity to the public and the decisionmaker about the programmatic nature and tiering NEPA reviews, EPA recommends the FPEIS:

- Indicate whether the anticipated NEPA analyses related to the six Master Plan (MP) revision efforts will tier to this WVS PEIS or the existing PEIS completed in the 1980s. EPA is aware of two Environmental Assessments associated with these efforts, one for Cottage Grove and Dorena Lakes MP, and the other for Foster and Green Peter Projects MP.
- Explain the rationale for preparing suggested programmatic NEPA analyses for MP revision efforts and their relationship to this PEIS.[1]
- Describe the potential effects of the activities authorized under the MPs on programmatic decisions resulting from this PEIS.
- Indicate why continued implementation of existing or revised MPs are not considered under the No Action Alternative of this PEIS, consistent with the CEQ's 2014 Guidance on Effective Use of Programmatic NEPA Reviews.[2]

Section 7.2.3 of the DPEIS describes the programmatic nature of this NEPA analysis and references the CEQ's 2014 Final Guidance for Effective Use of Programmatic NEPA Reviews. This guidance states that, "…in the case of an area-wide or site-wide PEIS considering a new proposed operations plan, ongoing operations within the area or site may continue and such ongoing operations would be considered under the no action alternative in the PEIS." Further, the guidance also provides information on tiering NEPA reviews. As the DPEIS includes information that a multi-year effort to revise six MPs for USACE-managed lands within the WVS, it is not clear whether NEPA analyses associated with the anticipated MP revisions will be tiered to this PEIS or the PEIS completed in the 1980s.[3] Similarly and as the CEQ guidance suggests, there is no information provided in the DPEIS on inclusion of interim actions, such as continued implementation of existing MPs, the MPs under assessment, or revised MPs in this PEIS's No Action Alternative. See 40 CFR §1506.1(c).

Potential Impacts to Water Quality

Context

Section 3.5 of the DPEIS discusses water quality and indicates the USACE has been given Designated Management Agency status under the State of Oregon Administrative Rules (OAR) 340-041 by the Governor of Oregon. The section further states that, "Water Quality Standards in the state of Oregon are listed for pH, Bacteria, Dissolved Oxygen (DO), Temperature, Total Dissolved Gas (TDG), Total Dissolved Solids, Turbidity, Nuisance Phytoplankton and Toxic Substances." As a result of these impairments, Oregon has established Total Maximum Daily Loads for mercury, temperature, bacteria,

[1] DPEIS, p. 1-60
[2] https://www.federalregister.gov/documents/2014/12/23/2014-30034/final-guidance-for-effective-use-of-programmatic-nepa-reviews
[3] DPEIS, p. 1-59

dissolved oxygen (DO), and turbidity. While this information is available, the section shows that temperature, TDG, Harmful Algae Blooms (HABs), Turbidity, and Mercury water quality parameters will be covered, but does not explain the exclusion of remaining water quality parameters in the analysis.

Information in the DPEIS indicates the Willamette Basin water temperature generally exceeds the state TMDL targets for the most part in a year. For example, temperature exceeds the targets at Long Tom River near Alvadore from April to November.[4] Similarly, operations of the Cougar and Foster dams cause TDG levels to exceed the state standard of 110% in downstream waterways. Although HABs samples are not collected regularly or at every reservoir or dam, sporadic samples taken show that there is potential for HABs in some waterways to exceed threshold levels, triggering Oregon Health Authority (OHA) advisories. HABs advisories, for example, were published for Fall Creek, Dexter, Hills Creek, and Look Out Point Reservoirs in the Middle Fork Willamette sub-basin between 2005 and 2013.[5] Regarding turbidity, storm events or dam maintenance operations can also result in increased turbidity in the program area waterways. Even though turbidity isn't monitored at every reservoir/dam, a study conducted at Fall Creek Reservoir by the U.S. Geological Survey between 2012 and 2017 showed that turbidity levels increased as reservoir drawdown occurred.[6]

Changing water levels in reservoirs or dams also expose lakebed sediments to drying and wetting conditions, which impacts methylation of mercury. Methyl mercury (MeHg) is harmful for humans and wildlife. Because MeHg is a neurotoxin that biomagnifies in the food web, consuming fish contaminated with MeHg in their tissues exposes people and wildlife to its harmful effects. For this reason, a Mercury TMDL was issued for Willamette Basin in 2006 and revised in 2019 to establish limits on mercury loads in basin waterways. Federal and state agencies also have advisories and guidelines for fish consumption limits for humans. Mercury can come from naturally occurring processes such as deposits within volcanic rock or man-made processes such as atmospheric deposition and mining activities. The DPEIS indicates that Cottage Grove Reservoir, for example, has mercury contamination originating from the Black Butte Mine, a National Priorities List (NPL) Superfund Site. The Black Butte Mine was used for cinnabar mining to produce quicksilver (liquid mercury) and mercury contaminated soil from the site was transported downstream and deposited within Cottage Grove reservoir. Federal and state agencies have advisories and guidelines for fish consumption for humans. Signs are posted by OHA at the reservoir boat ramps to educate the public of fish consumption guidelines.

General Recommendations for the Final PEIS

As construction and operation activities may impact water resources, resulting in long-term impacts to water quality parameters and designated beneficial uses due to increased temperature, TDG, turbidity and sedimentation, and mercury, EPA recommends the FPEIS:

- Provide the most current information regarding the status of the State of Oregon Clean Water Act Section 401 certification and any conditions of the certification that will ensure the proposed program projects will meet the state's Water Quality Standards. The DPEIS indicates there are many impaired waterbodies in the planning area and that program activities may impact several water quality parameters, including temperature, methyl mercury, turbidity, etc...[7]

[4] DPEIS, p. 3-444
[5] DPEIS, p. 3-459
[6] DPEIS, p. 3-460
[7] DPEIS, p. 3-403, 3-404

- Provide additional clarifying information on the apparent focus of the PEIS analysis on primarily temperature and TDG water quality parameters when there are other water quality parameters, such as DO, mercury, sedimentation and HABs that impact water quality in the WB.
- Clarify how USACE will be working collaboratively with the Oregon Department of Environmental Quality (ODEQ) to ensure compliance with Water Quality Restoration Plans that will function as the USACE's share of the Willamette Basin Temperature and Mercury TMDLs implementation, designed to meet state and federal water quality rules and regulations. In addition, please clarify the DPEIS statement that, "USACE was given Designated Management Agency status under the act by the Governor of Oregon" and expected agency roles in ensuring state water resources are protected and water quality maintained.[8]
- Include information to demonstrate that the proposed action will adhere to the anti-degradation provisions of the CWA to prevent deterioration of water quality within reservoirs and dams, and downstream waterbodies that currently meet Oregon Water Quality Standards.
- Describe plans to coordinate with the ODEQ, all affected tribes, Water Boards, and Watershed Councils in the WB to assure that state and tribal water resources are protected from impacts associated with the proposed program's construction and operation activities and are used judiciously. While efforts have been made to assess waterbodies for water quality in WB, a significant number of waterways still require such assessment and a determination that they will support beneficial uses. For example, data on turbidity, TDG, and mercury remain scarce. As more assessments are conducted, EPA encourages the USACE to update information in the FPEIS to reflect any new and relevant information about water quality, including TMDLs, Water Quality Restoration Plans, and water quality criteria to protect beneficial uses. For example, the Mercury TMDL for the basin was revised in 2019 and, according to ODEQ, the updates to the 2006 Temperature TMDL may be forthcoming. Impacts of dam operations that result in temperature increases to reservoirs and waters downstream of reservoirs will need to be addressed as part of the TMDL development process. Potential increases to reservoir mercury methylation caused by dam operations altering water levels will need to be addressed as part of the USACE DMA Implementation Plan with ODEQ under the WB mercury TMDL (2019). Therefore, it can be reasonably assumed that the USACE will play a major role in these TMDLs, and operations of the dams will have to factor in their impacts to water quality in the Willamette Basin.

Specific FPEIS Recommendations on Protection of Surface Water

- Add more information on the role of reservoir operation in pollution abatement to address the concerns about low DO and methyl mercury production. The DPEIS states that, "Pollution abatement via dilution was focused on dissolved oxygen, pathogenic bacteria, and solids, but not temperature management."[9] This implies that reservoirs help abate downstream water quality issues through dilution. While this may be the case for some water quality parameters, it is likely not the case for DO. DO levels in reservoir discharge water can be significantly lower than they would in free-flowing sections of the river. Therefore, instead of pollution abatement, reservoirs can be the cause of the water quality issue. In addition to DO, reservoirs can also result in an increase in the production of methylmercury—the more toxic and bioaccumulative form of mercury. EPA recommends including a similar summary in Section 1.7.8 where water quality issues are first introduced. As the text currently reads, the impacts of reservoirs on water quality

[8] DPEIS, p. 3-403
[9] DPEIS, p. 1-47

are that they provide a net benefit to water quality through pollution abatement, with the one exception being temperature. This depiction of water quality issues associated with reservoirs does not accurately reflect the impacts on DO and mercury methylation. EPA appreciates that the USACE will continue to consult with EPA on these issues.

- Clearly describe the limitations of the assessment of mercury methylation. Instead of stating that methylation can occur in the water column of reservoirs, EPA recommends including a statement in Section 3.5.2 to indicate that the role of water column methylation was not included in the analysis and that this could lead to an underestimation of the impacts on methyl mercury production in some reservoirs where stratification occurs. Inclusion of this information is important to contextualize what is and is not included in the methylation analysis and how it might impact the overall predictions. The DPEIS states that, "This metric is utilized to describe the potential for the methylation process to occur due to sediments exposed during water fluctuations and rewetting of soils."[10] While EPA agrees that the wetting and drying of sediments is an important process that influences mercury methylation, there is also the impact of reservoir stratification and zones of methylation occuring within an anoxic hypolimnion. EPA recommends including a discussion of this additional impact of reservoirs on methyl mercury production since it would not be covered using an erosion-based metric.
- Provide additional clarification about how the breakpoints associated with "Effects Criteria Definitions" were established because it is not clear how these breakpoints were established based on supporting material presented on page 3-469, Table 3.5-7 in chapter 3 and Table 1 on page D-343 in Appendix D. Specifically, on page 3-469 it is stated that "Thresholds were established based on the distribution of the data and expert opinion"; EPA recommends further describing how expert opinion and "distribution of the data" was utilized to establish thresholds. Also, if available, we suggest including a discussion about how similar "Effects" threshold values were established and used during previous efforts.
- Include information on multiple operational scenarios for operations of a temperature control structure (TCS) at Detroit Dam, including downstream temperature targets that are not as warm in the summer, similar to the way Cougar Dam TCS is operated. EPA recommends clarifying if fall temperature targets will be met while maintaining somewhat cool temperatures in the summer. The DPEIS analysis of the temperature conditions predicted to occur with installation and use of a TCS at Detroit Dam is overly simplistic. The primary focus of the TCS alternative is to achieve colder fall temperatures consistent with the natural seasonal pattern as described in the WQS and TMDL. The results of the alternative suggest that achieving fall cooling comes at a price of warmer spring and summer temperatures. EPA recommends the FPEIS clarify if the USACE explored different operations of a TCS to maximize fall benefits and minimize the elevation of summer temperatures. A TCS can be operated in myriad ways from one month to the next to meet downstream fish needs, and the PEIS structure does not highlight or analyze that capability. By analyzing only one TCS operation, the DPEIS does not include the full potential benefits of a TCS for year-round shaping of outlet temperatures. However, the modeling does show that a TCS at Detroit can meet the temperature targets shown in the Appendix D, including the fall temperatures.
- Include actions identified in Table 2.2.11 as part of the No Action Alternative, revise Table 2.4-4 to include a temperature control strategy, and/or explain the lack of their inclusion. The DPEIS does not currently show that there will be strategic use of outlets to meet temperature targets

[10] DPEIS, p. 3-474

identified for Detroit and Lookout Dams in Table 2.4-1. These actions are identified in Table 2.2.11 as a near-term measure at these dams. EPA recommends discussing a temperature control strategy for Lookout Dam in Table 2.4-4 or clarifying why it is not included.

Impacts to Aquatic Resources

Because there are fish-bearing waterbodies in the Willamette Basin including several with native fish species that are under federal and state protection, EPA recommends that:

- The USACE continue to coordinate with the U.S. Fish and Wildlife Service and National Marine Fisheries Service, and as appropriate, with the Oregon Department of Fish and Wildlife to reduce risks to species and protect biota and habitat as the proposed program is implemented over the next 30 years.
- The FPEIS include any additional relevant information developed after coordination with these agencies, particularly outcomes of Section 7 of the ESA consultations with the Services, including any recommended measures to protect fisheries and other species.

Potential Impacts on Contaminated Sites and Monitoring

EPA recommends the USACE coordinate with the EPA Superfund Program as the proposed program is implemented so that the USACE actions are consistent with agreed upon remedies for relevant contaminated site cleanup and monitoring. The DPEIS indicates the existence of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) contaminated sites in the planning area, e.g., the Black Butte Superfund NPL Site, and others that are not currently listed for cleanup.[11] The EPA Remedial Program Manager for the Black Butte Site is Jennifer Crawford, and she may be reached at (206) 553-6261 or crawford.jennifer@epa.gov. The USACE's activities under the proposed program will need to be consistent with EPA cleanup goals and activities. EPA also recommends coordinating with ODEQ so that the FPEIS identifies all the contaminated sites in the planning area and discusses measures to minimize project impacts and meet state requirements throughout the program lifespan.

The DPEIS includes inaccurate, inconsistent, and incomplete information that EPA recommends updating for the FPEIS. These data include the following:

- On p. 3-465 (Table 3.5-6), Cottage Grove WVP is incorrectly identified as Row River sub-basin instead of Coast Fork. EPA recommends changing Cottage Grove's sub-basin from Row River to Coast Fork Willamette.
- On p. 3-465, 3-463, and 3-462, references are made related to Black Butte Mine EPA CERCLA RI/FS data collection in Cottage Grove (CTG) which imply that data collection ended in 2021. This RI/FS is ongoing with sampling beyond 2021. Future sampling needs are dependent on data gap analysis during the RI/FS. EPA recommends changing all Black Butte Mine related CTG sampling references from 2021 to ongoing. Sampling data are being provided to USACE.
- On p. 3-465, Section 3.18-3.18-2, the CERCLA summary for Black Butte Mine includes reference to 'long term monitoring' and incomplete summaries of site status. EPA recommends changing the text to "One time-critical removal action and one non-time-critical removal action were completed during early-action work at the mine site. Site characterization of contamination

[11] DPEIS, p. 3-1234

at the mine, in the Coast Fork Willamette River upstream of CTG reservoir, and within CTG reservoir are in progress for the EPA-lead CERCLA RI/FS."

- On p. 3-1232 and 3-1233, Section 3.18.1.5.1, the DPEIS discussion of Black Butte Mine does not clearly identify the site boundary as including Cottage Grove Reservoir, Operable Unit 3 of the Site. Operable Units for Black Butte Mine are defined as follows: OU1 includes the former mining area and the abandoned underground mine, as well as adjacent reaches of Furnace Creek and Dennis Creek. OU2 includes Little River from the confluence of Furnace Creek through the Coast Fork Willamette River to Cottage Grove Reservoir. OU3 includes the full pool elevation of Cottage Grove Reservoir and the wetland area near the Coast Fork Willamette River confluence with Cottage Grove Reservoir. This information is incomplete, and EPA recommends adding a sentence to this section that clearly identifies for the public that CTG full pool and wetlands are within the CERCLA site boundary for Black Butte Mine, known as OU3.
- In Section 3.3.2.3.10, several alternatives reference 'major' or 'moderate' impacts to River Mechanics and Geomorphology categories including shoreline exposure (due to changes in operational range and deeper drafts) and downstream potential for increase in fine grained sediment supply into the Coast Fork Willamette. For CTG, alternatives identifying increases in release of fine-grained sediments from the reservoir and CTG increased shoreline exposure are assumed at this time to represent mercury contaminated sediment. As noted elsewhere, nature and extent of site contamination is currently in progress for the RI/FS at Black Butte Mine including CTG. EPA recommends the FPEIS identify impacts for potential increased release and exposure of mercury contaminated sediment in alternatives with 'major' or 'moderate' identified shoreline exposure and increased fine sediment release from CTG.
- Regarding the discussion of mercury under Sections 3.5.2.3.5 and 3.5.2.6.5, EPA recommends the PFEIS identify potential mercury contaminated fine grained sediment increased release for those alternatives which were categorized as 'moderate' or 'major' impacts to River Mechanics and Geomorphology categories. Add information consistent with the previous comment above.
- For Sections 3.5.2.3.5, 3.5.2.6.5, 3.5.2.7.5, and others, EPA notes that the following statement is present in these sections and not consistently included in other mercury sections for alternatives which also have identified the same major impact to shoreline exposure: "As there would be a major change in shoreline exposure at Cottage Grove and Dorena dams there is potential for an increase for the methylation process to occur with water fluctuations and rewetting of soils. " For the FPEIS, EPA recommends retaining consistent statements throughout all mercury sections pertaining to Coast Fork dams related to impacts of methylation processes caused by increased shoreline exposure. Please include this statement in all "major" and "moderate" alternatives for shoreline exposure.
- On p. 3-1258, Section 3.18.1.5.1, the statement update regarding mercury non-cancer hazard is accurate, but is presented without context, and therefore may be misleading. Referring to the following USACE response to our input on the preliminary DPEIS: "CDM Smith, the EPA's prime contractor for the Black Butte Mine removal actions, determined in a post-removal risk assessment that the total cancer risks associated with residential exposure were within the EPA's acceptable risk range but above the ODEQ range, despite a lack of data relating mercury exposure to cancer (CDM Smith 2020; EPA 2005). The noncancer hazard for a child was still above the threshold, primarily due to exposure to mercury-contaminated sediment (CDM Smith 2020)." The OU1 HHRA does not state that cancer risks are resulting from mercury exposure. The OU1 HHRA does speak to cancer risk due to arsenic and chromium, primarily driven by soil

ingestion. The following is stated in the Black Butte Mine OU1 HHRA regarding residential site soil risk: "Under the RME scenario, total cancer risks associated with residential exposure are 8E-05 under the current and future scenarios, which is within the EPA acceptable risk range of 1E-06 to 1E-04, due primarily to exposure to arsenic in soil and sediment under both current and future scenarios."

An important consideration is that the background contribution to this risk estimate is significant and accounts for most of the risk. The following is stated in the Black Butte Mine OU1 HHRA regarding residential background soil risk: "As seen, under the RME scenario, total cancer risk associated with residential exposure due to exposure to arsenic and chromium in soil is 1E-05, which is within the EPA acceptable risk range of 1E-06 to 1E-04." EPA recommends removing discussions of EPA Black Butte Mine OU1 Risk Assessment from the FPEIS, as OU1 does not include CTG (OU3). A risk assessment is ongoing by EPA for Site OU3, CTG. Including sections of the OU1 within the CTG reservoir discussion is out of context.

Cultural Resources and Impacts

Because of anticipated major adverse impacts to cultural resources due to the proposed program, EPA recommends that:

- The FPEIS demonstrate that all impacts to cultural resources will be avoided, minimized, and/or mitigated.
- The FPEIS include a copy of the recently executed programmatic agreement that modifies the Section 106 process to follow a streamlined and standardized approach to manage historic properties that have the potential to be impacted by the USACE's undertakings related to the current and future operations of the WVS.

EPA encourages the USACE to consult with the Tribes when making decisions regarding the program and tiered projects. EPA recommends the FPEIS describe the issues raised during consultation and how those issues were addressed.

Section 3.21.2 of the DPEIS discusses impacts to cultural resources and indicates that there will be major adverse effects to archeological sites at several reservoirs, including Fall Creek, Cougar, and Green Peter due to reservoir fluctuations.[12] Similarly, there will be moderate to major effects to the built environment at Dexter, Lookout Point, Cougar, Foster, Green Peter, and Detroit.[13] EPA appreciates data provided in the section and supports the USACE plan to continue to work with federal, state, and tribal partners and other interested parties to identify appropriate management and mitigation strategies that would occur through the proposed action like monitoring of affected sites. The DPEIS also indicates that a historic management plan may exist and that it will act as a companion document to the WVS operations and maintenance National Historic Preservation Act Section 106 programmatic agreement; and that the agency will work with tribal partners and others to identify other opportunities to collaborate on the management of WVS cultural resources. It will be important to include in the FPEIS a copy of the programmatic agreement to inform the public of steps that will be taken to minimize impacts to cultural resources.

Potential Impacts to Communities with Environmental Justice Concerns

[12] DPEIS, p. 3-1383
[13] DPEIS, p. 3-1385

EPA recommends the FPEIS describe the approach for conducting EJ analyses at a finer resolution for subsequent tiered NEPA analyses. EPA recommends conducting the tiered analyses at the block group level in the vicinity of any construction activities as conducting EJ analyses at larger scales may lead to masking communities with EJ concerns when data is aggregated.

EPA recommends the FPEIS describe how tiered NEPA analyses will ensure EJ assessments are conducted to meet the seven core objectives the USACE has laid out in its interim EJ strategic plan, including: [14]

- Improving the timing and quality of outreach to local communities and access to USACE Civil Works information and resources.
- Forming strong partnerships within and outside of the government to strengthen underserved and disadvantaged community participation in USACE programs and activities.
- Developing and optimizing USACE resources to broaden internal expertise through the continual refinement and application of tools, training, and products centered on environmental justice.
- Strengthening tribal relationships by taking advantage of opportunities to listen and increase effective communication while enhancing USACE's ability to understand and respond to tribal water resources needs.
- Improving awareness, access, and participation for USACE Civil Works technical assistance programs while maximizing assistance that benefits underserved and disadvantaged communities.
- Forming effective partnerships, early engagement, and ensuring comprehensive analysis of a full range of benefits for USACE studies and programs.
- Developing whole-of-government solutions, where possible, for all aspects and phases of USACE Civil Works programs, from study development to construction and operation of projects.

When discussing the timing and quality of outreach, EPA recommends the FPEIS discuss:

- The selection process for outreach target communities and the locations of the events.
- Determination of the timing, frequency, and duration of outreach events.
- Any additional engagement activities to provide additional opportunities for communities to provide input.

For additional information on conducting meaningful public participation, EPA recommends utilizing its public participation guide[15].

When discussing the socioeconomic impacts of proposed construction spending in Appendix I, the impacts of Alternative 5, the agency's preferred alternative, are not included in any of the summary tables or detailed analysis. EPA suggests the FPEIS include this analysis within Appendix I as it has for the other Alternatives.

[14] https://www.usace.army.mil/Missions/Environmental-Justice/
[15] https://www.epa.gov/international-cooperation/public-participation-guide

Marion County
OREGON
Board of Commissioners

(503) 588-5212
(503) 588-5237 - FAX

BOARD OF COMMISSIONERS
Colm Willis, Chair
Kevin Cameron
Danielle Bethell

CHIEF ADMINISTRATIVE OFFICER
Jan Fritz

February 8, 2023

U.S. Army Corps of Engineers
Attn: CENWP-PME / Willamette EIS
P.O. Box 2946
Portland, OR 97208-2946

RE: Willamette Valley System Draft EIS

To Mr. Erik Petersen,

On behalf of the Marion County Board of Commissioners, please accept this letter of public comment for the Willamette Valley System Draft EIS.

Project Description: Detroit Marinas Excavation and Resiliency Project

To support the post-wildfire economic recovery effort of the North Santiam Canyon, Marion County is delivering a major investment into recreation at Detroit Reservoir – The Detroit Marinas Excavation and Resiliency Project.

In recent years, the water level at the Detroit Reservoir has been inconsistent due to drying weather patterns, downstream habitat control requirements, and municipal water needs. Detroit Lake Marina and Kane's Marina are located above shallow shelves, requiring the marinas to close their docks increasingly earlier as water is drained from the lake. In recent years, Detroit Lake has routinely failed to reach the 'full pool' seasonal depth of 1,569 feet necessary to support a robust and viable lake recreation season from May 1st to October 1st.

The project consists of the strategic excavation of 162,000 cubic yards of sediment underneath the existing boat docks during the winter reservoir draw down period(s). Through the excavation of the sediment underneath the existing docks and boat slips, the marinas will be able to operate down to 1,525 feet. The project is to provide viability and stability for these anchor businesses that are vital to the regional economy.

All the businesses in the area depend on the recreational season of May 1st to October 1st to maintain solvency year-round; it has been reported that approximately 60% of annual revenue for these businesses is generated in the month of August alone.

The excavation project enjoys widespread community support from the City of Detroit, Marion County, Detroit Lake Marina, Kane's Marina, state and regional recreation, travel organizations, and Detroit Lake Recreation Area Business Association.

The estimated direct and indirect impacts from the completion of the project throughout the region are estimated at $1.2 million annually. Over 20 years, the net economic value for the region is estimated to be $14.6 million for this project.

The project consists of three phases. The project is currently in Phase 1, which consists of sediment disposal location selection. Phase 2 consists of engineering and permitting. Phase 3 consists of sediment removal and placement, which is anticipated to occur from Fall 2024 to December 2026.

EIS Review and Comments:

Marion County staff have been working to review the draft EIS, specifically focusing on the preferred alternative and how it might impact recreation. Our review team has prepared the following two questions:

Measure #304 – Augment Instream Flows by Using the Power Pool
This measure would be in place from June 1 to November 30 and would allow the reservoir to be drawn down to 1425 feet instead of 1450. The lowest boat ramp elevation is 1450 (end of Mongold). The last time the reservoir has been that low was January 2020.

Question for Army Corps: Would this measure increase the rate of drawdown prior to reaching the previous conservation pool or just continue drawdown once the reservoir reaches that conservation pool elevation? In other words, would this measure by itself quicken drawdown below all usable boat ramps?

Measure #392 – Construct structural downstream fish passage
Construct floating screen to trap juvenile fish that would then be trucked below dams.
Question for Army Corps: Would pumped attractor flows be returned to the reservoir or discharged downstream?

For Detroit Lake, if flows are discharged downstream and the structure is operated in late summer/fall, it is likely that this 1000 cfs pumped flow (warm from the surface of the reservoir) would need to be augmented by cooler water from below. This would result in higher flows downstream than the minimum flow limits and quicker reservoir drawdown. Has this pumped attractor flow been accounted for in your reservoir modeling?

We are appreciative for the public comment opportunity provided by the US Army Corps of Engineers and the careful, multifaced impact analysis it made for the Willamette Valley System Draft Programmatic EIS, particularly regarding recreation and economic impact at Detroit Reservoir.

On behalf of the Marion County Board of Commissioners, thank you for accepting our letter of public comment.

Sincerely,

Colm Willis, Chair
Commissioner

Kevin Cameron
Commissioner

Danielle Bethell
Commissioner

555 Court Street NE, Suite 5232 ◆ P.O. Box 14500 ◆ Salem, Oregon 97309-5036 ◆ http://www.co.marion.or.us

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
PORTLAND, OR 97232-1274

February 22, 2023

Amy Gibbons
Environmental Branch Chief
U.S. Army Corps of Engineers
Portland District – PME
333 SW 1st Avenue
Portland, Oregon 97204

Re: National Marine Fisheries Service's cooperating agency comments on draft Adaptive Management Plan (Appendix N) from the Draft Environmental Impact Statement for the Willamette Valley System Operations and Maintenance

Dear Ms. Gibbons:

This letter responds to the U.S. Army Corps of Engineers, Portland District's (Corps) request for public comments on the Willamette Valley System (WVS) Operations and Maintenance Programmatic Draft Environmental Impact Statement (DEIS). NOAA Fisheries (NMFS) staff focused their review on Appendix N of the DEIS, which includes the proposed adaptive management plan. Our comments are outlined below.

1) While the Corps has provided targets (the quantitative metrics that define success) for many of the Preferred Alternative actions, the targets do not track or respond to effects on fish. For example:
    - Changes in flows are evaluated by whether they are above or below the new target for minimum flows. Some effects on fish would be missed given warming trends in the Willamette, likely exacerbated by lower flows during spawner migration. Other effects from shifting migration cues are also missed.
    - Changes in temperature from the proposed pulses are measured by the % change in temperature, which doesn't capture the risk of temperatures over thresholds, leading to higher mortality.
    - Passage measures are evaluated based on lower survival and dam passage efficiency than those in NMFS' fish passage guidelines.
2) The timing to review the effects, under the adaptive management plan as described, is often too lengthy to capture effects, for which modified actions would be needed.
    - After passage changes are made, two years of review is followed by several years in which genetic pedigree data are collected, so that modifications to improve fish passage would not be introduced until seven years later.
    - During the periods of changing minimum flows in the tributaries, additional actions to modify flow will lag, while fish incur risks during many life history stages.

NMFS encourages the Corps to work with us to improve the overall plans for research, monitoring and evaluation. Additional methods to track fish from juvenile to adult spawning periods are available and would capture ongoing effects of changes proposed in the DEIS.

The adaptive management plan is associated with a high degree of uncertainty regarding potential impacts on NMFS trust resources due to the amount of time that would be allowed to pass before taking corrective action for some triggers. Furthermore, lag times intrinsic to the operation of the WVS, prevent some corrective responses to be implemented in enough time to ameliorate adverse effects. This uncertainty forces NMFS to make more conservative assumptions regarding potential adverse effects of the adaptive management plan when conducting our analysis.

Please contact Dr. Anne Mullan of my Willamette Branch staff at Anne.Mullan@noaa.gov, or (503) 231-6267 if you have any questions regarding NMFS' comments on Appendix N. We look forward to continued coordination as the Corps works to finalize their preferred alternative.

Sincerely,

Kim W. Kratz, Ph.D
Assistant Regional Administrator
Oregon Washington Coastal Office

cc: Garrett Dorsey
David Griffith
Brad Eppard
Rich Piaskowski

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
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February 22, 2023

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Sincerely,

Kim W. Kratz, Ph.D
Assistant Regional Administrator
Oregon Washington Coastal Office

cc: Garrett Dorsey
David Griffith
Brad Eppard
Rich Piaskowski

YAMHILL SOIL & WATER
CONSERVATION DISTRICT

February 22, 2023

TO: Nicklas Knudson, Acting Project Manager for the EIS Revisions

SUBJECT: "Willamette Valley System Draft EIS"

FROM: Yamhill Soil & Water Conservation District
2200 SW 2nd Street
McMinnville, OR 97128

Dear Nicklas Knudson,

We appreciate the opportunity to submit comments to the Army Corps of Engineers on the "Draft Programmatic Environmental Impact Statement" (DEIS) to manage the thirteen multipurpose dams, reservoirs, and fish hatchery programs in the Willamette River Basin.

Yamhill Soil and Water Conservation District (District) provides assistance and information to landowners and others in Yamhill County that want to improve and protect the county's soils, water quality, and other natural resources.

Yamhill County's eastern boundary is the Willamette River that it shares with Marion County for approximately twenty-eight River Miles. Within those twenty-eight miles are the Palmer Creek Water District's Pumping Station, the Wheatland Ferry, Grand Island, Lambert Bend, the Yamhill River confluence with the Willamette River east of Dayton and downstream where the deeper pools of the Willamette River are in the Newberg area.

Yamhill County farmers, businesses, and residents depend on the Willamette River's capability to provide adequate irrigation water and clean water for recreational purposes and other needs.

To meet these needs, it is imperative that the CORPS DEIS revised management plan will continue to provide the benefits that the county farmers, businesses, and residents rely on and have enjoyed in the past. The completed DEIS should contain the following:

- Provide consistent adequate flows to supply clean irrigation water for the county's farmers during irrigation needs in the spring, summer, and early fall seasons.
- Prevention of floods during the winter and spring months that flood farmland and erodes the river's banks.
- Include a management plan that will carefully release the stored waters in the dams during the spring season to prevent the degradation of water quality needed for fishing, wildlife, and recreational use for Yamhill County residents.

To meet these needs and the larger needs of the Willamette River Basin, we urge the CORPS to work with other federal and state agencies to achieve common basin goals. One of these is USDA NRCS’s SNOTEL Water and Climate Information System that gathers snow and rainfall amounts that provides data for filling the Willamette River Basin’s thirteen dams and reservoirs at the appropriate times.

After the (DEIS) is finalized, please provide any information that can help us work together with the CORPS in protecting and improving the Willamette River Basin that is important to all of us.

Sincerely,

Barbara Boyer, District Chair
Yamhill Soil and Water Conservation District

From: Ann G
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [Non-DoD Source] Willamette Valley System Draft EIS
Date: Friday, February 24, 2023 2:36:13 PM

Robin

Good Afternoon Army Corp of Engineers

Re: Willamette Valley System Draft EIS

I appreciate your time and willingness to provide valuable information and bringing those resources to the meetings held with the public in regards to Willamette Valley System Draft EIS.

I had the opportunity to speak with several employees at the

meeting from civil engineers, biologists, water resources, cultural and natural resources. The were all so knowledgeable, kind, and helpful to share what they new about the research that had been done so far, as well as future challenges. Having the visual presentations available as well as online, and hard copy made it accessible and easy to understand.

I made time to go through the Willamette Valley System Draft EIS, I visited both facilities Green Peter, and Foster Lake. I'm looking forward to seeing the improvements in ESA listed fish Steelhead Salmon, Spring Chinook Salmon, Bull Trout, Sturgeon, Lamprey as well as the other listed species. As an avid angler I have a deep appreciation for our wildlife, and the water quality for our land and citizens. The dams have such a profound impact to everything and everyone around it, thanks for helping make the important quality improvements as well as your stewardship.

I believe that habitat and wildlife restoration will take more than just updates to the infrastructure but it's a great starting point. I do hope the US Army Corp of engineers will continue to update the public on the outcomes once the data analysis and evaluations have been made after outlined recommendations in improvements have been finished.

***Things to consider**

-Fishing Screen/ Fish Ladder

1.How comfortable is it for the fish that are utilizing it, making it easier for them to use to get over to there destination
2. Material composition, will it erode over time due to elements and how can it easily be replaced back to normal working conditions

- Risk, Control, and Monitoring

1. Who will be assigned to those measures
2. How will it be done and tracked

-Structural Improvements

1. The effects of these improvements over the long span how will these structures impact the water flow, water temperature, gravel erosion and water quality.

2.How will it be measured for changes, how often, and what about adaptability due to possible effects of climate change (level

of water available), as well as natural changes in environment (Cascade subduction zone, weather changes, such as droughts, floods, fire, earthquakes)

Thank you for your time and commitment to helping your communities work toward positive outcomes, sustainability, and hope for a better future. Wish you all well, and success ahead with the upcoming projects.

Kind Regards,

~Annette Galicia

Robin

Yahoo Mail Stationery

From:	CHRISTOPHER DOUGLASS
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Willamette Valley System Draft EIS
Date:	Thursday, February 23, 2023 11:58:33 PM

To the US Army Corps of Engineers EIS Work Group Staff;

For the record, I am a 5th generation Oregonian, who comes from a family of loggers (grandson of a journeyman Saw Filer of the Tillamook Burn & wheat farmer), Wood Mill employees, and recreational/sport fisherman. I have listened to stories told from two of those generations that came before me of Oregon's rich history of farming/ranching/commercial fishing/logging. Growing up in Southeast Portland and Bend, Oregon - trout fishing was the only species I pursued. I only started sport fishing for salmon, steelhead, sturgeon & kokanee - all species impacted by Willamette Valley flood control dams after I returned to Oregon from four years of service in the US Navy (1995 - 1999). Since that day that two exuberant ladies from the Association of Northwest Steelheaders coaxed me into coming to meetings, I had no passion for our Marine Fisheries. Now 22 years later, with membership in the Coastal Conservation Association - Oregon chapters, I have been advocating for marine fisheries ever since.

The most troublesome part that I don't see addressed enough in your EIS Draft is the vital requirement to replace the 60+ years of ocean rich nutrients to the headwaters above, and downstream of the (13) thirteen dam projects of the Willamette Valley. Salmon/steelhead carcasses and/or man-made analogs MUST be prioritized and funded as a remedy as to the impacts of depleting our watershed ecosystems of naturally spawned out salmon & steelhead that are essential for our riparian plants, aquatic insects, and juvenile fish to sustain themselves on in the wild.

The loss of 60+ years is easily apparent to the general citizen. If you choose to ignore completely, or only partially reload our watersheds with nutrients, you aren't & won't get the results for endangered salmon & steelhead as you propose. Any long term plan must go "above and beyond" in this category of fixing mistakes of our past. Without nutrient carcass planting and analogs in every creek and river, the reservoirs will continue to drive our fish into extinction.

Respectfully submitted for Congressional Record,
Christopher "Doogie" Douglass

PO Box 571
Lebanon, Oregon 97355
fishingdoogie@gmail.com

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Best wishes,
Christopher

Always remember, it's FOR THE FISH & for our Children's children!!

"The salmon fisheries of the Columbia River are now but a fraction of what they were 25 years ago, and what they would be now if the United States Government had taken complete charge of them by intervening between Oregon & Washington. During these 25 years, the fisherman of each state have naturally tried to take all they could get, and the two legislatures have never been able to agree on joint action of any kind adequate in degree for the protection of fisheries.

At the moment the fishing on the Oregon side is practically closed, while there is no limit on the Washington side of any kind, and no one can tell what the courts will decide as to the very statutes under which this action and non-action result. Meanwhile very few salmon reach the spawning grounds, and probably four years hence the fisheries will amount to nothing; and this comes from a struggle between the associated, or gillnet, fisherman on the one hand, and owners of the fishing wheels up the river."

1908 State of the Union Address to Congress - President Theodore Roosevelt

From:	Eric Rosso
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Willamette Valley System Draft EIS
Date:	Wednesday, February 22, 2023 4:05:45 PM

Hello, my name is Eric Rosso, and I am a concerned fisherman. I've been fishing my entire life. If it were ever true that a human was born onto this Earth with a fishing rod in his hand, it would be me. While I know this doesn't buy me any cred with academics, state, or federal officials or scientists, I take my observations seriously, as they are the product of a lifetime spent fishing here in Oregon (specifically the Upper Willamette Region), and elsewhere.

I write you today specifically concerning the proposed draw-downs of Green Peter, and Lookout Point Reservoir. I cannot express the depth of confusion, frustration, and apathy I feel, when I contemplate the outcomes of this utterly moronic proposition. Not only have previous test pilots of the proposal (what you've done to Fall Creek, and adjustments you've made to the retention schedules of the reservoirs you manage) failed to meet even the most paltry of returning salmonid expectations, but these policies have damaged the biospheres of all of these impoundments, (and as a result, our annual fishing spend) in profound, and possibly irreparable ways.

In attempts to communicate to you my concern, I will use your own parameters, and my own observations of the effects of your policies, to demonstrate to the best of my abilities HOW, and WHY, your futile efforts will continue to fail to produce significant improvements in the populations of our endangered anadromids at the least, and utterly destroy the warm-water fisheries (and the fishing spend/opportunities that they provide) at the worst.

The parameters I've chosen to use, are from "The National Environmental Policy Act Sec. 101 [42 USC § 4331]"

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
While I cannot attest in full all of the different hands this stewardship role has been held by, I can make a few statements concerning my observations of the management of water-flow, river-levels, and "traditional" low pool-full pool levels, warm-water fish populations/constituents, as well as returning anadromid numbers/facts.

Up until about 2000, winter water-levels in all of our reservoirs was high enough, that my father, and I were able to launch a 18 foot fiberglass Bass boat all year round. Cottage Grove was a mild challenge due to the volume of silt that has gathered at the bottom of the ramp, but it was still manageable for the determined. By visual marks alone, I'd say that the winter draw-downs of our reservoirs was no more than 50 feet below their "full pool". This retention policy was ideal, as it provided maximum cover, and lake volume for the previous Spring's spawn to mature to their fingerling, and juvenile stages.

Later administrations have (in my estimation) failed in their responsibilities, as they've assumed policies that were/are highly over-weighted to considerations for endangered salmonids, at the detriment of all other stake-holders, and interest groups. There seems to be no representation at the table for the populations of Largemouth, Smallmouth, Spotted Bass, Crappie, Bluegill, Native Trout, and Walleye. Fall Creek was a burgeoning Largemouth Bass, and Crappie fishery that was drawing Bass fishermen from as far away as Idaho, Washington, and Southern California specifically to fish in tournaments. Your policies have turned it into a virtually lifeless void, that barely draws enough skiers to bother opening the gates for. Even worse, Fall Creek (previous to your destroying it) was producing MILLIONS of oceanable smolt. Both Chinook, and Steelhead. Unfortunately someone in your offices doesn't biology or something, because draining the lake every winter eliminated the forage base those smolt

were smolting on. Like...how could you miss that? Unless you like hate Bass, and don't care that you're potentially losing millions in fishing spend every year, I cannot possibly imagine how ANYONE, could come to the conclusion that draining Fall Creek was going to produce any desirable results. In the same way, (given over a decade of this policy FAILING to cause the Salmon, and/or Steelhead runs to improve enough to offset the loss of the Bass fishery in Fall Creek) I cannot possibly imagine why ANYONE would think perpetrating this ecological/financial disaster on another one of our reservoirs was going to produce any better results.

2. assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;

Another fail. If there are no fish (because you have continually failed to even reach full pool on most of our lakes for the last decade or so), there isn't any reason for me to visit. How is a half-empty lake in the middle of summer supposed to be a "healthful, productive, and aesthetically, and culturally pleasing surrounding?

3. attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

This is another fail. It's as if your office decided Bass aren't worth anything, and you have to prioritize a few thousand returning Chinook over ALL other considerations. Your water retention schedules have FAILED to produce positive results. I watch every Fall as you raise the Willamette to damn near flood-stage, just to make sure you've destroyed the lakes for another year. Even now, the Willemette is running about 10, to 15 feet higher than is needed. We simply don't have enough returning fish to need to push that much more water down-river. And given how ultra-low you'd drawn Lookout down, IMHO you should be retaining every cubic foot of water you can until you have about 30 feet to go to full pool. This would allow maximum spawning area for the Smallmouth, Crappie, Largemouth, Walleye, and Native Trout. This would vastly improve the volume of the spawn that makes it to adulthood, as well as be more inline with at least the first 3 of these guiding tenants than your current/future plans.

4. preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice;

I do not believe you could fail at this one any worse if you were intentionally trying to. As stated above, your current, and proposed water-retention policies on Lookout Point are in fact contradictory to this parameter. I am convinced that nothing short of a canal going around, or through our existing dams would provide the desired results. Given the growing need for clean sources of energy, (and that hydro is the least invasive, least damaging, and least toxic form of renewable energy), I would think projects that incorporated improved (natural) passages, as well as hydro-electric generating facility would get greater consideration than they do. Poor escapement, and entrance points have always been the sole factor that prevents our reservoirs (even kept full all year round) from serving as smolting habitat significant enough to fully re-establish our (mostly) wild Salmonid runs (maybe even add a few more). If we were ever to make an effort to build such facility into our existing dams, I believe we could serve existing and future stake-holders, and interested parties far better than the existing policies/future proposals.

5. achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and

Over the last 20 years, All I've seen is great effort, to zero effort dedicated to the purposes of depreciating the quality of our fishing opportunities. Great effort where not needed, and zero

effort where absolutely necessary. If I were a more conspiratorially minded, I'd go so far as to suggest that it has been intentional, as it seems so consistently anti-nature. Of course, my observations, and resulting conclusions could be just as easily attributed to my own ignorance of your operations, so I reserve judgment. At the least I'd suggest apathy, and greed have been allowed to be the guiding inspirations concerning land/resource use in this state, with far more interest being put into developing more wild-lands, and inserting large tracts of uniformly-built houses, and much less dedication to preserving the vitality, and health of our natural resources. Given the real challenges we'll be facing over the next 20 years, I feel that unless our current trajectory is leading us on a course to virtually free electricity, multiple annual runs of anadromids that are in excess of 10,000+ spawning adults, and the building of fewer new homes, we are wasting opportunity, effort, and treasure on "fixes".

6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

I don't even know where to begin with this one. As far as I can tell, you don't do this. Between your office, and ODFW, I'm pretty sure both agencies are solely dedicated to not doing this. My more reactive assumptions are that your actions are dedicated to preserving Chinook, and Steelhead populations as such as to guarantee Federal Endangered Species recovery funds….and that's it. If something you do improves the runs too much, they are no longer "endangered" so you lose that federal funding. Allow the runs to evaporate and die off, the runs no longer exist, and are therefore no longer "endangered" so you lose that federal funding. I'm sure maintaining this precarious balance is very difficult, but you've somehow managed to do exactly that since 1969. So well, that virtually no one has noticed, while the runs have continually declined/failed to resume a "healthful" state in all of that time. Well, let me skip ahead a few decades, and tell you where that leads. The LA River. Zero Salmon. Zero Steelhead. A few Carp. A few Bass. A few Bluegill...some perch….and a lot of cement aqueduct. At one time, The Los Angeles River supported multiple runs of Chinook, and Steelhead, that were in the hundreds of thousands of fish. Today, it's been managed down to a cement land-feature. Not at all surprising to find your offices were the ones who extincted that river system too…

I'm sure if we were to go back in time to the 1910s, and 20s, we'd be reading about all of the programs that were being enacted in efforts of recovering the runs on the LA River. Always some new proposal for development, and balance, and blah, blah, blah until the 40s when there were no longer enough fish to envision a way whereby the runs could ever be saved. I have absolutely zero interest in watching that happen here. Most importantly because what happened to the LA River is the most tragic of all possible outcomes. It was the absolute least profitable of all possible outcomes. To this day, it continues to harm the lives, and livelihoods of Los Angelinos in ways they can never begin to appreciate, because they've never known what was stolen from them.

What I find most appalling of all of this, is your offices know this. Your agents do reports, and make recommendations, but you don't listen to them. They tell you the policies you are about to enact will fail to produce positive results, but you do them anyway. I use to get angry with them over what you've done to Fall Creek, but I don't anymore, because I've read the reports that tell you in no uncertain terms that the policies will fail, and even in some cases how. It makes it seem to me, that the true purpose of your offices is the slow-motion controlled demolition of our natural resources. I'd like to believe otherwise, but when I consider the issues you attempt to resolve, and how the means by which you choose to resolve them invariably result in fewer fish, I cannot help but come to the conclusion that it is all by intent/design.

I do have some recommendations for how I believe your policies can be modified to better serve the parameters enumerated above.

1. Stop considering warm-water species, and anadromids/salmonids separately. They are not separate. The disclusion of Largemouth, Smallmouth, and other “warm-water/invasive” from consideration as part of the river-systems is errant, and not inline with “reality”. Your precious Salmon, and Steelhead are inextricably dependent on warm-water species for forage during their spawn, and while they smolt. Predative pressure is a reality. Without it, anadromids would not have the intelligence required to return to where they were spawned. Warm-water species do not specifically target anadromids beyond their own innate proclivities (Example: Largemouth do not hunt specifically for salmonids. Their diets consist primarily of crawdads, and smaller fish. They will congregate in areas where clouds of smolt heavily-traffic, that have concentration points caused by natural structure, but this is because they are ambush predators by nature, and not because they have any particular desire for “Steelhead smolt”). Quite the contrary. Even in areas highly trafficked by smolt, the Bass I catch are almost always taken on crawdad, and Crappie patterns, as opposed to baits that resemble/mimic smolt.

While Bass do not specifically target salmonids, I have serious (confirmed) doubts the opposite is true. On the contrary, I have found one of the most effective baits for large rainbow trout here in the Willamette Valley is a 1.5 inch jerkbait made by Rapala. The bait is a dead-ringer for a fingerling Largemouth Bass. I’ve gone so far as to post video proof of this on Youtube. It could be as simple as Trout, and Salmon eat “all” smaller fish, but I’ve been paying attention to what colors/patterns I actually catch fish on, out of all of the baits I put in the water. By, and large, in our reservoirs Trout and Salmonid smolt consume the young of other game-species (Bass, and Crappie) at a higher rate than their own, and a higher rate than insect larvae, and crustaceans. Mind you, I’ve made these observations over “decades” of fishing the reservoirs here in the Willamette Valley.

On the point of these species being “invasive”. First I’d like to point out that “invasive” DOES NOT MEAN “damaging”, or “harmful”. All it means is that “it got there, and we don’t know if it was there before we first saw it”. I catch “invasive” smolt all the time in the lakes. I have no idea how they get into the lakes, but it’s happened the entire time I’ve been up here. It happens so frequently, that the local fishermen have taken to calling the Chinook smolt they catch in the reservoirs as being “Kokanee” due to the lack of proper entrance, and escapement on the reservoirs. On the invasiveness of Largemouth, Crappie, Bluegill, Walleye...etc, all I will say is that I’ve talked to older local fishermen up here my entire life. They told me fishing stories from before the dams were put in by your department. They told me how they’d catch Bass, and Crappie in the sloughs adjoining both the Willamette, and the McKenzie. When I think back now, my own childhood was full of such fishing trips. My Dad would take my cousin, and I to ponds, sloughs, and slow spots in the rivers where we’d catch Bass, Crappie, Catfish, Carp, Trout, Peamouth, Whitefish, and Chubs. The point being that these species were here before the dams. Thus treating their populations as being deleterious/damaging is only harming the quality of our fisheries...including Chinook, and Steelhead.

Beyond the fact that warm-water species have minimal, and tolerable impacts on the volume of our runs, they also provide a volume, and quality of forage in our lakes, that literally cannot be replaced by anything else. Draining the lakes in attempts to facilitate the escapement of salmonids is not only not helping the smolt escape the lakes any faster, but it’s also terminally harming the very forage-base those smolt are supposed to be beefing up for the ocean on! In addition, it’s harming prized fisheries that just as many (if not far more) fishermen pursue. Salmon, and Steelhead are only available during brief periods of the year, but Largemouth Bass provide fishing opportunities all year round.

2. We must alter land-use/water-rights where needed, to encourage land-owners who have access to running surface water to incorporate some means of hydro-electric facility. While concerns for water temp/water flow/river level would need to be observed, I believe that if we were to properly address the gathering of electricity from the natural flow of water, that the PNW could electrify much of this country, and from privately-owned, renewable, non-toxic, minimally-invasive/disruptive, hydro-electric sources.

In addition to being primarily digital, I believe that cryptocurrencies (specifically publicly-mined cryptocurrencies) will be a large, and growing part of our economy. As electricity costs are among the highest recurring material investments in any cryptocurrency mining venture, the minimization of average kw/h cost should be the goal of any bit of geography interested in playing a role in the global digital economy of the future.

3. I've watched for decades, as ODFW, and ACE have contended with the fact that the way the dams were built had zero consideration for the future existence of Salmon, and Steelhead. In the process of doing so, you've interrupted what were reasonable water retention policies in our reservoirs, and have not only damaged our warm-water fisheries, but also failed to improve Chinook, and Steelhead populations to an extent that would justify continuing them, or expanding them to Lookout, and Green Peter. Both are developing into fantastic Smallmouth Bass fisheries, and Lookout is developing the best/healthiest population of Walleye south of Portland! As both are much sought-after species, and we have failed to see destroying Fall Creek result in so much as a self-sustaining Steelhead, or Chinook run, I see absolutely zero justification for draining Lookout, or Green Peter.

Thank you for your time, and consideration.

Eric Rosso

COMMENTS TO
WILLAMETTE VALLEY SYSTEM OPERATIONS AND MAINTENANCE
DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT BY THE US ARMY CORPS OF ENGINEERS (NOVEMBER 2022)
FROM JODY MARSHALL
February 23, 2023

GENERAL COMMENTS

Execution of the National Environmental Policy Act (NEPA) - My major concern is how the US Army Corps of Engineers (Corps) implements NEPA and other environmental laws, such as the Endangered Species Act (ESA) based on past experiences.

The Corps robbed all Oregonians and interested public entities the opportunity to have their voices heard regarding the declining populations of imperiled salmonids in the WVS as a whole. The first time was when the salmonids were first listed 1999, which was significant new information about the Willamette Valley System (WVS). The second time this occurred was when the USDOC National Marine Fisheries Service (NMFS) and USDOI Fish & Wildlife Service (USFWS) each issued the Corps a biological opinion per the Endangered Species Act (ESA) in 2008 with a Reasonable and Prudent Alternative (RPA). The RPA was needed to protect these salmonids from extinction, would result in new significant impacts, and the RPA is a new alternative. The new information and significant new effects should've been disclosed under NEPA, but no NEPA analyses and public involvement occurred. The Corps now should know that NEPA was required with the 2008 biological opinions (BiOps) as they were defendants on the case presided by US District Judge Simon where he declared in his 2016 opinion and order for the Federal Columbia River Power System (FCRPS) that,

> *…implementation of a biological opinion by an action agency triggers the action agency's obligation to comply with NEPA.* [citations omitted]

Given that the Corps violated their RPA and biological opinion, it is difficult to know if they really had no intent of following the some of the unequivocal measures in the 2008 biological opinion. While the Corps claims they did project specific NEPA documents such as an EA for a fish collection facility required by the 2008 BiOp, this segmentation of NEPA does not offer the public the full view of all the requirements (RPA measures) to operate the system of dams that work collectively and avoid bringing ESA-listed species to extinction. Because they did not do a NEPA analysis, maybe the Corps did not feel obligated to comply with all the RPA measures in the 2008 BiOp. However, had a NEPA document been issued with the 2008 BiOp, the public would've had the opportunity not only to comment on the plan but also hold the Corps responsible for staying committed to the mitigation

that keeps them in compliance with the ESA (40 Code of Federal Regulations or CFR § 1502.14) and keep the ESA-listed fish from extinction.[1]

The third time this happened was for a proposal to re-allocate reservoir storage space to three of its eight authorized uses; fish and wildlife (F&W), agricultural irrigation (AI) and municipalities and industries (MI). This action covered included all the dams and reservoirs on the WVS since it operates as a system, and the proposal is called the Willamette Basin Review (WBR). The Corps sent out a draft Feasibility Report/Environmental Assessment FR/EA in 2017 that had NO analyses of effects to ESA-listed fish, one of the most significant issues. The Corps received from NMFS a biological opinion that amended the WVS 2008 biological opinion with a finding of jeopardy to the salmonids in peril. The NMFS also provided a RPA for the Corps to implement to make a 'no jeopardy' determination for the WBR.

Through review of the Willamette Valley System Draft Programmatic Environmental Impact Statement (WVS PEIS) (Corps, 2022), I was surprised to find out that the Corps made a decision on the Willamette Basin Review (WBR) without updating the 2017 feasibility report/environmental assessment (FR/EA) for public review. That was a **BAD** decision that **violated NEPA** regulations. The environmental analysis in the 2017 draft FR/EA only analyzed the tentatively selected plan (TSP), it **DID NOT** address the ARP (agency recommended plan), which is the plan selected in the signed finding of no significant impact (FONSI). There was no new analyses of the impacts with selecting the ARP over the TSP, and the 2017 draft FR/EA failed to address the impacts to ESA threatened and endangered fish species or impacts to lamprey and other species. The 2019 final FR/EA also did not address the effects of implementing the 2019 WBR biological opinion RPA or describe how the RPA will recover the species. I was told by the Corps project manager, Douglas Komoroski, that the 2019 final FR/EA was only sent to stakeholders to review because I had not received notice of its availability. This lack of new analyses or lack of a supplemental draft NEPA document **violates Council on Environmental Quality (CEQ) NEPA regulations, 40 Code of Federal Regulations (CFR) § 1500.1(b), § 1502.9(c) and § 1502.10(g).**[2]

Also, the CEQ regulations address the timing of agency actions in 40 CFR § 1506.1. Since this WBR action will result in a 'no-jeopardy' with a RPA , it may significantly impact the human environment, and an analyses of all the effects of the ARP would help determine this. The notice of intent to prepare this programmatic EIS was issued in April 2019 so this WVS PDEIS was in progress at the time and before Colonel Helton signed the WBR FONSI in March 2021. Therefore, the WBR FR/EA does not comply with **40 CFR § 1506.1.**

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[1] In a similar situation on the Federal Columbia River Power System where US District Judge Simon presided, the Judge provided that NOAA Fisheries and the Action Agencies developed a "suite" of 73 RPA actions that work collectively and all must achieve their required benefits to avoid jeopardy. These types of agency plans or programs require a single EIS.

[2] These are the 1978 regulations to which I refer as both the draft and final FR/EA were prepared prior to the revised CEQ regulations of 2020. The 2020 CEQ NEPA regulations have similar regulations to the ones cited in this letter, I will not cite these regulations to keep this letter brief.

Furthermore, the 2019 FR/EA is incomplete. It does not discuss the effects of the proposed action on ESA-listed fish and non-ESA listed fish. It also does not include the list of preparers as required in **40 CFR § 1502.7.**

Finally, the decision to pursue the WBR allocation does not make ESA-listed fish a priority as evidenced by a 'no-jeopardy' opinion with a RPA. Per Judge Hernandez opinion and order in September 2021,

> *Because the ESA "afford[s] first priority to the declared national policy of saving endangered species" and establishes that the value of endangered species is "incalculable,"* [citation omitted] *"…("Congress has determined that under the ESA the balance of hardships always tips sharply in favor of endangered or threatened species.").*

FYI, I had to retrieve the signed FONSI via a Freedom of Information Act (FOIA) as I suspected one was signed after reading parts of this EIS but I could not find it on the Corps' WBR web site. Does the Corps need to constantly operate in the shadows to do things it wants to do?

Please don't treat this proposed WVS EIS as you did the WBR FR/EA. The 2019 final WBR FR/EA lacks a discussion of effect to the species and effects under ESA. It just includes an appendix of where one can find NMFS' BiOp. That is not the analysis NEPA intended.

I recommend the Corps rescind this WBR decision and 2021 finding of no significant impact (FONSI) until the WVS PDEIS is completed, and there is understanding of the current O&M of the WVS and per the Council of Environmental Quality's (CEQ's) NEPA regulation (40 CFR § 1506.1). Then the Corps should completely analyze the 2019 preferred alternative called the agency recommended plan (ARP) with the RPA and describe the effects of implementing the ARP & RPA and particularly how it will lead to the recovery of ESA-protected fish. This also will allow the general public to hold the Corps accountable for its compliance with the ESA through the NEPA process (see CFR 40 § 1502.14 (e)).

- **Coordination of ESA and NEPA**. In the example of the WBR above, NEPA and ESA were not well coordinated in light of the RPA. **Please consider that the RPA is additive to the proposed action.** I don't think the Corps envisioned all the RPA measures that were required to avoid jeopardizing upper Willamette River (UWR) steelhead and Chinook salmon in the 2008 BiOp from NMFS. In the case of WBR, the effects of implementing the RPA were not analyzed, and NMFS' and USFWS' biological opinions were put in appendices for the WBR FR/EA. **If the Corps should receive a biological opinion with a RPA from NMFS or USFWS for this WVS O&M proposal, please seriously consider a supplement to this draft Willamette Valley System Operations and Maintenance, Draft Programmatic Environmental Impact Statement (WVS PDEIS) (Corps, 2022).**

- Throughout this WVS PDEIS, there are ***Error!*** Messages. I suggest doing a search to remove those.

ABSTRACT & EXECUTIVE SUMMARY

- **Authorized Purpose of Navigation.** The 2nd paragraph in the Abstract states,

> *To meet the many purposes of the Willamette Valley System, the U.S. Army Corps of Engineers manages a complex operation that includes storing and releasing water from the 13 system reservoirs to balance various needs and demands throughout the year such as flood control, fish and wildlife, hydropower, recreation, irrigation, water supply, water quality, and navigation.*
>
> In the last paragraph on page E-3 in the Executive Summary, states,
>
> *Each project (dam and reservoir) has up to eight purposes authorized by Congress. These include flood control, irrigation, navigation, hydropower, fish and wildlife, water quality, recreation, and municipal and industrial water supply.*
>
> These statements contradict what the U.S. Army Corps of Engineers (Corps) reported in the 2019 Willamette Basin Review Feasibility Study, Final Draft, Integrated Feasibility Report and Environmental Assessment (Corps, 2019) (WBR FR/EA). This document states,
>
> > *Navigation was an authorized purpose of the WVP, but due to a lack of commercial navigation traffic in the upper Willamette River, the WVP was de-authorized for navigation by the Water Resources Development Act of 1986. Reservoir discharges are no longer regulated for navigation above Willamette Falls Lock (USACE, 2015f).*

Which document is correct regarding the Willamette Valley System's authorized use of navigation? I suggest amending which document is NOT correct.

EXECUTIVE SUMMARY

2 - Introduction

- I suggest spelling out all the features of the WVS in the first paragraph. This would include the hatcheries, fish collection facilities or any other feature not previously described or understood by most of the public.
- Page ES-7. Please explain why Endangered Species Act (ESA)-fish are still imperiled if the 2008 National Marine Fisheries Service (NMFS) biological opinion (BiOp) had a reasonable and prudent alternative (RPA) that would not cause the species to go extinct
- In the last paragraph, I suggest that the geographic scope include the hatcheries, built fish collection facilities or other amenities added to the WVS after its original construction. The hatcheries contribute to the effects on ESA-listed fish.
- Why is the horizon of this PEIS 30 years? Does the Corps expect to receive a BiOp with a 30-year life? If no, how will the proposed action be complying with the ESA?

3.2 Cooperating Agencies

- The first paragraph refers the reader to Table ES-3, which is below the first paragraph. However, the PEIS mistakenly calls it Table ES-2.
- The last paragraph states the following:

> *These four federal agencies have met routinely with USACE to improve understanding and provide real time feedback on the PEIS and the Preferred Alternative to inform the proposed action.*

An appendix with meeting notes would be most helpful to help readers understand how the Corps reached their decision under the NEPA and how NMFS and USFWS reached their respective decisions regarding the ESA.

3.3 Tribal Consultation

- **Table ES-4** - I think the Confederated Tribes of Coos should maybe listed as Confederated Tribes of Coos, *Lower Umpqua and Siuslaw Indians*

3.4 Key Issues and Resource Concerns

The 3rd bullet of this section states,

> *NEPA Process comments conveyed concerns on how the PEIS may affect other ongoing USACE NEPA analyses within the WVS, cumulative effects to natural resources and ecosystems within the WVS, inclusion of information in the PEIS to inform analysis on fish habitats, water allocation and storage, and streamflow.*

Please be aware of 40 CFR 1506.1 (c) regarding the concern noted above.

> *(c) While work on a required programmatic environmental review is in progress and the action is not covered by an existing programmatic review, agencies shall not undertake in the interim any major Federal action covered by the program that may significantly affect the quality of the human environment unless such action: (1) Is justified independently of the program; (2) Is itself accompanied by an adequate environmental review; and (3) Will not prejudice the ultimate decision on the program. Interim action prejudices the ultimate decision on the program when it tends to determine subsequent development or limit alternatives.*

Some of the WVS proposal under development may need to wait until the NEPA analysis under this PEIS is complete.

I think it was premature for the Corps to sign a FONSI for the WBR since this WVS PEIS started in 2019 with the issuance of the notice of intent in the Federal Register.

4 - Development and Comparison of Alternatives

- In the first paragraph, is *UACE* supposed to be *USACE?*

- **4.1 - Purpose and Need**
  - The first sentence is re-stating the proposed action, not how the proposed action is responding to the purpose and need. I suggest re-stating it to, *The purpose and need for the proposed action is to meet the authorized purposes for which the WVS was established…*
    Then I suggest to state those authorized purposes after … and what it means to meet them. For example, how is success identified for meeting the authorized purpose of fish and wildlife? Need is the condition requiring relief and the purpose of a proposal is to address that need
  - I suggest dropping the part about meeting ESA obligations as that is required by law because if it is required by law, why would you not meet it?
  - The first sentence in the 3rd paragraph state, *More specifically, the aim of the proposed action and alternatives is to improve salmonid passage over dams and through reservoirs to increase their survival though cost-effective means while still meeting the Congressionally authorized project purposes of the WVS.* The *though* listed in red font should probably be *through* instead. Also, instead of the word *survival*, perhaps the word *recovery* is more suitable to the requirements of the ESA by federal agencies.

- **4.2 Constraints** - Under the 2nd bulleted item on Dam Safety, the Corps states, *A more detailed dam safety evaluation of components will be conducted during site-specific planning and design.*

  Does the PEIS explain how it makes sense to invest in this new infrastructure to supplement an existing and degrading system of dams, and in many cases where they have reached their design life?

- **4.3 Objectives** -

  - Do these objectives have goals? What would success look like under each goal?
  - In item #6, I recommend that the improved water quality benefit all life that depends on the waters in the WB, including humans and other animals.

- **4.4 Measures and Alternatives**
  - There is reference to Table ES-4 in the 3rd paragraph but appears it meant to say Table ES-5.
  - **Table ES-5.** The No Action Alternative as described is really an action alternative.
    - How can the no action alternative allow objective 1: *Allow greater flexibility in water management (related to refill, drawdown timing, and other water management measures)*, if there is no new action?
    - How can the no action alternative allow objective 5: *Improve water management during the conservation season to benefit anadromous ESA-listed fish and other authorized project purposes*. If there is no action?
- **4.5 Assessment and Comparison of alternatives**

- On page ES-21, the first sentence in first paragraph seems to be missing a verb. Perhaps you should add, *are described* before*, …in Chapter 3*.
- On page ES-21, the 2nd paragraph states, *USACE will conduct subsequent NEPA analyses of future site-specific actions.* I concur with this statement. Also, if new alternatives are developed, including possibly an RPA from NMFS, the Corps may need to provided the public with a supplemental EIS describing this RPA and its effects to the environment and it contribution to the purpose and need of the proposed project.
- Why is there no action on removing some or all of the dams?

5 ALTERNATIVES AND COMPARISON OF EFFECTS

- When discussing **flows** in the effects discussions, I suggest you state why 6000 cubic feet per second (cfs) is a benchmark for flow at Salem.
- When discussing effects to **fish species' population.**
  - Suggest you state what it means for a fish species' population to ***reach replacement.*** **This is not defined in the Glossary, and I suggest adding it there.**
  - Suggest you define what it means for a fish species' population to remain *with high persistence*, which is defined as a *low risk of extinction.* But what does it mean about the species' populations returning to those numbers before the WVS was constructed?
  - What is the *McKenzie Core Legacy population*? I suggest you add this to the Glossary as well.

- **5.1 Measures common to all Alternatives**
  - What is meant in the 2nd bullet - *Adaptation of the Hatchery Program*? It is not described in the Glossary.
  - Where is/are the NEPA document for existing and new release sites above dams? I cannot find it on the web or Corps site. When were the new release sites analyzed?
  - What is Adaptive Management and Governance Framework? This was not in Glossary, and I suggest you define it there.
  - One of the measures is O&M of Adult Fish Facilities. What are the Adult Fish Facilities? Is it the Adult Fish Collection Facilities?

- **5.2 Near Term Operational Measures** - The whole paragraph is confusing. What is the nature of these actions, and in what NEPA documents are they described? Look at Appendix N.

- **5.3 No Action Alternative**
  - There is no discussion on the hatchery operations as part of the Willamette Valley System (WVS). Shouldn't this be included (see objective 7).
  - The last sentence in the first paragraph states, "*Actions and operations occurring in the WVS would also include those agreed to in previous ESA consultation between USACE and the Services (NMFS and USFWS)*.
  - The 2nd paragraph states, *The NAA does not meet the purpose and need of the project because the current operating conditions of the WVS adversely affect ESA-listed fish species…*

and the designated habitat for these species. **Won't there still be *adverse effects* still hold with the other alternatives?**

- **5.4. Effects of the NAA**
  - In the 3rd paragraph, the 3rd sentence should start with NPV, not NVP. Also need to close parentheses at the end of the sentence.
  - Maybe you should discuss downstream flows as you do in section 5.6.
  - There is nothing about effects to impaired water quality.

- **5.5 Alternative 1. Improve Fish Passage Through Storage-Focused Measures.**
  - No mention of hatchery operations
  - Figure ES-22. I really don't see how this schematic shows how a floating screen structure works and what it is supposed to do.

- **5.6 Effects of Alternative 1**
  - Need a period at the end of the first paragraph.
  - In the 2nd paragraph, the last sentence is in blue font. Why?
  - In the 4th paragraph, suggest adding *an average of* right after the *(* and *8.*
  - There is no mention of effects to water quality, objective #6.

- **5.7 Alternative 2A**
  - No mention of measures and operations for hatchery fish.
  - No mention of what a *rule curve* is. Need to explain.

- **5.8 Effects of Alternative 2A**
  - In the 2nd paragraph, define the importance of flow targets meeting the 90% of the rule curve.
  - There is nothing about effects to impaired water quality.

TEXT OF THE WVS PEIS

1.1.1 National Environmental Policy Act -

- I suggest that you add to the first sentence the following or something similar, *and make that information available to public officials and citizens before federal decisions are made and actions are taken.*
- I suggest you add verbiage about the possibility of a supplemental EIS, especially if the Corps anticipates a RPA with a jeopardy opinion from NMFS.

1.1.2 Endangered Species Act

- Need to fix or define *conspecific2* on page 5
- I suggest you describe in the 2nd paragraph the results of implementing/not implementing the RPA in the 2008 BiOp.
- The following is not completely correct in the last paragraph, *Since 2008, USACE has been implementing the RPA provided in the 2008 NMFS BiOp.* Since the Reasonable and Prudent Alternative (RPA) is the collective suite of RPA measures, the Corps has **NOT** been **implementing the RPA** - only some of the RPA measures. This is based on US District Judge Hernandez's 2021 opinion and order, where *the Court concluded that the Corps is violating the ESA because its operation of the WVP is jeopardizing the survival and recovery of the listed salmonids…The Court also determined that…the Corps was not carrying out the critical RPA measures…* and this resulted in *…a substantial procedural violation of the ESA.* I suggest restating to say that t*he Corps has been implementing [3] of the RPA measures.*

1.2 GEOGRAPHIC AND TEMPORAL SCOPE

1.2.1.1 The Willamette River Basin

- Why not describe the effect further downstream of these dams since the impetus for Congress to pass authorization for them came from the flooding of Portland, OR in 1861? This seems to imply the reach that the WVS had on communities downstream of the counties where the WVS occurs.
- I suggest including the fact that the Willamette River drains into the Columbia River in the northern Portland area.

1.2.2 Temporal Scale The PEIS states the temporal scope of analysis for the PEIS is 30 years from the signing of the Record of Decision (ROD). I am afraid the Corps will put this document in a drawer somewhere and forget it like they did with 1980 FEIS. The ROD has not been found to the 1980 EIS. Also, too many in the Corps say current operations are covered by the 1980 EIS, when this is not true as the 1980 EIS never envisioned the need to protect ESA-listed species.

1.3 PROPOSED ACTION AND PURPOSE AND NEED

- I am surprised that the Purpose and Need in the abstract is longer than in the description in the text of the PDEIS.
- As written the *purpose* and the *need* are the same. The need is the condition requiring relief, and the purpose is to address that condition.
- Isn't the purpose and need for the proposed action to meet the authorized purposes for which the WVS was established?
- The first sentence is re-stating the proposed action, not how the proposed action is responding to the purpose and need. I suggest re-stating it to, *The purpose and need for the proposed action is to meet the authorized purposes for which the WVS was established…*Then I suggest to state those authorized purposes after … and what it means to meet them. For example, how is success identified for meeting the authorized purpose of fish and wildlife?

[3] Capitalized for emphasis.

- I disagree with the last sentence, *Management of the WVS for its authorized purposes necessitates ongoing and future operation of the system and maintenance at any given project that responds to changes in WRB conditions and new information related to system operations and technology, the affected environment, polices, and regulations such as the ESA.* So essentially the Corps thinks these dams, which greatly alter the river's morphology besides killing off ESA-listed fish, should exist in perpetuity? What if there are much newer, cleaner advantages to achieving some or all of the authorized purposes in another and better way? Also, almost all of the dams in the WVS have reached their design life of 50 years before major rehabilitation is needed.

1.4 COOPERATING AGENCIES - I suggest you list the cooperating agencies again in this section and describe their reason/purpose for being a cooperating agency (jurisdiction by law or special expertise relevant to the WVS). This would help provide the context in which these organizations are included.

1.5 USACE-MANAGED DAMS AND RESERVOIRS IN THE WILLAMETTE RIVER BASIN

- With the paragraph beginning with, *The WVS includes 100 miles of revetments…,* I suggest you also include the fish collection facilities that are now part of the WVS.
- So the 2019 WBR FR/EA states that navigation is no longer an authorized purpose. This document is not consistent with that finding because it still lists *navigation* as an authorized purpose. Whatever the answer may be, I suggest you fix it in the appropriate document.
- Need to fix footnote #1 to Table 1.5.2. Currently it states, *Dorena Dam houses privately owned generates as a part of the privately owned (under a Federal Energy Regulation Commission licensed) and run hydropower. USACE does not operate Dorena Dam for hydropower and any hydropower production is incidental.* Should generates be generators? Maybe want to insert the word privately before run.

1.5.1.1 Hills Creek - I suggest adding to this section that Hills Creek is in a IRRM by limiting refill to 10 feet less than full pool. This would reduce Hills Creek's total storage by 27,350 acre-feet for a current IRRM storage of 322,650 acre-ft. See ***https://www.usace.army.mil/Media/News-Archive/Story-Article-View/Article/2091524/corps-plans-changes-to-summer-reservoir-levels-at-hills-creek-lookout-point-to/***

1.5.1.2 Lookout Point.

I suggest adding to this section that Lookout Point is in a IRRM by limiting refill 5 feet less than full refill. With the IRRM restriction, storage is 21,800 acre-feet less than the 438,200 acre-feet of full storage. With the IRRM, the storage is at 416,400 acre-feet.

- **Figure 1.5-1** - You might want to footnote or include in the glossary what a run-of-river dam is.

1.5.6.1 Detroit

I suggest adding to this section that Detroit dam is in a IRRM by limiting refill 5 feet less than full refill. At full pool elevation Detroit Reservoir covers an area of 3,580 acres with 428,800 acre-feet of usable storage but with the IRRM, there is 17,500 acre-feet less of storage. So that reduces the full storage during the IRRM period to 411,300 acre-feet.

1.6.2 Willamette Hatchery Mitigation Program
Where can I find the Corps' NEPA document for the Hatchery Management Plans for spring Chinook salmon, steelhead, and rainbow trout in the Upper Willamette River Basin?

1.7 AUTHORIZED PURPOSES - Is there a contingency plan for substantial fish loss as well as a Drought Contingency Plan, which addresses flow needs, drought management organizations, a drought assessment process, and a framework to carry out a drought response. Per Judge Hernandez in 2021, *Not only is the Corps' authority to adjust WVP operations under the 1950 FCA much broader than it was in EDF, but HD 531 also contemplates prioritizing the needs of the salmonids over power production when necessary.* [citations omitted]…*(providing an "exception" to the power storage requirement and detailing that the Corps should use power storage to support fish life "when a shortage of water existed" because "under this condition . . . fish life . . . would have priority over power").*

1.7.2 Hydropower - I suggest adding that **BPA is evaluating**[4] the viability of economical power generation at these WVS dams. The dams in the WVS generate a small amount of power relative to their operating costs. Bonneville Power Administration is evaluating the viability of economical power generation from these dams as it also seeks biologically effective and technologically feasible solutions for protecting, mitigating and enhancing fish and wildlife in the basin.

1.8 SYSTEM OPERATION AND ANNUAL OPERATIONAL PLANNING

1.8.3 Water Control Annual Planning - Besides a drought contingency plan, perhaps there should be a contingency plan if there is a considerable increase in mortality of ESA-listed fish. Perhaps one will be added to the new BiOp for this proposed O&M of the WVS.

1.9 ONGOING USACE PLANNING AND ENVIRONMENTAL REVIEWS IN THE REGION - It would be helpful to provide the link to all the on-going, separate, site specific NEPA documents mentioned in this section.

1.9.2 Interim Risk Reduction Measures

- I scanned the IRRM NEPA documents for Detroit and Hills Creek & Lookout Point IRRM environmental assessments. I did not find a timeframe until a 'permanent solution' is anticipated. So I estimated about 10 years for planning studies, design, environmental studies, contracting, and construction or implementation. That is 1/3 of this proposed PDEIS recommended timeframe of 30 years. I suggest incorporating some of that discussion on minor to major rehabilitation.

CHAPTER 2 - ALTERNATIVES DEVELOPMENT AND EVALUATION

1. **Summary of Authorized Purposes Specific to the Proposed Action and Purpose and Need** - Should you include WRDA 2000?

[4] From an August 2019 BPA Fact Sheet

Chapter Organization

2.1 Alternatives Development Process - fix …*pr2ocess*.

2.2 Final Measures Developed for Action Alternatives - why are the court-ordered measures called *near term*?

Overview of the Alternatives Development Process

Step 2: Identify Objectives

- fix *anadromous15* in #4
- In #6, I would expand the reducing pollutant levels to benefit all forms of life. In 2018 and before, **residents in Salem had to suspend using water** for drinking due to hazardous algae blooms (HABs). I assume many of the HABs are a result of the recreational use of the reservoirs and associated additional fecal matter. Also, there are hazardous chemicals in many of the reservoirs.

- **Table 2.1-1. Project Alternative Strategies and Associated Objectives -** this table does not correspond with the Table ES-65.

2.2 FINAL MEASURES DEVELOPED FOR ACTION ALTERNATIVES

2.2.1 Flow Measures

2.2.1.1 Integrated Temperature and Habitat Flow Regime (#30a) **-** why the numbers after each subsection like #30a? How does this help the reader?

2.2.2 Water Quality Measures - the 6th paragraph states, *Total dissolved gas (TDG) supersaturation also negatively effects ~~environmental effects~~s fish and other aquatic species (EPA, 1973)*. I think you need to delete *environmental effects* as shown above.

2.2.2.1 Construct Water Temperature Control Towers (#105)

- Need to combine the 2nd paragraph and the third after …*project locations (* …

2.2.2.5 Use Spillways to Release Warm Surface Water in Summer (#721) **-** The referenced figure, Figure 2.3-8, does not exist in this document. I think it should've referenced Figure 2.2-8. I suggest reviewing the numbering in the figures in this subchapter.

2.2.3 Downstream Fish Passage Measures

2.2.3.1 Deeper Fall Reservoir Drawdown for Downstream Fish Passage (#40)

- Figure 2.3-9 is wrong reference. See comment for Section 2.2.2.5.
- Please explain why would use of the DT or RO at Cougar need a change in operational authority.
- Table 2.3-7 is also mis-numbered like the Figures in this section.

- **2.2.5 Suite of Near-term Operations -**
  - The last paragraph uses AM, which I think is adaptive management. Therefore *AM* should be included in the glossary.
  - Where can one find the NEPA documents for these change in operations and their effects to resources?

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

2.4 ALTERNATIVES CONSIDERED IN DETAIL

2.4.1 No Action Alternative

- **Table 2.4-1. No Action Alternative Measures and Locations** - This table would be easier to read if it is all on one page.
  - *2.4.1.1 Stream Flow* - This section mentions Table 2.5-4, which is not in this section. I think many of the Tables in Chapter 2 will need to be renumbered.

- **2.4.2 Measures Common to All Action Alternatives**
  - **Table 2.4-5. Measures and Locations Common to All Action Alternatives -** what is meant by *Adapt Hatchery program*? What types of actions are included? Is this a reference to Objective #7? What specific actions does the Corps implement especially as related to reducing spawning and rearing habitat competition caused by hatchery fish?
  - **Figure 2.4-2. Willamette River Basin Bank Protection Program Revetment Locations** - I cannot see the revetments on this map.

CHAPTER 3 - AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.8 FISH AND AQUATIC HABITAT

- ***Table 3.8-1. Life history timing for UWR spring Chinook salmon -*** Need to fix *SpawnCing*
- **3.8.1.4 Hatcheries, wild salmon, and steelhead**
  - The text states, … *hatchery spring Chinook are being used to supplement the natural origin population to promote reintroduction efforts above WVS dams.* Where can I find the Corps' NEPA document describing this action and its effects?
  - Did the Corps do a similar analysis since they are funding this program? See text, *The Upper Willamette Hatchery Programs final EIS evaluated the Hatchery Genetic Management Plans to determine the risk of jeopardy to ESA-listed (NMFS 2019).*
- ***3.8.2.2 Environmental Consequences Summary*** - I suggest just saying outright what the effects are of Alternative 5 will be instead of referring to discussion on Alternative 2B, which references Alternative 2A.

3.16.1.6 Oil Spills and Above-ground Storage Tanks - Is there an estimated annual residual spill of oil that happens at the hydro power dams? If so, is does this need permitting under Section 402 of the Clean Water Act (CWA)?

3.17 PUBLIC HEALTH AND SAFETY – HARMFUL ALGAL BLOOMS

3.17.2 HABs in the WVS - In reservoirs like Detroit, it seems there is little nutrient loads that can lead to HABs from farms and fertilizers. It seems to me that it is the human activity, including the fecal load to the reservoir that can spark growth of the HABs, like those in the past where S**alem's drinking water supply was affected**. Why doesn't the Corps have responsibility since it is their reservoir, and the creation and management of it (river to lake recreation) has resulted in substantial nasty HABs? Who has responsibility to monitor and control this or provide advisories for the public safety?

3.22 Visual Resources - The existing landscape looks very different with an empty pool and a bunch of tree stumps in the late fall and winter months. I have always thought so especially since I used to work at Detroit, OR. It looks like a zombie land. During the conservation season, when the reservoir is full, it is a much prettier site from the road and from the lake. During drought years though with very low water in reservoir, it looks like a zombie land of mud in a hot climate. It really is perspective. In calendar year 2015 was a **very dry year** where reservoirs were almost void of all water except for the actual river. It also exposed many historic properties at the old town of Detroit.

3.18.1.6 CERCLA Sites

- **Table 3.18-3.18-2. USACE WVS CERCLA Site Summaries** - **Arsenic** has also been released at Big Cliff reservoir from an original construction pile. This should be added to this table and evaluated in the effects section.

CHAPTER 4 - CUMULATIVE IMPACTS

- **4.1 ANALYSIS APPROACH -** Need to include RFFA in the list of acronyms and abbreviations

CHAPTER 5 - PREFERRED ALTERNATIVE SELECTION AND IMPLEMENTATION

- I suggest moving section *5.2 Comparison of Alternatives* to Chapter 3. Chapter 5's title suggests it is all about the Preferred Alternative.

CHAPTER 7

7.2.5 Evaluation of new information that could require a supplemental analysis

I am in agreement with the following open statement: *A supplemental analysis is required when there is significant new information relevant to the Proposed Action or its impacts (CEQ 2014). Introduction of a new and viable alternative, fundamental changes to existing*

plans (including connected actions), or a change in purpose and scope could necessitate a supplemental analysis. In addition, if new information prompts the need to analyze effects to a new resource that has not been analyzed in the PEIS; a supplemental analysis could also be required.

From:	lcwljb
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Willamette Valley System Draft EIS
Date:	Thursday, February 23, 2023 6:52:46 PM
Attachments:	BRDam15-10.pdf BRResACOE.pdf

From: Lee C. Weichselbaum
To: U.S. Army Corps of Engineers
Attn: CENWP CENWP-PME -E / Willamette EIS
Re: Comments on Willamette Valley System EIS

COMMENTS ON WILLAMETTE VALLEY SYSTEM EIS

The EIS fails to adequately address the potential major adverse effects to dam safety, as well as the potential adverse flood risk effects, of Alternative 5., the Preferred Alternative (PA), at Blue River, and underestimates the consequential effect of mitigation through required structural improvements and/or operational modification in its analysis of projected impacts.

Constraints
Constraints based on the purpose of and need for the proposed action and life safety were identified. Potential alternative measures were eliminated from consideration for the following reasons:
• Flood Risk Management: Results of the preliminary modeling were used to screen any measures with potential adverse flood risk effects. Specifically, measures that would result in flood risk management changes from current protection levels were eliminated as an alternative measure.
• Dam Safety: USACE performed a preliminary evaluation of measures for dam safety considerations. Measures that would compromise dam safety and that could not be mitigated were eliminated as an alternative measure. A more detailed dam safety evaluation of components will be conducted during site-specific planning and design.

Per Engineering Regulation, ER 1110-2-1156 (USACE Publications), "USACE has specific public safety responsibility, when a project has known safety issues, to take appropriate interim risk reduction measures including reservoir releases. USACE statutory responsibilities require operation of dams in a manner that reduces the project's probabilities of failure when there are known issues with the integrity of the project."

Blue River Dam
Blue River Dam is a multi-purpose storage project that operates to meet the same authorized purposes as Cougar except there is no powerhouse. The dam is a rock-fill structure with a gated concrete spillway with two tainter gates, two slide gate regulating outlets (ROs), and two emergency slide gate ROs. All outflow is typically released through the ROs. The dam is about 270 feet tall with top of dam at elevation 1,362 feet. Outflow is governed by the rule curve (a relationship between date and reservoir elevation to provide multipurpose use of the pool) and other project requirements. Blue River Dam does not have a powerhouse and outflow is governed by the project rule curve and other stream flow requirements or special project requirements.

Under all but emergency conditions, all outflow is released through the ROs. Blue River is one of the more "flashy" projects in the Willamette system. During significant winter storm events, it is not unusual for the project to fill 20 feet or more daily. During the lower flow summer season, the project can draw down quickly causing problems for recreational users.

Spillway Gates
Blue River Dam has two radial tainter spillway gates and a spillway crest at elevation 1,321 feet. The Blue River Dam spillway gates are used relatively infrequently (only once). The gates are controlled locally via a control panel with a mechanical dial detailing the spillway gate position, or through the SCADA system. The mechanical dial measures the amount of gate opening locally. The local dial is set to 0.5-foot increments. These settings limit the precision with which flow changes can be made.

Regulating Outlets
The two ROs at Blue River are controlled with vertically sliding gates either locally or from the control room at Lookout Point. There is only one speed that the RO gates can be opened or closed. A staff gage is used to measure the opening locally. Readings on the staff gage are spaced at 0.1 foot and the SCADA dial is set to 0.01-foot increments. The precision of the gate adjustments limits the fine-tuning of RO flows.

Outlet/Diversion Tunnel
The sole Outlet/Diversion Tunnel (OT) at Blue River is lined with concrete liner for only approximately the lower third of its length. The pressures generated by release flows exceeding 3,500 cubic feet per second (cfs) create pressures in the unlined portion of the OT that increase the potential for rock fracture and sloughing.

Because the OT at Blue River is the only reliable means of releasing water from the reservoir (see the discussion of emergency use of spillway for releases, below), any obstruction to the OT would compromise the integrity of the dam.

Operation
Blue River Dam is operated remotely from the Lookout Point control room, the precision of the Supervisory Control and Data Acquisition (SCADA) system controls are not finely tuned enough to adjust the amount of water through the projects to meet small flow changes as required by the project schedule. Additionally, there can be a lag time (30-60 minutes) from when an operational change is made at Blue River Dam and when the control room observes the change recorded at the nearest downstream U.S. Geological Survey (USGS) gage #14162200 (Blue River at Blue River).

Use Spillways for Surface Spill in Summer (#721) Only at Hills Creek and Blue River Dams
Under Alternative 5 (PA), the spillway at Hills Creek and Blue River Dams would require civil and structural improvements to be used on a regular basis. Hydraulic excavators would be used to excavate and regrade the spillway channel back to the river and then concrete would be placed to armor the channel. A cofferdam may be required at the bottom of the spillway channel to place concrete below ordinary high water. This work is expected to take 1 to 2 years.

This measure assumes the current spillway gates and spillway channel could be re-designed to enable low-flow releases when the lake is above spillway crest. Blue River has an unlined spillway downstream of the apron and mitigation for erosion concerns would need to be considered. Additionally, there are concerns for the existing vegetation downstream of the spillway that would need to be considered. (See attached photos, BR Dam 15-10, BR Dam 15-11). This assumption is questionable because the spillway channel was originally constructed on a geologic "dike" zone, rendering it vulnerable to catastrophic failure. The proposed spillway structural modifications at Blue River have the potential for severe adverse effects to dam safety risk which would require project specific potential failure modes analyses (PFMAs) and possible mitigation measures or changes to the design.

Increased Risks
Blue River reservoir (under Alternative 5 (PA)) would fill more often as compared to the NAA. Blue River would be required to store more water during very wet years for the McKenzie River, at Vida, to remain at or below bank full, since Cougar is drafting for the spring reservoir draw down.

USACE performs risk assessments as part of an ongoing dam safety program and to assist in the prioritization of investment for aging infrastructure. Risk assessments evaluate the life safety risks associated with the dams to determine if risk reduction actions are needed and, if so, what actions should be taken. Completion of the advanced risk assessment, called an Issue Evaluation Study (IES), which the USACE is conducting on Blue River Dam, is of even greater urgency given the increased water storage and structural modifications to the dam proposed under Alternative 5 (PA).

Preliminary IES results for Lookout Point, Hills Creek, and Detroit identified unacceptable risk for seismic failure modes resulting in the implementation of interim risk reduction measures (IRRMs). According to the studies, an earthquake could cause the spillway gates and the concrete supports on either side to become damaged. In addition to the spillway gates and piers, the rock fill embankment at Hills Creek has the potential for settlement during an earthquake event. If this occurs when the reservoir is at its highest, the damaged gates/embankment may no longer be able to hold back the water, allowing a high volume of outflows that could cause flooding of areas downstream.

As mentioned, the Blue River Dam is a rock fill embankment with a vulnerable OT and compromised spillway gates and spillway channel. The Blue River Reservoir Top of Dam Zone is at 1362 ft. elevation, the Flood Control Zone is at 1357 ft. elevation, and the Conservation Zone is at 1350 ft. elevation. The community of Blue River is approximately a mile and a half downstream of the Blue River Dam. The increased amount of time that the reservoir will be maintained at these elevation levels under Alternative 5 (PA), the propensity of the Blue River Reservoir to rise rapidly during major storm events and open questions about the seismic vulnerability of the dam structures increase the risk of a potential catastrophic flood.

In addition, Alternative 5 (PA) proposes a deep draw down of Cougar Reservoir to pass fish through the Diversion Tunnel. The proposed fish passage operation at Cougar Dam would result in infrequent, temporary

major adverse effects on transmission services to Blue River. Reduced reservoir levels associated with decreased refill ability or draw downs, combined with anticipated increases in the likelihood of extreme wildfire or weather events, would incrementally increase the risks that Cougar Dam would be unable to provide power during periods of reduced reservoir levels to the community of Blue River in the event a fire or severe weather event were to cause a transmission outage between Blue River and Thurston substations. Deep fall and spring draw downs would compromise Cougar Dam's ability to operate islanded (isolated) and serve the Blue River community under temporary weather or fire related outage conditions, resulting in significant adverse affects to public health and safety.

TEMPERATURE PROJECTIONS

Water quality downstream of a dam can affect all life stages of fish species. Temperature is an important environmental factor affecting salmonid distribution, behavior, and physiology (Groot and Margolis, 1991; Brett 1995; Newell and Quinn, 2005) and affects their distributions and migratory behavior (Behnke, 1992; Quinn, 2005). Downstream water temperatures in the WVB affected by the dams disrupt fish spawning and rearing life stages because water is too warm in the fall/winter and too cool in the summer/spring.

WRB rivers have been historically warmer in the summer than under current conditions. Fish adapted to the historical, warm summer conditions; therefore, the unseasonably cool water released from the reservoirs disrupts their life stages in summer. By fall, most of this cool water has been released, leaving mostly warm surface water at a time when rivers would historically be cooling off with increased precipitation, further disrupting salmonid life stages.

Blue River Dam is considered high head dam, because it is 270 feet tall. Because it is a deep reservoir, with steep side slopes, Blue River experiences significant thermal stratification in summer. Thermal stratification occurs when the warming of the reservoir’s surface by the Sun causes water density variations and cooler, denser water settles to the bottom of the reservoir. A layer of warmer water floats on top. The proposed use of the emergency spillway for surface spill in summer (#721), see above, for water temperature mitigation at Blue River, is limited because surface water releases can only be made up to the point that the reservoir is drawn down to the spillway elevation of 1,321 ft. Although the duration of the releases can last from May-July, historically that elevation of water in the reservoir is reached by early to mid June, before the air temperatures begin to really heat up. The Blue River fall reservoir draw down target elevation is 1165 ft. The coldest water will be released in the summer if the only available outlet for releasing water is the deep regulating outlet (RO). River temperature at Blue River, below the dam (USGS 14162200), was 63.5 degrees F, on October 22, 2022.

There are no water temperature measures for Cougar or Blue River dams under Alternative 5 (PA) and Alternative 2B in the McKenzie River, refer to Appendix D Section 1.6.4.3 for a comparison of Alternative 2B and NAA water temperature effects at Cougar Dam 3-562.

Selective Withdrawal Structures (SWS), often referred to as Water Temperature Control (WTC) towers are constructed to help regulate water

temperatures downstream of projects to aid in meeting downstream water temperature goals for the purpose of ESA-listed species. A WTC was completed at Cougar Dam in 2005. Cougar Dam is the only project in the WVS with selective withdrawal capabilities to manage downstream water temperatures.

Alternative 5 (PA) provides for spring and fall draw down to Diversion Tunnel at Cougar Dam, with interim fall draw down for downstream fish passage through ROs and spring delayed refill for downstream fish passage through ROs.

COST PROJECTIONS
Alternative 5 combines measures 105, 166, 721, 30, 304, 718, 40, 392, 714, 52, and 722. Alternative 5 is exactly the same as Alternative 2b except that the integrated temperature and habitat flow regime (Measure 30a) has been replaced by the refined integrated temperature and habitat flow regime (Measure 30b).

Alternative 2b includes estimated funding increases for additional expected routine O&M activities brought on by new capital investments. Capital investments are included in Alternative 2b at Detroit/Big Cliff, Foster, Green Peter, Cougar, Blue River, and Lookout Point/Dexter. These capital investments would require design as well as engineering during construction costs. Measure numbers, descriptions of measure, and cost estimates for capital, design, engineering during construction, and O&M (in addition to the NAA) by project under Alternative 2b are as follows:

5. Blue River – Total - $520,000
M384 - Gravel augmentation below dams - $520,000
Capital - $350,000
Design/EDC – $70,000
OMRRR - $100,000

Alternatives 3A and 3B include a cost projection of $144,000,000 for M721 - Use spillway for surface spill in summer for Blue River as follows:

M721 - Use spillway for surface spill in summer- $144,000,000
Capital - $100,000,000
Design/EDC – $44,000,000

And although Alternative 5 (PA) includes measure 721, see above, the cost projections for Alternative 5 (PA) do not include any costs for that measure.

Respectfully Submitted:

Lee C. Weichselbaum
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From:	Marc Liverman
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[Non-DoD Source] Public Comment: Willamette Valley System Draft EIS
Date:	Thursday, February 23, 2023 6:44:49 PM
Attachments:	M.Liverman-DEIS-comments-Feb23-2023.pdf

Public Comment for the U.S. Army Corps of Engineers
Willamette Valley System Draft EIS
CENWP-PME-E, Portland, OR 97208-2946

Please find my comment on the subject DEIS in the attachment below. I request that this email and my attached comments be added to the administrative record for this project.

Sincerely,

Marc Liverman
Portland, Oregon

cc: via email

Laurie Rule, Senior Attorney, Advocates for the West
Eric Anderson, Fish and Wildlife Administrator, BPA
Lawrence Schwabe, Hydrosystem Compliance Specialist, CTGR
Anne Mullan, Endangered Species Biologist, Willamette Branch, NMFS
Jim Myers, Research Fish Biologist, NMFS
Kate Wells, Willamette Branch Chief, NMFS
Jennifer Fairbrother, Conservation Director, Native Fish Society
Jonah Sandford, Executive Director, NEDC
Leslie Bach, Senior Program Manager, NWPCC
Nancy Gramlich, Middle Willamette Basin Coordinator, ODEQ
Alyssa Mucken, NW Region Basin Coordinator, OWRD
Kelly Reis, Willamette Fish and Wildlife Program Manager, ODFW
Jeff Ziller, Upper Willamette Fish Biologist, ODFW
Bernadette Hudson, Wildlife Division Administrator, ODFW
Chris Allen, Aquatic Resources Division Manager, Oregon Fish and Wildlife Office, USFWS

Janine Castro, Project Leader, Fish and Aquatic Conservation, USFWS
Michael Hudson, Fish Biologist, Columbia River Fish and Wildlife Office, USFWS
Daniel Timmons, Wild Rivers Program Director, WildEarth Guardians
Bob Sallinger, Urban Conservation Director, Willamette Riverkeeper

February 23, 2023

Marc Liverman
Portland, Oregon

Public Comment for the U.S. Army Corps of Engineers
CENWP-PME-E, Portland, OR 97208-2946

SUBJECT: Willamette Valley System Draft EIS

Please find my comments on the subject DEIS below. I appreciate having the opportunity to comment.

I am a private citizen and long-term resident of the Willamette River Basin (WRB) who lives near, visits, and uses and enjoys the Willamette River mainstem and its tributaries in many ways including fish and wildlife viewing and other aesthetic, cultural, recreational, and spiritual experiences. My enjoyment of the natural and physical features of the Willamette River and my relationship with those features has been, is being, and will continue to be directly affected by the Corps' 30-year plan for the operation and maintenance of the Willamette Valley System of multipurpose dams, reservoirs, and hatchery programs across the Willamette Basin.

I request that these comments be added to the administrative record for this project.

1. Overall Impressions. The DEIS (USACE 2023) is an oppressively large and tedious document with thousands of pages of information. The text uses an excess of jargon and acronyms and often buries key findings deep inside 18 appendices which are themselves overburdened with hundreds of figures and tables that are often redundant and unnecessary. It would be difficult to devise another system that would make it difficult for third parties and members of the general public to find and understand the information they need to make a meaningful comment on the proposed action.

2. Salmon and Steelhead. The likelihood of reversing the long decline of ESA-listed salmon, steelhead, and bull trout in the WRB is a major theme underlying the proposed action. This is entirely appropriate, not only because of ESA regulatory concerns but also because salmon and steelhead are a biological foundation of the Willamette River ecosystem, an important center for the economy and culture here, and a symbol for the public to rally around that has broad support among a wide range of social and economic groups across Oregon and the United States (Rahr 2023).

Surprisingly, the DEIS and its many Appendices do not seem to provide a comprehensive list of measures that it has the authority to carry out and considered as part of the NEPA process before it began to screen the measures for tradeoffs with other purposes and costs and packaged them into alternatives. Specifically, the DEIS has no comprehensive list of the measures that it has the authority to carry out and that are also most likely to allow ESA-listed species to survive and recover as quickly as possible. Instead, that information seems to be fragmented, diffused and

caveated across the entire DEIS which makes it difficult to discern the full scope of the Corps' thinking in regard to measures for ESA-listed species before the Alternatives were designed.

Instead, the DEIS seems to quickly jump to full Alternatives and a scientific evaluation of those based primarily on the use of very limited and uncertain data from the Fish Benefit Workbook (FBW) (ISAB 2014). The FBW data are then used to populate complex life history models that necessarily produce equally uncertain estimates of abundance and viability (DEIS Appendix E, at E-533). The Corps then combines those estimates with results from countless other physical and biological models and analyses to summarize and compare the most important effects of each action alternative. All of this somehow leads the Corps to recommend Alternative 5, which will "improve conditions for ESA-listed fish while providing more flexible ways for USACE to meet demands for fish and wildlife, flood risk management, water supply for municipal and industrial use, water quality, water supply, irrigation, hydropower generation, and recreation in the WRB."

All things being equal, the Corps estimated that Alternative 5 would take a staggering 32 years to complete, assuming full funding and no other delays (DEIS Figure 5.4-1, at 5-38). Yet the DEIS does say that Alternative 2A would most effectively meet the Proposed Action objectives for ESA-listed species for most dams compared with all other alternatives (DEIS, at 5-16). Surprisingly, Alternative 2A also ranks as high or higher than Alternative 5 (the Preferred Alternative) in every other criterion that the Corps used to compare alternatives, including change in conservation storage, impact to flows, change in net present value, cost, average annual recreation benefits, and regional economic impact from recreation effects (DEIS Table 5.2-1, at 5-8 and 5-9). This begs the question of why is Alternative 5 the Preferred Alternative. Is there nothing else the Corps do to promote the survival and timely recovery of ESA-listed species?

Unfortunately, Appendix E (Fish and Aquatic Habitat) did not evaluate the performance of Alternative 5, but it did suggest that Alternative 2A was among the alternatives that would provide the highest improvement in the overall status of salmon and steelhead populations (DEIS Appendix E at E-531) and that any alternatives with fish passage options that provide "only modest improvements in overall abundance are still likely to have high probabilities of falling below the quasi-extinction thresholds, given the high variability in ocean and freshwater survivals" (DEIS Appendix E, at E-531).

Recommendation: Provide a comprehensive list of the measures that it has the authority to carry out and that are also most likely to allow ESA-listed species to survive and recover as quickly as possible, and explain how Alternative 5 compares to Alternative 2B in terms of each of those measures, not simply to sets of measures that combine fish passage, water quality, streamflow purposes into a single evaluation criterion. Use plain language to explain how the Corps determined that Alternative 5 is appreciably superior to Alternative 2B for any purpose so that Alternative 5 was chosen to be the Preferred Alternative.

This is necessary to give third parties and members of the public a common, basic understanding of which measures are most likely to have the most benefit for ESA-listed species, the extent to

which those specific measures are included in each alternative, and why the Corps chose Alternative 5 to be the Preferred Alternative.

3. Historical and Policy Context. Another feature of the DEIS that makes it difficult for third parties and members of the public to find and understand the information they need is that the historical and policy context for many discussions seems inadequate, especially when compared to the sheer number of complex, interrelated technical issues presented. The DEIS would greatly benefit from an organization that better meets the needs of third parties and members of the public, eliminates meaningless formal language, provides a more thorough historic and policy context, and, in the case of the modeling results, makes available a less technical and more complete explanation of the constraints and assumptions behind each model.

For example, the introduction to the regulatory background for the DEIS frames the reader's perceptions and understanding of all that follows and states that since 2009, the Corps has been implementing the RPA provided in the 2008 NMFS BiOp (DEIS, at 1-5). That is certainly true to an extent, but it fails to mention that the Corps only sought reinitiation of the BiOp after a lawsuit had been filed against the Corps and NMFS in 2019 that alleged a multiyear delay during which the Corps and NMFS were in fact not carrying out many critical RPA measures and as a result caused substantial and irreparable harm to the threatened species they were required to protect (NEDC 2021).

The DEIS only mentions the NEDC lawsuit once (DEIS, at 1-60) in the narrow context of ongoing planning reviews that the Corps must complete to carry out court-ordered injunction measures. Thus it completely passes over the fact that the lawsuit was successful because the Court found that illegal delays in carrying out the 2008 RPA were primarily due to the Corps' misinterpretations of its own authority and the fact that "the Corps often ignores the recommendations of the expert agencies and improperly prioritizes other project purposes over the needs of the listed salmonids" (NEDC, at 27). Lack of candor in the DEIS regarding the causes and outcome of the NEDC litigation gives the impression that the Corps may be intentionally concealing its past errors in order to boost its reputation among third parties and members of the public as the most experienced and knowledgeable party working for species recovery in the Willamette thereby gaining their support to continue its excessive control over the remainder of the NEPA process and for the next stages of species recovery.

The Court also included an injunction with its final opinion that, among other things, a firm date for completion of the next BiOp, a range of operational actions such as deep reservoir drawdowns to encourage volitional fish passage, research, monitoring, and evaluation actions necessary to plug gaps in the FBW and evaluate measure effectiveness, and established a Technical Advisory Team comprised mostly of fish biologists external to the Corps to direct the Corps on how to carry out the interim measures. Except for the Technical Advisory Team, these actions had all been languishing before the litigation due to opposition from the Corps and BPA.

RECOMMENDATION: Add a more complete account of issues surrounding the implementation of the 2008 BiOp that led up to the 2019 litigation, the role of the Techincal Advisory Team, and an explanation of how the specific measures coming forward as a result of the injunction affect measures and analysis included in the DEIS.

This is necessary to give third parties and members of the public a more objective understanding of the roles played by various actors in BiOp implementation, to highlight the importance of carefully screening the objectivity and accuracy of all policy statements and technical analyses in the DEIS, including appropriate skepticism of new proposed timelines for restoration actions that in some cases extend 32 years into the future, assuming full funding and no other delays (see, e.g., DEIS, at 5-38).

4. Willamette Basin Review BiOp. DEIS introductory materials also overlook the role and importance of the NMFS ESA consultation on the Willamette Basin Review (WBR) which resulted in a second jeopardy opinion with a set of five RPAs (NMFS 2019) that regulate the allocation and use of water stored in WVS reservoirs. Although the WBR BiOp responds to significant new information regarding the Corps' preferred approach to using its reservoirs to manage the water supply that became available long after 2008, the analysis of effects presented in that BiOp and the constraints created by RPAs issued with the BiOp are scarcely mentioned in the DEIS.

For example, the DEIS is silent regarding WBR BiOp RPA #1, which called on the Corps to ask Congress for the local authority to modify the reallocation without further Congressional action. The Portland District Engineer included RPA #1 in the WBR Final Report and EA that he transmitted to the Chief of Engineers (USACE 2019a) although the Chief did not include that recommendation in the report he transmitted to Congress (USACE 2019b). Nonetheless, Congress did authorize the Secretary of the Army to reallocate "not more than 10 percent of overall storage in the joint conservation pool" without further Congressional action, provided that the reallocation is consistent with the ongoing ESA, is not reallocated from a single storage use, does not seriously affect authorized project purposes, and does not otherwise involve major operational changes to the project (WRDA 2020).

Although the DEIS does not mention RPA #1, it still paraphrased and modified the corresponding WRDA language a sentence that reads "WRDA also gave the USACE the ability to reallocate up to 10% of the total storage volume to fish and wildlife purpose [sic] as long as that volume didn’t come from a single purpose based on the outcome of the ongoing ESA Section 7 Consultation for the operation and maintenance of the WVS" (DEIS Appendix J, at J-6).

The DEIS is equally vague and incomplete regarding the history and significance of the other four RPAs in the WBR BiOp.

RECOMMENDATION: Explain how the Corps currently interprets its reallocation authority from Congress and whether it intends to use that authority. Also, provide a better description of RPAs 2-4 and their purpose, e.g., add the following summaries that are based on the presentation of those RPAs in Corps' own WBR Final Report and EA (USACE 2019a, Appendix O, at 4-5) and the WBR BiOp (NMFS 2019, at 100-102). This is necessary so that third parties and members of the public can better understand the importance of these RPAs as constraints on the allocation of storage space in WVS reservoirs and the development of new water supplies in the Willamette Valley.

RPA 2: The Corps will defer entering into any new water storage contracts for municipal and industrial (M&I) use beyond an agreed upon cap at projected 2025 deficit demands of 11,000 acre-feet until in-stream flows are protected by the state.

This measure addresses the uncertainty of existing regulatory mechanisms to protect instream habitat for listed species by allowing the Corps to contract for sufficient water to meet projected M&I needs until the year 2025 while also providing sufficient time for the Corps to work with OWRD and ODFW to develop the institutional mechanisms and infrastructure needed to permanently protect instream flows required by ESA-listed species.

RPA 3: When the Corps enters into a new water storage supply agreement for M&I uses in the WVP, the agreement will specify restrictions that are consistent with the 2008 BiOp requirements for new and renewed water use contracts issued by the Bureau of Reclamation (BOR).

This measure ensures that increased diversions resulting from new water storage contracts for municipal and industrial (M&I) uses will have the same constraints as water storage contracts for irrigated agriculture, including reductions in years of stored water shortage and a prohibition on new water storage contracts for out-of-stream uses in the mainstem or tributaries where instream flows are insufficient to meet the needs of ESA-listed species.

RPA 4: The Corps will work to meet 2008 BiOp flows and in the event that forecasts indicate that flows won't be met, the Flow and Water Quality Management Team (FWQMT) will convene to adaptively manage the system and determine how curtailment may occur.

This measure increases the likelihood that adaptive management of the WBR allocations will result in meeting NMFS (2008) minimum flow objectives during years when the WVS reservoirs do not fill by, among other things, reducing the amount of stored water available for other uses.

RPA 5: The Corps will prepare an annual "Willamette Basin Year in Review Report" to document its accomplishment of the Willamette Basin Project Conservation Release Season Operating Plan (the Annual Conservation Plan) for the previous water year. The Corps will also participate in an annual coordination meeting with NMFS to discuss the annual report before finalizing an Annual Conservation Plan for the next water year.

This measure addresses the uncertainty around existing regulatory mechanisms and the efficacy of instream water rights enforcement by documenting whether the outcomes of this program are consistent with NMFS' assumptions about the performance of the RPA. This reporting also reduces the likelihood that minimum instream flow objectives will be missed in subsequent years as issues will be identified and can be resolved after each annual reporting cycle.

This is necessary to give third parties and members of the public a more complete understanding of how water flow issues affect ESA-listed species, how those issues were resolved through ESA consultation in 2008, how that resolution changed during ESA consultation on the WBR in 2019,

and how they may be resolved for the proposed action during the pending ESA consultation of the proposed action.

5. Joint Action Agencies. The Bonneville Power Administration (BPA) and the U.S. Bureau of Reclamation (BOR) were joint action agencies with the Corps for purposes of the 2008 consultation and BiOp (NMFS 2008). The Corps identifies both agencies as cooperating agencies for the purpose of preparing this DEIS and as action agencies for the ongoing and upcoming ESA consultations (DEIS, at 1-11). Moreover, the Corps met weekly with the BPA, BOR, NMFS, and USFWS to get real-time feedback during the development of DEIS including the formulation and evaluation of the proposed action and the preferred alternative. The Corps systematically facilitated coordination within this group at all levels from the technical team, local leadership, and up to the regional leadership level, on a basis far beyond that which was shared at monthly meetings of the rest of the cooperating agency group.

Given the level of NEPA and ESA planning coordination to date, the degree to which BPA and BOR are intimately involved with the operation and maintenance of the WVS through funding and execution of essential RPA measures, and the fact that the BPA and BOR also have their own decisions to make regarding the WVS, it appears that they are easily and fully qualified to act as co-leads for this NEPA process.

It is significant to note that because the EIS is not a Record of Decision (ROD), but instead constitutes the information and analysis on which to base a decision, any disagreements about conclusions that the Corps, BPA, and BOR may draw from the EIS process should not inhibit them from issuing a joint EIS, or for BPA and BOR from adopting the Corps' EIS if the record of analysis for the EIS is adequate to support decisions by those agencies (CEQ 1981, at Question 14b). Thus, the Corps, BPA, and BOR can each identify their own "preferred alternative" within a single EIS, and they can each prepare their own ROD.

Conversely, if the BPA or BOR choose not to adopt the Corps' EIS because it does not have the information they need to make its own decisions despite the level of coordination that has already occurred, the Corps may be forced to issue a new, more complete EIS or a Supplemental EIS, or BOR and BPA may each have to complete their own EIS. If either of those events occurs because the Corps failed to secure adequate commitments from BPA and the BOR to serve as joint leads at the outset of the EIS process thus giving them a full stake in the production of a single high-quality EIS that also meets their needs, then the resulting proliferation of EIS processes would be inefficient for the agencies and place an undue burden on the resources of third parties and members of the public who wish to participate. It could also easily delay the implementation of key RPA measures. A similar rationale applies to the pending ESA consultation on the proposed action and the role of the BPA, BOR, and Corps as joint action agencies, an approach that was used successfully to complete the 2008 BiOp.

Moreover, if expert agencies, tribes, and other third parties made similar recommendations to the action agencies during their many recent, multilevel coordination meetings, and the action agencies refused those recommendations so they can pursue parallel or sequential processes, that may be a sign that the action agencies up to the Regional leadership level are still engaging in the pattern of self-centered behavior that led to the 2019 litigation.

Recommendation: Confirm whether the BOR and BPA have agreed that the DEIS is sufficient to meet their needs for decisions regarding their NEPA obligations for actions they will take to authorize, fund, or carry out actions to maintain or operate the WVS, including recovery actions for ESA-listed species. Similarly, confirm whether they will be joint action agencies for purposes of the pending ESA consultation on the proposed action.

This is necessary to give third parties and members of the public insight into whether the action agencies are able to collaborate at the level necessary to ensure they carry out the procedural requirements for NEPA and ESA in the most efficient and timely way possible, or whether they intend to prepare their own NEPA and EIS documents.

Conclusion: I urge the Corps to add additional information to the DEIS to explain (1) which combination of measures is the most likely to allow ESA-listed species to survive and recover as quickly as possible; (2) how the Corps determined that Alternative 5 is appreciably superior to Alternative 2B for the recovery of ESA-listed species or for any other purpose; (3) an account of issues surrounding the implementation of the 2008 BiOp that led up to the 2019 litigation, the role of the Techincal Advisory Team, and an explanation of how the specific measures coming forward as a result of the injunction affect measures and analysis included in the DEIS; (4) how the Corps currently interprets its grant of authority from Congress to reallocate water storage and whether it intends to use that authority along with a full description of RPAs 2-4 from the WBR BiOp, and their purpose; and (5) whether the Corps has or will seek an agreement with BOR and BPA to pursue their NEPA and ESA responsibilities in a way that will let them combine those into the production of a single EIS and a singe ESA biological opinion as was the case for the 2008 BiOp.

This information can be easily provided and is essential so that third parties and members of the public can effectively evaluate and compare the positive and negative effects of the various alternatives on the survival and recovery of ESA-listed species, including their effects on water supply issues that are covered by the 2019 BiOp. This information is essential to understand whether the Corps is pursuing its joint responsibilities with the BOR and BPA as lead agencies to prepare all of the information necessary to support their decisions as required by NEPA and the ESA in a manner that other cooperating agencies, third parties, and the pubic will agree is as efficient, effective, and expedient as possible. To do less will unquestionably contribute to long delays in actions necessary for the survival and recovery of ESA-listed species in the WVS.

Here is one last important thought that I would like you to consider with my apologies to William E. Gladstone, "recovery delayed is recovery denied."

Sincerely,

Marc Liverman

Marc Liverman

REFERENCES CITED

CEQ. 1981. Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations. Council on Environmental Quality, Executive Office of the President (March 23, 1981)

ISAB. 2014. Review of the Fish Benefits Workbook for the U.S. Army Corps of Engineers' Willamette Valley Project. Independent Scientific Advisory Board, Memorandum (ISAB 2014-3) (June 23, 2014)

NEDC 2021. NEDC v. USACE and NMFS, Opinion, and Order, Case 3:18-cv-00437-HZ Document 212 Filed (D. OR Sep 1, 2021)

NMFS. 2008. Endangered Species Act Section 7(a)(2) Consultation Biological Opinion & Magnuson-Stevens Fishery Conservation & Management Act Essential Fish Habitat Consultation on the Willamette River Basin Flood Control Project. National Marine Fisheries Service, West Coast Region (Jul 11, 2008)

NMFS. 2019. Final Biological Opinion on the Willamette Basin Review Feasibility Study, Willamette River Basin, Oregon. National Marine Fisheries Service, West Coast Region (June 28, 2019)

Rahr, G. 2023. Why Protect Salmon? Wild Salmon Center, Portland, Oregon.

USACE. 2019a. Final Willamette Basin Review Reallocation Study: Final Integrated Feasibility Report and Environmental Assessment (FR/EA). US Army Corps of Engineers, Portland District (Dec. 2019)

USACE. 2019b. Chief's Report submitting the Willamette River Basin Review Reallocation Study to the U.S. Congress, US Army Corps of Engineers, Chief of Engineers (Dec. 18, 2019)

USACE. 2023. Willamette Valley System Operations and Maintenance Draft Programmatic Environmental Impact Statement (DEIS). Portland, District (Nov 25, 2022)

WRDA. 2020. Water Resources Development Act of 2020, H.R. 7575, 116th Congress, § 402(b)(2) (Jul 30, 2020)

CITY OF Salem AT YOUR SERVICE
Public Works Department
555 Liberty Street SE / Room 325 • Salem OR 97301-3513 • Phone 503-588-6211 • Fax 503-588-6025

February 23, 2023

U.S. Army Corps of Engineers
Attn: CENWP-PME-E / Willamette EIS
P.O. Box 2946
Portland, OR 97208-2946

Submitted via email to: willamette.eis@usace.army.mil

SUBJECT: **Draft Programmatic Environmental Impact Statement for Willamette Valley Project Operations**

The City of Salem (City) appreciates the opportunity to review and comment on the draft Programmatic Environmental Impact Statement (DPEIS) for the continued operations of the Willamette Valley Project (WVP). The City is writing to express our general support for the Preferred Alternative (Alternative 5) identified in the DPEIS.

The City relies almost exclusively on the North Santiam River to provide drinking water to over 200,000 residents in the cities of Salem and Turner, and portions of unincorporated Marion and Polk counties. Continued operation of the WVP and the measures the U.S. Army Corps of Engineers (Corps) implements for future operations could have prolonged impacts on Detroit Reservoir, the North Santiam River, and the City's ability to continue to meet the water needs of our residents and customers.

Preferred Alternative 5 appears to be in alignment with the interim injunctive measures issued by the United States District Court, District of Oregon, in the case of *Northwest Environmental Defense Center, et.al. v. U.S. Army Corps of Engineers and National Marine Fisheries Service (NEDC v. Corps)* (Case No. 3:18-cv-00437-PK). During negotiations for remedy, the City participated extensively in the development of measures for the operation of Detroit and Big Cliff Dams. The interim measures are intended to be implemented during the reinitiated consultation addressing the operation and maintenance of the WVP and have been carried forward as part of the DPEIS Preferred Alternative.

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Willow Lake Water Pollution Control Facility
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Interim measures identified in *NEDC v. Corps* specifically for the North Santiam River, as included in Preferred Alternative 5, have mostly been implemented without any adverse impact to the City's ability to withdrawal water from the North Santiam River and deliver treated drinking water to the City's customers. Therefore, the City requests that the Final Preferred Alternative continues to include the operational framework required by the *NEDC v. Corps* remedy.

In addition to measures identified in the Preferred Alternative, the DPEIS includes measures common to all alternatives. In particular, the City is concerned with how proposed gravel augmentation below Big Cliff Dam may impact the City's water intake at Geren Island, which is already challenged by sedimentation and channel migration processes. The DPEIS fails to provide sufficient detail related to proposed gravel augmentation to allow for a reasonable consideration of impacts, while also failing to identify measures that would be taken to avoid, reduce, or mitigate impacts to water providers should water intakes be hindered due to this measure. While the DPEIS states that individual projects will undergo further site-specific permitting and analysis, the City requests that the DPEIS analyze generally how gravel augmentation sites would be chosen, how augmentation could modify channel geomorphology downstream over time and acknowledge any general impacts that could result from such action.

Again, the City fully supports the preferred alternative as identified in the DPEIS and appreciates the Corps' willingness to address the concerns of the City and other municipal water providers. Should you have any questions about the information provided above, please contact Jason Pulley at jpulley@cityofsalem.net or by phone at (503) 588-6398.

Sincerely,

Jason Pulley
Senior Utilities Planner

cc: Jennifer Mongolo, Senior Natural Resources Planner
Lacey Goeres-Priest, Water Quality Supervisor

From: Laurie Porter
To: CENWP-PME-Williamette-Valley-System-EIS
Subject: [URL Verdict: Neutral][Non-DoD Source] Comments
Date: Thursday, February 23, 2023 4:58:06 PM
Attachments: image001.png

Good Afternoon,
CRITFC will be submitting technical comments to the WVS Draft PEIS. We will be sending a Letter when we have completed our review.
Thanks,
Laurie

Laurie Porter (she/her)
Lamprey Project Lead, Columbia River Inter-Tribal Fish Commission

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February 22, 2023

U.S. Army Corps of Engineers
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P.O. Box 2946
Portland, OR 97208-2946

Dear Sir or Madam:

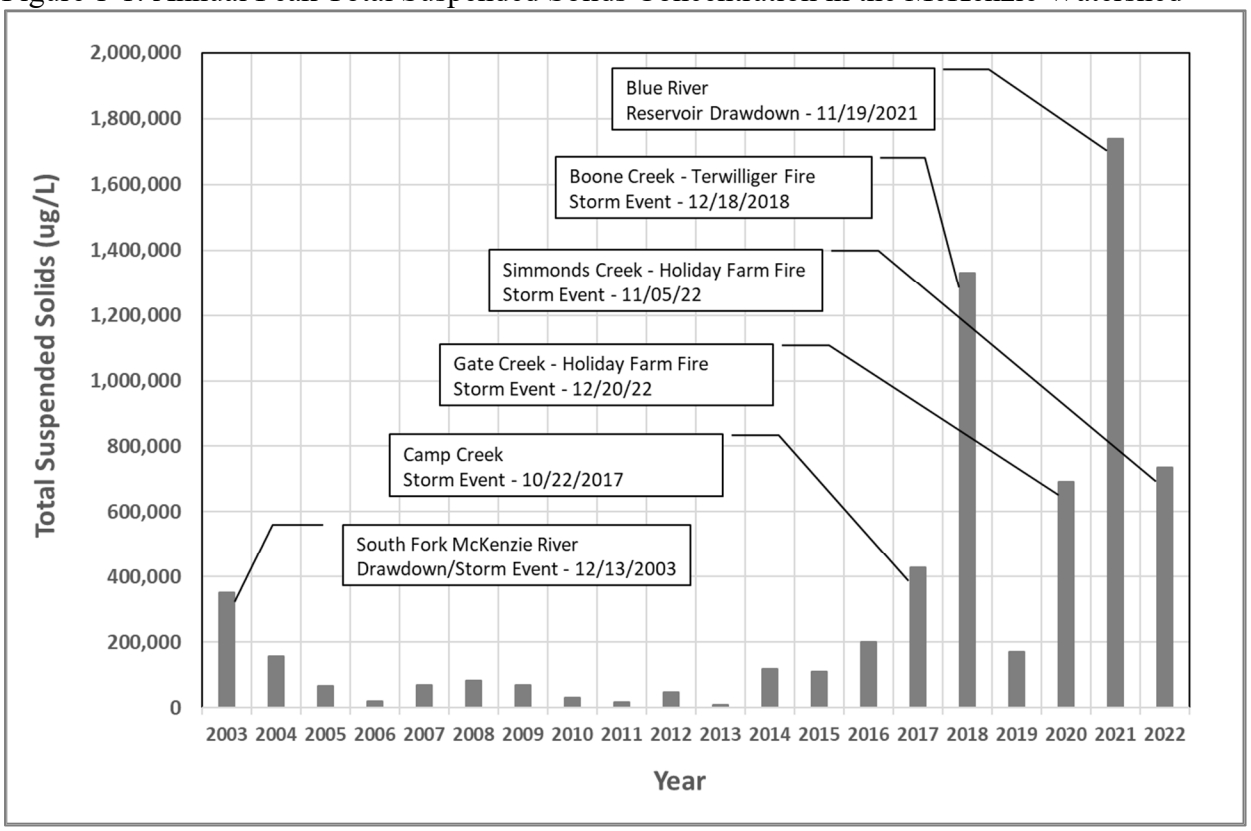
Subject: Willamette Valley System Draft Environmental Impact Statement

Thank you for the opportunity to review and comment on the Willamette Valley System Draft Environmental Impact Statement. The Eugene Water & Electric Board (EWEB) supports actions that benefit both endangered species and clean drinking water throughout the Willamette Basin.

The following comments represent questions and concerns raised by EWEB staff from the Water Quality and Source Protection Program. Our aim is to better understand how proposed reservoir management changes may impact downstream water quality, particularly during deep drawdown phases, and what options are available for U.S. Army Corps of Engineers (USACE) staff to mitigate such impacts. While we recognize the importance of protecting endangered fish populations throughout the Willamette Basin, we are hopeful this can be done in a way that minimizes major downstream water quality impacts that could disrupt drinking water treatment operations.

Background
EWEB's Source Protection staff, along with our local, state, and federal partners, have been routinely monitoring a variety of water quality parameters throughout the McKenzie Watershed since 2002. Part of this effort is directed towards monitoring water quality conditions during extreme events, such as major storms, so that we may better understand contaminant sources and associated peak concentrations, particularly with respect to potential drinking water treatment impacts. A key parameter we routinely monitor during high turbidity events is total suspended solids (TSS). Not only can high TSS concentrations be indicative of other contaminants (depending on the source), such as dissolved metals or hydrophobic compounds, including DDT (Dichlorodiphenyltrichloroethane), they can interfere with drinking water filtration and treatment processes. Figure 1-1 is a plot representing the maximum (peak) TSS concentration observed across all sites in the McKenzie Watershed for a given year over the past 20 years.

Figure 1-1: Annual Peak Total Suspended Solids Concentration in the McKenzie Watershed



2021 Blue River Reservoir Turbidity Event

Wildfire impacts from the Terwilliger Fire (2018) and Holiday Farm Fire (2020) are clearly responsible for some of the highest TSS values observed by EWEB staff in the McKenzie Watershed over the past two decades, as indicated in Figure 1-1. However, the highest TSS value reported over the last 20 years came from Blue River on November 19th, 2021. The cause of this event appears to be a sensor malfunction that allowed the lake level in Blue River Reservoir to drop well below the minimum pool (exact elevation not known) and expose deltaic and lakebed sediments to scouring river flows. EWEB staff observed significant channel incision and lakebed erosion on 11/18/2021 and notified USACE staff immediately. Turbidity levels in Blue River below the dam climbed above 100 FNU (Formazin Nephelometric Units) for more than 24 hours and peaked above 500 FNU during this event. Elevated turbidity was observed in the mainstem McKenzie River all the way down to EWEB's drinking water intake. This event raised awareness that deep drawdown events in large reservoirs can potentially produce TSS concentrations that are orders of magnitude higher than ambient levels. With this consideration in mind, combined with generally higher TSS values that we've observed in the McKenzie River post-Holiday Farm Fire during storm events, especially as root systems decay and the potential for slope failure increases, we are particularly interested in understanding the likelihood for additional major suspended sediment inputs into the system. Although EWEB's conventional treatment plant and operations staff can handle a wide range of challenges, prolonged and/or frequent turbidity events can tax the system and prove costly in terms of additional treatment costs and staff expenses. The general opinion is that extended, or more frequent high suspended sediment loads would also have a negative impact on other downstream drinking water providers.

This raises the question of whether a major sediment mobilization event, similar to the event that occurred during the 2021 Blue River Reservoir elevation drop, could be expected in Cougar Reservoir under the 1330' minimum lake elevation regime proposed under the preferred Alternate 5 option? To better understand and compare how the 2021 Blue River Reservoir turbidity event unfolded, it would be helpful if we could have access to estimated reservoir elevation data for Blue River Reservoir during the November 2021 event.

2002-2004 Cougar Drawdown

In the 2019 Cougar Dam Downstream Fish Passage Project Environmental Assessment (EA), the turbidity explanation under section 3.14.6.2 "Alternative 2. Floating Screen Structure with Trap and Haul" states the following:

"The initial drawdown in 2002 to 1,400 ft elevation resulted in high rates of sediment transport from the reservoir and high turbidity levels in areas downstream of Cougar Dam. As a result of these impacts, the Corps instituted mitigation measures including limiting future drawdowns to 1,450 ft and monitoring turbidity downstream of Cougar Dam during any proposed drawdown to document suspended sediment impacts and potentially help to reduce these impacts."

Although TSS samples were not collected in 2002 during peak turbidity events, turbidity levels did climb above 1,000 FNU in the South Fork McKenzie River briefly in 2002 and 2003 during the Cougar drawdown (Anderson, C., 2007, Influence of Cougar Reservoir drawdown on sediment and DDT transport and deposition in the McKenzie River basin, Oregon, water years 2002–04: U.S. Geological Survey Scientific Investigations Report 2007–5164). The proposed 1330' minimum lake elevation provided under Alternative 5 is approximately 120 feet lower than the minimum lake elevation adjustment made in 2002 as per the Cougar Dam Downstream Fish Passage Project EA. This additional 120 feet of elevation drop will likely expose significant older sediment deposits that have been stable for decades, in addition to anything recently deposited after the 2017 Rebel Fire and 2018 Terwilliger Fire.

A diagram of "Cougar Reservoir At 1450' Project Pool" was presented in the 2019 Cougar Dam Fish Passage Project EA. Could a similar diagram be provided for Cougar Reservoir illustrating the minimum pool elevation of 1330' as proposed under Alternative 5? Such a diagram could help visualize the spatial extent of additional sediment exposure below the 1450' pool elevation.

Preferred Option – Alternative 5

The timing for initial deep reservoir drawdowns to the 1330' elevation mark remains unclear. To recap the general timing, according to Figure 2-4 in Appendix N, the Cougar RO Mods will continue through 2027, overlapping with a Disposition Study to evaluate the potential for deauthorizing hydropower at Cougar, which, if approved by Congress, would allow the diversion tunnel to be used for fish passage. A second major check-in will occur in 2028 to decide next steps regarding use of the diversion tunnel for fish passage. Assuming this path is viable, a 1.5-year break for pre-construction planning will ensue (EDR, DDR, P&S, Const) before the Cougar Diversion Tunnel Construction begins in 2030. Of course, this timeline appears likely to change, as indicated by unknown variables within the Disposition Study.

However, assuming the general timeline above proceeds as planned, and with respect to the "Cougar Deep Reservoir Drawdown to Diversion Tunnel (720) in Spring and Fall" (Appendix N,

Section 5.4.3), can you please provide the earliest year that the Dam Passage Survival (DPS) studies could be conducted in Cougar Reservoir? It is understood that DPS studies will cover portions of the spring and fall/winter during two separate years when water years are within 95% of normal hydrological conditions, and that the resulting reservoir elevation will be lowered to 25 ft over the top of the diversion tunnel. Is "25 feet over the top of the diversion tunnel" equal to a 1330' lake elevation?

From a water quality perspective, deep drawdown phases in Cougar Reservoir to the 1330' lake elevation, as described in Alternates, 2B, 3B and 5, will likely increase the potential for significant scouring and erosion of deltaic, slope and lakebed sediments, particularly during the first few spring and fall/winter storm events. It appears the USACE will continue to manage Cougar Reservoir for flood control within the confines of downstream flow targets and ramping rates. However, if flood potential is low throughout the rest of the Willamette Basin, but erosion potential is high in Cougar Reservoir, say a small- to mid-sized local rain event arrives in late May at the 1330' pool elevation following a relatively dry spring in year 1 of implementation, are there additional mitigation options that could be considered by USACE staff under Alternative 5 to minimize the frequency, duration and magnitude of major sediment events? In other words, if flow is not a concern, is there potential to use a downstream turbidity threshold, that when exceeded, would kick in to reduce outflows and allow more fines to settle out in the reservoir, thus dampening the storm sediment pulse and potential impacts to downstream drinking water providers? Are there other mechanisms in place that provide USACE staff additional flexibility to manage unusually high turbidity events?

DDT and associated metabolites were detected at very low levels in the South Fork McKenzie River during the 2002-2004 Cougar Reservoir drawdown according to USGS studies (Anderson, C., 2007). Although the associated low-level concentrations and limited detections indicate minimal risk from the drawdown event, they do highlight the persistence of legacy pesticides that were applied back in the 1960s. Given that the 1330' minimum lake elevation level proposed in three of the Alternates (2B, 3B and 5) will likely expose older, previously undisturbed sediments, is there any proposed or planned downstream monitoring during high turbidity events for DDT and its associated metabolites?

A final concern expressed by EWEB staff centers around potential costly sedimentation impacts further downstream, particularly in Leaburg Lake and around Walterville Canal. Are additional sediment characterization and transport studies planned for the McKenzie River in the future?

EWEB staff greatly appreciate the level of communication and partnership we have with our USACE colleagues. We look forward to working together in the future to develop new tools around monitoring, understanding and communication should the opportunity present itself.

Sincerely,

David Donahue

David Donahue
Eugene Water & Electric Board
Water Quality and Source Protection
Environmental Specialist

OREGON WATER UTILITY COUNCIL
Pacific Northwest Section, American Water Works Association

PNWS-AWWA

February 23, 2023

U.S. Army Corps of Engineers
Attn: CENWP-PME-E / Willamette EIS
P.O. Box 2946
Portland, OR 97208-2946

RE: Comments on the Willamette Valley System Operations and Maintenance Draft Programmatic Environmental Impact Statement

On November 25, 2022, the U.S. Army Corps of Engineers (Corps) released its Draft Programmatic Environmental Impact Statement (Draft EIS) on the Willamette Valley System Operations and Maintenance for public review and comment. The Oregon Water Utilities Council (OWUC), Oregon Association of Water Utilities (OAWU), League of Oregon Cities (LOC), and Special Districts Association of Oregon (SDAO) (collectively "the Water Providers") are submitting these comments on the Draft EIS on behalf of their members in the Willamette Basin, which include both large and small water systems and associated irrigation systems.

Multiple members of OWUC, LOC, and SDAO will be directly affected by the actions and alternatives contemplated in the Draft EIS. Approximately 70 percent of Oregon's population is located in the Willamette Basin, and approximately 85 percent of the population in the Willamette Basin is supported by public water systems. The ability of the Water Providers to meet the projected long-term water supply requirements of our communities is critical to public health and the economic viability of our state. The Water Providers have been seeking access to stored water in the Willamette Valley Project (WVP) for decades, with the understanding that this stored water represents the majority of the remaining water supply available to public water providers in the Willamette Basin to meet future demands. The Willamette River Basin Review Feasibility Study (WRB Feasibility Study) was reinitiated in 2015 after being on hold for 15 years. The goal of the study was to consider the reallocation of storage space in the WVP and develop projections of the future need for stored water. The Oregon Water Resources Department (OWRD) and the Corps approved a cost-share agreement in 2015 for this $3 million study, and Oregon secured and sold bonds to meet its obligation for 50 percent match. The Water Providers have worked cooperatively with OWRD and the Corps to evaluate allocation of the stored water and provide input every step of the way to create a realistic plan to provide access to stored water to meet the needs for communities, public health, economic development, agriculture, and instream flows.

The Water Providers appreciate that the Draft EIS acknowledges the strong interest in access to stored water among water suppliers, and we are looking forward to making progress in developing a Municipal and Industrial (M&I) contracting program. Our questions and comments on the Draft EIS are primarily focused on the following:

- The Water Providers support preserving allocated storage volumes for all uses to the extent possible and would like to understand the actual impacts of the proposed action to users of stored water.
- The EIS should provide a tabulation of storage reductions per reservoir for each alternative to better understand potential tributary specific impacts.
- The Water Providers support water management for multiple purposes without a preference toward a single water use.
- The Corps should explain the anticipated water management framework and clarify whether stored water proposed to be used for fish passage will come from the allocation of stored water to be used for fish and wildlife purposes.
- The Water Providers support the concept that current contracted water users be grandfathered as senior contract holders and all new contracts utilize a proportionate reduction system among water user types in the event that shortfalls arise in dry years.
- Discussions of the Biological Opinions (BiOps) related to the WVP should explain how implementation of the BiOps will be integrated and aligned.
- The Water Providers agree with the Corps' analysis that shows RPA Measure 2 in the 2019 Reallocation Bi-Op is unwarranted.
- The economic analysis should be expanded to include the full area impacted by changes to water supply, and the proposed methods and results should be made available for public review and comment.

Impacts to Available Conservation Storage Should Be Minimized

Based on the recommendations in the WRB Feasibility Study, Congress and the President approved a reallocation of the conservation storage volumes in the WVP in the Water Resources Development Act (WRDA) of 2020, including 159,750 acre-feet (AF) for M&I use. The volume allocated for M&I use is based on the Corps' own analysis of anticipated M&I water demands by 2070 as presented in the Feasibility Study. This volume will be required to meet M&I water users' long-term water supply needs; therefore, the Water Providers cannot support proposed alternatives, such as Alternatives 3A and 3B in the Draft EIS, that would significantly decrease the probability of refilling the WVP reservoirs each year and therefore decrease the volume of conservation storage space that would be available for designated purposes. The Water Providers support efforts to ensure that conservation storage space is maintained or increased as feasible for the benefit of all users. While Alternative 5, the Preferred Alternative, does propose a decrease in total conservation storage of 98,536 AF, the water providers appreciate the Corps' efforts to minimize reductions in conservation storage while meeting other project objectives such as the protection of Endangered Species Act (ESA) listed fish species.

As described on page 3-1033 of the Draft EIS, the decrease of 98,536 AF of stored water under Alternative 5 is categorized as a "minor adverse effect" to consumptive users of the conservation storage. However, it is impossible to evaluate this impact adequately for two reasons. First, on page 3-1004, the Draft EIS states that "the actual effects to stored water users are unknown at this time because the annual management process in dry years has not been established." If the actual effects are unknown, then categorization of the impact as "minor" is unsupported. Second, the

proposed changes in storage are only presented in the Draft EIS on a system-wide basis rather than by reservoir. Therefore, although the classification as "minor" is explained as stemming primarily from the "expected limited level of demand for stored water on the McKenzie River," insufficient information is provided to assess the impacts to potential users of stored water on the McKenzie River compared to impacts to users elsewhere in the system.

The EIS Should Clearly Describe a Water Management Framework that Meets Multiple Needs for Stored Water

In WRDA 2020, Congress reallocated the conservation storage space to three purposes: fish and wildlife (69 percent), agricultural irrigation (21 percent), and M&I water supply (10 percent). The Water Providers support management of stored water for all of these purposes rather than giving preference to any single use. For example, page J-6 of Appendix J states that WRDA 2020 granted the Corps the ability to reallocate up to 10 percent of the total system-wide storage "to fish and wildlife purpose" subject to certain conditions. This is inconsistent with the language of WRDA 2020, which simply authorizes the reallocation of up to 10 percent of overall storage among *all* uses in the joint conservation pool, *not* solely to fish and wildlife use.

Similarly, the Draft EIS states that decreases in system-wide stored water would adversely impact M&I and agricultural water users, but it conspicuously does *not* state that system-wide reductions would impact the volume of stored water available for fish and wildlife. On page 3-869, the Draft EIS describes how "reservoir drawdowns in support of ESA-listed fish passage reduce the amount of water available for other authorized purposes" with no indication that the use of stored water from the reservoirs to support fish passage will come from the volume of water allocated for that purpose versus impacting other uses. Given that 1,102,600 AF of stored water has been allocated for fish and wildlife, it is unclear why the Corps is not proposing to use any of this stored water for its designated purpose.

Appendix N outlines the adaptive management plan for implementing the preferred Alternative 5. Although Appendix N states that a water management plan will be prepared annually describing how stored water will be used for fish and wildlife needs and other authorized purposes, no guidelines are set forth explaining how this water management framework will be integrated with the approved reallocation of conservation storage space, and the discussion leans heavily toward strictly meeting flow targets with little consideration of tradeoffs to meet competing objectives. In practice, adaptive management decisions are already being made annually that seek a more realistic balance among objectives, such as deciding to forgo attempting to meet flow targets at Salem earlier in the year in order to store water for use later in the summer for temperature control. The Draft EIS should more clearly acknowledge current adaptive management actions and explain how the water management framework will be integrated and aligned with the objectives of the Feasibility Study and the reallocation in WRDA 2020.

Greater clarity around the water management framework is critical to understanding how reductions in system-wide storage (whether permanent or simply due to reduced reservoir fill in a given year) will impact all users of stored water, particularly in dry years. For all new contracts, the Water Providers support development of a framework that allows all designated purposes to "share the shortfall" through proportionate reduction. Currently, large volumes of water are allocated to specific purposes but are not yet under contract with particular users. It is understood that uncontracted water would be managed first to meet project purposes if reductions are needed during dry years; however, it would be prudent to develop a plan outlining how additional reductions would be

managed (such as through proportionate reduction) in the future when more contracts are in place consistent with the demand projections analyzed in the Draft EIS.

Furthermore, the Draft EIS should plainly acknowledge that stored water is not the only source of water that will be used to meet the BiOps' flow targets. Consequently, curtailment of stored water contracts for consumptive users is not the only (or necessarily primary) way to meet any shortfalls. Appendix C of the Feasibility Study provides a much clearer explanation of the fact that meeting the 2008 BiOp minimum flow targets at Salem from April through October would require 4.22 million AF of water, while all of the reservoirs in the WVP combined hold a total of 1.6 million AF. Thus, while stored water can be managed to supplement flows, it must be viewed in the larger context with this limitation acknowledged.

The Relationship among the Biological Opinions Should Be Clarified

The 2008 BiOp developed by the National Marine Fisheries Service (NMFS) set forth a series of flow targets based on water year type, noting that the term of the BiOp is through 2023. The NMFS 2019 BiOp analyzing the effects of the proposed reallocation of conservation storage space (2019 Reallocation BiOp) includes five measures as part of a Reasonable and Prudent Alternative (RPA), several of which refer to meeting the 2008 BiOp minimum flow targets "or as revised by future consultations," which would apply to the current reinitiated consultation under the Draft EIS and the subsequent BiOp expected in the next year. The relationship among these BiOps should be clearly explained in the EIS (and/or in the forthcoming BiOp) to enable affected water users to understand how they may be impacted. For example, it would be helpful to understand whether the forthcoming BiOp will entirely replace the 2008 BiOp, or whether the Corps plans to continue making efforts to implement requirements of all three BiOps (2008, 2019, and 2023/2024), and how these requirements will be reconciled if they conflict.

RPA Measure 2 of the 2019 Reallocation BiOp limits issuance of new M&I storage contracts to a total of 11,000 AF until various conditions relating to permanent instream protection of fish and wildlife releases have been met, which the Draft EIS assumes will be accomplished (p. 3-1003). The Draft EIS further explains that, in addition to modeled increases in M&I water use under natural flow water rights, constraints in the ResSim model require it to show the full volume of stored water for M&I and irrigation to be withdrawn every year, even when actual M&I withdrawals vary throughout the year and from year to year. Despite this limitation, the Corps' model shows that Measure 30b flow targets for the mainstem Willamette—where the overwhelming majority of M&I diversions are located—are met nearly all the time, especially during July and August when M&I demands are highest. Given the successful mainstem flow target performance under conditions that assume withdrawal of 73,300 AF under M&I storage contracts, there appears to be little relationship between meeting instream flow targets, permanent instream protection of fish and wildlife flow releases, and the Corps entering into storage contracts in excess of the 11,000 AF limit imposed by RPA 2. Therefore, the Water Providers agree with the Corps analysis that shows the 11,000 AF cap on M&I contracts is unwarranted.

Finally, RPA Measure 3 of the 2019 Reallocation BiOp includes a moratorium on new Irrigation and M&I storage agreements in the Santiam Basin with similar conditions around instream flow protections. Although the Draft EIS assumes that the 11,000 AF cap on M&I contracts would be lifted, no such assumption is described regarding the Santiam Basin moratorium under Measure 3. The Draft EIS should state whether the Corps anticipates that the moratorium on contracts in the Santiam Basin will be lifted or if further actions are expected to be required to do so.

The Economic Analysis Should Be Expanded and Made Available for Public Review

Although Section 3.13 and Appendix J of the Draft EIS analyze impacts to water supply throughout the Willamette Basin, the economic analysis in Section 3.11 is limited to Lane, Linn, and Marion Counties, where proposed structural measures would be implemented. The Draft EIS notes the likely financial impacts to water suppliers due to reductions in conservation storage along with general "increases in the cost of living and doing business" in their communities, but then excludes from its analysis other counties in the Willamette Basin where this is likely to occur. Water providers in Benton, Clackamas, Columbia, Multnomah, Polk, Washington, and Yamhill Counties may experience these economic impacts and should be included in the analysis if it is reasonably foreseeable that they will be affected by the proposed action.

Community concerns about water supply are acknowledged, but actual economic impacts related to water supply are insufficiently evaluated. Reservoir drawdowns are described on page 3-869 as increasing the costs of water supply, while spring drawdowns in particular are described on page 3-870 as resulting in "major adverse socioeconomic effects from reduced water availability for agricultural irrigation and M&I purposes." These statements stand in alarming contrast to the Corps' characterization of impacts to water supply as "minor" in Section 3.13 and Appendix J and should be reconciled in the final EIS.

Even more concerning, page 3-859 states that while no analysis of financial impacts to M&I and irrigation water supply was conducted for this Draft EIS, a method for computing monetary effects is "anticipated to be prepared for the Final EIS," thus giving the public and directly affected parties no opportunity to review and comment on the methodology or results of the evaluation. Since some of these economic impacts have already been qualitatively presented as "major adverse" effects, understanding the proposed methods and impacts is critical to responsible water supply planning in the basin, and a full presentation of the Corps' methods, assumptions, and analysis should be available for public review.

We appreciate the Corps' efforts in analyzing the operations and maintenance of a very complex system and balancing the needs of multiple stakeholders. We look forward to seeing a Final EIS that carefully considers the impacts of proposed changes for the benefit of all authorized purposes.

Sincerely,

Joel Cary
Water Resources Division Manager, Tualatin Valley Water District
Willamette Reallocation Subcommittee, Oregon Water Utilities Council

Leah Cogan
Water Resources Analyst, GSI Water Solutions, Inc.
On behalf of the Willamette Reallocation Subcommittee, Oregon Water Utilities Council

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February 23, 2023

U.S. Army Corps of Engineers
Attn: CENWP-PME-E / Willamette EIS
P.O. Box 2946
Portland, OR 97208-2946

Subject: Willamette Valley System Draft EIS

To whom it may concern:

The Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the Willamette Valley System, particularly as it relates to Foster and Green Peter Dams in Linn County.

Linn Soil & Water Conservation District is very concerned about water quality and water quantity.

By its rapid drawdown from the rule curve of Green Peter in July, Preferred Alternative #5 will negatively affect water quality with increased turbidity, increased Total Suspended Solids (TSS), increased erosion and sedimentation. As the reservoir pool decreases, additional cutting of the waterways above will increase erosion. The rapid drawdown will not allow enough time for vegetation to grow on the steep banks to aid in filtration of eroded soils.

Reduced pool volume will concentrate any pollutants contained in the reservoir. The South Santiam Subbasin has stream segments listed under section 303 (d) of the federal Clean Water Act.

Water supply is identified by the USACE as a reservoir benefit. The drawdown from July 1 through November will negatively affect water quantity available for irrigation, fish and wildlife, and hydropower production. Alternative 2A, though more expensive, retains more water storage in the reservoir. In recent years, the US Drought Monitor has identified the Willamette Valley in D1 or D2. Moving forward, the region needs more water storage capacity; not less.

We appreciate your consideration of our concerns regarding water quality and water quantity as you determine your best option.

.

Sincerely,

David Neal

David Neal
Chair
Linn SWCD

LONG TOM
WATERSHED COUNCIL

11 East 27th Ave, Eugene, OR 97405 | 541-654-8965

Feb 23, 2023

TO: *U.S. Army Corps of Engineers*
Attn: CENWP-PME-E / Willamette EIS
willamette.eis@usace.army.mil

FR: Dana Dedrick and Jed Kaul, Long Tom Watershed Council

RE: Willamette Valley System Draft EIS, Comments

Thank you for the opportunity to submit comments on the Draft EIS for the Willamette Valley Operations.

The Long Tom Watershed Council was founded in 1998, and incorporated in 2007, and serves to improve water quality and watershed condition in the Long Tom River Basin and surrounding drainages through education and collaboration among all interests, using the collective wisdom and voluntary action of our community members. We have programs in fish passage and habitat restoration, upland restoration, stormwater , and Tribal youth education.

We are most concerned with Willamette River revetments, summer flows and municipal water, and the small drop structures or low-head dams on the Long Tom River - “Monroe”, “Stroda” and “Ferugson” drop structures.

Partners in Ecosystem Restoration and Stewardship
We consider ourselves partners in ecosystem restoration and stewardship and are thus interested in Corps’ missions of similar nature, as well as Corps services and functions in operations, and permitting, planning, hydrology and engineering, biology, and other sections. We can bring public and private dollars to address community needs and ecosystem restoration studies, outreach and projects, and partner with the Corps in areas where our missions connect.

Monroe 1135 Ecosystem Study
For the Monroe drop structure, we have been fortunate to work with the Corps in the 1135 Ecosystem Restoration Feasibility Study for the Long Tom River at Monroe, Oregon, as the NGO partner to the project in partnership with co-sponsors City of Monroe and Confederated Tribes of Siletz Indians. That Feasibility Study will conclude in 2023. Products will be available from that Study for other considerations. Long Tom Watershed Council also has a fair amount of data and studies regarding the Long Tom River system.

LONG TOM
WATERSHED COUNCIL

Drop structures on the Long Tom River

We request that measure #639 “Restore Upstream and Downstream Passage at Drop Structures” (#639) be included in the preferred alternative. This measure is not currently included in the preferred alternative but is included in alternatives 1 and 4. There are multiple reasons to request this from our perspective - these structures slow water flow, impede or block fish migration to habitat for multiple life stages for native ESA listed and important but unlisted species, including species of concern to our watershed community and to the Federally recognized Tribes in our area. These structures decrease water quality by slowing flow and increasing algal growth, and present a hazard to recreation and boating safety as evidenced by another set of drownings of young people in Spring of 2022 at the middle structure.

We are specifically concerned with our ability to bring in grant and donation dollars to help make changes that are widely supported and beneficial to all the concerns, as well as to local government and community needs. If the drop structures are included in the preferred alternative they can receive the needed Corps staff attention to work with partners to address them.

One caveat for your consideration - If their inclusion in the preferred alternative results in the drop structures being categorized as a “required action” this could actually eliminate *realistic* opportunities to address fish passage and other issues at those structures in any timely manner because they would face competing situation - they’d be lower in priority to the high-head dams, and yet could face a potentially insurmountable situation in which their “required status” made them ineligible for partnership, key Corps programs, and cost-share grant funds could be clouded or eliminated. We understand that grantors we regularly work with would follow Corps lead on this - in other words if the drop structures can get basic-level staff capacity and are eligible for 1135-type voluntary programs (not required, mitigation, etc), the grantors would also find them to be nonrequired and thus eligible for voluntary grant programs. This would enable us to work with communities and partners to bring funding to the table such that we could address priorities of importance to our local communities, even if they weren’t high on the Corps’ current list.

Ensuring Municipal Water use and low summer flows in Long Tom River

We would like to comment in support of ensuring a 50 cfs low flow at Monroe gauging station on the Long Tom River. This is especially important given the very likely removal project of the dam at Monroe, where otherwise the water backs up, and can help the newly planned drinking water inflow intake work under more conditions. We also support prioritizing the municipal use of water more highly, after instream flow, since the amount the municipality withdraws is so small (their withdrawal is under 1cfs). It’s also essential that the multiple benefits of this partnership project are realized by ensuring City water to the best of our ability.

LONG TOM
WATERSHED COUNCIL

Willamette River revetments, floodplain systems, and 408 permits
Another area of interest for LTWC in the EIS is the management of Corps revetments along the Long Tom and Willamette Rivers. In 2016-2018, we worked closely with Corps operations staff to identify and prioritize opportunities to increase floodplain connectivity along the floodplain of the Long Tom River. We analyzed nearly 50 sites, within the Corps' maintenance easement and on private property, where opportunities exist to modify the revetment along the Long Tom to improve floodplain connectivity and provide fish passage into off-channel habitats. We would like to see projects on this list developed further, which would best be done by a Corps-LTWC partnership. Pathways to complete this work could be through Corps Ecosystem Restoration Authorities with LTWC securing additional state and federal grant funds.

LTWC also works to improve riverine and floodplain habitat along the mainstem Willamette River in our service area. Since 2015 we have partnered with the U.S. Fish and Wildlife Service and the Oregon Parks and Recreation Department to restore floodplain connectivity, floodplain forests, and increase habitat complexity. There are opportunities to connect many of these pieces and we would greatly appreciate increasing support in general and streamlined 408 approval or other avenues for getting that work done, as it directly addresses our community and watershed missions.

We request the 408 permitting process be more streamlined for restoration action, especially through recognized partners like ourselves that are bringing partners, funding and community support together to help address and balance the multiple missions of the Corps.

Please contact us if you would like any clarification or need more information, and thank you for your consideration of our comments and concerns.

Dana Dedrick

Dana Dedrick and Jed Kaul
541-654-8965
dana@longtom.org, jkaul@longtom.org

U.S. Army Corps of Engineers
Portland District
U.S. Army Corps of Engineers
Attn: CENWP-PME-E / Willamette EIS
P.O. Box 2946
Portland, OR 97208-2946

February 20, 2023

Submitted electronically via email correspondence to: willamette.eis@usace.army.mil

Re: Comments on Willamette Valley System Operations and Maintenance Draft Programmatic Environmental Impact Statement

Dear U.S. Army Corps staff,

The undersigned groups and individuals submit these comments to the U.S. Army Corps of Engineers (Corps) regarding the Draft Programmatic Environmental Impact Statement (DPEIS) Willamette Valley System Operations and Maintenance Plan (O&M Plan). These comments are based on the Corps' DPEIS under the National Environmental Policy Act (NEPA) and materials published by the Corps on its website for the Project.[1]

We appreciate that the Corps is at long last making efforts to update its operations and maintenance plans in order to take steps to mitigate some of the deleterious effects on native fish from operation of the Willamette Valley System. These comments detail our response to the Corps' analysis and preferred alternative through a focus on ensuring the survival and recovery of Endangered Species Act (ESA) listed Upper Willamette River (UWR) spring Chinook salmon, winter steelhead, and bull trout. We request that the Corps consider our comments as it moves forward with completing both the NEPA and ESA processes.

We are grateful to include expert technical review and comment by:

- **Richard Domingue**, Professional Hydrologist, National Marine Fisheries Service ret.
- **Kirk Schroeder**, Research Fisheries Biologist, Oregon Department of Fish and Wildlife ret.

Common themes and recommendations amongst the experts and non-governmental organizations (NGOs) include:

[1] https://www.nwp.usace.army.mil/Locations/Willamette-Valley/System-Evaluation-EIS/

1. The need to consider a broader range of measures, **including those which would require Congressional deauthorization of hydropower**. Such measures should include:
    a. Year-round deep drawdowns;
    b. Improving fish passage survival at existing facilities;
    c. Additional operations and project modifications to reduce Total Dissolved Gas (TDG) production;
    d. Additional measures that implement improvements to regulating outlets to improve their effectiveness as passage routes.
    e. Earlier initiation of spill at Detroit Dam for downstream passage;
    f. Removal, modification, and run-of-river operations of non-flood control reregulation dams (Big Cliff and Dexter);
    g. Reassessment of downstream passage and water quality measures at Detroit Dam, Hills Creek Dam, and Lookout Point Dam in the context of removal, modification, and/or run-of-river operations at Big Cliff and Dexter dams.
    h. More robust passage measures for Hills Creek dam, including measures that support movement of bull trout.
2. A commitment to continuing, funding, and making adaptive management changes to the near-term and operational measures until there is reasonable confidence that their performance can be equaled or exceeded by new structural measures.
3. A prioritization at all projects for volitional downstream passage.
4. A program of revetment removal, relocation, and modification to increase floodplain connectivity and side-channel habitat in the tributaries and mainstem Willamette River.
5. Dam operations should be designed to improve degraded habitat conditions below the dams.
6. More thorough disclosure of the limitations of the models used to assess proposed measures. Specifically:
    a. Model parameters are based on limited data, outdated data or data that may no longer represent current and future conditions, and qualitative opinion.
    b. Given the weaknesses and biases of the Fish Benefit Workbook model, the results of the life cycle modeling should be viewed with caution.
    c. The Fish Benefit Workbook model biases passage efficiency and survival in favor of structural measures based on limited data and untested assumptions.
7. More robust Research, Monitoring, and Evaluation (RM&E) and adaptive management plans that include a broader range of evaluation and performance metrics to ensure that operation of the WVS does not continue to jeopardize listed species or adversely affect their critical habitats.The RM&E plan:
    a. Should be based on the plan developed under the Injunctive Order in *Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al.,* Court case No. 3:18-cv-00437-HZ; Document 240-1, Willamette Project Interim Injunction Measures - Research Monitoring and Evaluation Plan.
    b. Needs to address the full range of life histories and fish sizes, as well as long-term juvenile survival that encompasses smolt migrants leaving the Willamette River as outlined in Document 240-1.
    c. Should include methods such as the use of PIT tags and tag detection infrastructure within subbasins and at Willamette Falls.

8. More aggressive implementation, evaluation, and adaptive management timelines and a firm commitment to timely completion of work that should have been done a decade ago.

Thank you for accepting and considering these comments. Our collective organizations share a vision of abundant, wild fish returning to a healthy and thriving Willamette River basin that supports the many cultural, economic, social, and ecological needs of our communities and the landscape many of us call home. But we will only succeed if the agencies take seriously the important role they must play in achieving this goal.

Sincerely,

Kirk Schroeder
Research Fisheries Biologist
Oregon Department of Fish & Wildlife ret.

Rich Domingue
Professional Hydrologist
National Marine Fisheries Service ret.

Jennifer Fairbrother
Conservation Director
Native Fish Society

Mary Stites
Legal Fellow
Northwest Environmental Defense Center

Jonah Sandford
Executive Director
Northwest Environmental Defense Center

Daniel Timmons
Wild Rivers Program Director
Wild Earth Guardians

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Part I: Technical Review and Comments; Recommendations by Kirk Schroeder, Research Fish Biologist, ODFW ret.

My focus in the review was to assess the DPEIS within the larger context of recovery and conservation of ESA-listed fish species.

Summary

The Corps' DPEIS for operations and maintenance of the Willamette Valley Project (WVP) does not fully address one of its primary stated goals of "*meeting obligations under the ESA to avoid jeopardizing the continued existence of ESA-listed species*." [page ES-9] Alternatives developed to provide fish benefits that would help to conserve and recover listed species do not encompass the full suite of feasible options. The Corps rejected any measure that would eliminate or abandon hydropower based on their interpretation that this secondary purpose of the WVP was inviolable; even if the primary purpose of flood control was not jeopardized. Therefore, options that might remove some hydropower capacity while still allowing flood control and providing a high likelihood of recovering populations were not considered, developed, or evaluated. For example, the Middle Fork Willamette has the greatest potential for salmon population recovery (and bull trout) because it contains a large area of high quality habitat that currently lacks upstream and downstream access. Removal of Dexter Dam, modification of Lookout Point Dam to allow evacuation of the reservoir and passive passage of juvenile and adult fish, and modification of Hills Creek Dam to provide upstream and downstream passage would have a high likelihood of meeting fish conservation and recovery objectives. Other measures that were not addressed in the DPEIS include deep, extended drawdowns at several reservoirs, modification to regulating outlets (ROs) to provide safe passage through the route, and modification to RO outlets and stilling basins.

The effectiveness of measures and alternatives in meeting objectives for listed fish species was evaluated by a suite of models and model outputs were used to compare the effectiveness among alternatives in comparison to a no action alternative (NAA). The models and parameters used to populate the models are based on very limited data, flawed assumptions, and parameters based on opinion (qualitative in nature). In addition, data and assumptions about existing baseline conditions are outdated and do not reflect current conditions. Outputs of life cycle models used to compare and assess alternatives were largely driven by the Fish Benefits Workbook (FBW) results. Parameters used in FBW were often based on very limited data, data from hatchery fish, and assumptions unsupported by empirical data. In particular, FBW assumed high efficiency of structural fish collectors and almost no mortality through trapping, handling, and transporting captured juvenile fish downstream of dams. These assumptions biased the FBW outputs in favor of structural passage measures over operational measures.

Although DPEIS acknowledges that paucity of data hampered the development of models for assessing effects of alternatives (at both site-specific and fish population levels), DPEIS includes no RM&E to address this weakness. Nor does the DPEIS propose RM&E to fully evaluate the long term passage survival of juvenile salmonids. RM&E for measures proposed in the DPEIS

should be based on the RM&E plan developed under the Injunction by an expert panel that included Corps members (Willamette Project Interim Injunction Measures Research Monitoring and Evaluation Plan; Document 240-1).

Volitional downstream passage measures should have the highest priority over measures that require trapping, handling, and transporting juvenile salmon and steelhead.

Flow and temperature models and metrics are flawed and based on assumptions not supported by empirical data or that acknowledge the lack of data and information. The primary assumption used by the Corps is that water temperature in summer is higher than "historic" and "disrupts" life stages. From that assumption, the focus for establishing flow and temperatures is narrowed down to one species and life stage (adult spring Chinook salmon), and largely focuses on one attribute (pre-spawning mortality). This simplistic approach is counter to that of the underlying models being cited as the basis for developing metrics that recommends a broader approach and consideration of other species and life stages. Metrics should include thermal exposure and accumulation for juvenile salmon and steelhead rearing within reaches. Additional analysis of climate change scenarios should be conducted to evaluate potential shifts in timing of flow (peak and low) and temperature (seasonal).

The DPEIS fails to acknowledge that lack of action regarding revetment modification, relocation, or removal will continue to negatively affect salmonid populations and other native fish species. In addition, the DPEIS needs to clearly identify significant steps to address the negative effects of revetments, including securing funding as was identified in the 2008 BiOp and was to have been completed by the end of 2010.

Assessment of climate change is qualitative and cursory in the DPEIS in terms of effects on water supply, air temperature, water temperature, flow, habitat suitability, and the associated effects on species populations. The DPEIS relied on the life cycle models to assess water temperature effects on listed species downstream of dams but as was noted by NOAA, *"we did not include any estimates of future temperature changes under a climate change scenario."* The DPEIS should have developed some specific climate change scenarios (moderate to severe) to project potential effects on flow and temperature. These scenarios should then be incorporated into existing or new models to specifically assess the potential effects of climate change on species populations and viability under current conditions as the baseline, and then an assessment of the effectiveness of proposed measures and alternatives in meeting biological objectives.

The DPEIS is deficient in assessing risk to bull trout. Under near-term operations water releases at Hills Creek Dam are prioritized for nighttime RO releases, specifically to increase downstream passage for juvenile spring Chinook salmon. Bull trout will pass downstream as a result, therefore upstream passage must be provided, and a temporary facility should be put in operation soon.

The DPEIS overstates the effect of hatchery fish on naturally produced fish primarily based largely on the presence of hatchery fish as measured by proportion of hatchery origin spawners (pHOS). This metric can be a function of the abundance of either hatchery or natural origin fish. Emphasis should be on increasing the abundance of wild fish because hatchery programs are tied

to mitigation requirements. Hatchery salmon will also be the source for several reintroduction measures, therefore hatchery production levels should be tied to the establishment of self-sustaining populations and natural production numbers adequate to support limited sport fishing. Instead, the DPEIS has tied decisions about hatchery production to increased accessible habitat (no guarantee this would result in increased natural production) or "improved fish passage" —this is an inadequate metric because fish passage is generally poor or even nonexistent so any positive change could be considered an improvement even if numbers of wild fish did not improve.

The DPEIS evaluates only the effects the various measures and alternatives would have on reservoir recreation. As noted, with hatchery reductions tied to metrics other than increased wild fish abundance, such reductions could occur with "improved fish passage" even if wild fish numbers do not substantially increase. Reductions in the hatchery programs without being offset by increases in wild fish abundance would impact sport and commercial fisheries. A benefit of increased wild fish abundance as a result of measures taken in the DPEIS could provide increased recreational opportunities in sport fisheries. However, the DPEIS does not include any assessment of this potential benefit in their analyses, which would likely have been addressed if the Corps was confident about effectiveness of proposed measures and alternatives to increase wild fish abundance.

Objectives

Objective 2 – increase opportunities for nature-based structures during maintenance of revetments. First, the objective as worded is vague and does not commit the Corps to any action. This objective should be stated in a manner that use of nature-based structures will be implemented. Second, this objective should also commit the Corps to identify opportunities to remove or relocate revetments and to work toward implementing those opportunities. The 2008 BiOp clearly stated that the Corps was "required to seek funds to carry out projects [restoration or removal] at high priority sites". The DPEIS should identify how the Corps will finally address its inadequate implementation of BiOp requirements (*see additional comments on revetments; see also general comment below*)

Objective 4 - states that the objective is to increase fish passage survival compared to current conditions. This is a wholly inadequate objective in terms of ESA-listed fish species. The reality is that current conditions result in no to very low survival at many projects, thus almost any increase in survival would meet this objective, whereas the survival necessary for self-sustaining populations upstream of the dams is likely to be much higher.

A more appropriate objective would be to take actions that will result in the establishment of self-sustaining population by providing effective upstream and downstream passage at dams (or wording to that effect). This objective should be to provide significant improvement of ESA-listed fish species with an ultimate goal of recovering the species.

Objective 7 – reduce spawning and rearing competition caused by hatchery fish. The objective should be reworded to recognize this is secondary to other higher priority objectives. First, this

objective assumes direct competition and negative effects caused by the presence of hatchery adults and juveniles, and further assumes spawning and rearing habitat are limiting factors. Data are limited to draw such a conclusion. The mere presence of hatchery fish overlapping with naturally produced fish does not prove competition. Second, within the context of recovery achieving this objective would have limited effect on the recovery of wild populations WITHOUT other effective measures. Hatchery fish are not the primary limiting factor for the listed species. Obvious steps to achieve this objective would be to immediately reduce or eliminate hatchery fish programs. Yet, reduction or elimination of hatchery programs would likely achieve little in terms of recovering wild fish populations without taking meaningful actions on the primary limiting factors such as degraded habitat downstream of dams and lack of access to habitat upstream of dams. In addition, the Chinook salmon within the hatchery programs of the individual subbasins are closely related to the native populations, therefore they represent the genetic legacy of the subbasin populations and will be critical for re-establishing populations.

General – An objective should be developed to improve habitat downstream of dams through direct action and through water and temperature management. The DPEIS states in several places that habitat downstream of dams has been degraded, at least partially because of dam operations, but does not include an objective to address how the Corps will take meaningful actions either directly (such as through operation measures) or through funding and partnerships.

Alternatives

In the screening process, the Corps eliminated some measures based on their interpretation of Congressionally authorized purposes of the projects (such as modification or elimination of hydropower at some dams) or that would change flood risk management (such as removal of dams).

1. The primary purpose of the Willamette Valley Project (WVP) is flood control. Other purposes are secondary such as hydropower and recreation. The DPEIS should reflect this hierarchy in development of measures and alternatives.
2. Although some of the secondary purposes were Congressionally authorized, it is doubtful the intent of Congress was to provide a blank check to the Corps or to remove flexibility in the way in which the project as a whole operates, especially with new information or changing societal and environmental conditions. In addition, operation of the project must adhere to other federal laws such as Clean Water Act or Endangered Species Act that could conceivably result in elimination or abandonment of one or more authorized purposes.
3. Based on the recent court ruling, the Corps' interpretation of what is or is not "required" under Continuing Authority should be questioned. As demonstrated by the court ruling in Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al., No. 3:18-cv-00437-HZ, the Corps may not narrowly interpret their authority in order to avoid taking actions. Thus, their interpretation of whether or not secondary purposes are inviolable may be faulty and overly narrow.

The Corps did not consider removal of hydropower from ANY dam because it "*eliminates or abandons one or more of the Congressionally authorized project purposes*". By this rationale, all identified project purposes would carry the same weight and thus could not be abandoned, even if conditions changed such that a purpose designated many decades ago was no longer feasible or viable, either economically or environmentally.

Did Congress intend to lock the Corps into hydropower production in perpetuity, regardless of economic or environmental costs? A recent BPA fact sheet about hydropower production of the Willamette Valley Project indicated that the system produced less than 4% of the regional power and that the cost to produce this power was about $0.31/MWH compared to $0.09 for the mainstem Columbia and $0.11 for the upper Snake River. The hydropower cost is likely to increase as additional fish protection is implemented. Does the Corps contend that Congress wanted to impose an undue burden on taxpayers by disallowing the Corps to make rational decisions about the economic viability of hydropower production? Does the Corps also contend that Congress would not have allowed the Corps to incorporate new information in planning a 30-year operations plan that is intended to improve fish populations? By refusing to consider the removal of hydropower at some (not all) dams, the Corps has not evaluated the full suite of measures to effectively provide fish passage.

Another example is that the Corps would not consider the removal of any dams. However, removal of Dexter and Big Cliff dams would not affect flood control, the primary purpose of the WVP, because the dams are only for re-regulating flow. The Corps rejects the removal of any dam on the basis that it would eliminate hydropower or other authorized purposes. If considered separately, the production of hydropower from these two dams is a very small fraction of the overall regional production at a significantly higher cost than that of WVP as a whole. It is unlikely that the intent of Congress was to consider the purpose of each dam in isolation rather than in the context of the overall purpose of the WVP.

Because the Corps did not consider measures that would benefit listed fish species if they included elimination of some hydropower or removal of dams, they failed to fully develop and evaluate alternatives that would likely result in benefit to listed species populations. The Corps' approach means that they did not take a basin wide approach to the effects of the WVP, did not evaluate true economic and environmental costs and benefits, and did not develop alternatives that would maximize benefits to fish. A multiobjective approach would evaluate options such as how much flood control or hydropower capacity would be lost with removal of some dams and/or elimination of hydropower at some dams versus benefits achieved for fish recovery (e.g., Kuby et al. 2005). The DPEIS should include such analyses to provide a complete picture of costs and benefits, and provide a framework for evaluating a full suite of alternatives.

Missing Alternatives

It follows from the previous discussion that the DPEIS should include an alternative that would have a higher probability of increasing Chinook salmon populations in the Middle Fork Willamette subbasin than those proposed. Recovery of salmon in the Middle Fork Willamette

subbasin is critical for the viability and persistence of salmon in the UWR, and historically the population in this subbasin was one of the most abundant. This alternative should include removal of Dexter Dam and operation of Lookout Point and Hills Creek reservoirs as strictly run-of-river (particularly LOP). This alternative should include identifying modifications to Lookout Point Dam that would allow for almost complete evacuation of the reservoir and would provide volitional passage of juvenile and adult salmon. The dam could still be used as temporary flood control with release of stored water timed to facilitate natural, volitional migration of juvenile salmon. Temporary adult collection could be incorporated into volitional adult passage at the dam until such a time that homing of hatchery salmon to Willamette Hatchery is shown to provide adequate broodstock for reintroduction and mitigation purposes (with ultimate goal of restoring self-sustaining populations that provide ecological and recreational benefits). Modifications of Hills Creek Dam should be developed to provide volitional passage, including, but not limited to, removal of the powerhouse to provide more flexibility in developing operational options for juvenile fish passage and/or modifications to allow evacuation of the reservoir. Improved upstream and downstream passage at Hills Creek Dam would also benefit bull trout, thus further elevating the importance and priority of providing full access for the Middle Fork Willamette subbasin. A temporary trapping facility should be designed and installed at Hills Creek Dam in the very near future to provide upstream passage for bull trout, especially considering that operational changes have been made at the dam to increase downstream passage (*see **Bull Trout** section).*

Alternatives should be developed or modified to implement full drawdown similar to Fall Creek Dam at other dams of the WVP. Full drawdown has been shown to be an effective volitional passage measures and should be implemented at other dams. Modifications may be required at dams to facilitate drawdown. Therefore, alternatives should be modified to include consideration of deep drawdowns and actions that would be required to implement the measure so that this measure can be evaluated.

Alternatives should be developed or modified to implement improvements to regulating outlet (RO) passage routes. Measures to achieve more effective and safe passage may include lining RO routes, modifying ingress and egress routes, extending RO outlets, modifying stilling basins, etc.

Volitional passage

Priority at all projects should be for volitional passage, whether through operational changes or structures. If operations prove to be insufficiently effective for juvenile fish passage, then structural options should be explored to provide volitional passage at or close to the dam. Options that require handling and transporting juvenile fish could result in extra stress and mortality to juvenile salmon and steelhead. In addition, such capture techniques would have to be highly effective over a range of flow/reservoir conditions and over a range of variable sizes of juvenile fish entering the reservoirs, including fry.

For example, under natural conditions some newly emerged fry begin to volitionally migrate long distances downstream. Migration does not appear to be driven solely by displacement

through competition for space, but is likely an inherent dispersal behavior that results in an overall increase in carrying capacity because fish are using multiple habitats throughout the watershed. This behavior should be considered in development of measures, operational alternatives, and structural passage facilities.

Among the structural considerations, the floating fish collector and bypass pipe used for juvenile salmonid passage at North Fork Dam on the Clackamas River should be considered for juvenile fish passage at some of the upper Willamette dams. The bypass pipe passively transports juvenile salmonids downstream past the tailrace of the last of three dams in the Clackamas complex. This option, including use of a bypass pipe, would likely require a change in reservoir management but should be evaluated in terms of costs and benefits.

Evaluation of Alternatives

The primary tool of evaluating the effectiveness of alternatives on fish populations was through various models. General comments follow and comments on specific models and model parameters are presented later.

In general, the DPEIS oversells the models as an "quantitative framework" for evaluating the effectiveness of alternatives in meeting ESA-specific objectives. First, the models are not wholly quantitative because some of the parameters are not derived from data but rather from professional opinion (i.e., qualitative). Many of the parameters in all models, including the Fish Benefits Workbook (FBW), are based on limited data with considerable uncertainty in the values used for the parameters. Assumptions of the models are often based on old river or reservoir conditions and untested structural or operational measures; again, with limited acknowledgement or estimates of uncertainties about the assumptions or effects of assumptions on results. It is beyond the scope of this DPEIS review to thoroughly assess the models, the numerous parameters and values, or the analytical frameworks. Reviews of both the FBW and the NOAA Life Cycle Model were conducted in 2014 by the Independent Scientific Advisory Board (ISAB). In contrast, Integrated Passage Assessment model (IPA) has not been peer-reviewed or published and should be considered preliminary and used with caution.

The DPEIS contends that because major factors outside the alternative measures are the same, that the model outputs "*inform the level of effects each alternative would have on the species at a population level.*" (page 5.4). This is not completely true. First, this assumes that the models comprehensively capture aggregate effects of factors such as hydrology, river geomorphology, etc. As will be discussed below, the parameters used to populate various models are rife with uncertainty. Thus, the models may not accurately describe the effects of either alternative measures or other major factors in the basin. That is, if there is a disparate effect of a shared major factor on a life stage that is compounded by a particular alternative measure, then effects may be different depending on the alternative even in a shared environment. This, in turn, could have population effects that partially reflect watershed factors and partially reflect factors related to alternatives. Carryover effects can result in differing survival within the same, shared environment such as the mainstem Willamette River, and may be influenced by factors such as the body length or life stage of individual fish. Therefore, the population-level effect may differ

within the context of shared major factors (water temperature, flow, etc.). The DPEIS overstates the robustness of various models and/or the model capacities for capturing aggregate effects.

The Corps has spent considerable time and money funding iterations of models based on data that is 5 years old and sometimes much older, rather than adequately funding or supporting studies that would produce new data to populate models with data-derived parameters and to address uncertainty within parameters. In addition, data used to develop parameters may be outdated or may have been collected under conditions that no longer represent current conditions.

Although simplification of models can increase their effectiveness for comparing among specific measures, there is also an inherent weakness in not capturing the complexity of life histories. For example, assumption that spring Chinook salmon migrate as smolts in their second year (yearling) may provide one level of comparison among measures but may result in mistakenly identifying a measure(s) as having greater benefits to fish. In this case, research has shown the importance of the subyearling life history in adult returns, many of which rear as juvenile fish in late winter and spring in mainstem reaches. Although a model might show that a measure(s) is more beneficial for yearlings, it might mask the jeopardy that the same measure(s) might have on other life histories, with a potential net negative effect when considering the cumulative contribution of all life histories.

Fish Benefits Workbook

The FBW is the primary model used to evaluate passage effectiveness of operations in passing juvenile fish and relies on the ResSim hydrological model for reservoir level, outflow, and route distribution. Results are then used in the Life Cycle Model (LCM) and Integrated Passage Assessment model (IPA) to evaluate the effectiveness of measures and alternatives on species populations. The 2014 review of the FBW by ISAB noted several weaknesses:

- Lack of dam-specific and fish-specific (e.g., life history, size, behavior) data for parameter estimates.
- Related to the above is use of surrogate data either from other dams, other fish, or other studies outside the basin with little justification for why values were chosen and inconsistency in what data were used. Heavy reliance on studies at Cougar and Detroit dams applied to other dams.
- Large data gaps and parameters are used without an assessment of accuracy or uncertainty.
- Questions about reliability of survival estimates with lack of robust data.
- FBW assumes that juvenile fish have to pass at certain times within their life stage or they must wait until a later life stage. Thus, the fish that arrive at the forebay in a certain time window are assumed to pass even if reservoir conditions are unfavorable rather than that the fish might hold in the reservoir and pass as soon as conditions are favorable within the same life stage period as when they entered the reservoir. Effect would be that some operations would be assumed to be ineffective and result in poor survival.

- ResSim is based on historical record, which may not effectively describe conditions under recent conditions and those anticipated to occur with climate change.

It is unclear from the DPEIS and associated appendices how many, if any, of these weaknesses have been addressed or accounted for in the FBW. Obviously, any problems with parameters used in FBW would be compounded when applied to life cycle models to estimate the composite effects and/or benefits of alternatives on species populations.

Parameter inputs (such as dam passage efficiency and route survival) are point estimates, whereas existing studies indicate a wide range of results. Therefore, although an input such as survival has a wide range of uncertainty, that uncertainty is not captured in FBW. Nor does the FBW attempt to capture how change in operations that affect reservoir level might affect fish behavior and distribution within the reservoir, thus affecting arrival timing to forebays and size of fish. The model assumes fish behavior and distribution based on studies that were largely conducted under different reservoir conditions.

Parameter values are generally based on tagging studies. Some of the cited studies used large hatchery fish (and even other surrogates such as hatchery rainbow trout) and were often conducted under operating conditions that are different than those being proposed. In addition, there are no studies for fish <60 mm. FBW does not account for delayed or latent mortality as a result of dam passage (nor do the life cycle models adequately address latent mortality from dam passage).

FBW assumes run timing and size of fish arriving in the forebay area and contains parameters for the model. However, much of the information is based on studies that were conducted during different reservoir conditions than what are being assessed, and may be based on large fish, limited data, and experimental releases of study fish whose size and behavior is likely to differ from that of naturally produced juvenile fish entering the reservoirs. The uncertainty about how juvenile fish will respond to changes in reservoir conditions as a result of implemented measures is not adequately addressed. The effect of changes in reservoir elevation, temperature, and flow current within reservoirs on behavior and migration of fish (size, timing, numbers) is uncertain. NOAA acknowledges that aspects of juvenile fish behavior in reservoirs and the initiation of downstream migration have “considerable uncertainty” because of the “absence of relevant empirical data”. [page E444]

FBW assumes high efficiency of juvenile fish collectors at the dams based on data from a limited number of sites and years. The downstream passage efficiency for alternatives that included fish collectors was derived from a logistic regression equation of Kock et al. 2019 developed from 7 sites. This equation was based on measures of collection efficiency from tagging studies and factors (covariates) that affected collection efficiency (forebay area, depth, temperature, etc.). Collection efficiencies used in the DPEIS were generally higher than most of the efficiencies reported in Kock et al. 2019. Chinook efficiency presented in the main FBW text of Appendix E ranged from 0.54 to 0.82 for Alternative 1 and 0.59 to 0.96 for Alternative 4. Additional estimates were reported in table footnotes in the Chinook and steelhead supplements of FBW appendix, but it was unclear if these included use of guidance nets. These estimates ranged from

0.53 to 0.80 (mean = 0.69 for 5 dams) for Alternative 1 and 0.53 to 0.96 (mean = 0.81) for Alternative 4. Estimated efficiencies were 0.90 to 0.94 for steelhead. In contrast, the highest efficiency in Kock et al. 2019 was reported as a composite 0.93 for North Fork and River Mill dams on Clackamas (but just 0.60 for Chinook at North Fork Dam), and 0.75 to 0.88 for Baker dams in Washington, but those were for coho and sockeye and a single life stage. Collection efficiencies for other sites were generally around 0.30 or much lower. It should be noted that North Fork and River Mill dams do not fluctuate much (1 m or less), have relatively small reservoirs, are run-of-river, which provides current through the reservoirs, and the North Fork system uses a lead net. Because collectors in the Baker dams are operated to capture two species and a single life stage, they can target operations for a limited seasonal migration period. In addition, these systems use extensive netting to reduce the effective size of the forebay, guide fish to the collector, and prevent fish from accessing alternative routes. In summary, the FBW assumes a high efficiency of the structural fish collectors that appears unsupported by existing data from other sites.

In addition, FBW assumes a 98% route passage survival. It is not clear if this assumption is for all fish that enter the collector system or only those that survive; nor is it clear if this high survival accounts for stress of handling, transporting, and releasing juvenile fish or delayed mortality after release. This high survival assumes almost no effects of capture, handling (likely including tagging and genetic sampling), transportation, and release of juvenile salmon and steelhead.

In general, FBW biases passage efficiency and survival in favor of structural measures based on limited data and untested assumptions; and assumes that characteristics of the small number of successful collectors used in the Northwest can be duplicated at WVP dams despite physical differences (reservoir size and fluctuations), operations (run of river vs flood control), and target species and life stages. It should be noted that the Corps was also optimistic about the efficiency of an experimental floating fish collector that was very expensive and was an almost total failure in attracting and collecting juvenile salmon.

Life Cycle Model

Life cycle modeling attempts to estimate the overall survival of juvenile fish under varying measures and alternatives and provide estimates of population viability. These models attempt to track the full life cycle of salmon and steelhead using various age-structured demographic parameters based on factors such as survival and productivity. Results of FBW are incorporated into the models with the intent of comparing the overall effect of measures and alternatives on the viability of salmon and steelhead populations.

In general, the DPEIS overstates the robustness of various models and/or the model capacities for capturing aggregate effects. All models must be populated with parameters or values. Much of the data used in the DPEIS models is based on limited information, thus each parameter used to populate the models has an error factor, including some which are quite large. Most of the parameters are based on limited data, sometimes outdated data, and data from other basins. Some

of the parameters are not based on data and represent a best guess, thus have no measure of uncertainty and are more accurately qualitative than quantitative.

Overall, data for spring Chinook salmon (adult spawners and life histories, juvenile rearing, migration, life histories) is more complete than for winter steelhead, where few data exist. However, data for Chinook salmon are incomplete or missing for all life stages, especially fry. Both species have complex freshwater life histories and associated behaviors (little is known about winter steelhead) that cannot be adequately captured with models and this uncertainty should be highlighted throughout the DPEIS.

A key model parameter for the life cycle model is spawning and incubation habitat, but NOAA notes that this is largely unknown so they used surrogate information about spawning based on historic and recent habitat surveys that assessed spawning capacity by quantifying suitable gravel size, depth, and gradient [page E-432]. Based on my extensive experience of surveying spring Chinook salmon and steelhead spawning, it is difficult to accurately assess where these fish will spawn just based on physical stream surveys. These fish can spawn in small, isolated patches of gravel that would likely be missed during surveys of physical characteristics. Regardless, the lack of empirical data on a key model parameter highlights the inherent uncertainty of model outputs.

Uncertainty is acknowledged in Appendix E. NOAA notes in several places the uncertainty about model parameters and outputs; e.g., "*The underlying uncertainty in many of the parameters used in developing this life cycle model contributes to the overall uncertainty in the estimates of abundance and viability*." [page E-412] The section on the Integrated Passage Assessment model concludes: "*There remains considerable uncertainty in all of these parameters. Should the priors formulated for them poorly represent the true values, the PMs [performance measures] computed for the EIS alternatives could deviate considerably from what they should be and even the actual rankings of the EIS alternatives in terms of the PMs could be quite different from results found in this report*." [page E-761] Although uncertainty about model parameters and outputs was emphasized in several places in Appendix E, the main body of the DPEIS makes no mention of uncertainty and treats model outputs as more or less a definitive "quantitative framework".

Despite the amount of effort in modeling various scenarios and their effects on fish populations, the main driver of outputs differentiating effects of alternatives was the FBW input: "*The FBW was the major source of differentiation between alternatives.*" [E-530] Given the weaknesses and biases of the FBW, the results of the life cycle modeling should be viewed with caution.

Because alternatives are measured against the no action alternative (NAA), the baseline that accurately describes existing conditions is critical. However, data to develop and fit models under the NAA state were very limited (e.g., lack of data on juvenile abundance and survival) and relied on redd counts to estimate adult production for both Chinook salmon and steelhead (steelhead data are particularly problematic). In addition, time series were relatively short. NOAA also noted that "*the NAA alternative does not necessarily capture the recent dam configuration and operations*." [page E-423] Thus, comparing among alternatives and benefits

accrued by enacting measures under various alternatives as compared to NAA may unduly overstate benefits of the alternatives.

Integrated Passage Assessment model (IPA)

Problems with the NOAA life cycle model are similar or compounded in the IPA model. These include:

- Analysis and use of data from five and more years ago with little or no new data to reflect recent conditions.
- Reliance on parameters that are set by the model developers using assumptions about factors such as fish survival, fish migration, growth, life stage transitions, etc.
- Parameters based on flawed assumptions is a major issue that weakens the life cycle modeling. Model parameters drive the results, therefore errors in setting parameters using flawed assumptions become compounded throughout the model and affect the outputs.
- Many of the base assumptions are based on expert opinion and parameters are developed with little empirical data from the Willamette.
- IPA model is Bayesian, which "borrows" information from other sources or studies through prior probability distributions for a parameter being estimated for which there is no or limited data. However, much of the information is set by the users which can greatly affect the results.
- These types of models require large data inputs to work. However, none of the models used in the Willamette have anywhere near the appropriate data inputs; therefore, they rely heavily on inputs from limited data, numbers set by expert panels, or data from other basins/studies.
- All these issues are even more problematic for winter steelhead because data and knowledge are much more limited than for Chinook salmon.
- As an example, freshwater survival is a key parameter for life cycle models.
    - The IPA uses release and detection data from releases of PIT-tagged hatchery Chinook salmon. Generally, two or more detection sites or events within freshwater are used to estimate freshwater survival. IPA used detection of returning adults (small numbers) at the Willamette Falls fish ladder as the second detection site. This requires estimates and assumptions about estuarine and ocean survival that are largely derived from hatchery salmon.
    - The IPA starts with detection at Willamette Falls of juvenile PIT-tagged hatchery Chinook salmon as the first detection point. The hatchery salmon were released below dams as part of a paired release study to estimate dam passage survival. As mentioned, the detection of a limited number of returning adults from these releases was used in the estimate of freshwater survival.
    - Because of these limited data statistical 're-parameterization" is required to account for factors such as first ocean mortality, ocean harvest, terminal net and recreational fisheries harvest and incidental mortality of wild fish, etc. (but note that the model apparently did not attempt to account for pinniped mortality known

to occur at Willamette Falls). Data often originates with hatchery fish, which requires additional "adjustments".

- Additional development of informative priors is required because of limited available data for factors such as river-smolt and smolt-adult survivals, tag detection probabilities, tag loss and mortality, and difference between hatchery fish (source data) and wild fish as it affects parameters such as survival.
- It should be noted that in some cases data were available, such as age composition of returning wild fish, but instead input values were set by an expert panel without explanation.

As an example of limited data or information that was noted in the development of IPA model:

- No information on how changes in dam passage efficiency may affect the passage migration of different life histories of juvenile salmon and steelhead, thus their contribution to the population (and consequent contribution to population resilience and persistence). [page E-620]
- Lack of knowledge about survival of juvenile salmon and steelhead in reservoirs. [page E-620]
- Proportions of juvenile fish life stages that migrate to forebays and those remaining in the reservoir were derived from expert panel values based partially on data from rotary screw traps above and below dams. [pages E-617 & E-621] Note: Trap catches are generally biased to small fish that are more easily entrained rather than larger fish that can more easily avoid the traps. In addition, little data exists on efficiency of traps, either composite or by size of fish, and in cases where tests were conducted the variance was large. Trap data downstream of dams is even more limited. Juvenile salmon distribution within some reservoirs was assumed from studies but studies were often conducted under reservoir conditions that are different from recent years or than what are being proposed in the alternatives.
- IPA assumes that "*fry migrants that pass dams in spring are more likely to continue downstream during spring and smolt than reside in lower reaches over the summer*…" [page E-621]. Note: The fry migrant life history as described in Schroeder et al. 2016 leave natal areas shortly after emerging from gravel and migrate often long distances (up to 100 miles) to rear in downstream reaches of tributaries and in the Willamette River. They rear for several months and migrate as subyearling smolts in spring. Therefore, if dam passage measures were effective for fry migrants, many of these fish would migrate through reservoirs to pass downstream to rear. Otherwise, they would be trapped in the reservoir and should really be considered a different migrant type characterized by being trapped to rear in a reservoir instead of rearing in downstream river reaches.
- IPA also assumes "*that smolting starts once movement downstream occurs*." [page E-621] Note: All migrant types of spring Chinook based on the McKenzie population included some rearing in downstream reaches during migration with fry migrants and fall migrants spending the most time. However, most yearling salmon leaving the natal areas also appeared to rear at varying times in downstream reaches before reaching Willamette Falls. The concept of fast migration to Willamette Falls is a holdover from studies using tagged hatchery salmon.

- For outplanted adult salmon, the IPA assumed "*no mortality effects associated with the trap-and-haul process*." [E-629] Note: This is a false assumption and there is abundant data available from subbasin-specific outplant programs that indicate a range of mortality associated with handling, transport, and release of adults.

The IPA noted that "*most of the input parameters were from reports containing estimates generated from expert opinion. The parameter estimate distributions for the many LCM parameters ranged from broad to very narrow, but overall most parameter distributions were broad and uncertain for all sub-basins*." [E-689] Again, despite the acknowledgement of model uncertainties, the DPEIS ignores this in using model outputs as more or less definitive estimates of the effects on species populations.

Extinction risks were calculated in the IPA for the 30-year span of the operations plan. Because the IPA model is "*specifically for the population components that spawn above the dams*" [page E-598], the evaluated extinction risk is only for this component of the population so it is of limited use in evaluating the effects of alternatives on subbasin populations. In addition, salmon upstream of most dams will be supplemented with hatchery fish for a number of years. It really makes little sense to estimate extinction risks for this subset of the population.

In addition, the analysis covered an inadequate period to be of any use. Extinction risks in the IPA model were evaluated for just the 30-year span of the operations plan at the direction of the Corps: "*The extinction risk PM [performance measure] was calculated by determining the 4-year moving mean NOR abundance across years 16-30 of each simulation run, with the population deemed to go extinct if this mean abundance fell below a quasi-extinction threshold (QET) in those 15 years*." [page E-605] The standard for assessing extinction risk is for 100 years. Given the generation time of salmon and steelhead of 3-6 years and age-structured populations, this time frame provides little useful information to evaluate the effect of implemented measures on risk, especially considering the long lead time (and probable delays) in implementing some measures. Regardless, it is of little use to assess extinction risk for only the salmon and steelhead upstream of the dams. It would be more informative to assess the contribution of salmon and steelhead upstream of the dams to the overall population in terms of biological metrics.

Water Temperature and Flow

Effects of water temperature and flow on adult and juvenile salmonids is complex and varies seasonally as well as annually. Models have been developed to assess the effects of seasonal flow and temperature on different species and life stages (SWIFT). One challenge is to decide how to allocate water during deficit and inadequate water years. As with other models discussed in this review, parameters used as inputs in the model are limited and assumptions are required about fish behavior, fish habitat use, and response to flow and temperature in order to simplify the models in the absence of empirical data. Although these models can be used as one tool for developing options, the Corps has presented results of the model as a given with little discussion of uncertainties associated with the outputs. SWIFT was designed to be used as a structured decision model with inputs from experts and stakeholders (DeWeber and Peterson 2020; Peterson et al. 2022). The Willamette model was designed to show managers how to make

real-time decisions (thus it is a structured decision model) and to set priorities for future research, such as targeting uncertainties illustrated by the model. It was not intended to be a static, measure-driven model. Implementing decision structured models is an iterative and long-term process that requires input and feedback from a spectrum of managers, with additional data inputs to fill identified gaps (DeWeber and Peterson 2020).

Although effect of flow on two species and life stages were modeled (Peterson et al. 2022), the Corps focused on a single species and life stage: "*The adult UWR spring chinook salmon species and life stage were chosen as the priority in the development of the fish flows."* [page A-21] Decisions about flow and temperature management need to be more holistic, and to consider other species and life stages, and to identify data needs to more accurately assess the biological effects. More research is needed on habitat use, occupancy, and capacity by juvenile Chinook and steelhead specific to the Willamette Basin. Without these data, flow management focused solely on adult Chinook salmon with an intent to reduce pre-spawning mortality may negatively affect rearing and migration of salmon and steelhead juveniles. One potential consequence is negative effects on certain life histories, some of which may become more important in a warming environment even if they are a relatively minor component under present conditions (e.g., Cordoleani et al. 2021). RM&E should be targeted to collect pertinent information on habitat use and limitations of juvenile salmon and steelhead. Depending on the model used, assumptions, and ability to populate models with empirical data on life stages, results could indicate more sensitivity of fish to either flow or temperature. For example, results in Crozier et al. (2021) suggested that carrying capacity of smolts was limited by flow more than temperature.

DPEIS suggested that effects of water temperatures on spring Chinook and winter steelhead "are generally understood" [page N-42]. This may be generally true in terms of thermal tolerance and physiological effects that are tied to laboratory studies, but it would be foolish to broadly assume that juvenile salmonid habitat use, for insistence, can be determined with temperature modeling based on data from a few river gages. Other geomorphic features such as gravel bar development, floodplain area and inundation time, ground water exchange, and hyporheic flow may influence temperatures (e.g., Burkholder et al. 2008), which may then provide suitable habitats that could be discounted in simplistic models and limited field data. Therefore, updating flow-survival models with recent data on habitat needs for juvenile salmon and steelhead and collecting new data could lead to different results than the present focus on just adult Chinook salmon and pre-spawning mortality.

As an example, the model assumes a sequential occupancy of habitat by juvenile fish; i.e., as habitat is filled then fish move downstream to the next available habitat space. This greatly simplifies what we know about Chinook salmon movement and habitat use. Research has shown that newly emerged fry begin to volitionally migrate long distances downstream. This migration may be influenced by density displacement or physical displacement from high flows, but it may also be an inherent dispersal behavior that results in morphological differences between migrant types (Billman et al 2014; Unrein et al. 2018; Cogliati 2018). Dispersal of fry from spawning areas that were historically in the upper parts of watersheds would result in an overall increase in carrying capacity because fish could use multiple habitats throughout the watershed. Additional

research is needed to relate flows more directly to biological responses of salmon and steelhead, to complement the use of surrogate metrics (means objectives) such as cumulative thermal exposure, estimated habitat capacity affected by flow changes, etc. (DeWeber and Peterson 2020). Although the DPEIS mentions the need for additional study and research, it does not specifically commit to RM&E, but rather leaves it to WATER and other processes, which has not worked well for implementing RM&E under the 2008 BiOp.

Measure 30

Flow targets should be based on a frequency distribution of sufficient and deficit water years from recent data instead of a full historic record to more accurately reflect prevailing conditions. In addition, a specific analysis of how climate change is likely to change this frequency is needed based on a range of probable scenarios encompassing moderate and severe climate change scenarios. Frequency distributions should also be analyzed for other intermediate conditions than just "wet" and "dry". Flow targets as affected by difference between wet and dry year classifications is 40% overall but can be as high as over 110%. These high differences in magnitude of flow can result in negative changes to fish abundance and population demographics (Poff and Zimmerman 2010). Mismatches between flow and life history traits/migration can affect survival of juvenile salmonids.

Additional metrics are needed for flow and temperature relative to adaptive management needs. The DPEIS presents just percentage of days below flow target and contribution of dam releases to flow, and 7-day mean daily maximums as percentage of days below reach targets and percent change from pulse releases [Table 5-1, page N-41]. DeWeber and Peterson (2020) presented additional metrics to assess the thermal exposure and accumulation for juvenile salmon and steelhead rearing within reaches. These included proportion of juvenile Chinook salmon migrants exposed to temperatures >18° C and adult salmon accumulated degree days as well, and juvenile steelhead exposed to temperatures >15° C in April-May. As mentioned earlier, studies should be conducted to relate flow and temperature more directly to biological responses of salmon and steelhead. Flow and temperature metrics should also be evaluated in relation to climate change scenarios in terms of effects on thermal exposure and accumulation, and on annual and monthly changes in magnitude, timing, and frequency of flow metrics.

Additional analysis of climate change scenarios should be conducted to evaluate potential shifts in timing of flow (peak and low) and temperature (seasonal). These analyses should be projected beyond the 30-year time period as a measure of whether or not proposed measures and alternatives would be sufficient to meet climate change challenges. This may be especially important for alternatives that propose large and expensive structures.

Water temperature

"*WRB rivers have been historically warmer in the summer than under current conditions. Fish adapted to the historical, warm summer conditions; therefore, the unseasonably cool water released from the reservoirs disrupts their life stages in summer*." [Page 2-15]

This is an underlying assumption that serves as a basis for developing and choosing flow and temperature measures, but there is so much wrong with the way these sentences are written:

1. Truly historic data on water temperature do not exist. Attempts have been made to estimate water temperature during early European settlement for the lower Willamette River, but these are based on limited water temperature measurements and extrapolations, and are for the lowest reach of river (Talke et al. 2022).
2. Available data (which is limited) indicate that mid to late summer water temperature is likely lower because of the release of cool water from reservoirs, but the effect is most pronounced in reaches close to the dams. Moreover, these data do not reflect conditions during pre-European settlement history under which native fish would have evolved.
3. Data do exist on how development of the river basin has resulted in the loss of channel complexity, channel length, loss of riparian forests, loss of connectivity to floodplains, loss of side channels and alcoves, etc. In addition, conversion of floodplains to agriculture (including widespread drainage of seasonally flooded land) would have affected the quantity and quality of groundwater and subsequently hyporheic flow into river channels. It is wholly conceivable that summer water temperatures in the historic Willamette River and the lower reaches of the eastside tributaries were similar (or possibly lower) that of the presently augmented river, at least in the upper Willamette Basin river reaches. The historic river conditions would have consisted of multiple channels with borders of mature riparian forests, numerous side channels and alcoves, and groundwater input via hyporheic flow that would have been replenished each winter with a vast network of flooded prairies and seasonal streams.
4. If the attempt here is to explain how cool water may slow the upstream migration of adult Chinook salmon to fish traps and hatcheries, one must put this in the context of the likely historic migratory behavior before dams. When unimpeded by dams, spring Chinook salmon tend to migrate quickly to reach holding areas in upper river reaches by late spring to early summer. Because of dams, Chinook salmon can no longer access the upper reaches of the watersheds and must hold in the lower reaches. Thus, the true "disruption" to this life stage is the presence of dams that block access rather than changes in water temperature (which are also an effect of dams).
5. To the extent that some native fish species have adapted to warm summer water conditions as contended, it is unlikely that the limited cooling by dam releases would truly "disrupt" the life stage of native fishes. For example, during late summer and early fall, thermal refugia were probably much more abundant in the historic lower eastside tributaries and Willamette River than during pre-dam (post-European) and post-dam periods. The likely behavior of native fish in summer would be to seek out cool water, including possible upstream migration into higher reaches of eastside tributaries.
6. Release of water from dams that is relatively cool would not disrupt the juvenile life stage of native fishes such as salmon and steelhead. Cool water from dam releases is unlikely to be outside the range of summer temperature variability in which the native species evolved.
7. In addition to blocked access to upper watersheds (resulting in high pre-spawn mortality of adult spring Chinook), a major disruption of life stages via release of water from dams is the early emergence of Chinook fry because the released water is warmer than normal incubation temperatures from dam releases. Another effect of dam releases are effects of

flow fluctuation and total dissolved gasses on spawning adults, eggs, and newly emergent juveniles.

Release of water from dams to increase water temperatures for attracting adult salmon upstream to fish traps and hatcheries.

Such releases must balance the increase in water temperature to draw fish upstream and an increase in water temperature that could increase pre-spawning mortality.

Release of water in fall with objective of preventing redd dewatering. [page 2-10].

Releases must balance between providing enough water to access primary spawning areas and flows that may encourage fish to spawn in shallow water and side channels at the higher flows that may then become dewatered later after fall drawdowns are achieved. Spawning surveys to determine dates of peak and late spawning (and proportions of spawners within time periods) should be conducted and these data used with water temperature data to estimate development and hatch timing of eggs in redds downstream of dams. These data would be used to adaptively manage flow and prevent dewatering during incubation.

To the extent that operations are insufficient to achieve temperature objectives, and structural temperature control is considered, the structures should be developed to incorporate juvenile fish passage to the extent possible. That is, construct one multi-purpose structure rather than two stand-alone structures.

Flow relative to Alternative 5

The alternative would generally lower spring flow in dry years, shifting water from spring (Apr-Jun) to summer, with higher summer flow in almost all years (July-Oct). Assessment is needed on the potential effect on rearing for subyearling and yearling Chinook smolts, and juvenile steelhead in areas downstream of dams, including the Willamette River. For example, a large component of McKenzie spring Chinook migrate to the lower reaches as fry, rear through spring and migrate in May- mid July as subyearling smolts (Schroeder et al. 2016). Similar migratory patterns were observed in the Santiam subbasin for Chinook salmon spawning downstream of the dams. Subyearlings contribute to adult returns, with proportions varying within annual returns and among brood years. Other life histories migrate from natal areas in fall and early winter, rear, and migrate to ocean in March-May, thus also rear in mainstem habitats in the spring.

Data collected on juvenile Chinook salmon rearing in the Willamette River indicated that high spring flow resulted in higher survival to Willamette Falls. In years when flow remained high and water temperature was lower than average (e.g., 2008 with late snowmelt and 2010 with late heavy rains), juvenile spring Chinook salmon generally grew slower than in average years and migrated as subyearling smolts later, but their survival to Willamette Falls was higher.

Increased flexibility for reservoir and flow management should be incorporated in dry years with priority for storage rather than flood control starting in mid to late winter, depending on other objectives for fish passage measures in individual dams/reservoirs such as drawdowns. Available

information on snow pack, precipitation, trend data, and precipitation forecasting models should be used to determine the probability of dry conditions in late winter and spring. These data would be used real-time to increase storage and decrease the probability of avoidable water shortage for flow management. In the past, the Corps has often released runoff from late winter and spring rains/snowmelt to adhere to their rule curve, even when all data and on-the-ground conditions indicated the prevalence of overall drought conditions. Thus, water that could have been stored was released, resulting in water shortages later that were needed for critical fish needs such as spawning. Flexible water management decisions are currently being implemented for Cougar Reservoir based on guidance in the injunction RM&E plan, Document 240-1. The Corps and NOAA are using hydrologic data from April and May to provide a delayed refill of Cougar Reservoir after the early spring drawdown to facilitate juvenile salmon passage. Data on snowpack, average weekly flow, extended water supply forecasts, and real-time fish migration data from trapping upstream and downstream of the project are all being used to decide when to begin refill in order to delay as long as possible, yet still reach summer reservoir level targets.

In addition, summer flow should be a lower priority than spring flows in dry years. Mainstem Willamette flow targets were initially developed for river transportation and later were used for pollution control by providing adequate "diluting" flows. Therefore, lower mainstem minimum flows should be considered during deficit water years.

Revetment Measures

These measures have been identified for decades. The 2008 BiOp set a date of December 31, 2010 to complete an assessment of revetments and identify sites with potential for modification, and also directed that agencies be "*required to seek funds to carry out projects at high priority sites*." Yet, the DPEIS continues to make excuses such as citing Continuing Authority Program requirements for funding and need for non-federal sponsors, or lack of funding, or need for additional technical analyses (DPEIS 2-55). First, one needs to question the Corps' interpretation of what is or is not "required" under Continuing Authority. As demonstrated by the court ruling in Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al., No. 3:18-cv-00437-HZ, the Corps may narrowly interpret their authority in order to avoid taking actions. Thus, their interpretation may be faulty and overly narrow. Second, even if one accepts the limitations, it is incumbent on the Corps to more actively seek funding and sponsors in order to make progress on revetments and subsequently habitat improvements. Because some work has been done to identify potential habitat improvements from modification or removal of revetments, the Corps needs to explicitly identify measures and timelines in the DPEIS for completing the work that was supposed to have been done under the 2008 BiOp, including securing necessary funding.

The 2008 BiOp clearly stated that the effect of keeping revetments in place without any modification would "*continue to diminish habitat suitability for multiple life stages of UWR Chinook and UWR steelhead, and to limit the habitat's capacity to support larger and more productive salmonid populations*." The DPEIS fails to acknowledge that lack of action will continue to negatively affect salmonid populations and other native fish species. In addition, the DPEIS needs to clearly identify significant steps to address the negative effects of revetments

beyond the vague wording of "*considering Nature-based [sic] engineering*" (2-54), or a vague and excuse-ridden discussion of altering revetments (2-55). The DPEIS needs to include a firm commitment and timeline to complete work that should have been done over a decade ago. The DPEIS should more explicitly identify steps to implement the measures and should include measures such as complete removal of revetments and re-location of revetments away from river banks to allow more flooding, movement of river channels, and increasing hyporheic flow paths and exchange between surface and groundwater (e.g., Singh et al. 2018). These actions would necessitate associated conservation agreements with landowners that could be mediated with the help of groups currently working in the basin such as McKenzie River Trust and Greenbelt Land Trust. As was identified in the 2008 BiOp, these actions would improve habitat for endangered fish species.

In addition, the Corps should investigate the feasibility of constructing flood bypasses at certain control points (such as Harrisburg) that would allow for higher flows without flooding towns. The effect of this action would be to allow more flooding of off-channel (temporal and spatial), increasing rearing habitat for listed fish species and providing refuge from high velocity mainstem flows. Note that increasing floodplain area in the upper Willamette River would also act as temporary "storage" and allow for more active flood releases from the dams to facilitate river processes such as development of gravel bars, which are integral as rearing habitat for juvenile salmonids and other native species. Flow management in winter that allows increased flooding and access to floodplains can recharge groundwater that can supplement flows, help buffer water temperatures, and provide thermal refuges; all of which will increase in importance with climate change.

In addition to removal or re-location of revetments, other measures that would increase rearing capacity for juvenile salmon and steelhead should include development of side channels and re-connection of side channels and alcoves. These measures would increase hyporheic exchange, improve riparian shading, and increase cold water refuges. Increasing cold water refuges is more efficient within side channels and alcoves compared to larger main channels (e.g., Gombert et al. 2022). The Willamette River and lower reaches of eastside tributaries have been simplified through loss of dynamic river processes, connectivity with floodplains, and development of gravel bars and side channels; all are at least partially an effect of dam operations or Corps revetments.

Appendix N – Implementation

This section includes extensive discussion about adaptive management and inclusion of other entities such as through the WATER group. In reality, this is no different than what has been in place during implementation of the 2008 BiOp, which has had many problems:

- Lack of transparency. DPEIS mentions the need for transparency and provides flow charts to demonstrate how it works. However, the track record of the Corps on transparency is mixed, at best. Decisions, such as those made under "adaptive management", have often been dictated by the Corps and implemented with inadequate data and inadequate input from WATER members.

- Lack of recognition of respective roles of WATER members. The Corps has often inserted themselves into fish management decisions that should be deferred to the actual fish managers in the basin. The Corps are first and foremost dam operators and need to include fish managers at state and federal levels in both the development and implementation of decisions that affect fish populations, including details of RM&E needed to assess long-term effectiveness of measures.
- Need for more direct involvement of state and federal fish biologists. Biologists, such as those within ODFW, have collected data independent of the Corps that supports long-term monitoring of populations (juvenile and adults). These data need to be incorporated as part of adaptive management decisions, and should be supported by the Corps. Within the Columbia River, state fish biologists are gathering their own data independent of federal agencies, which is then incorporated in the decision processes and adaptive management.

RM&E

Under the 2008 BiOp, RM&E has failed to establish and maintain long-term monitoring necessary for evaluating measures intended to aid fish recovery. Funding for RM&E has been inconsistent and multiple entities have been involved in collecting data, which has also contributed to inconsistency in data quality. The DPEIS does not address this ongoing weakness in RM&E. Indeed, what little information is presented on RM&E suggests continued lack of long-term monitoring. Despite acknowledging in the DPEIS that overall paucity of data is a weakness in model development and limits informed decisions about the effect of operations and measures on fish populations, the DPEIS proposes no RM&E to collect the necessary data, even for dam-specific questions.

RM&E for measures proposed in the DPEIS should be based on the RM&E plan developed under the Injunction by an expert panel that included Corps members (court case No. 3:18-cv-00437-HZ; Document 240-1, Willamette Project Interim Injunction Measures Research Monitoring and Evaluation Plan). This 70-page document details RM&E for many of the measures being proposed in the DPEIS and provides a template for developing RM&E. The document details RM&E activities for each subbasin as well as guidance for estimating long-term survival to Willamette Falls. In addition, detailed information about monitoring is given for North Santiam, Middle Fork Willamette, and McKenzie rivers. The DPEIS should be using this document to guide RM&E because it provides specific guidance for measures in the DPEIS, was developed by an expert panel that included federal biologists, and was accepted by the court as a guiding document. The principles underlying the RM&E document provide overall guidance for developing and implementing RM&E to estimate passage effectiveness. It is derelict that the Corps has not incorporated this RM&E document and associated template in the DPEIS, especially because the Corps helped to develop it.

RM&E has often been focused on very narrow, site-specific questions such as route passage at a dam. Although these are important areas for RM&E, they have often been conducted without the necessary scale or scope for determining the overall effectiveness of passage measures. For example, passage experiments have often been conducted without assessment of delayed

mortality. In addition, these experiments have often been conducted using large hatchery fish whose size and behavior are different from naturally produced juvenile fish. What little detail the DPEIS presents on planned RM&E indicates a continuation of using active tagging to assess passage measures, rather than methods that would be more suitable for smaller fish and/or would allow for a larger number of fish within test releases. Although details would be included later in the development of RM&E, the lack of some basics in the DPEIS such as inclusion of control groups for helping to assess passage effectiveness is a weakness.

RM&E for some passage measures, such as fish collectors, appears to be limited to two separate years, which is inadequate for long-term assessments of passage and adult returns over several generations, especially because of the complexity of life histories present. For example, collecting information for just two years would likely be inadequate for assessing passage under "typical" conditions, which could vary within each migratory season and could have varying effects on different life histories.

RM&E needs to address the full range of life histories and fish sizes, as well as long-term juvenile survival that encompasses smolt migrants leaving the Willamette River as outlined in RM&E Document 240-1. As noted earlier, RM&E as presented in the DPEIS suggest a reliance on active tag studies to assess passage and survival. Although one metric is estimating survival to the confluence of the Willamette River, most of the locations where an array would be located are well upstream of the confluence, which may not adequately assess the effects of delayed mortality. In addition, some life histories passing the dam may rear for extended periods downstream of the dam and in the Willamette River.

Long-term survival of juvenile fish passing the dams should be assessed as survival to Willamette Falls, as was noted for steelhead smolts in Figure 5-1 (page N-43), as was used as a metric in life cycle models, and as outlined in RM&E Document 240-1. One method for assessing this would be to use PIT tags and to invest in tag detection infrastructure within subbasins and at Willamette Falls. Estimating survival to Willamette Falls provides a complete picture of passage effectiveness and provides agencies more immediate feedback for adaptive management than waiting for cohort returns years later. The DPEIS should recognize the limitations of assessing overall passage effectiveness using cohort replacement data because of the time lag for adults to return 3-5 years later. A more robust RM&E framework is needed to provide comprehensive monitoring of juvenile survival to Willamette Falls, and should be based on specifics and guidance provided in RM&E Document 240-1.

As noted in RM&E document 240-1, numbers and/or survival of juvenile fish should be estimated at multiple points along their migratory pathway: entry into reservoir (initial measure of outplanting success, coupled with spawning surveys and fish/habitat surveys upstream of dam), survival through reservoir (predation, disease, copepods), passage at dams, delayed mortality of fish passed at dams, downstream rearing and survival of fish that pass dams. Reach survival would require multiple points of monitoring fish; e.g., if fish are PIT-tagged then detection infrastructure should be installed and/or maintained at several points downstream of dams and at Willamette Falls.

The need for PIT tag infrastructure is critical for monitoring survival and abundance of juvenile salmon and steelhead. These data are sorely lacking for the Willamette as reflected in the difficulty in developing model parameters based on empirical data. These data are also needed to fully evaluate the life cycle effects of measures and alternatives on species populations. Data would also provide critical information on number and survival of smolts that could be related to implementation of measures and alternatives and would provide early estimation of effectiveness rather than waiting for adults to return. The advantages of PIT tag technology in monitoring juvenile salmon and steelhead include ability to tag smaller fish than with active tags, ability to tag large numbers of fish (lower cost) either in field studies or for large-scale controlled experiments, and ability to detect returning adult fish (no battery life). However, the detection system at Willamette Falls needs to be updated or replaced with other systems. The Corps should work with federal agencies, state agencies, and Portland General Electric to explore detection options and funding.

Climate Change

Effects of climate change on ambient and water temperatures are already being expressed in the Willamette Basin. It is likely that these trends will accelerate in the near term such as over the 30-year period of the DPEIS. Assessment of climate change is qualitative and cursory in the DPEIS in terms of effects on water supply, air temperature, water temperature, flow, habitat suitability, and the associated effects on species populations. The Corps used a qualitative assessment to estimate how different alternatives would affect vulnerability of Chinook salmon to factors affected by climate change, such as water temperature. They also relied on the life cycle models to assess water temperature effects downstream of dams but as was noted by NOAA, *"we did not include any estimates of future temperature changes under a climate change scenario."* [page E-412]. The summary for the IPA model also noted the lack of a climate change assessment: "*it would be appropriate to develop extensions to represent potential freshwater and marine survival rate responses to a carefully formulated set of climate change scenarios. Dam passage measures and dam operations that could meet conservation objectives when climate change scenarios are considered could be somewhat different from those that could be found to do so under the current set of scenarios which ignore climate change."* [E-763]

The long-term effectiveness of alternatives in the DPEIS could be driven largely by climate change, depending on the realized scenarios. Thus, evaluation of alternatives with a more comprehensive assessment of climate change is needed for informed decisions about the effectiveness of the proposed alternatives and whether or not additional, more aggressive measures might be needed to achieve objectives for fish species populations. The DPEIS should have developed some specific climate change scenarios (moderate to severe) to project potential effects on flow and temperature. These scenarios should then be incorporated into existing or new models to specifically assess the potential effects of climate change on species populations and viability using current conditions as the baseline. Each subbasin should be modeled separately and a composite model for the Willamette Basin should be assessed.

Models and assessments have been used to estimate effects of climate change on salmon and steelhead at small and large scales. These could be adapted for smaller scale assessment, such as for subbasin populations. Crozier et al. (2021) assessed effects of climate change on Chinook salmon and included evaluation of carryover effects that could be affected by climate change; and in the abstract noted that a dramatic increase in smolt survival would be needed to overcome the negative impacts of climate change. Beechie et al. (2023) evaluated the potential for habitat restoration to increase resilience of salmon populations in the face of climate change. Wade et al (2013) assessed the vulnerability of steelhead over a large geographic range and suggested connectivity to headwater areas to increase resilience and help ameliorate effects of climate change. Assessment can also include thermal exposure of different Chinook salmon migrant types (FitzGerald et al. 2021) to assess the effects of climate change on juvenile salmon and steelhead, and aid in assessing effectiveness of measures and alternatives in achieving biological metrics.

An assessment of climate change should also include effects such as increase in water temperature on potential increased susceptibility of salmon and steelhead to disease and parasites (e.g., *Ceratonova shasta* [formerly *Ceratomyxa*]; Chiaramonte 2013), to increased predation caused by increase in predator abundance and shifts in predator activity or avoidance behavior (e.g., Kuenhe et al. 2012; McInturf et al. 2022), and to increased effects from pesticide exposure (e.g., Magnuson et al. 2023). Each of these effects could be exacerbated or lessened by measures implemented in the alternatives, particularly in reaches downstream of the dams, and should be evaluated.

Bull Trout

Analysis of bull trout benefits and risk relative to downstream passage is flawed.

- DPEIS assumes that providing any downstream passage would result in loss of recruitment to the population upstream of the dam and therefore should not be considered.
- Operations have recently changed at Hills Creek Dam following the court injunction. Under near-term operations the priority is for nighttime RO water releases [page 2-39], specifically to increase downstream passage for juvenile spring Chinook salmon. This operation provides access to any species moving downstream, especially when instream flow is peaking. Because juvenile bull trout are surface oriented (similar to juvenile salmon) they may pass downstream. One subadult bull trout was caught in the Hills Creek RO trap in late December indicating that some fish are already passing downstream.
- Therefore, the DPEIS is deficient in rejecting upstream passage at Hills Creek Dam; i.e., not identifying measure #722 in the preferred alternative.
- By rejecting upstream passage at Hills Creek Dam, the Corps appears to be increasing the very demographic risk to bull trout that they cite in contending that bull trout should not be passed downstream.

- DPEIS must consider that increased downstream fish passage measures at Hills Creek Dam will result in the passage of bull trout and take measures (such as #722) to pass bull trout upstream and minimize the risks and impacts of downstream passage.
- Downstream passage by itself is not the risk, nor is the lack of spawning habitat or higher temperatures downstream of the dam. Bull trout have a migratory life history in that they actively migrate downstream for overwinter foraging and rear in downstream reaches as subadults. Bull trout require pathways between overwintering downstream habitats and upstream spawning habitats.
- DPEIS discounts habitat downstream of Hills Creek Dam because spawning habitat is limited and water temperatures increase [page 3-660]. However, habitat downstream of the dam is suitable for overwintering, foraging, and migration. Bull trout that pass downstream may rear and forage before migrating upstream to spawn IF upstream passage was provided. They originated from areas upstream of the dam, are part of the same population, and are necessary to maintain the upstream population.

The DPEIS states that *"Even without passage, the population above Hills Creek has increased…indicates that this population performs reasonably well under the NAA"* [page 3-712]. This statement is misleading and largely irrelevant, because it does not acknowledge that the NAA does not describe current operating conditions, as described above. Changes in operating conditions to provide downstream passage for juvenile Chinook salmon are recent and there has been insufficient time or monitoring to determine that the population "performs reasonably well" or will continue to remain stable or improve in the near term or over the life of the operations plan.

A near-term passage solution must be implemented until a permanent solution is in place. A temporary facility should be designed that could attract adult bull trout, but does not need to be built to handle large numbers of fish. An upstream migrant trap needs to be functional in the near term to assist long-term bull trout recovery. Allowing for effective upstream and downstream passage at Hills Creek Dam is in agreement with the 2015 USFWS Bull Trout Recovery Plan.

The habitat upstream of Hills Creek Dam represents a large area of high quality, but underutilized, habitat for bull trout, spring Chinook salmon, and other native species. This habitat will become increasingly important with impending climate change and measures need to be implemented to provide connectivity to this habitat.

Hatchery programs – section 3.8.1.4

DPEIS seems to devote more space to discussing potential effects of hatchery fish on wild fish than they do on other more direct effects from presence and operations of dams. It is wholly conceivable that hatchery fish could be eliminated and wild fish populations would remain at their extremely low levels because other factors have a much larger, and more direct, effect on wild fish (e.g., blocked access, accelerated incubation temperatures, high TDG). In addition, the metric for reduction of hatchery production is inadequate:

"Hatchery production levels would be decreased as the amount of accessible fish habitat resulting from fish passage measures increases. Hatchery levels would not be decreased until improved fish passage is observed, so effects would be long term." [page 3-1087]

Because hatchery programs are tied to mitigation requirements, and because hatchery salmon will be the source for several reintroduction measures, the hatchery production levels should be tied to the establishment of self-sustaining populations and natural production numbers adequate to support sport fishing. Hatchery production should not be tied to increased accessible habitat because there is no guarantee this would result in increased natural production, or "improved fish passage" because passage is generally poor or even nonexistent so this is not a good metric for gauging the reduction of hatchery production.

"The proportion of hatchery origin spawners below dams is currently very high, and would not be expected to change in the future even when fish passage at dams is improved unless decisions are made to reduce hatchery releases." [page 3-667] "Wild fish production below dams is already impacted by degraded habitat conditions, and is expected to continue to have very high levels of hatchery origin spawners, among other factors." [(page 3-668] DPEIS also states that spawning success of natural-origin fish is limited by high proportion of hatchery-origin Chinook spawners (among other factors).

The actual effect of hatchery fish on spawning success of wild fish is unclear. It is unlikely there is a direct effect in terms of competition for spawning gravel except in limited areas. There may be long-term genetic/fitness effects but this can also be attributed to low numbers of wild spawners, not just high numbers of hatchery spawners. There may be issues with disease transmission in areas where density of fish is high, which would primarily be in areas close to the dams where fish congregate because of the presence of dams and/or hatcheries.

The proportion of hatchery spawners can be reduced by lowering the number of hatchery fish, by increasing the number of wild fish or a combination. Emphasis should be on increasing the number of wild fish, which is necessary for long-term conservation and recovery. Because other factors are more directly important to the spawning success of wild fish, these should be adequately addressed first. Spawning success of wild fish is affected by factors other than just the presence of hatchery fish, such as blocked access to historic spawning grounds, high pre-spawning mortality influenced by release of water from dams, accelerated incubation and emergence of fry in winter rather than in spring, and loss of habitat quality from operations of dams (lack of gravel recruitment, lack of flooding for access to off-channel habitats, etc.). Dam operations should be designed to improve degraded habitat conditions below the dams rather than to accept these conditions as status quo.

Factors that also result in high pHOS levels include low attraction of hatchery fish to traps and hatcheries, which leaves large numbers of hatchery fish in the river and subsequently a very high percentage of hatchery fish spawning immediately downstream of dams and hatcheries [page 3-676 & 677]. Although the DPEIS addresses the attraction of fish as influenced by water temperature for South and North Santiam, there may be other factors that result in a large number of hatchery fish remaining in UWR spawning areas and these factors should be investigated with a goal of increasing the homing of hatchery fish to hatcheries to better manage pHOS. DPEIS

should also identify other release strategies such as targeted off-site releases downstream of spawning areas to reduce the number of hatchery fish that remain in the river.

"USACE's hatchery program in the Middle Fork Willamette River affects natural origin UWR spring Chinook to varying degrees primarily through increased pHOS at low elevation, increased risk of pre-spawn mortality, and increased fish transport delays." [section 3.8.19.4, page 3-681]. Nothing in the rest of this section supports this opening statement, and in fact generally refutes it. The primary problem is the extremely low (functionally extinct) population of natural origin salmon. Modifying or even eliminating the hatchery program would do absolutely nothing to improve production of natural origin fish, and are actually needed to provide a source for re-establishing populations.

Recreation

The DPEIS evaluates only the effects the various measures and alternatives would have on reservoir recreation. One potential effect is reduction of hatchery programs on recreational and commercial fisheries. Although DPEIS contends that changes to the hatchery program would not be made until some metrics are achieved, the metrics expressed in the DPEIS are not related to an actual increase in wild fish populations. Instead, DPEIS appears to base decisions about its hatchery mitigation program on metrics such as "amount of accessible fish habitat resulting from fish passage measures increases" and "improved fish passage is observed" [page 3-1087]. As discussed earlier these are poor goals to measure success, not the least because the baseline is so low that almost anything would be an improvement, yet still be far from establishing sustaining populations of wild salmon.

A goal of recovering salmon and steelhead populations is to provide a full suite of environmental, ecological, and economic benefits. These benefits would include recovering populations to allow at least limited recreational sport fisheries in the Willamette River and in tributaries. The failure of the DPEIS to acknowledge this as an objective may speak to the Corps' lack of confidence that the proposed measures and alternatives will result in the establishment of sustaining populations upstream of dams and recovery of populations within subbasins (including those spawning and rearing downstream of dams). If the Corps was confident about the success of the alternatives, it seems like they would identify and evaluate increased sport fishing opportunities downstream of the dams as a benefit.

Specific Comments

Page 3-652: *"more recently, the number of wild returns has been just over 10,000."* This overstates the true status of wild fish. The count of unclipped Chinook salmon in 2016-2022 was 6,520, with a preliminary estimate of about 6,000 wild fish (some hatchery adult fish do not have a fin clip). Historic estimates of the wild salmon population were 300,000-450,000 fish based on estimated harvest and egg take numbers (Myers et al. 2003). Estimated number of natural salmon in the Willamette Falls counts has been possible since the 2002 returns; Figure 3.8-2 of the DPEIS should include these data for natural salmon abundance in falls counts.

Page 3-666 – "including construction of four new adult fish facilities (Minto, Foster, Cougar and Fall Creek)"; cited as actions taken for passage. Minto, Fall Creek, and Foster are not new facilities, just upgraded; they have been in operation for many years and adult fish have been collected and transported from these facilities prior to their upgrades. Minto outplant upstream of Detroit is hatchery fish only at present (with exception of extremely low flow year of 2015).

Page 3-675 and 679-680: *populations upstream of Foster considered self-sustaining and populations upstream of Fall Creek considered sustaining*. These statements are not true because populations have not replaced themselves in some years. To be considered as self-sustaining, the number of returning adults should at least replace those that were released in respective brood years, and replacement should occur over many generations. In addition to basic replacement demographics, a self-sustaining population would also meet VSP requirements such as diversity (e.g., range of life histories represented in returning adults, high effective population size [N_e] in breeding populations), spatial distribution within areas upstream of the dams, etc. These population characteristics are necessary to avoid population declines from stochastic events. For example, if few spawners are successful (low N_e) and confined to limited spawning areas, the population would be at risk. Low N_e can occur from attrition of outplanted adults through pre-spawning mortality and poaching leaving few adults available to spawn, or from successful spawning by a small number of adults because of factors such as limited high quality spawning habitat or loss of redds/emergent fry from flooding or other disturbance, or from high mortality of juvenile fish because of poor incubation or rearing habitat.

Page 3-679: *"[dams] in the Middle Fork affects ESA-listed spring Chinook salmon and bull trout and has blocked passage along several reaches."* This is an interesting, albeit misleading way to describe the fact the Middle Fork Willamette dams have actually blocked passage to almost all historic salmon and bull trout habitat. In fact, in a previous paragraph on the same page, DPEIS lists that 92% of usable spawning habitat is upstream of the dams, more than just "several reaches".

DPEIS proposed a new weir design at Foster Dam (measure #392) or dedicated passage pipe. In several places, the DPEIS notes the fish passage actions already taken to improve downstream passage included the use of a fish weir [page 3-666, E-38]. However, the DPEIS also notes that the fish weir was redesigned in 2018 from an original design, but that one resulted in "*higher injury rates*" [page 3-675]. Therefore, it is unclear exactly what improvements are being considered that would make the third attempt more successful at effectively passing juvenile salmon and steelhead and steelhead kelts with low injury and mortality (perhaps the Corps is relying on "third time is a charm" maxim).

Part II: Technical Review and Comments; Recommendations by Richard Domingue, Professional Hydrologist, NMFS ret.

Thank you for this opportunity to comment on the Willamette Valley System Operations and Maintenance Draft DPEIS. It is clear the Corps has invested considerable time and effort into producing this document. While the analysis is extensive, there are numerous omissions and inconsistencies that render the proposed action inadequate to guide project operations, modifications and maintenance over the next 30 years. My comments and an addendum follow. Questions raised in the addendum are part of my comments.

General Comments

1. *Purpose And Need*

   DPEIS Section 4.1 fails to identify the Corps' intent to use the preferred alternative as the proposed action in the ESA Section 7 consultation taking place between the Action Agencies (Corps, BPA, and the Bureau of Reclamation) and NMFS and FWS under court order (No. 2:18-cv-00437-HZ), to be completed and a remanded Biological Opinion issued by December 31,2024. Currently, this purpose is not described until Appendix A, Section 2.8.

   It appears that the Corps is also attempting to resolve the causes for NMFS' Jeopardy finding (June 28, 2019) regarding the Willamette River Basin Review Feasibility Study with this PEIS. According to Appendix J, the Corps anticipates a 2050 level of development in its modeling (Res-Sim) of all alternatives considered, increasing water use for irrigated agriculture from the current 50,000 acre-feet of contracted Corps storage to over 250,000 acre-feet. By including the 2050 build-out in all alternatives, it is not possible to identify the streamflow and fish habitat effects of this action. Flow diminishment is not the only effect of issuing water service contracts. The Corps would attempt to store the water needed to meet water service contracts, thereby limiting efforts to reduce storage to improve fish passage survival.

2. *Endangered Species*

   The DPEIS underplays the role of the WVS in the statuses and potentials for recovery of species listed under the Endangered Species Act, particularly Upper Willamette River (UW) Chinook salmon and steelhead. The DPEIS should be revised to clearly demonstrate that the preferred alternative does not appreciably reduce the species likelihood of survival and potential for recovery, does not adversely modify the species designated critical habitat, and minimizes the take of listed species. As presented, the preferred alternative is inadequate to achieve this goal. To measure success, the Corps proposes to use a single metric, recruits per spawner, with a goal of achieving R/S greater than one. A broader range of performance metrics should be adopted and fish passage success evaluated in accordance with NMFS' fish passage criteria. Because the WVS is a major contributor to these fishes' current statuses, the Corps should clearly state its intent to manage the project to improve their statuses and likelihood for recovery and adopt metrics to measure such improvement.

3. *Fish Passage*

   The DPEIS claims to focus on fish passage, yet expanded operational measures, such as longer term and deeper drawdowns and improving regulating outlet fish passage and total dissolved gas performance, are not considered. The rationales for the proposed floating fish collectors and their construction schedules are poorly defined. Juvenile collectors at high-head dams typically show low fish collection efficiency. Life-cycle models used to estimate the likely population trajectories following implementation of each alternative use favorable assumptions for collector effectiveness (e.g. dam passage efficiency >50%) which are unlikely to be achieved. Currently, non-structural juvenile passage measures are being evaluated throughout the system. Until these and other operational measures are fully evaluated it would be unwise to design and install juvenile collectors.

4. *Narrow Range Of Alternatives Considered*

   Because the Corps has chosen not to consider alternatives that might require changes in the WVS' Congressional authorization, the potential benefits of such changes have not been analyzed. This limits the potential for avoiding jeopardizing and adverse modification of the UW Chinook salmon and steelhead critical habitats, and other potential benefits of project operations.

5. *Research, Monitoring, And Evaluation And Performance Goals*

   The DPEIS presents a series of actions, crafted and modeled to meet specific objectives, but there is a general lack of defined RM&E and no defined check-ins during which measure implementation and performance are evaluated, and changes developed as needed to meet performance objectives. Because the Corps proposes that this DPEIS guide operations and maintenance for the next 30 years, a set of fish population viability criteria should be adopted and the project's performance periodically reviewed every 5 years.

6. *Climate Change*

   The DPEIS presents extensive data on ongoing climate change including modeling work done by the Corps for this DPEIS, identifies a series of risks, including unusual and unseasonal flood and drought risk, yet offers no change in project operations to better manage such risks. This lack of proposed adaptations to changing hydrologic conditions also has implications for UW Chinook salmon and steelhead. (See Addendum)

7. *Operational Measures To Limit TDG Production*

   The only interim measures considered to reduce adverse total dissolved gas concentrations downstream from project dams is spreading spills across multiple spillway bays. This is insufficient.

   This issue is most acute in the North Santiam River downstream from Detroit and Big Cliff Dams where both UW Chinook salmon and steelhead spawn and rear and where

high rates of spill can generate harmfully high concentrations of TDG. During the fall and winter of 2021-22 the Corps operated Detroit reservoir in an effort to reduce the magnitude of spills to the extent practical. This effort was mostly successful at maintaining episodic TDG concentrations downstream below 120% throughout the winter. [2] This interim measure should be continued as completion and evaluation of structural TDG reduction is at least 5 years away. The Corps should also commit to managing refills in a manner that reduces the potential for adverse fill and spill operations in the spring.

There is a general lack of discussion of spill operations to manage reservoir surcharges. As spills have an array of effects downstream, from contributing to the Corps' Environmental Flow program, to generating harmful concentrations of TDG downstream, a detailed discussion of surcharge and spill management is needed.

8. *Revetments*

The DPEIS does not propose any specific measures aimed at increasing floodplain connectivity and side-channel fish habitat. Numerous studies, including work produced by the Corps, have identified the loss of such habitat in the Willamette Valley as limiting anadromous fish production, and regional entities have invested in an ongoing program to increase floodplain habitat (Willamette Focused Investment Partnership). As the Corps constructed and currently maintains 100 miles of revetments along the mainstem and tributaries of the Willamette River, the Corps should include a program of revetment modification to increase floodplain connectivity and side-channel habitat in this DPEIS, either directly or in partnership with others.

9. *Duration Of The Proposed Action*

The Corps proposes that the DPEIS and subsequent Biological Opinion to be issued to cover it have a 30-year life with construction projects conducted through 2044. As the statuses of the fish, notably their abundances, are in decline, and the climate continues to change, a 30-year planning horizon is unrealistic. A better approach would be to view the process as iterative, 5 to 10-year time steps during which measures are implemented, their effects monitored, and the need to revise or add measures evaluated.

10. *Measures Not Considered*

In large measure, the lack of an emphasis on species recovery and an excessive reliance on existing operations, limits the range of measures considered, thereby rendering the DPEIS insufficient. The preferred alternative includes only minor operational changes, choosing instead to solve fish passage limits imposed by the dams and reservoirs through structural measures, mostly floating surface collectors located at the dams. These would take decades to complete, with the last scheduled to be completed in 2044. They are bewilderingly expensive (c. $400 million, each) and the likely success of such measures

[2] The severity of harms to aquatic life due to elevated TDG increase with frequency, duration, and magnitude of the high TDG events. At concentrations below about 120%, harms tend to be mild and at 130% and above exposure can cause severe injury or death to Chinook salmon and steelhead.

is arguable. A recent survey of such systems at high-head dams (Kock et al. 2019) found a wide range of success, from very low to high. While there has been considerable technological advancement in the design of such structures, such as the use of computational fluid dynamics to site and models to size floating surface collectors, success cannot be assured.

It is important to recognize that fish collection efficiency (FCE), a measure of fish collection success (number captured in the collector/number released), has been measured differently by different studies, depending on the purpose of the study. To evaluate the potential effectiveness of floating surface collectors at the WVP, FCE_{res}, the ratio of fish captured at the floating surface collector to those released at or above the head of reservoir is the metric of interest. It is unclear whether the Corps life-cycle modeling used FCE_{res} or other measures of FCE. FCE also varies by species. For example, the fixed surface collector at North Fork Dam on the Clackamas River that collected over 90% of the steelhead and coho salmon juveniles released at the head of the reservoir, collected only 60% of the Chinook salmon juveniles released (reported in Kock et al. 2019). As other, less successful collection systems show similar low FCE_{res} for Chinook salmon, it is reasonable to assume that Chinook are harder to collect than steelhead or coho. **Review of life-cycle modeling conducted for this DPEIS (Appendix E) shows that overly optimistic FCE values were used, particularly where Chinook salmon were the target species.**

An issue missing in the evaluation is the importance of reservoir travel time to FCE and juvenile passage survival in general. In brief, the longer juvenile salmon and steelhead reside in a reservoir the lower their likelihood to pass successfully. Reservoir residence exposes juveniles to impaired water quality, disease, predation, residualism, and competition limits on successful dam passage. The longer juveniles remain in the reservoirs, the lower their likelihood of successfully passing the dams. Juvenile residence time is lower when reservoir storage is lower and when flows are high (Kock et al. 2015). Minimizing reservoir residence time should be an objective to achieve high passage survival.

Due to the inherent uncertainty in estimating juvenile passage survival and the potential benefits of large, expensive, structural measures such as FSCs, the preferred alternative should be one of experimental design. Initially, this experiment should focus on modifying existing facilities (e.g. TDG control, juvenile passage survival improvement) and operations (spills to pass fish and temporary powerhouse shutdowns to limit entrainment). An intensive RM&E program, such as that developed to evaluate ongoing interim measures, is needed to determine if such measures are adequate to support species recovery. If not, additional measures, such as FSSs may be needed. This could reasonably be accomplished within 7 years of ROD issuance.

For at least the first five years of operation under the new proposed action the focus should be on using existing facilities, or modified existing facilities to pass fish.

a. **Year-round deep drawdown.** At present, operational measures using existing project facilities to pass fish are underway. These include deep drafts and the use of regulating outlets to pass fish from the fall through winter, and spilling water

over project spillways to pass fish in the spring and summer. Data collected during these operations and evidence from the Fall Creek reservoir drawdown as well as other high-head flood-control reservoirs in the region (e.g. Mud Mountain Dam) show year-round deep drawdown can provide safe and effective juvenile passage, reduce heat storage and subsequent water temperature issues, and provide more normative flows downstream. By comparison, juvenile collectors at high head dams often have low FCE, limiting the fraction of incoming juveniles that successfully pass the dam (Kock et al. 2019). **Among the alternatives considered should be deep, permanent drafts at several reservoirs – Green Peter, Cougar, and Lookout Point. Year-round drawdowns at these reservoirs should be analyzed both independently and collectively.** As the Corps has been authorized to evaluate de-authorization of power generation at the WVS, such operations should be evaluated as part of that effort as well. The possibility that such substantial changes in project operations would require Congressional authorization prior to implementation is insufficient cause not to evaluate them.

i. This would mean permanently lowering the reservoirs to within 20 feet of their lowest outlet, storing additional water only when needed to reduce downstream flood risk, and managing the release of such surcharges to minimize adverse TDG conditions downstream to the extent practical.
ii. As the regulating outlets would be the primary route of discharge and fish passage, outlet modifications should be considered at all ROs to reduce TDG production and improve fish passage survival. Approaches such as spillway flip-lips and modification of RO outfalls to broaden the impact area of the discharge stream to reduce plunge depth and thereby reduce gas saturation should be considered.
iii. Reservoir residence time would be minimized, increasing survival to the dam and dam passage efficiency (non-turbine passage) would dramatically increase. Successful passage would primarily be dependent on performance of the ROs, which should be improved as necessary.
iv. This would substantially reduce the stored water available to augment downstream flows and limit flat-water recreation during the summer and fall.
v. Hydroelectric power generation would only occur when surcharges raised the reservoirs above the minimum power pool. Generation and dependable capacity of the system would decline.
vi. By not refilling the reservoirs, such measures would increase spring flows in both the affected tributaries and the mainstem Willamette River. Flows in the affected tributaries and the mainstem Willamette River would be less modified by project operations, returning the rivers to more normative conditions.
vii. Permanently lowering the pools would also increase available flood storage, thereby reducing downstream flood risk and increasing climate resilience.
viii. At Cougar Dam the regulating outlet channel would need to be redirected into the river channel upstream from the adult trap. Design and

construction would likely take at least five years, delaying potential implementation.

ix. These and other likely effects should be analyzed in detail.

x. The preferred alternative should adopt year-round minimum pool operations for at least one of these reservoirs for five years. Given the physical plant modifications necessary to provide year-round minimum pool operations at Cougar Dam, either Green Peter Dam, or Lookout Point Dam should be chosen as the test bed. Data collected during this operation would inform future decisions regarding operations and the need for new passage systems throughout the WVS.

b. **Improving fish passage survival at existing facilities.** Preliminary evidence from the interim operations has shown that fish are often injured passing through project regulating outlets and channels and going over spillways. Where DPE is high but injury rates are too high, efforts should be made to identify the causes of injury and remedial action taken. This could include measures from smoothing spillways and regulating outlet channels, to modifying RO mouths to spread the spill stream which would dissipate impact energy.

c. **Project modifications to reduce TDG production.** The high rate of TDG production at several WVS dams limits the range of operations that are safe for fish. The preferred alternative only considered modifications to reduce TDG at the Detroit/Big Cliff complex. As regulating outlets and spillways are the preferred routes for fish passage, **measures should be developed to reduce TDG production throughout the system, from reducing spill rates when possible, to modifying spillways and ROs to reduce TDG production.**

d. **Petition ODEQ for a waiver from the state standard for TDG.** The state standard for TDG is 110% of the saturation concentration. This standard is unobtainable during spill at WVS dams, particularly during floods and post-flood surcharge reduction operations. Further, efforts to meet this standard during spill operations for fish passage can limit the hours of operation, reducing effectiveness. For voluntary spill operations to facilitate fish passage the TDG limit should be increased to 120% of saturation. Such a waiver could be viewed as experimental and of a limited duration, say 5 years, to allow for monitoring and evaluation. There is precedent for such waivers (letter of January 13, 2020 from Richard Whitman, ODEQ Director, to Oregon Environmental Quality Commission; 85 FR 63834). Hopefully ODEQ and EPA would agree to expedite the process.

e. **Detroit and Big Cliff Dams.** Operating Detroit reservoir at a long-term low water surface elevation is unlikely to be feasible due to socio-economic concerns and the value of stored water. Hence, operational fish passage measures are limited to using the dam's regulating outlets and the spillway with limited changes to reservoir storage. Spring operation of the spillway has shown promise and is adopted in the preferred alternative. However, the approximate date when the Corps would open the Detroit Dam spillway in the spring and the hours of operation to provide fish passage are unclear. "Late spring" is indicated,

suggesting June. This is inadequate as it would increase reservoir residence time for earlier arrivals which begin arriving in February. **Continuous spill over the surface spillway should occur as soon as practical after the reservoir water surface elevation is 1.5 feet or more over the spillway crest (el 1541), which generally occurs in mid-April and continues spilling for the next 30 days.** In 2022, the highest number of juvenile salmon collected in the rotary screw trap situated downstream from Big Cliff Dam occurred during the last two weeks of April, immediately after the spillway had been opened. Large numbers likely also passed in early May, but the trap was not fished for much of this time due to high flows.

Spilling water over the spillway or through the ROs, the outfalls of which are situated in the spillway, produces high levels of TDG and efforts to meet the state standard downstream can limit the hours of operation of both for fish passage purposes. Further, high TDG concentrations in the Big Cliff forebay is likely more harmful to juvenile Chinook salmon and steelhead because residence time in the forebay lasts for days while exposure to harmful TDG concentrations downstream from Big Cliff would affect actively migrating juveniles for a few hours as high concentrations of TDG monitored immediately downstream from Big Cliff Dam have been shown to dissipate by the time the water reaches the Minto trap, about 4 miles downstream. **Hence, reducing juvenile exposure to adverse TDG conditions should include modification of Detroit Dam's spillway and regulating outlets to reduce TDG production.**

Specific Comments

My comments focus on the treatment of ongoing interim operations and on the preferred alternative. As stated above, I do not support adoption of the preferred alternative.

1. Section 2.2.6. Should be revised to state that adopted interim operations will continue until structural measures and associated operations **have been shown to provide at least as much benefit to the species as the interim operations**, at which point they should be employed when structural measures are out of service.
2. Table 2.2-11. Detroit/Big Cliff. Should include discretionary operations aimed at controlling the magnitude of spills. This measure proved beneficial but insufficient to avoid project-generated harmful concentrations of total dissolved gas (TDG) downstream. In testing conducted during 2021-22 this measure mostly maintained TDG below 120% while storage was available. In keeping with its flood risk management objective, the Corps should continue to use its discretion in an effort to limit the magnitude and duration of spills to limit the production of TDG in concentrations known to be harmful to fish (>120%). **This measure should continue until structural TDG abatement is in place and shown capable of limiting TDG production.**

By adopting Interim Risk Reduction Measures (IRRM) that limited available summer flood storage while maintaining the previous refill trajectory, the Corps has increased the risk of fill and spill at project dams. Fill and spill events at the Detroit/Big Cliff complex have caused toxic TDG conditions in the past. **See Addendum**

a. Appendix D, 2.2 TDG. This analysis is focused on the frequency that operations under each alternative would result in TDG concentrations of 110% or more, the current state standard. No discussion of fish effects, tolerances, seasonal changes in fish health risk, or operational measures to reduce those risks is presented. The duration analysis of project-caused TDG risk (Appendix D, Figure 2-38) would be improved by presenting monthly analyses as fish harms vary seasonally.

3. 2.2.3.1 Deeper Fall Reservoir Drawdown for Downstream Fish Passage (#40). The minimum duration of deep drawdowns should be 30 days for at least the first 5 years of operation and data collection. Changing the duration of deep drawdowns could be considered through the adaptive management program and that program should be revised to include NMFS and FWS in an advisory role. Notes of all such meetings should be taken and made available on a publicly accessible website.
4. Table 2.2.11. Lookout Point deep drawdown. The table states that the target drawdown elevation would be 750 ft, but Table 2.2-7 lists el 762 as the target. Please explain. As the analysis for this action specified 750 ft., that should be the draft target. Also, as this measure has not yet been implemented, detailed evaluation should be conducted over the first 5-years of operation prior to defining long-term operations.
5. Section 2.2.5 Suite of Near-term Operations. Page 2-39. The statement: "These operations are designed to improve fish passage and water quality until the structural measures under an alternative can be implemented," is insufficient. **The Corps should commit to continuing these interim measures until their performance is equaled or exceeded by new measures and NMFS and FWS agree with that assessment.** Similarly, if a measure isn't effective, or causes unacceptable adverse effects, the same decision process should be used to modify or discontinue it.
6. Section 2.2.6. The Corps should ensure that its contractors conform to EPA's menu of current best management practices (BMPs) to protect water and soil resources.
7. Section 2.2.6.1. Detroit Selective Withdrawal Tower. This is a good idea as the benefit to Chinook reproduction would extend downstream past Mehama. However, the proposed in-the-wet construction would be difficult and environmentally risky. Sediment and anaerobic water liberated during dredging could adversely affect downstream water quality during the construction period. Construction in the dry, using a coffer dam would be simpler and less environmentally risky but would require a narrower and lower reservoir operating range during construction. The Corps should reconsider the method of construction. Also, the design and operation should consider and work to limit juvenile attraction and entrainment, particularly during spring and summer when the spillway should be used as much as possible to pass fish and manage discharge temperatures.
8. Section 2.2.6.2 Foster Fish Ladder Temperature Improvement (#479). Available evidence shows that this measure would likely be effective. This measure should be implemented as soon as possible. The time-line for this action is not shown on the construction schedule for the preferred alternative Figure 5.4-1.

9. Section 2.2.6.6 Construct Structural Downstream Fish Passage (#392). This section assumes that FSCs or FSSs would provide safe and effective fish passage at WVS's high-head dams. Given the sizes of project reservoirs in relation to their inflows, reservoir residence time would likely remain very high (weeks to months). In general, the higher the juvenile residence time in the reservoirs, the lower their survival. Hence, prior to making the decision to build juvenile collectors, thorough evaluation of operational passage measures, including deep drawdowns, should be conducted. It will likely take another 5-7 years to develop sufficient data to make this determination. Where it is determined that operational measures are infeasible, or insufficient to support a viable salmonid population upstream, juvenile collection systems may be warranted. As handling stress reduces juvenile survival, systems to avoid or minimize handling, such as juvenile bypass systems, should also be considered.
10. Section 2.2. Response to Climate Change
    a. Very little is presented in regard to the Corps' program to improve the project's resilience in the face of climate change, though substantial gate and other structural improvements are underway improving the resilience of project dams.
    b. The Corps' reluctance to consider measures that would alter current Flood Risk Management limits the WVS's potential benefits during prolonged drought or other climate emergencies. As presented in Appendix F, climate-related risks are increasing. **See Addendum**.
11. Section 2.4.2.3 Maintain Revetments considering Nature-based Engineering or Alter revetments for Aquatic Ecosystem Restoration. This section is inadequate and incomplete. The Recovery Plan (ODFW, NMFS 2011) identifies the loss of floodplain connectivity and side channel habitat as limiting factors. Backwater and side-channels are prime juvenile salmon habitat. Floodplain and side channel connections are a focus of work being done under the auspices of the Oregon Watershed Enhancement Board (OWEB) and its Willamette Special Investment Partnership. Over half of the mainstem Willamette is cut off from its historical floodplain. Although Corps constructed and maintained revetments are only partly responsible for this lost habitat, absent a clear commitment to increase floodplain connectivity and side-channel habitat lost due to Corps-constructed and maintained revetments, the primary adverse effect of the program would remain unmitigated. **The Corps should either propose specific floodplain restoration projects, set specific floodplain/side-channel connection length goals within specified intervals, or commit to contributing funding to OWEB's SIP program throughout the life of its proposed action**. The Corps mentions the need to obtain local sponsors to cost-share ecosystem restoration projects as limiting its ability to mitigate revetment effects. Addressing Corps-caused adverse effects on species limiting factors is necessary and cannot be restricted by the actions of third parties. The Corps should place such projects or OWEB contributions in its annual budget submittals with or without local commitment.

Preferred Alternative

It is difficult to fully assess the preferred alternative because descriptions of the actions are scattered among the previous alternatives and its effects are analyzed in DPEIS Sections 3 and 5

and several appendices. Section 2.4 would be improved by providing a full list of measures included and then analyzed in Section 3.

12. Section 2.4.11. Alternative 5. Neither the referenced section 2.3.1.1 or section 2.3.1.2 exist.
13. Appendix A. Page A-21-22. Water management during the conservation season under the preferred alternative is unclear. The concept of managing operations to meet both downstream flow and temperature goals is laudable, perhaps workable, but it is unclear how it would be implemented. Does the Corps intend to provide weekly modeled flow, temperature, and reservoir storage alternatives to the WATER team to inform its decisions? What weight would the WATER team's recommendations have as compared to model-driven operations? To be clear, modeled outcomes of alternative operations are very valuable to conservation season water management, but cannot replicate the 'expert system' provided by the WATER team which should make flow management decisions.
    a. WUA is weighted usable area, not wetted usable area.
    b. Although the analyses presented are voluminous, it isn't clear why the 2008 BiOp targets as therein described are not desired. Does modeling show a substantial decrease in available summer storage to meet summer and fall tributary flows following the existing regime? Please explain.
14. Appendix A, Page A-22 "Where feasible and funding is available, monitoring activities will be recommended and implemented to assess the stated benefits and inform future flow management." This is inadequate. Spawning surveys downstream from project dams should be conducted annually, as part of a RM&E program, fully funded by the Corps.
15. Appendix A, Page A-26 2.1.2 Measure 30b. Refined Integrated Temperature and Habitat Flow Regime. Although the proposed mainstem Willamette River minimum flow regime (Measure 30b) for abundant water years is very similar to the flow regime prescribed in the 2008 BiOp, minimum flows would be substantially reduced during normal and low water years below those currently prescribed. Further, in April, April through August runoff predictions using the River Forecast Center's ESP model carry wide confidence bands, meaning confidence is fairly weak. In fact, the Corps itself makes this argument in its response to concerns raised over refill operations at Detroit this spring (2022). [3] As suggested in Appendix A, Section 2.1.2 it would be entirely possible to estimate a low water year in April, only to be clearly in an abundant water year by early June, as occurred in 2022. By mid-June, when runoff is well known, so is reservoir storage and available storage should guide operations. The Corps should work with the RFC to develop better 30 to 90-day streamflow and runoff predictions to improve project operations in the spring. Rather than establishing hard operating rules, it would be better for the WATER team to make decisions regarding reducing mainstem and tributary flow targets, considering the latest hydrologic data and predictions, storage data, and Res-Sim model outputs. A point not lost on the WATER team is that maintaining fish friendly mainstem flows in the spring may have consequences on the stored water available to meet summer and fall flow and temperature objectives.

[3] "Seasonal water supply forecasts carry substantial uncertainty as described below…. Therefore, by basing decisions on April conditions, one is still faced with extremely variable outcomes later in the year." Excerpted from: Federal Experts' Response to Plaintiffs' Proposed Additional Operational Changes for TDG Abatement below Big Cliff Dam, August 25, 2022

16. Appendix A. Table 2-2. Reducing tributary minimum flows during low-water, low-storage years, particularly during the summer, may be necessary to maintain sufficient water to meet Chinook salmon spawning flow needs in the fall and to avoid severe water temperature conditions. However, the proposal to substantially reduce tributary minimum flows when storage falls below 90% of the storage rule curve would result in very frequent reductions in minimum flows. Even in average water years, reservoir storage is often below 90% of the rule curve due to depletions to meet downstream needs, including minimum flows. Both the severity and the frequency of these minimum tributary flow reductions should be reduced, particularly during the spawning seasons for UW Chinook salmon (Sept – Oct) and steelhead (Mar – May). **Instream flow studies conducted by the Corps show that summer flow augmentation (July – August) does not provide a fish habitat benefit and could be reduced.**

17. Appendix A. Section 2.7.3.1 Scheduled/Routine Maintenance. The Corps should commit to revising each of the operations manuals listed in this section as needed to conform with final actions taken under the consultation within 18 months of ROD issuance. Similarly, following construction project completion and testing (e.g. Detroit temperature tower), operating manuals should be developed and project personnel trained in their operation.
18. Appendix A. Section 2.8.1 Overview 2021 Court Ordered Interim Injunction. This clear commitment to continue measures adopted under court order until replaced by measures adopted under the preferred alternative should occur in the body of the DPEIS, not just this Appendix. Also, the Corps should commit to continuing effective interim measures until new measures implemented under the proposed action have been shown to be at least as effective.
19. Appendix B Page B-62. "The downstream maximum rules are in effect year-round, but typically only govern the ResSim program decision making during a winter flood event. Smaller flood events may occur during the **spring refill season** or late in the drafting season as well and **need some regulation to manage.** …" Emphasis added.

    How does the Corps intend to manage spring and summer surcharge and high TDG risk? (See Addendum).

20. Section 3.8.1.6.1 "Passage for ESA-listed salmonids and steelhead at Detroit Dam/Big Cliff Dam Complex. Only adult hatchery origin UWR Chinook salmon are outplanted above Detroit Dam." Elsewhere, this section supports the Recovery Plan's (ODFW and NMFS 2011) a split-basin approach to managing the fishery, in which hatchery origin adults provide the bases for fisheries downstream from the dams where they may also spawn, while only wild fish would be transported upstream, preserving their genetic integrity. The current management scheme is at odds with the genetic isolation provided by the split-basin approach. This approach is also an affront to the idea of providing wild fish access to their natal streams as any unmarked progeny from upstream returning as an adult would be unclipped and therefore prevented from returning to its natal stream. Even if hatchery stock is frequently supplanted with infusions of wild fish, and there is not a measurable loss of fitness among hatchery origin spawners, measuring success, in terms of cohort replacement rate would be difficult.

    To be consistent with the Recovery Plan, all unclipped adult steelhead and Chinook salmon that arrive at Corps adult traps at Minto, Foster, Cougar and Dexter dams should be transported to sites upstream from their respective reservoirs.

Due to a limited number of individuals imprinted on upstream habitats, re-establishing self-sustaining (CRR ≥ 1) populations may require several generations as fish imprinted on downstream habitats placed upstream may leave without spawning, following their imprinting downstream.

Modifying fishery management would require developing a consensus among the Corps, ODFW, NMFS, and FWS. As such, the Corps should demonstrate its support for fishery management that comports with species Recovery Plans in this DPEIS.

21. Section 5.4.1 Implementation of the Preferred Alternative. Overall, implementation of the proposed fish passage and water quality improvement structures is too slow and the rationale for the priorities displayed in the schedule (Figure 5.4.1) unexplained.
    a. No timeline for construction of the permanent temperature matching system at the Foster trap is presented. As the need for this structure has been demonstrated, final design and construction should be expedited.
    b. Appendix N, Section 2.1. "While these (court-ordered) actions are tracked in this Implementation Plan, the structural injunction measure will undergo a separate NEPA process that will assess the direct, indirect, and cumulative impacts of their effects on the human environment." To expedite implementation of these measures, compliance with NEPA should be provided by way of Categorial Exclusions if possible, or brief EAs if not.
    c. Appendix N, Page N-52. The proposed performance metrics are inadequate and call into question the life-cycle modeling performed to evaluate effects. The Corps intends to measure dam passage survival (DPS) of only juveniles detected in the dam forebay (Figure 5-3). This measure of success would ignore fish losses that occur within the body of the reservoir. The Corps should adopt measures of DPS that measure survival from reservoir entry to the unimpounded river, including all of the reservoir and the downstream re-regulating pool and dam. Adult fish collection at the base of Green Peter Dam isn't currently needed. Adult fish needed to seed habitat upstream are being collected at the Foster trap and that could continue. Ongoing monitoring could determine if a new trap is needed within 5 years of ROD signing.
    d. Juvenile fish passage using existing dam facilities and modified operations is currently being implemented. Until the effectiveness of those measures is known, planning to develop juvenile collection systems (FSSs and FSCs) at Detroit, Cougar and Lookout Point dams at this time is premature. **Within 7 years of ROD issuance, and following at least 5 years of implementing aggressive operational measures, the Corps, in consultation with NMFS and FWS, should determine if operational measures are sufficient to support species recovery and, if needed, initiate design/construct projects to meet juvenile passage needs.**
22. Section 5.5 Adaptive Management Plan. This plan is incomplete. Both performance evaluation and the development of remedial action should engage the regulatory agencies (NMFS and FWS) and interested parties (e.g. municipalities). The Corps should commit

to periodic check-ins at predetermined intervals to track measure implementation and performance.

23. Appendix E. Life Cycle Modeling. Alternative 5, the preferred alternative, was not modeled. This was likely due to time constraints as the preferred alternative was developed late in the process. Given the overly high fish passage efficiency attributed to floating screen structures (FSS) and floating surface collectors (FSC), it is likely that life cycle modeling of Alternative 5 would provide similar results to that for Alternative 4, which presented a high species viability (VSP) scores. For reasons given below, these modeling results are unreliable.
24. Appendix E, Page E-47. "… it is important to recognize that the collectors discussed in the DPEIS and the BA have yet to be successfully implemented and there is considerable risk and uncertainty about the realized effectiveness of these structures." I agree. The referenced study by Koch et al. (2021) shows that FSCs have highly variable fish collection efficiencies (from head of reservoir), ranging from about 2% to over 90% at one project. This wide range of FCEs suggest that the life-cycle model used to compare the VSP scores should also carry very wide ranges of possible outcomes. Further, the majority of the structures investigated by Kock et al. (2019) were FSCs, rather than FSSs, which likely perform differently, thereby adding to model error.
25. Appendix E, Table 1-42. The FCE values presented are unlikely to be achieved and should not be used in life-cycle modeling. The referenced Kock et al. (2019) study presented FCE values for head of reservoir releases, forebay releases, and near collector entrance releases. This is clearly not a single population of data and it is unsurprising that the results of using Kock et al.'s regression equation to obtain FCE estimates for proposed FSSs are unrealistic. For example, the value given for steelhead in Table 1-42 is greater than 1, an impossibility. The value given for Chinook salmon is a negative value, which is also impossible. The Kock et al. study likely has value in sizing fish collectors, but the regression for FCE should not be used in life-cycle modeling.
26. Appendix E, Page E-411. "Alternatives that relied solely on operational passage, 3a and 3b, did poorly compared to the other alternatives. It is beyond the scope of this report to detail differences between structural and operational passage at high head dams; however, it appears much of the inefficiency inherent in operational passage (as expressed in the FBW) comes from periods of time when the reservoir elevations are not ideal for passage through regulating outlets or via spill." This statement assumes that operational passage would be constrained to follow existing reservoir storage rule curves. Year-round deep drawdowns were not considered. As described above, reservoir and dam passage survival would be greatly improved by deep, year-round drawdowns, which were not analyzed.
27. Appendix J. The flow duration analyses presented is not very useful in identifying and comparing the streamflow related fish habitat effects of the alternatives. Either fish-use seasonal evaluations, or monthly analyses would provide a better opportunity to evaluate fish habitat effects. Side-by-side comparisons would be more useful than displaying each alternative separately.

CONCLUSION

The DPEIS is inadequate.

- It fails to fully disclose the purpose of the action (e.g. storage reallocation).The range of operational measures considered was truncated by extensive reliance on existing operating criteria.
- Very little evidence was provided to demonstrate that operational measures to pass juvenile UW Chinook salmon and steelhead would be inadequate, largely because a limited range of operational measures were considered.
- The proposed duration of the action is too long. It focuses on measure implementation goals rather than fish passage success metrics. In doing so it fails to recognize the experimental/iterative nature of achieving successful fish passage at high head dams.
- The preferred alternative should be incremental, implementing actions, evaluating their effects, and revising or replacing the action as shown to be needed.
- The life-cycle model used to compare the likely success of those alternatives that were evaluated is unreliable. It assumes very high fish collection efficiencies for proposed floating screen structures that are unlikely to be achieved.
- It fails to focus on the Corps' obligation to further species recovery efforts.
- The preferred alternative's reliance on extensive structural measures (temperature towers, TDG abatement, floating screen structures and floating surface collectors) that would be very costly and require Congressional approval, makes it both expensive and uncertain to occur.
- Deep drafts, a less expensive and potentially highly effective juvenile passage measure, were not thoroughly investigated.

Sincerely,

Richard Domingue, Professional Hydrologist, NMFS ret.

Part II Addendum: Reservoir Refill, Spills and Climate Resilience Provided by Richard Domingue, Professional Hydrologist, NMFS ret.

The Corps has chosen not to consider actions that might modify operations in a manner that it considers could potentially affect its FRM actions. While it is reasonable for the Corps to reject actions likely to limit its ability to manage flood risk absent detailed investigation, hydrologic work presented in the DPEIS makes it clear that such changes could provide meaningful benefits (e.g. Appendix B, Table 7-2). Further, the changing climate shows that there are risks not considered when operations were originally devised.

There are beneficial operational measures the Corps could adopt now without any additional flood risk, such as delaying refill when appropriate. Others, such as extending the duration that surcharges (storage above the minimum conservation pool (rule curve)) is allowed to persist to improve the likelihood of refill in dry years, require additional study. Given the scope and scale of the analyses presented in support of the DPEIS, the Corps clearly has the expertise to conduct detailed flood risk assessments of alternative operations. These measures should be further evaluated for flood risk and adopted when appropriate.

Refill

Refilling the WVS's large storage reservoirs incurs two risks; low conservation season storage, and forced spills due to large freshets when the reservoir is full, termed: fill and spill. Both of these risks have implications for aquatic resources. In the event of low conservation season storage, downstream minimum flows could be reduced, and discharge temperature control made more difficult. In the event of filling and spilling, high to toxic levels to TDG may be generated.

The Corps refills its projects using fixed storage reservation diagrams or rule curves, designed decades ago to capture water under a range of conditions, recognizing that at times the reservoirs would not fill, and at other times, fill and spill.

Likelihood of refill/Conservation season storage Work presented in Appendix B on extending the duration that surcharges are allowed to persist during refill (February through May) from the current 7 – 10 days to 14 days demonstrates potential increases in conservation season storage. Extending the duration of surcharges also has the potential to reduce the magnitude of spills that cause high TDG production. The Corps has chosen not to conduct the detailed flood-risk analyses that would be needed to adopt this measure. Other approaches to increasing the likelihood of refill, such as an earlier start date during dry years, have also not been considered. In large measure, this is due to the difficulty of predicting spring runoff in the primarily rainfall driven Willamette Valley in January, when the action would have to occur. Accelerating refill beyond 14 days would require improvement in Willamette Valley runoff forecasting skill.

Fill and spill Spring flood events in the Willamette valley tend to be smaller and more localized than the large winter rain on snow events, but damaging events do occur (e.g April 2019 event downstream from Dorena Dam). Even smaller fill and spill events should be viewed as generally undesirable because such spills can be harmful to the fish and other biota downstream by generating toxic concentrations of TDG (e.g. May and June 2022 downstream from Big Cliff Dam). The following assessment focuses on operation of Detroit reservoir but should be reviewed for each of the large storage reservoirs operating under Interim Reservoir Risk Management limits.

Due to a set of increasingly restrictive storage limits set since the reservoir operations were established, the ability of the dams to attenuate spring freshets has been reduced. For example, the original operating plan set el 1569 as full pool at Detroit reservoir and allowed an additional 3 feet or about 11,000 acre-feet for summer flood control storage. By 2011 (Corps Scheduled Water Control Diagram), the full conservation pool had been reduced to el 1563.5 to be achieved on or after May 4 but allowed almost 30,000 acre-feet for summer flood control storage above the maximum conservation pool. This target "full-pool" elevation has since been reduced by an Interim Reservoir Risk Management (IRRM) limit of el 1558.5, a 17,500-acre-foot reduction in available storage. Yet, no change in refill trajectory has been implemented, nor apparently any reservoir flood storage space maintained available to attenuate spring freshets. This means the reservoir is both "full" several days earlier than would have previously been the case, and when full, no summer flood control volume is available to attenuate freshets. As the Corps is aware, refill following these rules resulted in about 3 days of high spill at the dams and toxic (>130%) TDG conditions in the North Santiam River downstream from Big Cliff Dam in early May 2022 during winter steelhead spawning. Toxic TDG concentrations during spawning are particularly harmful because spawning fish remain near their redds for days, increasing the duration of exposure and the likelihood of injury or mortality.

By accelerating refill without setting aside a live storage volume for summer flood control, the IRRM limits have increased the probability of spring and summer fill and spill operations at Detroit/Big Cliff. Such spills can generate harmful to toxic levels of TDG. **The Corps should either allow surcharge above the IRRM limit, if dam-safety permits, or delay refill until the risk of fill and spill has substantially declined to reduce downstream high TDG events. Such a refill delay decision would consider forecasted inflows (e.g. NOAA River Forecast Center's (RFC) 10-day forecast), prevailing climatic conditions, and probability of refill estimates. The existing WATER process as described on page 3-43 would seem well-suited to this task.**

Not all high TDG-generating events can be avoided, but thoughtful refill management could reduce their occurrence during steelhead spawning. To be clear, delaying refill to reduce the risk of fill and spill operations would not in any way increase flood risk, but would reduce it.

While I have only taken the time to review operating limit changes through time at Detroit reservoir, all projects operating under IRRM likely also have a somewhat increased probability of fill and spill operations due to the loss of available summer flood storage. But the issue is perhaps most acute at Detroit because refill is a high priority and the need to avoid fill and spill is high due to high TDG production and the presence of listed fish.

Climate Resilience

The lingering snowpack and atmospheric river events of May and June 2022 were unusual events when viewed through the lens of the historical record. However, over the past 43 years in North America, the frequency of unusual heat and precipitation events is increasing rapidly: "The yearly trends of the risk of a 100-y high-temperature event show an average 2.1-fold increase over the last 41 y of data across all months, with a 2.6-fold increase for the months of July through October. The risk of high rainfall extremes increases in December and January 1.4-fold, but declines by 22% for the spring and summer months (PNAS 2022).

Over the past 30 years (1986-2016), mean annual temperatures have increased by 1 to 2° F throughout the Pacific Northwest and precipitation in the Willamette Valley has increased by about 5% (Appendix F, Figures 3-2 and 3-3). Also, "… the Pacific Northwest has experienced a moderate increase in the precipitation falling during extreme events. This indicates that extreme events have been becoming increasingly intense over the past decades. The observed trends in heavy precipitation are supported by well-established physical relationships between temperature and humidity. These increases in annual and extreme precipitation depths and volumes have various implications for reservoirs, particularly those intended for flood risk management." Page F1-12.

The Corps' CHAT model and vulnerability assessment (VA)(Appendix F, Chapter 7) suggest possible higher runoff volumes and peak flows during the winter and spring with less change from current norms during the summer with prolonged drought as a vulnerability.

The VA also suggests physical plant modifications to allow a greater range of safe operation to increase WVS resiliency in the face of an uncertain hydrologic future. The Corps has undertaken gate improvements in recent years that have improved climate resilience. By increasing structural resilience such measures benefit all project purposes.

However, improving physical system performance is not the only mechanism available to increase WVS resilience in the face of climate risks. Increasing operational flexibility, using real-time and forecasted climate and hydrology data to inform operations, particularly during refill, would improve WVS response to changing hydrologic conditions at low cost.

The Corps should also seek to improve refill-season runoff forecasting to better manage refill for all project purposes. Operations evaluations should take place every 5-7 years throughout the 30-year life of the preferred alternative to incorporate new information, forecasting improvements, and lessons learned. It would benefit the WVS's climate resilience to adopt more flexible operations as forecasting skill allows.

Part III: Additional comments provided by NGOs

Purpose and Need; Objectives

The DPEIS details two components of the purpose and need:

1) Manage for the Congressionally authorized purposes;
2) Meet the requirements under the ESA.

The purpose and need statement also acknowledges the need to be responsive "to changes in WRB conditions and new information related to system operations and technology, the affected environment, policies, and regulations such as the ESA" (DPEIS, p. 2-1). We suggest that this statement be amended to include specific acknowledgement that authorized purposes may change during the time horizon of the plan.

The DPEIS should also acknowledge that ESA obligations supersede desires to balance or maximize achieving the other authorized purposes except in the case of meeting flood control objectives and maintaining human health and safety. As explicated in *Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al.,* court case No. 3:18-cv-00437-HZ, the Corps has the discretion to implement operations that benefit listed fish at the expense, but not complete elimination, of the other authorized purposes.

We recommend that the Corps better articulate the purpose and need by amending point two to read: "Meet the requirements under the ESA **to ensure the survival and recovery of ESA-listed species**" (suggested edits in bold).

Complementing the purpose and need statement are seven Objectives that, if met, the Corps believes will achieve the desired outcomes articulated in the Purpose and Need (DPEIS, pg ES-17). It is a combination of both the Purpose and Need and Objectives that "guided the development of a reasonable range of alternatives" (DPEIS, pg ES-17).

While this structure provides a framework from which to develop the range of alternatives, Objective 3–allow greater flexibility in hydropower production–inappropriately constrains the alternatives analyzed. We recommend that Objective 3 be amended as follows: "Allow greater flexibility **or potential elimination** of hydropower production" (suggested edits in bold).

We agree that at present the Army Corps must be "flexible"[4] in producing hydropower. Flexibility in hydropower production enables consideration of a host of alternatives that would otherwise be constrained, less effective, or incompatible with a continued focus on maximizing hydropower production on the system. However, the Corps should be analyzing alternatives that consider the elimination of hydropower altogether. Failing to do so eliminates potentially effective alternatives from consideration and may change the efficacy of some of the existing proposed alternatives.

[4] We take the meaning of "flexible" as the ability to change the amount and timing and hydropower produced at individual dams in order to accommodate operations that are beneficial for other authorized purposes and to meet ESA obligations and operations.

Additional measures/alternatives that should be included and analyzed in the DPEIS

While hydropower production was included as a purpose when Congress authorized the Willamette Valley System, production has had a major impact on past operations and contributed to the decline of threatened fish species. These impacts include diminishing the effectiveness of downstream fish passage and causing impacts to downstream flows and water quality.

Measures that should be considered in the analysis include but may not be limited to:

- Elimination of hydropower production: The Corps should assess operational measures that would be feasible if hydropower were eliminated at all projects or select projects. This should include:
    - Modification or removal of non-flood control dams: Dexter and Big Cliff are hydropower reregulation dams that do not serve any flood control purposes. As such, the Corps must produce and evaluate measures which include modification or removal of these dams to support the recovery of listed species. For example, measures that should be incorporated for consideration include operating these dams as run-of-the-river without hydropower operations or removing them completely.

    - Re-evaluate effectiveness of existing alternative downstream passage measures at Detroit, Hills Creek, and Lookout Point dams: Operating the reregulation dams as run-of-the-river without hydropower operations, or removing them completely, will enable the Corps to more fully evaluate operational changes to Lookout Point, Hills Creek and Detroit dams that are currently constrained by the presence and operation of the reregulation dams. For instance, establishing more effective volitional juvenile downstream passage (or passage without dams) at the reregulating dams may substantially improve the effectiveness of Detroit and Lookout Point volitional juvenile downstream passage alternatives analyzed in the DPEIS. Temperature impacts of a water temperature control tower at Hills Creek should also be re-evaluated in a scenario in which Dexter Dam has been removed and Lookout Point Dam is operated with longer drawdowns or run-of-river operations.

    - Additional volitional downstream passage operations: The Corps should evaluate measures to modify dams to allow run-of-river operations for most or all of the year (except when flood control storage is necessary), extended drawdowns, and measures evaluating passage opportunities through reconfiguring powerhouse routes from hydropower to non-hydropower producing outlets at all projects. Operational passage measures similar to those at Cougar dam should be evaluated at Hills Creek Dam.

Why the Corps must consider alternatives currently outside the agency's authority.

Recent Congressional Directives

Due to the high cost and uncertain success of downstream passage structures, Congress has indicated an interest in deauthorizing the hydropower production authority currently in place for

the WVS. In the Water Resources Development Act (WRDA) of 2020, Congress directed the Army Corps to evaluate elimination of hydropower at Cougar and Detroit Dams.

In the WRDA 2022 (Incorporated as Sec. 8220 of H.R.7776 - James M. Inhofe National Defense Authorization Act for Fiscal Year 2023), Congress directed the Army Corps to undertake a disposition study of hydropower production for the WVS. Many of the requirements for the study can be produced through the DPEIS process as directed by Sec. 8220(a)(2):

> (2) Contents.--In carrying out the disposition study under paragraph (1), the Secretary shall review the effects of deauthorizing hydropower on--
>
> (A) Willamette Valley hydropower project operations;
>
> (B) other authorized purposes of such project;
>
> (C) cost apportionments;
>
> (D) dam safety;
>
> (E) compliance with the requirements of the Endangered Species Act (16 U.S.C. 1531 et seq.); and
>
> (F) the operations of the remaining dams within the Willamette Valley hydropower project.

These legislative directives indicate a Congressional interest in pursuing hydropower deauthorization. As such, the DPEIS should consider new and existing alternatives through the lens of hydropower elimination at specific dams and across the WVS as a whole. By undertaking this work in the DPEIS, the Army Corps will be able to meet the Congressional timeline of completing the study by July 2024 (as opposed to the Corps' proposed completion of 2028).

Legal obligation to analyze a reasonable range of alternatives

To ensure informed, environmentally sound decision making, agencies should identify and analyze a reasonable range of alternatives, even if an alternative extends beyond the lead agency's authority. Under NEPA, agencies are to provide decision makers, as well as the public, with a reasonable range of alternatives, including those which are beyond the agency's jurisdiction, as this practice promotes informed decision making. If an alternative is readily identifiable, it is reasonable, and it must be explored and objectively evaluated. California v. Block, 690 F.2d 753, 766 (9th Cir. 1982). Courts apply a "rule of reason" to determine what is reasonable or feasible. Citizens Against Burlington v. Busey, 938 F.2d 190, 195-196 (D.C. Cir. 1991).This determination is made by reference to the purpose of the proposed action rather than the agency's statutory authority. Id. While an agency need not consider every possible alternative, it must consider alternatives that are consistent with basic policy objectives. Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 814 (9th Cir. 1999). A failure to analyze a reasonable alternative that encapsulates the policy objectives of the proposed action is counter to the objectives of NEPA.

Regulations have historically mandated that agencies consider alternatives regardless of the agency's statutory authority. 40 C.F.R. § 1502.14(c)(1977). An agency was not permitted to reject a reasonable alternative because it was "not within the jurisdiction of the lead agency." Nat'l Wildlife Federation v. Nat'l Marine Fisheries Service, 353 F.Supp.2d 1143, 1154 (W.D. Wash 2002). Courts have continually rejected Environmental Impact Statements, as well as agency arguments that state that alternatives could not be analyzed because they were beyond the statutory authority of the lead agency. Id. (Rejecting Corps' argument that they could not analyze other sediment control strategies because they did not have the authority to implement such a strategy); see also Natural Res. Def. Council v. Morton, 458 F.2d 827, 836 (D.C.Cir. 1972)(Recognizing that an alternative which requires legislative implementation must still be analyzed as an alternative to satisfy NEPA).

While the Trump administration took out the explicit language which mandated agencies to consider alternatives beyond their jurisdiction, the 2022 Final Regulations endorse that there will be scenarios where an alternative is both reasonable and beyond an agency's authority. See 87 Fed. Reg. 23453 ("There may be times when an agency identifies a reasonable range of alternatives that include alternatives…that go beyond the goals of the applicant or outside the agency's jurisdiction because the agency concludes that they are useful for the agency decision maker and the public to make an informed decision.") The spirit of NEPA is to promote sound decision making, and other NEPA regulations emphasize that sound analysis may go beyond one agency's jurisdiction or expertise. See e.g. 40 C.F.R. § 1508.1(e)(2022)("Cooperating agency means any Federal agency other than a lead that has jurisdiction by law or some special expertise with respect to any environmental impact involve in a proposal (or a reasonable alternative) for legislation or other major Federal action that may significantly affect the quality of the human environment"). Consequently, if an alternative is reasonable, it must be objectively analyzed in order to give effect to the environmental and decision making goals set forth in NEPA. 350 Montana v. Haaland, 50 F.4th 1254, 1265 (9th Cir. 2022).

ESA obligations in relation to other authorized purposes

The agencies must consider alternatives like extended drawdowns and year-round drafting of reservoirs that prioritize ESA-listed fish above other project purposes. The Ninth Circuit and U.S. District Court of Oregon have recognized the Corps' discretion to manage dams on the Columbia River for the benefit of threatened fish. *Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al.,* Case No. 3:18-cv-00437-HZ; *NWF v. NMFS*, 524 F.3d at 928-29; Nat'l *Wildlife Fed'n v Nat'l Marine Fisheries Serv.*, 2005 WL 1278878, at *9-10 (D. Or. May 26, 2005).

The Flood Control Acts authorizing these federal dams imposed broad goals but did not dictate how the Corps must fulfill those goals, giving the agency considerable discretion in choosing what specific actions to take. *See NWF v. NMFS*, 524 F.3d at 928-29. Moreover, subsequent to the Flood Control Act of 1950, the Fish and Wildlife Coordination Act and the Northwest Power Act specifically called for fish and wildlife conservation when managing the dams. *Id*. at 929 n. 8; *NWF vs NMFS*, 524 F.3d at 929.

Thus, these courts have ordered the Corps to conduct operations to benefit fish at the expense of other project purposes like hydropower and recreation. *NWF v. NMFS* , 2017 WL 1829588, at *6, Aff'd, 886 F.3d 803.

Other courts have recognized that Flood Control Acts impose broad goals, and the Corps has broad discretion when balancing the multiple uses of dams, requiring compliance with the ESA. These include: *Miccosukee Tribe of Indians of Florida v. U.S. Army Corps of Eng'rs*, 716F.3d 535, 541-45 (11th Cir. 2013); *In re: Operation of the Missouri River System Litigation*, 421 F3d 618, 625 (8th Cir. 2005); *Am. Rivers v. U.S. Corps of Eng'rs*, 271 F.Supp.2d 230, 252-53 (D.D.C. 2003).

The same reasoning applies here. The Willamette Valley System was authorized by Flood Control Acts—including the one that applied to the Columbia River dams—that impose broad goals and do not mandate specific dam operations. (*See* supra p. 4; Flood Control Act of 1950, Pub L. No. 81-516, § 204, 64 Stat. 163, 178-79 (1950)). Accordingly, the Corps has the discretion to alter the management of the Willamette dams to benefit ESA-listed species at the expense of other uses—including power production and recreation—just as it does with the Columbia dams. The ESA requires the Corps to exercise that discretion to benefit ESA-listed species, even if that requires prioritizing fish needs above other authorized purposes.

Even if the Corps lacked authority to conduct operations or make improvements to operations to protect ESA-listed fish, the Corps should seek authorization from Congress to do so. Indeed, the 2008 Biological Opinion RPA required the Corps to identify where the agency lacks the authority to accomplish the required measures and to seek Congressional authorization where necessary to complete the mandated actions (RPA 4.8 (Interim Downstream Fish Passage through Reservoirs and Dams); 4.12 (Long-term fish passage solutions); 5.1.3 (Complex Interim Water Quality Measures) 5.2 (Water Temperature Control Facilities and Operations) 5.3.4 (Protecting Water Quality during Emergency and Unusual Events or Conditions)).

Problems with fish collectors for juvenile downstream passage.

The Corps "preferred alternative" fails to acknowledge the region wide problems with fish collectors for downstream passage including:

Low confidence in potential success of juvenile fish collection facilities

The parameterization and results in the Fish Benefit Workbook (Appendix E) for fish collection facilities relies on very limited data gathered from the handful of collectors in operation (as provided in Kock et al. 2019). As a result, we have low confidence in the accuracy of the results that suggest fish collection facilities will have a high rate of dam passage efficiency for both spring Chinook and winter steelhead. It is unclear if and how the Army Corps accounted for additional available information and science in assessing the potential success of Measure #392 (Construct Structural Downstream Fish Passage), particularly in relation to the use of fish collection facilities (described as Floating Screen Structures or Floating Surface Collectors in the DPEIS).

In *Synthesis of Downstream Fish Passage Information at Projects Owned by the U.S. Army Corps of Engineers in the Willamette River Basin, Oregon*, the authors note of a trial fish

collector operated at Cougar Reservoir in 2014 and 2015, "Collection of juvenile Chinook salmon through the PFFC was evaluated during 2 years and was very low" (0.2% in 2014 and 1% in 2015) (Hansen et. al. 2017, pg.62) and "was determined to be ineffective" (Hansen et. al. 2017, pg.66). The Corps needs to disclose why the Fish Benefit Workbook results for a fish collection facility at Cougar modeled a significantly higher rate of success than was originally observed through testing of the PFFC and why the results of the trial were not incorporated into DPEIS analysis.

A study published in January 2019 by Kock et. al. (used in the DPEIS to craft a model of passage efficiency for fish collectors at WVS projects) assessed fish collectors in forebays of high-head dams. The authors concluded: "Collection efficiency of these facilities has ranged from nearly 0% to 100%, suggesting the need for a better understanding of factors affecting performance in these complex environments if they are to be designed and deployed at new sites." The sites that performed better were run-of-river projects with small reservoirs, high collector inflow, and small forebays, which is not the case at Detroit and Lookout Point reservoirs where non-volitional fish collection facilities are proposed as part of the preferred alternative.

At public meetings in the spring of 2019 for the Detroit Dam & Lake Downstream Passage Project, Army Corps staff indicated that they utilized lessons learned at other projects, like that of Pelton Round Butte (PRB) on the Deschutes River just one basin to the east, to inform the design and operations of the downstream fish collection facility passage project for Detroit. PRB, operated by the private utility company Portland General Electric, includes a water temperature control tower and associated fish collection facility (similar to what's proposed in the preferred alternative at Detroit Dam).

However, the DPEIS fails to provide any references to the reintroduction and recovery efforts at the PRB project. Such information may be useful in determining the potential efficacy of the proposed action in meeting recovery goals in the North Santiam and Middle Fork Willamette rivers. For instance, after more than ten years of operation, juvenile collection efficiency for spring Chinook salmon and summer steelhead remains far below the goal of 75%. Adult returns have been dismal. In 2018, only five adult spring Chinook salmon that had migrated downstream through the fish collection facility as juveniles returned as adults to the Pelton Trap. Even in the best collection year, spring Chinook returns to the Pelton Trap barely surpass 50 fish.[5] A large body of research has been conducted around the PRB reintroduction program with results showing that flows, flow timing, hatchery practices, smolt acclimation, water quality, and a number of other factors impact reintroduction outcomes. We encourage the Corps to review this information, reach out to PGE, ODFW, and Confederated Tribes of Warm Springs Indians, and incorporate the knowledge gained and lessons learned into the modeling and analysis for structural downstream passage measures.

Perhaps even more relevant are the results and data from the fish collection facility and operations at Swift Dam on the North Fork Lewis River. This program, operated by PacifiCorp,

[5] 2014-Present Deschutes River daily adult fish count at the Pelton Trap data can be accessed at: https://www.portlandgeneral.com/corporate-responsibility/environmental-stewardship/water-quality-habitat-protection/fish-counts-fish-runs/deschutes-daily-fish-counts

has a number of similarities to the Willamette Valley System including the fact that the collection facility must be able to operate at a wide range of pool elevations.

Collection efficiency data presented in Kock et al. 2019 show extremely low rates of .112 and .016 for steelhead and chinook respectively. Modifications at Swift have continued to be made, and the Army Corps should reach out to fish passage managers at PacifiCorp to obtain and review the body of literature and data that has been collected.

Delayed mortality, transport, and juvenile stress relief/acclimatization

Delayed mortality does not appear to be considered in the Army Corps' analysis and should be factored in. Like many of the factors contributing to the overall success of non-volitional collection facilities, delayed mortality has been studied at a limited number of similar locations. Other projects like those at PRB and Swift have built or upgraded juvenile acclimation facilities where collected fish are given time to recover after transport but before release into downstream waters. However, limited data exist on delayed mortality post-release. It is unclear whether such facilities are being considered for the passage projects at Detroit and Lookout Point Dams and how the presence, absence, use, and design of such structures may impact overall passage mortality.

Predation

How does the Army Corps' analysis account for aquatic and terrestrial predation in reservoirs before fish are collected and at downstream release sites? Fish collection facilities around the region have experienced negative impacts to collection rates from predation. For instance, at both the PRB and Swift downstream collection facilities, juvenile fish tend to congregate and mill about the area in front of the collection entrance. As a result, bull trout and other piscivorous fish have been observed congregating around the collector entrance while piscivorous birds have similarly congregated on nearby floats and booms, increasing predation on juvenile fish in the reservoir. Predation at downstream release sites has also been a common problem observed in other trap and haul systems.

Reservoir thermal stratification

Because of the large volume of water maintained in most reservoirs of the WVS in the summer, thermal stratification is common. When surface temperatures become warmer, juvenile fish are likely to move down in the water column as they attempt to find cooler temperatures. Because of this, juvenile fish may be less likely to be attracted to surface collection devices, delaying migration (Kock et al. 2020).

The DPEIS fails to incorporate a robust adaptive management strategy

The DPEIS explains the concept of adaptive management, including the need for key aspects to be well defined including: monitoring, decision criteria, performance metrics, targets, evaluation, and decision triggers. The DPEIS and associated Appendix N: Implementation and Adaptive Management Plan, outline how these key components of adaptive management will be formulated to inform refinement and change of individual proposed measures. However, we encourage the Corps to ensure that targets are well defined and associated with specific

timeframes. For example, for Detroit near-term operations performance targets (DPEIS Appendix N, pg. N-48), key indicators of fish passage success use a general target of "Increase in the number of juveniles passing" and "Increase in the distribution of fish lengths passing downstream." The Corps should outline what degree of increase and over what time period will be adequate to consider the measure a success. Otherwise, any amount of increase could be considered a success, but may not support species recovery or avoid continued jeopardy.

The Corps should also outline what metrics will be used to evaluate whether the plan as a whole is adequately contributing to the conservation and recovery of the species at the Evolutionarily Significant Unit (ESU) and Distinct Population Segment (DPS) level for UWR Chinook salmon and winter steelhead respectively. Without a population-wide perspective, the Corps will not know if the sum of the individual management measures is having the intended effect of preventing jeopardy to the species or contributing to the overall recovery of ESA-listed populations.

The adaptive management timeline via the WATER team process calls for adaptive management recommendations to be at least two fiscal years in the future. Given the dynamic nature of water management, the adaptive management plan should be flexible enough to enable operational adjustments depending on seasonal environmental conditions and forecasts. The plan should outline a process to make real-time decisions on trade-offs between water conditions, flows, and fish passage.

Adaptive management success will also depend on having adequate monitoring and data collection. The DPEIS and associated Appendix N indicate that "Study designs and methodology to assess the defined metrics will be determined during implementation so that the best available scientific approach and methods can be applied." At present, many of the interim downstream passage injunctive measures (many of which are proposed to continue as near term measures under the plan), are being monitored via screw trap collection of juvenile fish. We encourage the Corps to include the use of more descriptive data collection measures via tagging and tag arrays in tributaries and at Willamette Falls. RM&E plans should be developed now so that monitoring can be deployed immediately upon plan execution. Monitoring should also include more robust data collection of adult fish returns, distribution, pre-spawn mortality, and spawning.

Implementation timelines need to be accelerated

The Corps proposed timeline for key operational measures puts salmon and steelhead at increasing risk of extinction. The Corps needs to accelerate timelines for implementation of key measures.

As we stated in our scoping comments, the Corps is so far behind schedule on meeting multiple actions outlined in the 2008 BiOp's RPA that UWR Chinook salmon and steelhead are in jeopardy of extinction. This was affirmed by the U.S. District Court in *Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al.,* Court case No. 3:18-cv-00437-HZ when the court found that "Far short of moving towards recovery, the Corps is pushing the UWR Chinook and steelhead even closer to the brink of extinction. The record demonstrates that the listed salmonids are in a more precarious condition today than they were at the time NMFS issued the 2008 BiOp."

The Corps' failure to substantively address fish passage and water quality needs has directly contributed to the decline of the species. As such, the Corps needs to pursue even more aggressive measures and timelines to turn the tide and help begin species recovery. The Corps does not have a thirty year time horizon to fully implement the measures that the agency hopes will stop jeopardizing listed species.

The Corps cannot make implementation of measures, especially key measures like downstream passage, contingent on funding. The ESA obligates the Corps to stop jeopardizing the species; it's the Corps' responsibility to appropriately manage their budget and make adequate appropriations requests to meet these obligations. Outlining a "best case" timeline in the DPEIS is not adequate or acceptable.

In addition, the Corps has received directives from Congress regarding delivering the hydropower disposition study by July 2024. The Corps does not have the authority to make its own timeline for completion and delivery of this study which is currently listed in the DPEIS timeline for 2028, four years after the Congressional deadline mandated in WRDA 2022.

We strongly encourage the Corps to accelerate timelines for the hydropower disposition study as well as Cougar Diversion Tunnel Construction. The diversion tunnel project is currently outlined for completion in 2040. It includes nearly 5.5 years for engineering and design before construction is predicted to commence. We urge the Corps to begin this project immediately upon the start of the planning horizon. Further, the Corps should take actions to accelerate planning, design, and construction timelines for Cougar RO modifications, Cougar Diversion Tunnel Construction, the Detroit Selective Water Withdrawal Structure, Big Cliff TDG Abatement, and the Foster Downstream Fish Passage Structure projects.

The plan should also include contingencies for accelerating completion of the above listed projects if monitoring indicates populations become at greater risk for extinction or local extirpation or if project implementation timelines are not being rigorously met and adhered to.

References

The following references should be considered by the Corps in their evaluation. Copies have been submitted for review.

General

Al-Chokhachy, R., Clark, C.L., Sorel, M.H., and Beauchamp, D.A., 2018. Development of new information to inform fish passage decisions at the Yale and Merwin hydro projects on the Lewis River, Washington—Final report, 2018: U.S. Geological Survey Open-File Report 2018–1190, 206 p., https://doi.org/10.3133/ofr20181190.

Beeman, J.B., Evans, S.D., Haner, P.V., Hansel, H.C., Hansen, A.C., Hansen, G.S., Hatton, T.W., Kofoot, E.E., and Sprando, J.M., 2016. Evaluation of the biological and hydraulic performance of the portable floating fish collector at Cougar Reservoir and Dam, Oregon, September 2015–January 2016: U.S. Geological Survey OpenFile Report 2016–1197, 98 p., https://doi.org/10.3133/ofr20161197.

Beeman, J.W., Evans, S.D., Haner, P.V., Hansel, H.C., Hansen, A.C., Hansen, G.S., Hatton, T.W., Sprando, J.M., Smith, C.D., and Adams, N.S., 2016. Evaluation of the biological and hydraulic performance of the portable floating fish collector at Cougar Reservoir and Dam, Oregon, 2014: U.S. Geological Survey Open-File Report 2016-1003, 127 p., http://dx.doi.org/ 10.3133/ofr20161003.

Beechie, T.J., Fogel, C., Nicol, C., Jorgensen, J., Timpane Padgham, B. and Kiffney, P., 2023. How does habitat restoration influence resilience of salmon populations to climate change?. *Ecosphere*, *14*(2), p.e4402.

Billman, E.J., Whitman, L.D., Schroeder, R.K., Sharpe, C.S., Noakes, D.L. and Schreck, C.B., 2014. Body morphology differs in wild juvenile Chinook salmon Oncorhynchus tshawytscha that express different migratory phenotypes in the Willamette River, Oregon, USA. *Journal of Fish Biology*, *85*(4), pp.1097-1110.

Burkholder, B.K., Grant, G.E., Haggerty, R., Khangaonkar, T. and Wampler, P.J., 2008. Influence of hyporheic flow and geomorphology on temperature of a large, gravel bed river, Clackamas River, Oregon, USA. *Hydrological Processes: An International Journal*, *22*(7), pp.941-953.

Chiaramonte, L.V., 2013. Climate warming effects on the life cycle of the parasite *Ceratomyxa shasta* in salmon of the Pacific Northwest. MS thesis, Oregon State University, Corvallis.

Cogliati, K.M., Unrein, J.R., Stewart, H.A., Schreck, C.B. and Noakes, D.L., 2018. Egg size and emergence timing af+fect morphology and behavior in juvenile Chinook Salmon, Oncorhynchus tshawytscha. *Ecology and Evolution*, *8*(1), pp.778-789.

Cordoleani, F., Phillis, C.C., Sturrock, A.M., FitzGerald, A.M., Malkassian, A., Whitman, G.E., Weber, P.K. and Johnson, R.C., 2021. Threatened salmon rely on a rare life history strategy in a warming landscape. *Nature Climate Change*, *11*(11), pp.982-988.

Crozier LG, McClure MM, Beechie T, Bograd SJ, Boughton DA, et al. 2019. Climate vulnerability assessment for Pacific salmon and steelhead in the California Current Large Marine Ecosystem. PLOS ONE 14(7): e0217711. https://doi.org/10.1371/journal.pone.0217711

Crozier, L.G., Burke, B.J., Chasco, B.E., Widener, D.L. and Zabel, R.W., 2021. Climate change threatens Chinook salmon throughout their life cycle. *Communications Biology*, *4*(1), p.222.

DeWeber, J.T. and Peterson, J.T., 2020. Comparing environmental flow implementation options with structured decision making: case study from the Willamette River, Oregon. *JAWRA Journal of the American Water Resources Association*, *56*(4), pp.599-614.

FitzGerald, A.M., John, S.N., Apgar, T.M., Mantua, N.J. and Martin, B.T., 2021. Quantifying thermal exposure for migratory riverine species: phenology of Chinook salmon populations predicts thermal stress. *Global Change Biology*, *27*(3), pp.536-549.

Gombert, C., Lancaster, S., Flitcroft, R. and Grant, G.E., 2022. Processes Controlling Thermal Regimes of Secondary Channel Features in a Large, Gravel-bed River, Willamette River, Oregon, USA. *Authorea Preprints*. (https://www.authorea.com/doi/full/10.1002/essoar.10505183.1)

Hansen, A.C., Kock, T.J., and Hansen, G.S., 2017. Synthesis of downstream fish passage information at projects owned by the U.S. Army Corps of Engineers in the Willamette River Basin, Oregon: U.S. Geological Survey Open File Report 2017-1101, 118 p., https://doi.org/10.3133/ofr20171101.

Kock, T.J., Beeman, J.W., Hansen, A.C., Hansel, H.C., Hansen, G.S., Hatton, T.W., Kofoot, E.E., Sholtis, M.D., and Sprando, J.M., 2015. Behavior, passage, and downstream migration of juvenile Chinook salmon from Detroit Reservoir to Portland, Oregon, 2014–15: U.S. Geological Survey Open-File Report 2015-1220, 30 p., http://dx.doi.org/10.3133/ofr20151220.

Kock, T.J., Verretto, N.E., Ackerman, N.K., Perry, R.W., Beeman, J.W., Garello, M.C. and Fielding, S.D., 2019. Assessment of operational and structural factors influencing performance of fish collectors in forebays of high head dams. *Transactions of the American Fisheries Society*, *148*(2), pp.464-479.

Kock, T.J., Ferguson, J.W., Keefer, M.L. et al., 2021. Review of trap-and-haul for managing Pacific salmonids (Oncorhynchus spp.) in impounded river systems. Rev Fish Biol Fisheries 31, 53–94. https://doi.org/10.1007/s11160-020-09627-7

Kuby, M.J., Fagan, W.F., ReVelle, C.S. and Graf, W.L., 2005. A multiobjective optimization model for dam removal: an example trading off salmon passage with hydropower and water storage in the Willamette basin. *Advances in Water Resources*, *28*(8), pp.845-855.

Kuehne, L.M., Olden, J.D. and Duda, J.J., 2012. Costs of living for juvenile Chinook salmon (Oncorhynchus tshawytscha) in an increasingly warming and invaded world. *Canadian Journal of Fisheries and Aquatic Sciences*, *69*(10), pp.1621-1630.

Lusardi, R.A. & Moyle, P.B., 2017. Two-Way Trap and Haul as a Conservation Strategy for Anadromous Salmonids, Fisheries, 42:9, 478-487, DOI: 10.1080/03632415.2017.1356124

Magnuson, J.T., Fuller, N., McGruer, V., Hartz, K.E.H., Acuña, S., Whitledge, G.W., Lydy, M.J. and Schlenk, D., 2023. Effect of temperature and dietary pesticide exposure on neuroendocrine and olfactory responses in juvenile Chinook salmon (Oncorhynchus tshawytscha). *Environmental Pollution*, *318*, p.120938.

McInturf, A.G., Zillig, K.W., Cook, K., Fukumoto, J., Jones, A., Patterson, E., Cocherell, D.E., Michel, C.J., Caillaud, D. and Fangue, N.A., 2022. In hot water? Assessing the link between fundamental thermal physiology and predation of juvenile Chinook salmon. *Ecosphere*, *13*(11), p.e4264.

Myers, J., Busack, C., Rawding, D. and Marshall, A., 2003. *Historical population structure of Willamette and lower Columbia River basin Pacific salmonids*. US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northwest Fisheries Science Center.

ODFW and NMFS. 2011. Upper Willametter River Conservation and Recovery Plan for Chinook salmon and steelhead. Prepared byOregon Department of Fish and Wildlife (ODFW) and the National Marine Fisheries Service (NMFS) Northwest Region, August 5, 2011

Pelton Round Butte Fish Committee, 2022. Reintroduction Road Map. Portland General Electric. https://prbfishcommittee.com/prbfc-roadmap/

Peterson, J.T., Pease, J.E., Whitman, L., White, J., Stratton Garvin, L., Rounds, S. and Wallick, R., 2022. Integrated tools for identifying optimal flow regimes and evaluating alternative minimum flows for recovering at risk salmonids in a highly managed system. *River Research and Applications*, *38*(2), pp.293-308.

Poff, N.L. and Zimmerman, J.K., 2010. Ecological responses to altered flow regimes: a literature review to inform the science and management of environmental flows. *Freshwater Biology*, *55*(1), pp.194-205.

Schroeder, R.K., Whitman, L.D., Cannon, B. and Olmsted, P., 2016. Juvenile life-history diversity and population stability of spring Chinook salmon in the Willamette River basin, Oregon. *Canadian Journal of Fisheries and Aquatic Sciences*, *73*(6), pp.921-934.

Shenoya, S., Gorinevsky, D., Trenberth, K., and Chua, S., PNAS 2022. Trends of extreme US weather events in the changing climate. PNAS 2022, Vol.119, No.47

Singh, H.V., Faulkner, B.R., Keeley, A.A., Freudenthal, J. and Forshay, K.J., 2018. Floodplain restoration increases hyporheic flow in the Yakima River Watershed, Washington. *Ecological Engineering*, *116*, pp.110-120.

Steel, Z.L., Wilkerson, M., Grof-Tisza, P. and Sulzner, K., 2011. Assessing species and area vulnerability to climate change for the Oregon Conservation Strategy: Willamette Valley

Ecoregion. *Conservation Management Program, University of California, Davis, Davis, California*.

Talke, S.A., Jay, D.A. and Diefenderfer, H.L., 2022. Warming of the Willamette River, 1850–present: the effects of climate change and direct human interventions. *EGUsphere*, pp.1-40.

Unrein, J.R., Billman, E.J., Cogliati, K.M., Chitwood, R., Noakes, D.L. and Schreck, C.B., 2018. Vertical self-sorting behavior in juvenile Chinook salmon (Oncorhynchus tshawytscha): evidence for family differences and variation in growth and morphology. *Environmental Biology of Fishes*, *101*, pp.341-353.

Documents related to: Northwest Environmental Defense Center, WildEarth Guardians, & Native Fish Society v. United States Army Corps of Engineers and National Marine Fisheries Service. Case No. 3:18-cv-00437-HZ

Opinion & Order (Injunctive Relief) - 2021

Willamette Project Interim Injunction Measures - Research, Monitoring, and Evaluation Plan

Summary Judgement - 2020

Plaintiffs' Opening Brief on Remedy

Third Declaration of Richard A. Domingue In Support of Plaintiffs' Request for Permanent Injunctive Relief

Fourth Declaration of Kirk Schroeder in Support of Plaintiffs' Motion for Permanent Injunctive Relief

Brief of Amicus Curiae State of Oregon in Support of Plaintiffs' Proposed Remedies

Amicus Curiae State of Oregon - Declaration of Dr. Elise Kelley

Amicus Curiae State of Oregon - Declaration of Jeffrey S. Ziller

Motion for Summary Judgement and Memorandum in Support

Third Declaration of Kirk Schroeder In Support of Plaintiffs' Motion for Summary Judgment

Declaration of John K. Johnson In Support of Plaintiffs' Motion for Summary Judgment

Second Declaration of Richard A. Domingue In Support of Plaintiffs' Motion for Summary Judgment

Motion for Preliminary Injunction and Memorandum in Support

Declaration of Kirk Schroeder In Support of Plaintiffs' Motion for Preliminary Injunction

Declaration of Richard A. Domingue In Support of Plaintiffs' Motion for Preliminary Injunction

Declaration of John K. Johnson In Support of Plaintiffs' Motion for Preliminary Injunction

From:	WHITE Susan
To:	CENWP-PME-Williamette-Valley-System-EIS; CENWP-PME-Williamette-Valley-System-EIS
Cc:	BROUWER Travis; LYNDE McGregor * Mac; RAASCH John
Subject:	[Non-DoD Source] Willamette Valley System Draft Programmatic EIS - comments submitted by ODOT (February 23, 2023)
Date:	Thursday, February 23, 2023 4:01:24 PM

The Oregon Department of Transportation (ODOT) previously provided comments (dated 6/28/2019) to USACE during the NEPA public scoping period for the EIS. In addition to the scoping comments, ODOT is providing additional comments for the draft EIS phase of the subject proposed action, as follows:

For any state highways, including interstates and other highways on the National Highway System, that are located near WVS dams and flood control devices, reservoirs, and hatcheries, ODOT should be coordinated with in order to avoid any adverse impact from both permanent impacts as well as construction-related temporary impacts from the WVS Proposed Action and the Selected Alternative on those inter- and intra-state highways and to the traveling public.

Specifically, if through coordination with ODOT it is anticipated that any part of the WVS Proposed Action and the Selected Alternative would create traffic impacts, a traffic impact study (TIS), and potential cooperative agreements with required mitigation, may be warranted. The traffic impact study and any resultant cooperative improvement agreement or plan related to traffic impacts and required mitigation, and any access needed on or adjacent to ODOT highway rights-of-way, may require review and approval by ODOT. In addition, various permits may be needed to accommodate any oversized vehicles needed to implement the WVS Proposed Action and the Selected Alternative during construction or any installment and associated hauling and storage of equipment needed for the project (both temporarily and permanently). The link to ODOT's Permitting Page is here: https://www.oregon.gov/ODOT/Maintenance/Pages/index.aspx

In addition, any changes to existing dams or reservoirs or their associated operations, riverbank protection projects, or fish hatchery programs that may cause impacts to regular state highway operations and maintenance activities other than traffic impacts (i.e., changes or new measures that could cause increased potential for flooding on state highways, change access to or otherwise encroach upon state highway rights-of-way, require USACE owned access road changes, etc.) should be coordinated with ODOT in order to allow state highways to continue to operate safely and efficiently without adverse impacts.

Following is an initial list of primary ODOT contacts for pre-activity (i.e., dam deep drawdowns, etc.) administrative or planning and implementation coordination purposes:

- **Jim Gamble** – District 5 Maintenance Manager
  James.GAMBLE@ODOT.oregon.gov
  541-726-2541
- **Brian Cook** – Region 2 Geotechnical Engineer
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-

Tony Robinson – Region 2 Senior Geotechnical Engineer
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- **Mike Tardif** – Region 2 Senior Engineering Geologist
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- **Nicole Frankl** –State Utility and Rail Liaison
  Nicole.FRANKL@ODOT.oregon.gov
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- **Susan Ortiz** –State Geotechnical Engineer
  Susan.C.ORTIZ@ODOT.oregon.gov
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- **Curran Mohney** – State Engineering Geology Program Lead
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As USACE planning and coordination with the above ODOT contacts continues throughout 2023 in preparation for dam drawdown and other activities described in the proposed action and preferred alternative, other key ODOT contacts will likely be added. Further, the following is a tentative list of potential next steps for USACE and ODOT coordination:

- Discuss and develop a regular coordination meeting schedule with USACE and ODOT
- Discuss and develop technical support reimbursement
- Discuss and develop highway *repair/maintenance cost agreement(s) and mitigation plan(s)

*Any damages to Oregon state highways may be reimbursable through the appropriate agency claim process.

Thank you for the opportunity to comment during the draft EIS phase. If you have any questions, please contact me.

Susan

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REC Team Lead

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February 23, 2023

Re: Draft Programmatic Environmental Impact Statement – Willamette Valley System Operations and Maintenance.

On behalf of the undersigned organizations, we are submitting these comments and request for updated information in the Programmatic Environmental Impact Statement (PEIS) for the continued operation and maintenance of the Willamette Valley System (WVS). Our scoping comments, which focus on the ecosystem impacts of depleted Willamette watershed salmon stocks to the endangered Southern Resident killer whale (orca) Distinct Population Segment (DPS) are incorporated by reference and attached with these comments.

In general, we appreciate that the U.S. Army Corps of Engineers (USACE) included the Southern Resident orcas in this draft PEIS, and recognized the broad ecosystem impacts that the WVS has by impeding wild salmon survival. However, the information included about the orcas and their dependence on salmon is narrowly focused on fishery management, which is just one part of the suite of challenges facing both species and is not directly related to the operations and maintenance of the WVS. Therefore, we will reiterate the ask in our scoping comments for the USACE to include comprehensive information about the Southern Resident orcas' connection to salmon, particularly spring Chinook, and how operations *in the WVS* impact Willamette spring Chinook and the Southern Resident DPS.

Additionally, the PEIS should consider a broader range of measures in the Alternatives, including those that would require Congressional deauthorization of hydropower. The USACE should assess the removal or modification of non-flood-control dams (Big Cliff and Dexter) and improved downstream passage measures at Detroit Dam, Hills Creek Dam, and Lookout Point Dam in the context of removal; improvements to fish passage at existing facilities; earlier spill at Detroit Dam for downstream passage; modifications to dam operations to improve habitat conditions below the dams; and an expedited timeline to achieve a timely completion of changes. The Alternatives presented in the Draft PEIS, including the Preferred Alternative, are inadequate to meet the USACE's statutory obligations under the Endangered Species Act (ESA) to ensure that operations and maintenance of the WVS do not jeopardize listed species.

The inclusion of Southern Resident orcas only in connection to federally managed ocean salmon fishing is inadequate for an appropriate analysis and to understand how the WVS impacts prey availability for the orcas. While fisheries management is an important contributor to the abundance and availability of salmon in the ocean, these actions are outside the scope of WVS operations and this draft PEIS. The short section on Southern Resident orcas recognizes that "UWR Chinook are important to the SRKW due to the timing of their return to the mouth of the Columbia and energetic need for SRKW in that time period…. measures that improve production of the salmon stock in freshwater areas can have a potentially large effect on the strength of the return, and thereby would be expected to accrue larger

benefits to SRKW."[1] We fully agree with this statement and urge the USACE to expand its analysis on how improvements for salmon in freshwater areas would benefit the Southern Residents. We refer again to our scoping comments for more information on the importance of Chinook salmon, including UWR Chinook, to the Southern Resident orcas.

The draft PEIS should focus on the environmental consequences and ecosystem effects of the Alternatives on prey quantity ***and quality*** for the Southern Residents. A narrow focus on salmon fisheries management by the Pacific Fishery Management Council (PFMC) does not reflect the impacts from actions in the WVS. **We request the USACE modify the section on Southern Resident orcas to appropriately reflect the effects of upstream actions taken in the Willamette watershed.**

To achieve that change, we recommend the following changes and inclusion of new information:

1) Separate "fishery management and killer whales" in the draft PEIS. The very title of the section (4.1.2.3.6) suggests that fishery management is the only salmon-related action that impacts orcas, and the rest of the text focuses primarily on recent actions by the PFMC to improve prey availability for Southern Resident orcas. While fishery management changes provide short-term impacts to prey availability, improving salmon survival and abundance is a long-term strategy to improve the future quantity and quality of salmon for the Southern Resident orcas and other species and human communities that depend on them. We question why ocean salmon fisheries were included as the main element for Southern Resident orcas, when ample information is available on the broader impacts of prey depletion, as described in our scoping comments.

2) Since the scoping period for the PEIS, the National Marine Fisheries Service (NMFS) has published substantial new information on coastal habitat use by Southern Resident orcas. NMFS has recognized the mouth of the Columbia River as a "high use foraging area", with approximately 50% of the time spent by the orcas in coastal waters between Grays Harbor, Washington and the Columbia River.[2] Long-term monitoring of the Southern Residents indicates they are spending less time in their traditional spring and summer habitat in the Salish Sea, and more time foraging in coastal waters.[3] This is likely driven by changes in Chinook availability in the Salish Sea, and corresponds to recent research estimating a significant increase in the potential contribution of Columbia Basin salmon, which includes UWR Chinook, to the orcas' diet.[4] As the Southern Residents spend more time in the coastal part of their range, they will be more reliant on salmon from the Columbia Basin.

[1] PEIS section 4.1.2.3.6 at 4-16.
[2] Final Rule to Revise the Southern Resident killer whale Critical Habitat Designation: August 2, 2021. Final Biological Report, July 2021. Available: https://repository.library.noaa.gov/view/noaa/31587
[3] Shields, M.W., J. Lindell, and J. Woodruff. 2018. Declining spring usage of core habitat by endangered fish-eating killer whales reflects decreased availability of their primary prey. Pacific Conservation Biology 24, 189-193. https://doi.org/10.1071/PC17041
[4] Couture F. et al. 2022. Requirements and availability of prey for northeastern pacific southern resident killer whales. PLoS ONE 17(6): e0270523. https://doi.org/10.1371/journal.pone.0270523

3) This research supported the 2021 revision of federally designated critical habitat for the Southern Resident orca DPS to include coastal areas off Washington, Oregon, and California.[5] The Final Biological Report accompanying the rule specifically notes that "[d]am and hydropower operations occurring upstream of coastal Southern Resident killer whale critical habitat may have an impact on the essential habitat features, particularly the prey feature."[6] These "upstream activities", while not within the boundaries of critical habitat, may affect the essential features of critical habitat, and NMFS states that such activities may require consideration of potential adverse modification on critical habitat. The Alternatives included in the Draft PEIS do not fully consider nor analyze the impacts to Southern Residents or their critical habitat. The Final PEIS should include an assessment of how the Alternatives would impact the essential features of prey and water quality in the Southern Residents' critical habitat, and the subsequent effects on orca recovery.

4) The Draft PEIS accurately notes that Southern Resident orcas specialize on Chinook salmon, and feed on Chinook year-round. The PEIS should refine this information to reflect the *dependence*, not simply the preference, of Southern Residents on Chinook salmon. The Southern Residents target Chinook year-round even when other species are more abundant and regardless of the overall abundance of Chinook salmon.[7] Research published by NMFS in 2021 further confirms the prevalence of Chinook in the orcas' diet: Chinook accounts for approximately 50% to 100% of the Southern Residents' diet, depending on the season.[8] In mid-winter through spring, the time of their highest use of coastal waters, Chinook salmon is 70-80% of their diet.[9]

   The Final PEIS should reflect the impacts of prey depletion on the health and recovery of the Southern Resident DPS, as noted in our previous comments, and include additional information on the long-term impacts to individual and population health. The quality and quantity of Chinook salmon directly influences the heath and nutritional status of the orcas, and prey depletion causes negative health indicators including reductions in growth rates and adult length, increased mortality and decreased fecundity, and changes in social cohesion.[10] The

[5] Revision of Critical Habitat for the Southern Resident killer whale Distinct Population Segment. 86 FR 41668.
[6] Final Rule to Revise the Southern Resident killer whale Critical Habitat Designation: August 2, 2021. Final Biological Report, July 2021. Available: https://repository.library.noaa.gov/view/noaa/31587: Section A.12.b, at pg. 85.
[7] Ford, J. K. B., & Ellis, G. M. 2006. Selective foraging by fish-eating killer whales Orcinus orca in British Columbia. Marine Ecology Progress Series 316, 185-199; Ford, J.K.B. et al. 2009. Chinook salmon predation by resident killer whales: seasonal and regional selectivity, stock identity of prey, and consumption rates. Fisheries and Oceans Canada (DFO), Nanaimo, BC.
[8] Hanson M.B, et al. 2021. Endangered predators and endangered prey: Seasonal diet of Southern Resident killer whales. PLoS ONE 16(3): e0247031. https://doi.org/10.1371/journal.pone.0247031
[9] *Id.*
[10] Fearnbach, H. et al. 2018. "Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales." Endang Species Res 35:175-180. https://doi.org/10.3354/esr00883; Ford, J.K.B. et al. 2005. "Linking prey and population dynamics: Did food limitation cause recent declines of 'resident' killer whales (Orcinus orca) in British Columbia." Fisheries and Oceans; Ford J.K.B et al. 2010. "Linking killer whale survival and prey abundance: food limitation in the oceans' apex predator?" Biology Letters, 6:139–142; Groskreutz et al. 2019. "Decadal changes in adult size of salmon-eating killer whales in the eastern North Pacific." Endang. Species Res. (40):183-188. https://doi.org/10.3354/esr00993; Ward E.J et al. 2009. "Quantifying the

effects of operations and maintenance of the WVS on the health and abundance of spring Chinook salmon furthers the lack of prey for Southern Resident orcas, contributing to the negative impacts on individual and population health.

5) Aside from the impacts of harvest (both ocean and freshwater fishing), the primary drivers for the decline of salmon are recognized as habitat loss, hydropower, hatcheries, and climate change impacts.[11] These activities have ecosystem impacts on the Southern Resident orcas by decreasing the quantity and quality of their prey.[12] As noted, only considering the Southern Resident orcas in relation to ocean salmon fishing is inadequate and unrelated to the potential changes in the WVS. As an upstream activity that directly impacts prey resources and water quality for Southern Resident orcas, the Alternatives included in the Final PEIS should reflect this ecosystem-wide impact and appropriately analyze the potential changes.

6) Since the scoping period, the Southern Resident population has further declined to 73 individuals. The PEIS should include the most recent population census at the time of publication; available from NMFS and the Center for Whale Research.[13]

The Alternatives presented in the Draft PEIS do not fully address the USACE's statutory requirement to avoid jeopardy for ESA-listed species, both Chinook salmon and Southern Resident orcas, and are therefore inadequate to support the recovery of both. The USACE must consider Alternatives that include dam removal options, which will still allow the WVS to serve its project purposes, including flood control. The Draft PEIS provides insufficient analysis of the impacts of the WVS on prey availability for Southern Resident orcas. Changes to operations and maintenance of the WVS will have ecosystem effects on orcas and other species dependent on Willamette River salmon, and there is abundant information available on this connection. To truly assess the environmental consequences of the WVS and the impact of the Alternatives, the Final PEIS should include this information.

We urge the USACE to refine the Draft PEIS to include more definite targets and indicators for salmon recovery and the contribution to prey availability of Southern Resident orcas; to ensure transparency and adaptive management are maintained in changes to operation and maintenance of the WVS, and to consider actions that do not just avoid jeopardy for ESA-listed species, but support recovery and long-term survival.

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effects of prey abundance on killer whale reproduction." Journal of Applied Ecology, 46: 632–640; Final Rule to Revise the Southern Resident killer whale Critical Habitat Designation: August 2, 2021. Final Biological Report, July 2021. Available: https://repository.library.noaa.gov/view/noaa/31587; Final Rule to Revise the Southern Resident killer whale Critical Habitat Designation: August 2, 2021. Final Biological Report, July 2021. Available: https://repository.library.noaa.gov/view/noaa/31587

[11] NRC, Committee on Protection and Management of Pacific Northwest Anadromous Salmonids. Upstream: salmon and society in the Pacific Northwest. Vol. Board on Environmental Studies and Toxicology. Commission on Life Sciences (National Academies Press, 1996).

[12] National Marine Fisheries Service (NMFS) 2008. Recovery Plan for Southern Resident Killer Whales (Orcinus orca). NMFS, Northwest Region, Seattle, Washington

[13] https://www.whaleresearch.com/

Thank you for the opportunity to provide comments and please contact Colleen Weiler with Whale and Dolphin Conservation (colleen.weiler@whales.org) with any questions.

Regards,

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June 28, 2019

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Re: Notice of Intent to Prepare and Environmental Impact Statement for the Willamette Valley System Operations and Maintenance (84 FR 12237)

Dear Col. Dorf,

On behalf of the undersigned groups, we are submitting these comments for consideration in the development of the Environmental Impact Statement (EIS) for continued operation and maintenance of the Willamette Valley System (WVS) in the Willamette River watershed. The U.S. Army Corps of Engineers (USACE) is required by law to meet obligations under the Endangered Species Act (ESA) to ensure that the operation of the WVS does not jeopardize listed species. We request that the EIS consider not only the survival of ESA-listed salmon in the Willamette Valley, but also endangered species that depend on those salmon as a vital prey source, specifically the Southern Resident killer whale (orca) population.

Section 7(a)(2) of the ESA requires federal agencies to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of habitat of such species . . . determined . . . to be critical . . . ." 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a). To accomplish this goal, agencies must consult with the National Marine Fisheries Service (NMFS) or the U.S. Fish and Wildlife Service (FWS), depending on the species at issue, whenever their actions "may affect" a listed species. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a).

Consultation with NMFS regarding the effects of WVS operations and maintenance will provide vital information to inform the USACE's final decisions. A thorough review of the best available science on Southern Resident orcas, protected salmon, and any other affected species is vital to determine, for example, whether the proposed operations and maintenance should be modified and mitigated.

The Southern Resident orca Distinct Population Segment (DPS) has been listed as endangered under the ESA since 2005 and Canada's Species at Risk Act (SARA) since 2003[1]. This community of orcas is genetically distinct from all other orca populations, does not interbreed and rarely interacts with other orcas, and is the only ESA-listed orca population. They are part of the fish-obligate "Resident" ecotype, and rely almost exclusively on salmon as their primary prey[2]. They are the only Resident population to inhabit the California Current ecosystem and frequent the outer coasts of Washington, Oregon, and

[1] National Marine Fisheries Service, Endangered Status for Southern Resident killer whales. 70 FR 69903; DFO (Fisheries and Oceans Canada). Fisheries and Oceans Canada. *Action Plan for the Northern and Southern Resident Killer Whale (Orcinus orca) in Canada*. Species at Risk Act Action Plan Series. (Fisheries and Oceans Canada, Ottawa, 2017)
[2] *Ibid.*; Foote, A. D.et al.Genome-culture coevolution promotes rapid divergence of killer whale ecotypes.Nat. Commun.7:11693 doi: 10.1038/ncomms11693(2016)

Northern California[3]. Despite the research and conservation efforts initiated after their ESA listing, the Southern Residents have continued to decline and now number just 74 individuals, their lowest population abundance in over 30 years (this does not include the two new calves observed in the population since December 2018)[4]. The National Marine Fisheries Service has recognized them as one of eight marine species most at risk of extinction, and considers them a recovery priority #1: "a species whose extinction is almost certain in the immediate future because of a rapid population decline or habitat destruction."[5]

The top threats to their survival and recovery have been identified as prey depletion – particularly of their primary prey, Chinook salmon – toxic contamination, vessel effects, and increasing levels of ocean noise[6]. The Southern Resident orcas have survived on the Pacific Northwest's abundant salmon for millennia, but as salmon have declined throughout the region, the orcas have suffered from a lack of available prey. Research has established that Chinook comprises the majority – up to 79% – of the Southern Residents' diet in the summer months[7], when they historically inhabit the inland waters of the Salish Sea between Washington and British Columbia. Coho and chum salmon are also seasonally important to Southern Resident orcas, and their diet appears to diversify and include greater amounts of these types of salmon during offshore coastal foraging periods in the winter and spring[8].

A multi-year tagging and vessel-based survey project tracking the Southern Resident DPS in their coastal habitat established the coastal presence of the orcas, and collected prey and scat samples; analysis from these samples indicate that the orcas continue to target Chinook salmon in their coastal range, and consume fish from major watersheds including the Columbia Basin[9]. Mortality and birth rates are correlated with coast-wide salmon abundance[10], and a high rate of pregnancy failure in the population has been linked to nutritional stress, with nearly 70% of detected pregnancies ultimately unsuccessful, severely impacting the Southern Resident orcas' ability to recover[11]. The NMFS 2008 Recovery Plan for

[3] Krahn, M.M. et al. 2004. 2004 status review of southern resident killer whales (Orcinus orca) under the Endangered Species Act. NOAA Technical Memorandum NMFS-NWFSC-62, U.S. Department of Commerce, Seattle, Washington; Reynolds, J.E. H. Marsh & T.J. Ragen. 2009. Marine Mammal Conservation. Endangered Species Research. 7:23-28

[4] Population data from Center for Whale Research, www.whaleresearch.com

[5] NOAA Fisheries. Species in the Spotlight: Southern Resident Killer Whale DPS

[6] Fisheries and Oceans Canada. *Action Plan for the Northern and Southern Resident Killer Whale (Orcinus orca) in Canada*. Species at Risk Act Action Plan Series. (Fisheries and Oceans Canada, Ottawa, 2017); National Marine Fisheries Service (NMFS) 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). NMFS, Northwest Region, Seattle, Washington; NMFS. 2014. Southern Resident Killer Whales: 10 Years of Research & Conservation

[7] Ford, M.J et al. 2016. Estimation of a Killer Whale (Orcinus orca) Population's Diet Using Sequencing Analysis of DNA from Feces. PLoS ONE 11(1): e0144956. doi:10.1371/journal.pone.0144956; Hanson, M.B. et al. 2010. Species and stock identification of prey consumed by endangered southern resident killer whales in their summer range." Endangered Species Research, 11(1):69-82

[8] NOAA Fisheries Northwest Fisheries Science Center. Distribution and Diet of Southern Resident Killer Whales. Presentation by Brad Hanson, July 2015 Program Review; NMFS. 2014. Southern Resident Killer Whales: 10 Years of Research & Conservation

[9] NOAA Fisheries. 2014. Southern Resident Killer Whales: 10 Years of Research and Conservation.

[10] Ford, J.K.B, G.M. Ellis, and P.F. Olesiuk. 2005. Linking prey and population dynamics: Did food limitation cause recent declines of 'resident' killer whales *(Orcinus orca)* in British Columbia. Fisheries and Oceans; Ford J.K.B et al. 2010b. Linking killer whale survival and prey abundance: food limitation in the oceans' apex predator? Biology Letters 6: 139–142; Ward E.J, E.E. Holmes, and K.C. Balcomb. 2009. Quantifying the effects of prey abundance on killer whale reproduction. *Journal of Applied Ecology*, 46: 632–640

[11] Wasser S.K. et al. 2017. Population growth is limited by nutritional impacts on pregnancy success in endangered Southern Resident killer whales (*Orcinus orca*). *PLoS ONE* 12(6): e0179824 https://doi.org/10.1371/journal.pone.0179824

the Southern Resident DPS notes that "[p]erhaps the single greatest change in food availability for resident killer whales since the late 1800s has been the decline of salmon in the Columbia River basin."[12]

Salmon from the Willamette River, part of the Columbia Basin, were likely a significant portion of the historical offshore diet of the Southern Resident orcas, and the decline of Willamette spring Chinook undoubtedly contributed to that change in food availability noted by NMFS. A recent review of priority Chinook stocks for the Southern Resident DPS noted the high spatio-temporal overlap of Willamette spring Chinook and Southern Resident orcas (given a rating of 2.25 out of 3)[13]. The return of these Chinook coincides with the presence of Southern Resident orcas off the Washington and Oregon coasts, outside the mouth of the Columbia River, which has been established as a hotspot for the orcas.[14] As noted, the top threat to Southern Resident recovery is a lack of salmon. With so few salmon returning to Pacific Northwest watersheds in recent decades, the decline of Willamette salmon very likely contributes to coastwide prey depletion for Southern Resident orcas.

There is significantly more information available now on the coastal habitat use of Southern Resident orcas, their year-round diet composition, and priority prey stocks. **The EIS should consider the historic abundance of Willamette spring Chinook and the overlap with Southern Resident orcas, and assess the potential for this run of salmon to contribute to overall prey availability for Southern Resident orcas.** Recovering wild salmon populations throughout the range of the orcas will be vital for their immediate survival as well as long-term recovery, including runs such as the Willamette spring Chinook that were historically much more abundant. Any action that significantly impacts salmon needs to also analyze the effects on prey availability for Southern Resident orcas. **The USACE must consider the consequences of maintaining status quo operations in the WVS, which has not led to recovery for Willamette River Chinook and contributes to prey depletion for orcas.**

Salmon populations in the Northwest and California hover at fractions of their historic abundance, on average returning at less than 3% of their historic numbers each year[15]. The development and alteration of salmon-supporting watersheds is one of the primary causes of declining salmon abundance, and efforts to restore habitat simply cannot keep pace with the impacts of urbanization and development in coastal and watershed areas. Pacific salmon have now been extirpated from at least 40% of their historical habitat[16], and spring-run salmon appear to be disproportionately impacted by human use and development of river systems[17]. The wild Upper Willamette spring Chinook evolutionarily significant unit (ESU) has been listed as Threatened under the ESA since 2005[18]. This run is estimated to have a

[12] National Marine Fisheries Service (NMFS) 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*), page II-82.
[13] NOAA Fisheries West Coast Region and Washington Department of Fish and Wildlife. 2018. Southern Resident killer whale priority chinook stocks report. Available: https://www.westcoast.fisheries.noaa.gov/publications/protected_species/marine_mammals/killer_whales/recovery/srkw_priority_chinook_stocks_conceptual_model_report___list_22june2018.pdf
[14] Hanson, M. B., E. J. Ward, C. K. Emmons, and M. M. Holt. (2018). *Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellite-tag locations to improve acoustic detection data*. Seattle, WA: Northwest Fisheries Science Center.
[15] Lackey, R.T. 2000. Restoring Wild Salmon to the Pacific Northwest: chasing an illusion? pp. 91-145 in "What We Don't Know about Pacific Northwest Fish Runs? An Inquiry into Decision-Making." P. Koss and M. Katz, editors. Portland State University, Portland, Oregon
[16] Levin, P. and M. Schiewe. 2001. Preserving salmon biodiversity. *Am. Sci.* 89, 220-227.
[17] Gustafson, R.S. et al. 2007. Pacific salmon extinctions: Quantifying lost and remaining diversity. *Conserv. Biol.* 21, 1009-1020; Levin, P. and M. Schiewe. 2001. Preserving salmon biodiversity. *Am. Sci.* 89, 220-227.
[18] 70 FR 37160. June 28, 2005.

historic run size of 300,000 salmon annually, now approximately 5,000 wild spring Chinook return each year[19].

The WVS, 13 dams operated by the USACE, is part of a larger system of 25 major dams in the Willamette Basin. These dams block up to 90% of historic, high-quality habitat[20], with no functional fish ladders and extremely limited passage for both returning adults and out-migrating juvenile salmon. Collecting and moving fish is expensive and ineffective, and increases stress and mortality for juvenile salmon. Supplementing wild salmon with hatchery production is simply not sustainable, and has resulted in unexpected impacts to the native wild stock. The USACE has previously agreed to implement structural and operational changes required to benefit wild salmon in the WVS, as described and scheduled in the 2008 Biological Opinion, but has failed to follow the established timeline and has not carried out these necessary actions[21]. **Status quo operations are failing to result in any recovery of the Willamette spring Chinook ESU[22].**

Dams in the Willamette Basin block access to historic habitat, create large reservoirs harboring invasive predators for juvenile salmon, degrade water quality and stream flow, and increase water temperatures in streams and reservoirs – all of which have negative impacts on salmon survival and therefore prey availability for Southern Resident orcas. Changes are necessary to address flow, temperature, and water quality issues, and provide adequate fish passage to the federally-protected, high-quality habitat that is blocked by dams. The EIS should include and analyze alternatives that allow for greater flexibility in hydropower system operations, include more options that benefit wild fish, and prioritize structural changes to help wild fish recover.

Although some dams in the WVS are used for flood control and are critical to human safety, modifications to dam operations can benefit wild salmon while maintaining flood control. Other dams are primarily used for hydropower or recreation, and the USACE must prioritize and analyze operational measures and structural changes that may impact these other authorized purposes in the WVS, but are necessary to recover wild Willamette salmon. Dams such as Dexter and Big Cliff are hydropower re-regulation dams that do not serve flood control purposes. The USACE should include alternatives that consider modifying dams not vital for flood control to operate as run-of-river, or analyze the complete removal of these dams to support the recovery of ESA-listed salmon.

In addition to the duty to ensure against jeopardy, the USACE has an independent duty under ESA section 7(a)(1) to use its authorities to further the purpose of conserving threatened and endangered species. 16 U.S.C. § 1536(a)(1). Measures necessary to fulfill the USACE's duties to further listed species conservation and ensure that activities it authorizes or carries out are not likely to jeopardize the continued existence of those species are set forth in NMFS recovery plans for listed species. The recovery plan for Southern Resident orcas says that "[w]ild salmon have declined primarily due to degradation of aquatic ecosystems resulting from modern land use changes" including hydropower

[19] Consultation on the "Willamette River Basin Flood Control Project" 2008. U.S. Army Corps of Engineers, Bonneville Power Administration, U.S. Bureau of Reclamation, NOAA National Marine Fisheries Service. NWR-2000-2117
[20] *Ibid.*
[21] Consultation on the "Willamette River Basin Flood Control Project" 2008. U.S. Army Corps of Engineers, Bonneville Power Administration, U.S. Bureau of Reclamation, NOAA National Marine Fisheries Service. NWR-2000-2117
[22] NOAA Fisheries. 2016. 5-Year Review: Summary & Evaluation of Upper Willamette River Steelhead, Upper Willamette River Chinook. NMFS West Coast Region, Portland OR.

development[23]. Therefore the USACE should review the recovery plan and use its authorities to rebuild depleted populations of salmon and other prey to ensure an adequate food base for recovery of the Southern Resident orcas.

Southern Resident orcas and Pacific salmon are facing an extinction crisis, and are not recovering after decades of ecosystem-wide changes to the habitats they evolved in. Without swift and immediate action to remedy the impacts of habitat loss and development throughout the range of both of these iconic species, we are at a greater risk than ever of losing them. **The USACE must consider how operations in the WVS impact both Willamette spring Chinook and the Southern Resident DPS, and include alternatives that will make real and significant progress to recovering wild salmon.** We request alternatives that include an expedited implementation timeline for near-term structural and operational changes in addition to longer-term solutions; provide greater flexibility in hydropower system operations; and include a full analysis of changes that give salmon recovery a high priority, including how different alternatives would impact the availability of Chinook salmon for Southern Resident orcas.

Thank you for your consideration of our input, and please do not hesitate to contact Colleen Weiler at Whale and Dolphin Conservation (colleen.weiler@whales.org) with any questions or for additional information.

Regards,

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[23] National Marine Fisheries Service (NMFS) 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). NMFS, Northwest Region, Seattle, Washington

Oregon
Tina Kotek, Governor

Department of Agriculture
Department of Environmental Quality
Department of Fish and Wildlife
Water Resources Department

Submitted electronically to: willamette.eis@usace.army.mil

February 23, 2023

U.S. Army Corps of Engineers
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PO Box 2946
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RE: State of Oregon Comments on Willamette Valley System Draft Environmental Impact Statement

On behalf of the State of Oregon, by and through its departments of Agriculture, Environmental Quality, Fish and Wildlife, and Water Resources, we acknowledge the U.S. Army Corps of Engineers (USACE) for the tremendous amount of work and dedication to developing the Willamette Valley System Draft Programmatic Environmental Impact Statement (draft EIS). As Cooperating State Agencies, we appreciate the opportunity to participate in the development process and provide input and comments.

The four State agencies contributing to this comment letter have diverse missions, expertise, and stakeholders. However, the agencies are united in expressing concern for the fate of the listed salmon, steelhead, and bull trout in the Willamette Basin and the urgent need for the USACE to take actions to secure their future. The long-term persistence of these populations is vital to the social, cultural, and economic health of the State. That persistence continues to be threatened by the ongoing operation of the Willamette Valley System. The USACE has largely failed to implement the most significant actions (downstream passage) from the 2008 BiOp that are necessary to halt the decline of these populations. Continued inaction or delayed action is not acceptable. In the following comments, the agencies document their concerns with the draft EIS. Our overarching request is that the USACE engage in a collaborative fashion with the agencies (and others) and work with a sense of urgency that is not currently reflected in the timelines outlined in the draft EIS. Given the many uncertainties and assumptions underpinning the various alternatives we support the USACE taking near-term actions, including those ordered by the court, such as deep drawdowns, that provide near term relief to fish populations. In addition, we strongly encourage the USACE to pair these actions with improved basin-wide monitoring. This step is critical to understanding the impact of these measures on lifetime survival and for informing adaptive management, especially with considerable uncertainty surrounding the USACE's ability to fund and construct the infrastructure currently prioritized under the preferred alternative.

Oregon previously provided comments on the draft EIS on September 28, 2022 as part of the Cooperating Agency "red flag" review. Additionally, we provided comments on draft alternative 2 on October 27, 2021, and on the alternatives and measures on June 10 and June 12, 2020. Oregon recognizes the USACE did not have adequate time to address all Cooperating Agency comments,

including those provided by Oregon, prior to releasing the EIS for public review. Many of those comments remain relevant and should be addressed during this public process prior to releasing the final EIS. Please reach out to staff for assistance.

Oregon has reviewed the draft EIS 30-year plan for the operation and maintenance of 13 dams and reservoirs within the Willamette Valley System (the "WVS"). The proposed action is continued operation and maintenance of the WVS for specific, authorized purposes and in compliance with the ESA and all other applicable treaties, laws, and regulations. The purpose of and need for the proposed action is to ensure (1) USACE manages the WVS for its authorized purposes as required by Congress while (2) also meeting its requirements under the ESA (Chapter 1.0). The draft EIS describes and evaluates impacts related to a No Action Alternative and seven Action Alternatives that address the Proposed Action. The USACE also identifies Preferred Alternative 5 in this draft EIS.

Introduction: Missions of Oregon Cooperating Agencies

The Oregon Department of Agriculture's (ODA) mission is to ensure healthy natural resources, environment, and economy for Oregonians now and in the future through inspection and certification, regulation, and promotion of agriculture and food. Our vision is that the Oregon Department of Agriculture remains able to serve the changing needs of Oregon's diverse agricultural and food sectors to maintain and enhance a healthy natural resource base and strong economy in rural and urban communities across the state. The ODA Natural Resources Program is focused on addressing water quality, water quantity, and natural resource conservation on agricultural lands.

The Oregon Department of Environmental Quality's (DEQ) mission is to be a leader in restoring, maintaining, and enhancing Oregon's air, land, and water. DEQ's values guide agency actions for the Air, Land, and Water Programs: environmental results; public service; partnerships, excellence and integrity; teamwork; employee growth; diversity, equity and inclusion; health, safety, and wellness; and economic growth through quality environment. The Water Quality Program's mission is to protect and improve Oregon's water quality. Protecting Oregon's rivers, lakes, streams and groundwater quality keeps these waters safe for a multitude of beneficial uses such as drinking water, fish habitat, recreation, and irrigation.

The Oregon Department of Fish and Wildlife's (ODFW) mission is to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations. The agency's vision is to be the recognized steward of Oregon's fish and wildlife resources with diversified funding that supports our mission. ODFW works to address the needs of sensitive, threatened, and endangered fish species listed under state and federal laws with the goal of achieving broad sense recovery that can support sustainable fisheries and provide ecological benefits. In the Willamette Basin, ODFW relies significantly on the USACE mitigation hatchery program to meet these needs while also implementing actions such as habitat restoration to benefit native fish populations. ODFW seeks to achieve healthy and harvestable populations with salmon and steelhead recovery.

The Oregon Water Resources Department's (OWRD) mission is to serve the public by practicing and promoting responsible water management by directly addressing Oregon's water supply needs and restoring and protecting streamflows and watersheds in order to ensure the long-term sustainability of Oregon's ecosystems, economy, and quality of life. As a regulatory agency, OWRD is responsible for the administration of water rights, water management, water policy, and water supply planning for the

State of Oregon. One of OWRD's strategic priorities is to secure Oregon's instream and out-of-stream water future in the face of increasing water scarcity.

The proposed action in the draft EIS has significant implications for state agencies, tribes, local communities, and the resources affected by operations and maintenance of the WVS. Oregon shares the following comments in support of improving the EIS.

Fish and Fish Passage Considerations

Lack of access to habitat via safe and effective passage at Willamette Valley Project dams is a key limiting factor for salmon and steelhead recovery in the Willamette Basin (ODFW & NMFS, 2011).[1] Unlisted native migratory fish species, including lamprey, are also impacted by lack of passage at WVS dams. Passage solutions should benefit all native migratory species. The draft EIS Preferred Alternative includes both structural and operational fish passage solutions to benefit ESA-listed fish but fails to include adequate passage solutions at Hills Creek Dam. Safe and effective fish passage at Hills Creek Dam must be a part of the Preferred Alternative to avoid risking the long-term persistence of the local bull trout population.

A) Volitional Fish Passage

Although there are different and substantial challenges for providing passage at the Willamette Project dams, the Clackamas Basin and to a lesser extent, the annual drawdown at Fall Creek Dam, both provide examples of what can be achieved when volitional passage is provided. Oregon is optimistic that evaluations (if properly designed) will demonstrate sufficient and successful operational passage through Cougar Dam when reservoir elevations are managed to provide reliable access to safe passage outlets. Depending on the results of the Disposition Study, additional options for providing volitional downstream passage through the dams may become available using other existing or new outlets and should be evaluated.

B) Need to Provide Fish Passage at Hills Creek Dam

Oregon urges the USACE to include passage at Hills Creek Dam as part of the Preferred Alternative. Safe and reliable up and downstream fish passage at Hills Creek Dam for all native migratory fish, including ESA-listed spring Chinook and bull trout, is needed to re-establish connectivity among historically connected populations and habitats. Passage is required to avoid extirpation of bull trout, facilitate Chinook salmon recovery, and reconnect other native fish populations in the mainstem Middle Fork Willamette with those upstream of Hills Creek Dam. Access to these connected habitats will become more important as Oregon experiences the adverse environmental effects of climate change.

The draft EIS analysis is significantly flawed with respect to inadequately identifying the demographic risk to the bull trout population above and below Hills Creek Dam. The analysis fails to consider the impact of providing court-ordered operational downstream passage without providing upstream passage for those fish that migrate downstream. It mischaracterizes habitat suitability for bull trout

[1] ODFW (Oregon Department of Fish and Wildlife) and NMFS (National Marine Fisheries Service). 2011. Upper Willamette River Conservation and Recovery Plan for Chinook Salmon and Steelhead. August 5, 2011. West Coast Region, NMFS.

below Hills Creek Dam and general bull trout life history. The analysis must be corrected in the final EIS to more transparently justify the scoring used in the assessment model and to reflect the impacts of the court-ordered operational downstream passage. The Upper Willamette Bull Trout Working Group should have opportunities to provide input on the scoring process and risk assessment given its familiarity with the local bull trout population, its behavior, and habitat conditions and use.

The draft EIS analysis assumes that the bull trout population above Hills Creek Dam has been steadily increasing in abundance without upstream and downstream passage. However, a significant operational change to provide downstream fish passage was implemented in the fall of 2021 at Hills Creek Dam and is scheduled to continue until the adaptive management check-in scheduled in 2047. The draft EIS did not address the impact of this significant operational change on bull trout at Hills Creek Dam.

Under the injunction, special near-term operational measures at Hills Creek Dam were implemented to prioritize night-time spill through the Hills Creek Dam Regulating Outlet (RO) specifically to increase downstream fish passage for juvenile spring Chinook salmon. This measure will provide access to all species seeking to move downstream when instream flows are peaking, and at a time when natural fish emigration is anticipated. Like Chinook, bull trout are surface-oriented and unlikely to dive in search of passage through deep outlets. Bull trout exhibit a migratory life history, actively moving downstream for overwinter foraging and subadult rearing. This behavior requires intact migratory pathways between downstream overwintering habitats and upstream spawning habitats. Providing safe passage to suitable habitats below Hills Creek Dam for foraging and rearing can be beneficial for bull trout, but only if upstream passage is available to access spawning habitat.

The draft EIS acknowledges that risk of mortality is high for emigrants passing below dams and risk is high for increased downstream passage. The final EIS should include additional required steps necessary to reduce the risk and severity of downstream passage injury at Hills Creek Dam. Such mitigation measures should include screening the penstock intake as has been done at Cougar Dam, and making modifications to the intake tower, RO tunnel, and exit through the RO (currently a free-fall exit onto boulders) to improve outcomes for fish passing downstream.

The cumulative impact of the court-ordered operational downstream passage at Hills Creek Dam was not part of the analysis nor has sufficient time passed for any impact to be detected in the bull trout population. This is especially important given the time needed for bull trout to reach sexual maturity and iterative (iteroparous) contributions of sexually mature bull trout to the upstream spawning population (i.e., individual females may spawn up to eight consecutive years). In fact, the impact of the injunction actions on fish populations above and below Hills Creek Dam will be extremely difficult to monitor and assess and will remain a source of considerable uncertainty for the foreseeable future.

The fundamental basis for any logical assessment must consider that with increased downstream fish passage, reasonable measures must be taken to minimize the impact of that passage. If bull trout survive passage downstream, there is additional real risk in failing to recover individual bull trout that pass downstream to maintain the above-dam population. In other words, given the current suite of operating conditions to increase downstream passage, failing to provide upstream fish passage is a significant risk. Downstream movement is not maladaptive and poor habitat below the dam is not a risk or justification for not providing upstream passage. Bull trout migrating below Hills Creek Dam are not part of a separate population at this location. These individuals are necessary to maintain the

population above the dam. Any suggestion otherwise is intentionally misleading and prevents informed decision-making – contrary to NEPA requirements.

Increased opportunities for downstream passage will logically lead to increased migration below the dam. Habitat conditions below Hills Creek Dam are suitable for overwintering, foraging, and migration. While the normative water temperature regime below Hills Creek Dam is severely altered by the impoundment of water and management of flow by the dam, these conditions are not so severe as to be detrimental to the survival and recovery of adult bull trout residing below Hills Creek Dam. Bull trout residing below Hills Creek Dam originated from above the dam and are necessary to maintain the population above the dam.

The statement that, "Even without passage, the population above Hills Creek has increased…indicates that this population performs reasonably well under the NAA" is not accurate because the court-ordered downstream passage measure has created a significant change in operating conditions that is not accounted for in the NAA.

Instead, the final EIS must explain that, in the absence of upstream passage, the Hills Creek Dam Near-Term Operation Preferred Alternative Measure, specifically the nighttime RO prioritization for improved downstream fish passage, may lead to bull trout population (above and below Hills Creek Dam) extirpation or viability failure prior to the 2047 check-in. Furthermore, under the Preferred Alternative, reduced storage at Cougar Reservoir will require the release of water from other reservoirs, notably in the Middle Fork subbasin, to meet the mainstem Willamette River flow targets. Additional water released through Hills Creek Dam will result in more bull trout moving downstream and a loss to the spawning population above the dam if upstream passage is not provided.

The successful reintroduction of this extirpated population upstream of Hills Creek Dam was more than thirty years of investment of resources from cooperators. This population represents an aquatic resource of economic, ecological, and aquatic and terrestrial ecosystem functional significance. Because this population was sourced directly from wild bull trout in the adjacent upper McKenzie River subbasin it serves to mitigate risk of catastrophic events in the entire upper Willamette Basin. The upper McKenzie River meta-population is the only upper Willamette bull trout population to persist to the present day, following the local extirpation events in the Clackamas, Santiam, Middle Fork Willamette subbasins.

The final EIS must identify implementation of a near-term passage solution until a permanent solution is in place in order to avoid significant adverse environmental impacts. An upstream migrant facility at this location does not need to accommodate large numbers of fish, however it must be functional soon to assist bull trout recovery. Excluding upstream migrants to prevent turbine blade-strike at the base of the dam should be part of the solution. Oregon would like to work with USACE to develop a feasible passage solution. Oregon has previously noted that safe and reliable passage is needed at Hills Creek Dam (see comments provided by ODFW to USACE on November 19, 2021, as well as comments provided by USFWS and NMFS, when asked to comment on the biological need for passage at Hills Creek Dam). Providing safe and effective upstream and downstream passage for bull trout at Hills Creek Dam aligns with the 2015 USFWS Bull Trout Recovery Plan and should be part of the overall passage solution for spring Chinook and other native migratory species.

Significant gains for ESA-listed and unlisted fish populations are possible by providing passage at Hills Creek Dam. Like Green Peter Dam, where passage is proposed as part of the Preferred

Alternative, Hills Creek Dam has limited passage opportunities currently and excellent underutilized habitat available upstream that will become more important as adverse environmental impacts associated with climate change occur. Providing passage at one dam or the other is a false choice. Both Hills Creek and Green Peter dams should have upstream and downstream fish passage as part of the Preferred Alternative.

C) Include Measures to Restore Self-Sustaining Lamprey Populations

Pacific lamprey have been significantly impacted by the construction and operation of the Willamette Valley System. Specific measures (outlined below) are needed in the Preferred Alternative to provide lamprey passage and address impacted habitat with the eventual goal of increasing population size to a sustainable level that can support tribal harvest opportunities at Willamette Falls. Oregon acknowledges the cultural importance of these ancient fish to several Indigenous tribes and encourages the USACE to work closely with them, ODFW, and other federal partners to proactively address project impacts to lamprey.

Pacific lamprey are a Sensitive species in the state of Oregon and the species is part of a significant conservation effort, the Pacific Lamprey Conservation Initiative. In addition to providing lamprey passage, the final EIS should incorporate mitigation measures to improve translocation for lamprey as soon as possible, particularly as climate change is expected to reduce the carrying capacity of the species. Implementation should include funding for tribes, ODFW, and other federal partners to monitor success of lamprey passage improvements and translocation efforts to inform adaptive management. Evaluation and adaptive management must be part of a transparent and collaborative process where regional input is considered.

Water Quantity

The draft EIS lacks information regarding how existing water management requirements and processes (Willamette Basin Review (WBR) Study and 2020 Water Resources Development Act and 2019 WBR BiOp) will affect implementation and expected outcomes of the alternatives. The final EIS should include a clear framework for how these documents interrelate, and it should clearly describe how stored water will be managed during dry years.

In addition to the lack of clarity regarding integration with other water management processes, the draft EIS generally lacks adequate information to evaluate how the proposed flows will impact the viability of listed species or other beneficial uses of water, including water rights. Additionally, there is insufficient detail provided to assess whether the proposed flows adequately account for the expected impacts of climate change. We offer more detail regarding these omissions below.

A) Need for Consideration of the Willamette Basin Review and 2019 WBR BiOp

Recently, the USACE and OWRD studied the potential to use stored water from the Willamette Valley Project reservoirs for multiple purposes because demands on the basin's water supplies have changed significantly since the dams were constructed, due to increasing population, development, irrigation needs, and the listing of fish species under the Endangered Species Act. Following initial construction, the federal government secured water rights for the storage of 1.64 million acre-feet of water, limiting the use of secondary water rights to irrigation uses. The study's purpose was to determine if reallocating the storage space could better meet water needs not only for irrigation, but also as a source of drinking water for communities and instream flow needs for listed fish species in the basin.

The study recommended a plan for reallocating stored water in coordination and consultation with federal, state, and local agencies, and tribes. The recommended plan was a compromise among various interests and sectors throughout the basin. In 2020, the U.S. Congress approved the reallocation, designating 1,102,600 million acre-feet for fish and wildlife, 327,650 acre-feet for agricultural irrigation, and 159,750 acre-feet for municipal and industrial uses. Congress also determined that in carrying out the reallocation, the USACE shall meet its obligations under the ESA by complying with the 2019 WBR BiOp. There is a strong interest and desire among agencies, basin stakeholders, and others to contribute to a longer-term water management plan that optimizes the use of a shared resource for all uses of water, both instream and out-of-stream.

As the USACE plans operations and maintenance of the Willamette Valley Project Reservoirs, the allocations and the requirement to comply with the 2019 WBR BiOp must be integrated into water management decisions. The final EIS should include information clarifying how the WBR and the 2019 WBR BiOp measures will affect the amount of stored water available each year for fish and wildlife, municipal and industrial uses, and agricultural irrigation uses.

Oregon supports implementation of a science-based decision-making process developed with stakeholder input for how available water will be distributed during dry years that complies with the ESA. A transparent and well-understood decision-making process will allow stakeholders to make informed choices in years of anticipated shortfalls and help those that rely on stored water or may be considering the costs of purchasing storage space to determine the reliability of this source of water.

The draft EIS references an additional 62,050 acre-feet of stored water would be needed for existing users whose water right would be junior to instream water rights as a backup water source (pg. J-9, 175 PDF). It is important to note that this amount represented a conservative analysis conducted for the Willamette Basin Review study and represents a potential scenario involving the conversion of the 1964 minimum perennial streamflows to instream water rights. The amount of supplemental water needed by irrigators will depend on how frequent those instream water rights are met during different water years at various locations. Section 3.3.4 (pg. 93) of the Willamette Basin Review feasibility study describes 62,050 acre-feet as a worst-case scenario and assumes the instream water rights are not being met. Referencing the language used in the WBR Study in the draft EIS will provide additional context and better explain the potential for increased water demand for agriculture.

B) Improve Access to Existing Storage to Meet Future Water Needs

Oregon recognizes the difficulties of managing the reservoirs to meet all intended purposes. Compared to other alternatives, Preferred Alternative 5 performed better at minimizing impacts to the conservation storage capacity, reducing stored water by 98,536 acre-feet. Oregon has concerns with any alternative that will result in significant loss of existing storage available for all uses of water. For example, Alternative 3A results in a loss of 590,000 acre-feet of stored water and Alternative 3B represents an even greater loss of 669,000 acre-feet.

Through basin level planning processes, the Water Resources Commission has long identified the Willamette Valley Project reservoirs as an important source of water supply for future water needs in the basin. Access to new water supplies is very limited in the basin, with several groundwater limited areas and live flow (natural flow) restricted to only a few small or instream uses in most watersheds during the summer months. Access to sufficient stored water is critical for supporting new appropriations for both instream and out-of-stream uses.

Oregon strongly recommends that any alternative selected as part of a final EIS consider the importance of sufficiently filling and operating these multi-purpose reservoirs to meet current and future water needs in the basin, not only for fish and wildlife but for the continued long-term economic viability of our communities and industries, and consistent with the goals of the Willamette Basin Review efforts.

C) Need to Clarify Use of Storage Allocations

The draft EIS includes several flow-related measures to aid with downstream passage and to reduce thermal stress on ESA-listed fish. In the continued operations of the WVP reservoirs, it is important to recognize that the amount of water that the projects release to achieve the 2008 BiOp flow objectives, including passed inflow, exceeds the maximum conservation storage of the system. This means that reservoir storage alone will never be enough to meet the BiOp flow needs. The final EIS should account for how much stored water is needed to meet the previously established or revised flow objectives, or various spill operations. The Willamette Basin Review study allocated more than 1.1 million acre-feet, or 69 percent of the stored water to fish and wildlife purposes. The final EIS should specifically describe how the USACE intends to utilize this allocation to meet ESA objectives.

The draft EIS briefly touches upon the conversion of minimum perennial streamflows (MPSFs) to instream water rights, an RPA from the 2008 Biological Opinion. The draft EIS does not discuss the connection between the use of storage, minimum perennial streamflows, and secondary instream water rights. This should be addressed by identifying that the fish and wildlife storage allocation could be used to support legal instream protections downstream of the dams. It is important for partners and stakeholders to understand that the amount of water needed to satisfy the MPSFs is uncertain. Upon adoption of MPSF rules in 1964, not all dams had been constructed and others were later deauthorized. A specific storage volume was not included in the state's administrative rules. Instead, the rules describe an instantaneous release of stored water up to a certain amount, with measurement locations in all major sub-basins, including four locations on the mainstem. Conversion to instream water rights is further complicated by the 2008 Biological Opinion flow objectives that do not align with the MPSFs in the release amounts and locations. Although considered a state-led administrative action, conversion of the MPSFs to instream water rights will depend upon sustained commitment and participation from federal agencies that oversee dam operations and set biological flow objectives for ESA needs.

The State of Oregon has a responsibility to plan for future instream and out-of-stream water needs. The USACE must undertake a science-based decision-making process, developed with input from partners, for how available water will be distributed during dry years. A transparent and well-understood process will allow all parties to make informed choices in years of anticipated shortfalls.

D) Need to Provide Clarity on Proposed Flows and Water Management

Oregon has repeatedly voiced concern about the lack of detail provided to assess how the Preferred Alternative (or any of the alternatives) will impact water availability for multiple fish populations and consumptive uses (see comments requesting additional information dated October 27, 2021 and September 28, 2022). This is especially important in the context of the duration, magnitude, and timing of low flows. The draft EIS does not address those concerns. Additional information is needed in the final EIS to determine whether the water released to augment streamflows and decrease temperature will be sufficient to achieve ESA obligations under historical or future climate conditions.

The Preferred Alternative proposes biweekly additions to stream discharge based on wet/dry flow targets in tributaries and flow targets on the Willamette, at Salem and Albany, based on NOAA's water supply forecast with augmented pulse releases of water to meet instream temperature criteria. The final EIS should be amended to include more rationale for the approach taken to determine proposed flows, as well as more clarity for how pulse flows will be released to meet different temperature and flow targets in tributaries and on the mainstem throughout the season and under a range of environmental conditions, including prolonged drought. Information about whether or how early releases of stored water would affect later availability of water for other uses, including how temperature pulses would be delivered (from which reservoirs), is necessary. A review of how releases are optimized to meet multiple flow target criteria and a description of potential trade-offs, including impacts and benefits to fish and wildlife, municipal, industrial, and agricultural irrigation uses, must be included in the final EIS to foster informed decision-making.

Under this draft EIS, two flow targets were developed for tributaries below Detroit/Big Cliff, Green Peter/Foster, Cougar, and Lookout Point/Dexter according to the storage achieved and whether operations are less than or greater than 90 percent of the rule curve. The difference in these two flow targets for the Preferred Alternative (Measure 30b) can be substantial. Evaluating differences in flow targets is essential for understanding the potential effects on fish and wildlife and other users. Climate projections predict warmer, more rain-driven winters and hotter/drier summers resulting in changes in the amount and timing of when water is available. Additionally, climate modeling suggests the region will experience more intense and prolonged droughts. These climate projections will impact the potential to achieve the higher flow targets set for WVP tributaries and the Willamette at Salem and Albany.

Understanding the frequency of a wet/dry year classification system under current and future conditions can help set expectations of water availability when developing procedures and guidelines for flow releases and water withdrawals and will help agencies prepare for future conditions. Frequency distributions for different classification schemes (other than wet/dry) are presented in the 2019 WBR BiOp (Table 2.5-2 pg. 72). Please provide frequency distributions like those in the 2019 WBR BiOp using the wet/dry classifications under current and expected future conditions at all WVP projects to facilitate the evaluation of alternatives and associated impacts to mainstem and tributary flows. Analyses and comparisons should include the Preferred Alternative proposed flows (Measure 30b) and reservoir elevations, as well as actual flows and reservoir elevations from the modeled years (2011, 2015 and 2016). In the absence of additional information needed to evaluate the frequency of anticipated flow conditions and the corresponding biological responses, as well as a more thorough understanding of water availability trade-offs of providing pulse flows, we have significant concerns with Measure 30b.

Lastly, the final EIS should clarify how decisions related to flow releases will be determined (for example, based on a formalized procedure utilizing an interagency adaptive management workgroup or some other mechanism).

Water Quality

The draft EIS lacks an explanation for how and when impacts to water quality will be assessed and prioritized to avoid impacts to listed fish. Summer releases from the dams are typically cooler than pre-dam conditions, with the reverse (warmer than pre-dam conditions) occurring in autumn. This temperature regime has been detrimental to the habitat of threatened Upper Willamette River (UWR)

Chinook salmon (*Oncorhynchus tshawytscha*) and UWR winter steelhead (*O. mykiss)* throughout multiple life stages. Where the USACE does not include measures in the alternative to address known issues, e.g., meeting TMDL temperature targets, the final EIS should also include a discussion of other mitigation measures or alternatives. The need for mitigative measures includes addressing impacts in the near-term through adaptive management provisions until planned long-term solutions can be implemented. The social, economic, and environmental tradeoffs associated with each of the alternatives need to be thoroughly documented in the final EIS before selection of the alternative and implementation of the proposed action. For example, decisions that increase fall releases to improve conditions for spawning might necessitate a decrease in summertime flow augmentation and the associated loss of the water quality benefits. Oregon looks forward to working closely with the USACE to determine suitable measures to mitigate for these unaddressed impacts of the WVS.

Additional water quality considerations that need to be addressed in the final EIS are listed below:

- Include information on the assessment for harmful algal blooms for public health and safety, and drinking water (Chapter 3 Tables).
- Include additional text to clarify that pollution abatement through flow releases does not resolve all water quality concerns, but may contribute to other concerns, such as downstream temperature issues at other projects without temperature control towers, dissolved oxygen, or mercury methylation (Chapter 1,1.7.8, 1.8.4, 1-47, 1-55).
- Chapter 3, 3.5.1, 3-403, regarding paragraphs 3, 4, & 5 – inaccurate information. Resources for correct information can be found here: 2022 Integrated Report Fact Sheet and DEQ's Willamette TMDL webpage.
- Include the reference for temperature targets on the mainstem and clarify how these targets are used to meet water quality standards. The 2022 Integrated Report shows the Willamette mainstem is impaired for temperature during the summer for rearing and migration and impaired during the fall for spawning. Dissolved oxygen should also be assessed.
- The Oregon Health Authority has statewide, Willamette mainstem, and subbasin fish consumption guidelines for mercury and PCBs. The revised TMDL for mercury is mentioned throughout the draft EIS. These parameters should be fully assessed for the mainstem Willamette and at other applicable projects.
- In Chapter 2, Detroit and Lookout Point temperature control operations may not be consistently documented or categorized.

Climate Change

More clarity is needed in the final EIS regarding how the effects of climate change were considered, both in the selection of the Preferred Alternative over the proposed 30-year duration of the EIS, as well as in the adaptive management plan.

Despite a body of science indicating that precipitation patterns and temperatures will change significantly in the Willamette Basin, and that extreme weather events (drought/storm) will become more common, the draft EIS lacks sufficient analysis of, and consideration for, the impacts of a changing climate. For example, based on Chapter 5 (Preferred Alternative Selection and Implementation) it appears that the effects of climate change were not considered (or perhaps only considered marginally) in selection of a preferred alternative despite the extended timeframe analyzed

in the EIS. All of the bio-ecological factors that drive the models used–whether NOAA's or other's–will be influenced by a trending climate and more frequent climate extremes. Without adequately discussing the weakness of drawing conclusions from outputs where models were parameterized using data that represent historic or current conditions, the draft EIS analysis lacks scientific rigor and is overly optimistic.

In addition to the general issue outlined above, Section 3.5 in Appendix F-1 (Additional Hydrologic Trend Analyses) is difficult to follow and does not sufficiently or clearly lay out what was done and the rationale for choosing to analyze specific metrics. Table 3-2 should be improved to clearly indicate (1) all trend variables assessed; (2) a definition of each variable; and (3) the results of the statistical tests. For Oregon to evaluate the various alternatives, please provide a better description of the low flow frequency analyses. More information about how changes to frequency, magnitude, and timing of anticipated low flow have been evaluated as part of this climate change analysis to determine the Preferred Alternative is needed. It appears that supplemental, low flow analyses were only conducted at Salem instead of at all the gage locations identified in Table 3-1. Given that there is error associated with correcting flow to arrive at natural flows and the fact that subbasins might respond differently, it is possible that a signal of subbasin changes is masked or evened out at Salem. This clarification should be included in the final EIS. In addition to the one-day minimum flows, the USACE should analyze the 7-day low flow, and/or the 7-day average flow that occurs once every 10 years (7Q10 flow). It isn't clear that the other metrics analyzed in Table 3-2 are sufficient for a low flow analysis. Furthermore, it is not clear that an analysis considering the anticipated shift in timing of low flows within the year has been conducted. A shift in the trend of low flow timing will have ecological ramifications and will be important for decision-makers to understand. An analysis of the anticipated timing of low flows is needed in the final EIS.

Ultimately, it is important for the USACE to better explain in the final EIS how the Preferred Alternative addresses projected climate change impacts to flow when there is very good agreement among models (e.g., lower flows and elevated temperatures), particularly when these impacts are likely timed with important fish life stages and other uses of water in the Willamette basin.

Climate change must be appropriately considered as part of the Adaptive Management Plan (Appendix N). For example, monitoring effectiveness of fish passage actions relies on as little as two years of information and will be conducted in "average water years." Use of past averages for these evaluations does not appear to be consistent with due consideration of climate change effects.

Implementation & Adaptive Management Plan

A critical element for gaining Oregon's support and public confidence during implementation is inclusion of a robust adaptive management process that relies on a transparent and collaborative approach. This includes developing meaningful monitoring and evaluation and providing new information to action agencies in order to respond and pivot appropriately in a timely manner.

Some of the proposed measures in this EIS are very expensive, and funding may be spread over many years or may be difficult to garner at all due to high costs and uncertain outcomes. Model outcomes used to assess potential fish performance in response to proposed actions are highly uncertain. In addition, impacts of some measures on water supply and flow management, for example, are not fully understood. Consequently, USACE should be prepared to use monitoring and evaluation results

collected from Interim- and Near-Term Operation Measures to develop refinements or different alternatives if necessary.

State agencies look forward to working with tribal, federal, and other WATER partners, independent scientists, and the USACE in all aspects of the adaptive management process, including collaborative development of performance metrics and targets.

A) Revised WATER Process

The ability to implement both near- and long-term measures and the effective evaluation and adaptation of those measures using an unbiased science-based process will ultimately determine the USACE's success in operating and maintaining the Willamette Valley Project in accordance with authorized project purposes while still meeting obligations of the Endangered Species Act. The original WATER process was developed to provide a forum for coordination and to make recommendations to the Action Agencies regarding the 2008 Biological Opinion implementation. Oregon's confidence in the ability to evaluate and adaptively manage implementation and progress of actions identified in the EIS will require a transparent and collaborative decision-making process that can address the failings of the original WATER process.

The current Flow Management and Water Quality Team is an example of a WATER team where coordination and regional input is thoughtfully considered and decision-making factors are clearly communicated and informed by data, whenever possible. However, the WATER process does suffer when rationale for decisions is not clearly documented or when the process is not collaborative. For example, ODFW has previously expressed concern that the USACE was not using priority rankings developed by the RME Team to guide decisions about various study proposals. At that time, ODFW recommended that the USACE rely on the RME Team ranking to inform funding decisions and to add credibility to the process. The proposed adaptive management process must learn from the existing WATER process and objectively consider regional input and document decision-making rationale to achieve desired outcomes with regional support.

Regarding other potential WATER teams, in Chapter 5 and Appendix N Section 4.4 (Figure 4-2, Figure 4-3 and Table 4-4), please explain in the final EIS a) if the Habitat Technical Team will have a role in the WATER governance structure, and if yes, what its responsibilities will be; and b) which technical team(s) will be overseeing the implementation of "measures common to all alternatives."

B) Integrating Reservoir Coordination

The state identified reservoir coordination as a key resource priority as part of its Willamette Basin Program and planning processes in the early 1990's. The state has long sought to formalize reservoir operation guidelines with the USACE to meet state water management objectives and to enter into a memorandum of understanding or other agreement that defines the reservoir coordination process and water management objectives. As noted earlier, there is a strong interest and desire among agencies, basin stakeholders, and others to contribute to a longer-term water management plan that optimizes the use of a shared resource for all uses of water, both instream and out-of-stream.

Currently, reservoir coordination occurs through WATER teams that focus primarily on BiOp implementation. One of WATER's goals is to, "increase awareness and include consideration of the implementation of the Willamette BiOps' actions on non-listed species, cultural and other resources, and the multi-purposes of the Willamette Project." In the final EIS, please provide clarity on whether

the proposed adaptive management approach or WATER teams will continue to focus on BiOp implementation or be expanded to include plans or guidelines needed to manage storage allocations for multi-purposes and associated water rights during dry or low-water years.

C) Fish Passage Evaluation

ESA-listed Willamette spring Chinook, winter steelhead and bull trout populations have been, and continue to be, negatively affected by the Willamette Valley System, resulting in their continued listing under the ESA. Additionally, other unlisted, native migratory fish populations, including Pacific lamprey, are impacted by the continued operation of the system. The timeline to implement proposed long-term fish passage solutions is protracted (see Figure 5.4-1 in Chapter 5 or Figure 2-4 in Appendix N), with permanent fish passage solutions becoming effective in the 2030s and 2040s. Successful downstream fish passage is critical for long-term sustainability of UWR spring Chinook and winter steelhead fish populations.

The draft EIS Implementation Plan (Appendix N) outlines several near-term (NT) passage operations that will be necessary to prevent further decline, including many that were Court-ordered. However, the proposed evaluation to inform adaptive management is inadequate or lacking altogether (see 5.5.6 Hills Creek Adaptive Management Approach). Given the length of time until some permanent passage solutions are planned for implementation, as well as funding uncertainty, it is imperative that the USACE conduct meaningful evaluations of the effectiveness of NT passage operations and other temporary solutions to ensure the achievement of goals and adjust if necessary. It is conceivable that monitoring will demonstrate that NT passage operations are meeting passage objectives and thus they may even become effective long-term passage solutions.

Oregon has significant concerns about the proposed approach for evaluating successful fish passage. More information and further discussions are needed about how an acceptable downstream passage survival (DPS) will be determined (including what constitutes "typical operating conditions," timeframe for evaluation, and how estimated precision will be determined). Determining "success" by achieving either the DPS *or* cohort return rate target as low as 1 is inadequate for evaluating a complex biological response to a change in passage conditions. Given the importance of passage improvements in the EIS and subsequent BiOp, the goal should be to achieve far higher levels of certainty and standards in passage assessments. Passage evaluations must be consistent with NOAA standards.

D) Flow and Temperature

Appendix N table 5-1 (pg. N 41) outlines annual adaptive management performance measures for flow and temperature, and Section 5.1.6 states that flow management performance will be assessed every ten years or if significant new information becomes available. Though it is understood that studies relating fish response to habitat are underway, additional annual metrics that relate dam operations to fish response are needed. Also, the timing of evaluation and adjustments must be biologically meaningful; ten years is likely too long. For example, evaluating annual biologically relevant metrics could be key in understanding what can be done to assist adult migration of spring Chinook salmon through the mainstem, in summer, during extreme temperature events. These events will likely increase given the trajectory of climate change, increasing temperatures and lower summer flows.

Oregon requests evaluations of additional performance metrics and related models in the early stages of implementation to evaluate interactions between dam operations, flow, and temperature management, and biological response. Otherwise, given the lack of available information for how

biological systems will respond to proposed flows and water management, and the urgency for actions needed to benefit fish populations, the USACE risks undermining the ability of decision-makers to understand the environmental consequences of proposed operations. DeWeber and Peterson (2020)[2] outline potential additional metrics that were of interest to the Science of the Willamette Instream Flow Team (SWIFT) intended to evaluate Chinook and steelhead thermal exposure and accumulation. SWIFT-identified metrics that may be appropriate to consider, such as the proportion of juvenile Chinook outmigrants exposed to temperatures greater than 18 °C, adult Chinook thermal accumulation Degree days (°C), and juvenile steelhead exposure to April-May temperatures greater than 15°C. In addition, we recommend monitoring the climate change-related flow metrics included in Appendix F1, Table 3-2 for annual and monthly changes in magnitude, timing, and frequency. Understanding what can be done to assist adult migration of spring Chinook salmon through the mainstem in summer will be important, especially given the trajectory of climate change and increasing temperatures and lower summer flows. Including additional performance metrics in the final EIS and relying on a science-based approach can help inform any necessary adjustments to dam operations during adaptive management discussions.

E) The Need for Adaptive Management Based on Research, Monitoring, and Evaluation

The purpose and need for the proposed action identified in Section 1.3 is the continued operation and maintenance of the WVS in accordance with authorized purposes while meeting ESA obligations. To assess the extent to which any of the alternatives meet the purpose and need, the USACE relies on models produced by NOAA (life cycle model) and the University of British Columbia (Integrated Passage Assessment model) to quantify fish responses.

As was appropriate, NOAA authors caveated their analyses heavily (e.g., Conclusions *in* Myers et al. 2022 in Appendix E, Chapter 7). For example, NOAA concludes that outputs should be considered on a relative basis because of a paucity of data to parameterize their model and sub-components, and untenable or questionable assumptions inherent in the Fish Benefit Workbook (FBW) that inherently drives the NOAA model(s). UBC similarly acknowledges the lack of data needed to parameterize their model(s) with any confidence (Appendix E, Chapter 8). Due to limited data and a heavy reliance on potentially flawed assumptions, results are necessarily, and prohibitively, uncertain. Therefore, the model results are used as a relative measure to rank the likelihood of the alternatives to effectively meet the Proposed Action ESA objective (see Section 5.2.2.4.1).

Oregon strongly encourages the USACE to incorporate a robust monitoring and adaptive management program to collect data as part of ongoing efforts to understand the fish response, including life cycle survival, to interim/near-term and longer-term passage actions. This will require basin-wide monitoring infrastructure and adequate numbers of tagged fish released to inform reach-level survival and EIS modeling efforts.

Key to any adaptive management framework is the willingness *and* ability to change program direction as information is collected. Oregon supports adaptive management and encourages the USACE to be willing to change course even if it requires shifting from long-held assumptions about preferred solutions. Oregon, regional WATER partners, and independent scientists must have an active role in

[2] DeWeber, J.T. and Peterson, J.T., 2020. Comparing environmental flow implementation options with structured decision making: case study from the Willamette River, Oregon. *JAWRA Journal of the American Water Resources Association*, *56*(4), pp.599-614.

developing the research, monitoring, and evaluation needed for achieving successful outcomes. Information gaps and proposed research to address those gaps should be identified, prioritized, and vetted collaboratively with state and regional partners and independent scientific review as part of a transparent process. A transparent decision-making process that openly considers regional input and documents rationale and addresses partner concerns will build trust and support for outcomes.

Hatchery Impacts and Adapting the Hatchery Program

The measure for adapting the hatchery program (M719) should be removed from the final EIS. Adapting the hatchery program once replacement rates for above-dam fish are adequate to grow and maintain a sustainable population above the dams is best addressed within the established framework of the Hatchery and Genetic Management Plans (HGMPs). The HGMPs and 2019 Hatchery BiOp are legal documents agreed to by NMFS, ODFW, and USACE that are necessary to ensure the mitigation hatchery programs are implemented in accordance with the ESA. The USACE's NEPA process and EIS document do not supersede these legal documents. The EIS should be reviewed for consistency with them and revised as needed.

The hatchery programs are intended to mitigate for the lack of habitat access and other habitat impacts on fish populations and fisheries. Providing passage alone does not restore population health or abundance, nor will it necessarily prevent jeopardy for these listed stocks or restore a fishery. Mitigation for other on-going impacts associated with the Willamette Valley System will remain necessary once successful fish passage has been implemented.

Impacts of the hatchery programs on UWR spring Chinook and winter steelhead were evaluated in the 2019 Hatchery BiOp. The first "Reasonable and Prudent" measure required under the Hatchery BiOp is the continued funding and implementation of the hatchery programs according to the spring Chinook salmon HGMPs. The Hatchery BiOp also resulted in a list of terms and conditions for ODFW and USACE to continue hatchery operations for providing angling opportunities and for assisting with conservation efforts in compliance with the ESA. Oregon is implementing the terms and conditions in compliance with the Hatchery BiOp. The first "Term and Condition" defines production numbers of hatchery spring Chinook salmon and specifies that any proposed changes to production levels must be consistent with the adaptive management approaches specified in the appropriate HGMP. NMFS must issue written concurrence with the changes prior to adoption. As such, the final EIS should acknowledge and describe the existing and established processes for such changes.

The draft EIS includes language that is not consistent with the HGMPs or Hatchery BiOp. These discrepancies should be addressed in the final EIS. For example, the targets identified for outplanting hatchery fish in the HGMPs are incorrectly referred to as "abundance thresholds" in the draft EIS (Table 2-21). These are minimum targets, not maximums, and the Hatchery BiOp and HGMPs should be referenced in the final EIS where these targets and other criteria have already been set.

Section 3.8, Fish and Aquatic Habitat (Chapter 3), contains several misleading statements in relation to the impacts of hatchery steelhead and Chinook on native or listed fish species. In addition, actions taken by the State in response to the Hatchery BiOp have reduced potential impacts. The HGMPs provide a framework for crediting hatchery production needs once fish passage has been determined to be successful at a dam. The long timeline for the implementation of structural fish passage at the dams described in the draft EIS will provide more than sufficient time for the fisheries agencies and the USACE to determine the detailed crediting approach that robustly addresses the issues associated with

crediting and fish passage. ODFW does not agree with the crediting approach proposed in the draft EIS. Any hatchery impacts and proposed changes to the hatchery mitigation program are most appropriately addressed through the existing HGMP and Hatchery BiOp processes and must also consider related fishery impacts. The crediting section and overall discussion of hatchery program modifications in Appendix N should be removed from the final EIS.

Additional Considerations

A) Power Disposition and EIS Implementation

Results of power disposition studies directed by WRDA may influence the feasibility of potential WVS fish passage solutions and related water management. The USACE should coordinate with Regional WATER partners to share power disposition study results once they are available and to collaboratively determine how those results might expand options for providing fish passage, including opportunities to eliminate the need for re-regulating facilities in the basin.

For example, the Preferred Alternative includes a deep drawdown of Cougar Reservoir to the diversion tunnel to provide fish passage. A large amount of sediment will be mobilized with this operation, resulting in economic and ecological impacts, including impacts to fisheries and the recently restored areas downstream of the dam. Robust evaluations of passage using the regulating outlet, and a turbine-less penstock if power is deauthorized, should be conducted to determine whether these options could provide similar passage survival to that of the diversion tunnel, but with fewer impacts. If a drawdown to the diversion tunnel remains the preferred passage solution, it will be critical to implement "lessons learned" from earlier sediment mobilization events resulting from drawing down Cougar Reservoir to the tunnel.

B) Support for USFWS FWCAR Recommendations

Oregon encourages the USACE to implement the Conservation Recommendations identified in the USFWS Fish and Wildlife Coordination Act Report (Appendix Q). General recommendations include restoring and supporting ecological processes and long-term monitoring to inform on-going adaptive management in an uncertain future, and specific recommendations include delaying Fern Ridge Reservoir drawdown to simulate a more natural winter hydrology to benefit wildlife. Species-specific recommendations will benefit a host of representative native fish and wildlife and their habitats that were not specifically addressed by the EIS but are nonetheless, impacted by the WVS.

C) Sediment and Gravel Disposition

Erosion land loss should be added to the evaluation of environmental impacts/costs in Appendix C of the final EIS. The evaluation of environmental impacts shows that surface erosion risks are considered a "minor factor" in sediment supply changes "with the presence of flood storage projects that can trap sediment and regulate peak flood flows in the basin, the expected changes in the regulated reaches will be largely mitigated," p. C-15. However, Appendix C projects geomorphic change (such as bar growth, bank erosion or avulsions) under Preferred Alternative 5, acknowledging the potential for land loss resulting from bank erosion/failure due to added abrasion from increased sediment and gravel disposition. Table 2-20 in Appendix C indicates potential for *major* geomorphic change in the North Santiam, South Santiam, McKenzie, and Blue Rivers.

D) Increased Irrigation Costs

In Chapter 7, Environmental Operating Principle #3 is designed to "Create mutually supporting economically and environmentally sustainable solutions," however, it only considers the increase in temporary construction wages (economic) and reduced flood risk (environmental) and does not address the expected increased irrigation costs of a supplemental stored water right and/or crop damage due to a lack of water. The final EIS must account for potential environmental and socioeconomic costs of mid-season irrigation water loss and offer a means of mitigating or supporting decision making regarding the risk of irrigation water loss. As stated above, there is a strong interest among agencies, basin stakeholders, and others to contribute to a longer-term water management plan that optimizes the use of a shared resource for all uses of water. In drier years, which are expected to increase, constraints on stored water will make it challenging to achieve a balance of environmental health, economic prosperity, and social well-being. The EIS should prioritize actions that maximize this balance consistent with ESA obligations. Oregon supports implementation of a science-based decision-making process developed with stakeholder input for how available water will be distributed during dry years.

Individual agricultural producers often find it difficult to make fallow/not fallow decisions using limited precipitation and water storage information in advance of the growing a season. Where a producer opts to move forward and not leave fields fallow, the loss of irrigation water partway through a season can mean crop loss and potentially increased erosion from wind and water processes. These kinds of outcomes were observed with recent and ongoing drought conditions in the Deschutes basin; farmers affected by irrigation water loss mid-season experienced crop losses and soil exposure during summer conditions when establishing a cover crop was not possible. Subsequent fall rains resulted in extensive soil erosion that affected soil health, water quality and in some cases stormwater systems in adjacent communities.

E) Socioeconomic Value of Fish and Fisheries

The final EIS must include a thorough analysis of impacts of the proposed actions on recreation and the socioeconomic value of fisheries. The analysis must consider the full geographic scope of these affected fisheries, as well as impacts to fisheries for both hatchery and wild fish.

The draft EIS does not adequately consider the socioeconomic value of fisheries (hatchery or wild, ESA-listed or not) in its analysis. The omission of socioeconomic effects on salmon fisheries allows for the restriction of effects described in the draft EIS to those affecting a far smaller area than is real. In fact, these effects flow all the way to southeast Alaska and British Columbia fisheries where some ESA-listed UWR Chinook harvest is allowed (see Appendix Table C-70, Pacific Salmon Commission Chinook Technical Team Report TCCHINOOK (2021)-05 https://www.psc.org/download/35/chinook-technical-committee/14106/tcchinook-21-05.pdf). Salmon fishery areas in the lower Columbia River downstream of the Willamette River and all salmon fishery areas within the Willamette basin must be considered as well. The EIS is setting the baseline for effects as only applicable within the reservoirs themselves, which inappropriately ignores significant effects in other areas attributable to the WVS operations. This allows for false conclusions in a variety of significant areas in the draft EIS that the action alternatives have no or negligible effects, when in fact the actions would have effects that are beyond negligible and, in several cases, would be significant. In effect, this error prevents informed decision-making.

The draft EIS concludes that natural populations will not increase to a level that would support direct harvest in fisheries under any of the alternatives. The draft EIS further purports that if there is no direct

harvest of ESA-listed fish then there is no socioeconomic impact on fisheries from any of the alternatives. While ODFW maintains that the latter presumption is false, if it were true, then the only socioeconomic impact on fisheries stemming from the Willamette system would be those derived from hatchery production. Foremost among that would be production from USACE mitigation programs which would be subject to reduction. If increases in production of ESA-listed fish due to improved passage provides no socioeconomic benefit (as stated repeatedly in the EIS) but increases in production of ESA-listed fish due to improved passage do lead to reduction in mitigation hatchery production, it is inconsistent to conclude that adapting the hatchery program (Measure 719) would have indirect and negligible long-term effects on recreation, or on socioeconomics overall.

A reduction in hatchery fish production without fisheries benefits from improved natural production will cause a net loss to recreational opportunity and economies associated with these fishery resources. The significance of that effect would be proportional to the amount of reduction not otherwise offset with other fishery improvements, as the draft EIS states would only occur if the actions are successful.

Finally, the draft EIS presumes that unless directed harvest of ESA species occurs there is no economic or recreational effect of the alternatives. This is inaccurate as impacts to Willamette basin ESA-listed fish species are a primary driver in managing several fisheries and control fishery opportunities even if they are not directly harvested. As a result, the status of those ESA species is a direct contributor to the economic and recreational outcomes of those fisheries and improvements or declines in their status will affect those outcomes. Moreover, Oregon has established a recovery goal that goes beyond ESA delisting and results in restoring populations to a 'healthy and harvestable' state. Avoidance of jeopardy alone does not meet that goal. Oregonians place a value on these iconic fish as a state symbol independent of the fishery.

F) Editorial Comments

- Chapter 3, 3-13.1.1, pg. 3-997: Remove reference or add text to clarify the conditions required to extend the irrigation season for a sub-basin. Reference to ORS 537.385 is misleading.
- Chapter 5, 5., pg. 5-42: Label for Figure 5.5-2. USACE Adaptive Management Cycle Figure 5.4-2 is referenced in text description.
- Chapter 7: Explain if this applies: Title 1 Section 313 (33 U.S.C. 1323) to Section 7.
- Table 3.1-3: Clarify whether safety concern or environmental effect is the focus for tiered NEPA.
- Chapter 5 (Figure 5.4-1) and Appendix N (Figure 2-4): Include a summary list of anticipated tiered NEPA projects with timelines and decision points with the alternative implementation timeline in.
- Appendix I, Socioeconomics; Appendix K, Recreation; Appendix M, Costs – Add summary or reference to Preferred Alternative 5 to confirm Alternative 5 was evaluated against these factors.

In Closing

Thank you for the opportunity to comment. We appreciate the USACE extending the public comment period to allow for a more thorough public review process. Oregon has highlighted several themes and concerns above that require additional consideration before the EIS can be finalized. We look forward to working with the USACE and other regional partners to finalize the EIS and implement the proposed action.

Please do not hesitate to contact our WATER Steering Team representatives regarding the information provided.

Sincerely,

Lauren Henderson, Acting Director
Oregon Department of Agriculture

Leah Feldon, Director
Oregon Department of Environmental Quality

Curtis E. Melcher, Director
Oregon Department of Fish and Wildlife

Douglas E. Woodcock, Acting Director
Oregon Water Resources Department

cc: WVS EIS Cooperating Agencies

From:	MULHOLLEM Josh * BOAT
To:	CENWP-PME-Williamette-Valley-System-EIS
Cc:	BELLEQUE Janine * BOAT; WARREN Larry * BOAT; DIEHL Dorothy * BOAT
Subject:	[URL Verdict: Neutral][Non-DoD Source] Willamette Valley System Draft EIS
Date:	Thursday, February 23, 2023 5:13:47 PM
Attachments:	image001.png image003.png

Thank you for the opportunity to comment on the draft EIS.

The Oregon State Marine Board (OSMB) is Oregon's state recreational boating agency, with the mission of serving Oregon's recreational boating public through education, enforcement, access, and environmental stewardship for a safe and enjoyable experience.

The agency's vision is that boaters benefit as the OSMB navigates change and growth of waterway use. The adjustments in flows associated with future operation of the Willamette Valley System will result in changes to the physical and temporal use of the waterways that boaters and other recreators enjoy. It is therefore incumbent upon the agency to advocate for certain considerations in the evolving operation of the Willamette Valley System, as the proposed changes serve to eliminate certain recreational opportunities without accounting for replacement or acceptable substitution. Local communities cannot be expected to account for limitations on existing recreational facilities due to a new water environment. We are also considering the impact to rural communities that rely on revenue from urban boaters to support local businesses.

The OSMB understands that countless stakeholders will be impacted in various ways by operational changes in the Willamette Valley System, and the millions of Oregonians and visitors who enjoy the numerous recreational benefits the WVS currently offers will adapt to a new normal. It is the duty of the Oregon State Marine Board, however, to advocate for the intentional and meaningful consideration of the financial impact to the state and local entities that provide recreational facilities and improvements within the system. OSMB recommends that the Corps carefully evaluate how any modifications to operations and maintenance of the WVS will impact boating facilities and floating structures; including the historical and current recreational boating activities for safety, navigation and future ability to permit, repair, or replace boating facilities and floating structures. We urge the USACE to investigate and calculate the costs that will result from the impacts of changing water levels on these facilities, and proactively allocate funding for the inevitable redesign, maintenance, and replacement of these facilities, as state and local agencies should not and cannot bear those burdens.

The OSMB's Boating Facilities Program provides engineering services, technical expertise, and grant funding for public recreational boating access facilities. Recreational boating facilities throughout the WVS were designed and constructed according to the anticipated water levels at that time and not the low-flow conditions that will result from operational changes. Decreases in flow have the potential to impact boat launching ramps by exposing the toe. The toe of the ramp is the lower end of the ramp that extends below the waterline to provide a hard surface for the trailer to travel on during launch and retrieval. Toe elevation of a launch ramp has a direct effect on the period of serviceability of the ramp for boaters. Continued use of a boat ramp with an inappropriate toe elevation will lead to accelerated wear and deterioration, leading to unexpected and unsustainable

maintenance needs and insurmountable replacement costs on a schedule that could not have been predicted. Furthermore, many boat launch ramps and associated facilities will become entirely unusable, potentially eliminating recreational access to the water indefinitely.

In addition to boat launch ramps, there are many floating structures enjoyed by recreational boaters in the WVS. State and federal guidelines exist for the placement of these structures for the protection of aquatic species. For example, the National Marine Fisheries Service requires floating structures to be located in 15 feet of water at ordinary low water elevations in the lower Willamette River section. A decrease in the ordinary low water level could mean that many floating structures could no longer meet this requirement. The need to redesign and retrofit non-compliant structures and to incorporate new waterway conditions into future designs will create an enormous cost and resource burden on the state and local governments who own and maintain these facilities.

The future of recreational boating in the Willamette Valley System depends on proactive planning and funding of access sites and facilities. The OSMB is prepared to assist local agencies as we always have with the design and permitting of facilities, but funding must be set aside at the federal level to ensure that the effort to preserve recreational boating in the WVS is successful.

Josh Mulhollem, Environment and Policy Program Manager
Oregon State Marine Board
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February 23, 2023

Liza Wells
Deputy District Engineer for Programs and Project Management
Portland District, United States Army Corps of Engineers

RE: PPC Comments on the Draft Programmatic Environmental Impact Statement for Operation and Maintenance of the Willamette Valley System

The Public Power Council (PPC) appreciates this opportunity to provide comments regarding the Draft Programmatic Environmental Impact Statement (Draft EIS) for the operations and maintenance of the Willamette Valley System. PPC is the broadest trade association of Northwest public power, representing the full diversity of utilities with preference rights to purchase wholesale power and transmission services from BPA.

PPC members rely on these services to provide a reliable, economic, and environmentally responsible power supply to the communities and businesses they serve – at cost. PPC members provide the majority of the funding that supports operations and obligations to repay the investments in the federal hydropower system. This includes final "take or pay" responsibility for costs of the power system operations and maintenance of the Willamette Valley System.

PPC is fundamentally concerned that among the analyzed alternatives, there is no path for maintaining economic hydropower production in the Willamette Valley System. The Draft EIS analysis shows massive costs to regional ratepayers, but as described further in these comments, even these costs are likely to be drastically understated. This concern highlights the importance of the Corps' fulfilling in a timely manner its Congressional mandate from the 2022 Washington Resources Development Act (WRDA) that directs the Corps to conduct disposition studies for power deauthorization of the Willamette Valley System.

Within this context, PPC offers the following comments to improve the quality of the final EIS. Additionally, PPC supports the comments of the Bonneville Power Administration (BPA) in this matter as submitted on February 3, 2023.

- **As PPC has urged in previous comments, the final EIS must include consideration for potential deauthorization of power or significant cost reallocations between project functions.** Failure to do so would frustrate the clear intent of Congress in the recent 2022 WRDA legislation and have the potential to make this entire EIS effort for the Willamette Valley System functionally moot. Completing the disposition studies on time and considering their results in the final EIS will have multiple benefits, including the potential for more cost-effective juvenile salmon passage options, reasonable basis for the reallocation of costs between flood control and power where appropriate, and allow for BPA to make informed investment decisions for the projects.

- **The final EIS must be updated with more accurate costs.** First, the draft EIS does not account for the impacts of extending the proposed near-term operations until the completion of structural modifications. This omission dramatically overstates the volume and value of hydroelectric output of the Willamette Valley System projects. Second, the costs of proposed structural improvements for fish passage and water temperature appear highly optimistic based on conceptual designs, and by the Corps' own estimates could likely more than double. Further, the impacts of increased interest rates and material costs should be accounted for.

Thank you for your consideration of these comments. PPC stands ready to work as a partner to resolve the grave economic challenges faced by these projects in a manner that provides the best value for the communities and businesses served by public power, fish and wildlife, and the crucial flood control purposes of the Willamette Valley System.

Sincerely,

Michael Deen
Policy Director
Public Power Council

February 23, 2023

U.S. Army Corps of Engineers
Attn: CENWP-PME-E / Willamette EIS
P.O. Box 2946
Portland, OR 97208-2946

RE: Comments on the Willamette Valley System Operations and Maintenance Draft Programmatic Environmental Impact Statement

On November 25, 2022, the U.S. Army Corps of Engineers (Corps) released its Draft Programmatic Environmental Impact Statement (Draft EIS) on the Willamette Valley System Operations and Maintenance for public review and comment. Santiam Water Control District ("SWCD" or "District") appreciates the opportunity to submit these comments on the Draft EIS.

The Santiam Water Control District is an Oregon water control district. SWCD holds over 197 cfs of consumptive and 947 cfs of non-consumptive surface water rights with priority dates spanning from 1866 to 1987. SWCD provides live flow and stored Bureau of Reclamation (BOR) agricultural irrigation water to patrons in the Willamette Basin along the North Santiam River. SWCD also conveys water to the critical habitat of listed species and performs contractual delivery obligations to federal, state, and county facilities, wetland restoration projects, and wildlife. SWCD contains flood and erosion control sub districts. Two SWCD sub districts are local sponsors of several revetments ("revetments" or "levies"). The District also conveys water to the City of Stayton domestic drinking water plant. The SWCD lands, farmers working those lands, listed species, and municipal interests are dependent upon SWCD. In turn, SWCD is dependent upon the operation of the Detroit Lake and Big Cliff reservoirs located upstream of the SWCD points of diversion. The District, its patrons and many other irrigators will be directly affected by the actions and alternatives contemplated in the Draft EIS.

The District appreciates that the Draft EIS acknowledges the strong interest in operations of the Willamette Valley Project ("WVP"), Our questions and comments on the Draft EIS are primarily focused on the following:

- The District as a current contract holder would like to understand the actual impacts of the proposed action to the use of stored water under our existing contract, and as it relates to new uses or contracts.
- The District believes that current contracted water users be "grandfathered" as senior contract holders and all new contracts utilize a proportionate reduction system among water user types if shortfalls arise in dry years.
- The District supports a preference towards existing (contract and live flow) users and ESA needs before additional or new uses are contemplated, Identifying all current users and ESA needs and ensuring those uses are provided water before newer uses are allowed ensures Federal actions closer align with state water law.
- The water right certificates to store water in the Willamette system have two differing priority dates, the EIS should provide a tabulation of storage amounts and releases per reservoir and use to better understand potential tributary specific impacts. The EIS should include materials sufficient to understand any potential conflicts arising with Oregon water law.
- The Corps should explain the anticipated water management framework and clarify whether stored water proposed to be used for fish passage or chosen to not be stored will come from the allocation of stored water to be used for fish and wildlife purposes.

- Discussions of the Biological Opinions (BiOps) related to the WVP should explain whether and how implementation of this BiOp included the proposed reallocation plan, including how state water law and the transfer process may affect water operations.
- The Corps should clearly identify US ACOE operated revetments and those that are maintained by a local sponsor and identify operations and impacts to each subset.
- Many of the datasets and assumptions used to model system operations are outdated or

Impacts to Existing Stored and live flow water rights Should Be Minimized

Alternative 5, the Preferred Alternative, proposes a decrease in total conservation storage of 98,536 AF, the District appreciates the Corps' efforts to minimize reductions in conservation storage while meeting other project objectives such as the protection of Endangered Species Act (ESA) listed fish species. As described on page 3-1033 of the Draft EIS, the decrease of 98,536 AF of stored water under Alternative 5 is categorized as a "minor adverse effect" to consumptive users of the conservation storage. However, it is impossible to evaluate this impact adequately for two reasons. First, on page 3-1004, the Draft EIS states that "the actual effects to stored water users are unknown at this time because the annual management process in dry years has not been established." If the actual effects are unknown, then categorization of the impact as "minor" is unsupported. Second, the proposed changes in storage are only presented in the Draft EIS on a system-wide basis rather than by reservoir.

Appendix C of the Feasibility Study provides an explanation of the fact that meeting the 2008 BiOp minimum flow targets at Salem from April through October would require 4.22 million AF of water, while all of the reservoirs in the WVP combined hold a total of 1.6 million AF. Thus, while stored water can be managed to supplement flows, it is imperative that all flows needed to meet the Biop needs be quantified and detailed at the independent tributary level. For example, the 2008 Biop included RPA that the diversion of water on the Santiam rivers could impact ESA species, but Detroit and Green Peter reservoirs have more than adequate water available to meet all ESA, Existing and likely all future water needs for each tributary.

A reservoir and reach specific analysis should be completed so that effects by individual tributary can be assessed. The Draft EIS could fail to identify geographical areas with Major impacts when only a system wide analysis is made.

The Relationship among the Biological Opinions Should Be Clarified, specifically the moratorium on issuing new contracts from the North Santiam river should be clarified.

The 2008 BiOp developed by the National Marine Fisheries Service (NMFS) included an RPA Measure 3 (9.3.1) which required a moratorium on new Irrigation contracts in the Santiam Basins with an additional requirement for the Corps to update its flow exceedance models every five years to determine if additional water was available. The Moratorium was also contained in the 2019 Reallocation BiOp. The Draft EIS should state whether the Corps has completed an analysis of available water as required in the moratorium on contracts in the Santiam Basin and whether it will be lifted or if further actions are expected to be required to do so.

The relationship among these BiOps should be clearly explained in the EIS (and/or in the forthcoming BiOp) to enable affected water users to understand how they may be impacted. For

example, it would be helpful to understand whether the forthcoming BiOp will entirely replace the 2008 BiOp, or whether the Corps plans to continue making efforts to implement requirements of all three BiOps (2008, 2019, and 2023/2024), and how these requirements will be reconciled if they conflict.

The EIS Should Clearly Describe a Water Management Framework that Meets Multiple Needs for Stored Water

Appendix N outlines the adaptive management plan for implementing the preferred Alternative 5. Although Appendix N states that a water management plan will be prepared annually describing how stored water will be used for fish and wildlife needs and other authorized purposes, no guidelines are set forth explaining how this water management framework will be integrated with the approved reallocation of conservation storage space, and the discussion leans heavily toward strictly meeting flow targets with little consideration of tradeoffs to meet competing objectives. In practice, adaptive management decisions are already being made annually that seek a more realistic balance among objectives, such as deciding to forgo attempting to meet flow targets at Salem earlier in the year in order to store water for use later in the summer for temperature control. The Draft EIS should more clearly acknowledge current adaptive management actions and explain how the water management framework would be integrated and aligned with the objectives of the Oregon Water Resources Dept, Water users and non-ESA ecological needs.

Greater clarity around the water management framework is critical to understanding how reductions in system-wide storage (whether permanent or simply due to reduced reservoir fill in a given year) will impact all users of stored water, particularly in dry years. For all new contracts the Water Providers support development of a framework that allows all designated purposes to “share the shortfall” through proportionate reduction. Currently, large volumes of water are allocated to specific purposes but are not yet under contract with particular users. It is understood that uncontracted water would be managed first to meet project purposes if reductions are needed during dry years; however, it would be prudent to develop a plan outlining how additional reductions would be managed (such as through proportionate reduction) in the future when more contracts are in place consistent with the demand projections analyzed in the Draft EIS.

The Modeling should rely on current and accurate datasets. Assumptions and data should be clear and understandable.

The Corps hydraulic model is critical in providing an accurate picture of how the system will operate, how needs will be met and how operations will affect our economies and ecologies. The Draft EIS 2.3.3 states that existing Irrigation Datasets, Historic and current Irrigation withdrawals and return flows are not well documented in the Willamette Basin. The most rigorous investigation of irrigation withdrawals and return flows is Willamette Valley System O&M Draft Programmatic Environmental Impact Statement B-7 believed to have been conducted while creating the 2010 Modified Flows dataset. The Corp should use the most current datasets such as the 2020 Modified Flow Dataset. The Corp should clearly identify the assumptions carried forth by utilizing old datasets.

The current EIS model includes information that may lead to inaccurate results, for example;

B-10 table 2-5 - Detroit Typically, summer flows used a 7-day average of the Dataquery 1.0 inflows, as evidenced by 2003-2006. 2007 FIS inflows do not match up with the CDB dataset or any known dataset. 2009 summer flows used North Santiam + Breitenbush (not Blowout Creek) USGS gages instead of Dataquery 1.0 inflows.

B-15 2- Embed evaporation into the inflow dataset. This approach assumes the same volume of evaporative losses for each individual year irrespective of changes in reservoir surface area resulting from changes in reservoir operations.

In addition, model specifics such as in the example of evaporation being calculated as lower inflow rather than a function of use of storage, serves the purpose of the EIS draft but could lead to inaccurate understandings and use of that information. Demonstrated as a simplification; how much stored water is available 1.6 million acre feet or 1.6 minus evaporation?; inaccurate determination of true inflow, which for state water right purposes regulatory purposes must be accurately determined; unless that assumption and information was clearly understood.

Accurate Inflows and evaporation calculations must be completed, especially if the continued requirement of creating an instream water right is anticipated. A full presentation of the Corps' methods, assumptions, and analysis should be available for public review and comment.

We appreciate the Corps' efforts in analyzing the operations and maintenance of a very complex system and balancing the needs of multiple stakeholders. We look forward to seeing a Final EIS that carefully considers the impacts of proposed changes for the benefit of all.

Sincerely,

Brent Stevenson

Brent Stevenson, District Manager Santiam Water Control District

4431 Hwy 20, Sweet Home OR 97386 Phone 541-367-5564 www.sswc.org

February 23, 2023

To: US Army Corps of Engineers, Portland Region

On behalf of the South Santiam Watershed Council (SSWC) and its Board of Directors, we submit this letter as comment for the Willamette Valley System Draft Programmatic Environmental Impact Statement (DEIS).

Under Oregon statue, watershed councils in Oregon were created to help preserve and restore watershed system health for those who depend on these systems, and to protect and enhance fish and wildlife habitat in those systems. The SSWC has worked within the South Santiam basin for more than 25 years, serving an area of approximately 666,000 acres that includes the communities of Scio, Lebanon, and Sweet Home. Our mission is to involve local people to enhance and protect the natural resources of the South Santiam River watershed for the social, environmental, and economic benefit of all those who live, work and visit.

The SSWC recognizes the competing interests within the Willamette basin, and acknowledges that the DEIS seeks balance amongst these interests, across the entirety of the Willamette Valley System. The South Santiam has two projects included in the DEIS: Foster and Green Peter. As a small organization, we are ill-equipped to provide substantive technical comment for the DEIS. However, as is true of most watershed councils in Oregon, the SSWC serves as a community-level liaison that interfaces between community members; local, state, and federal partners; tribal partners; land owners and land managers; and other partners. As such, we appreciate the additional time for providing review and comment for the DEIS, which allowed us to confer with many of our partners.

The SSCW urges USACE to incorporate the comments presented by the action agencies responsible for the wise use and management of Oregon's resources on behalf of all Oregonians to the greatest extent possible. We encourage USACE to consider their mission critical work of providing flood control *in balance* with the needs of fish and wildlife species, the interests of local community economies, and whole river health.

We further encourage USACE to plan for both short- and long-term impacts and opportunities, and to seek the support of local partners well-versed in local conditions and considerations. The South Santiam Watershed Council hopes that the Corps will consider us partners moving forward, and rely on the SSWC to provide information, resources, and expertise specific to this part of the Willamette Valley System. We stand ready to support mission-aligned actions that achieve our common goals. Thank you for your consideration.

Sincerely,

Shannon Richardson
Executive Director

SPRINGFIELD UTILITY BOARD

WATER SERVICE CENTER 202 South 18th Street, Springfield, OR 97477-5240 Tel 541-726-2396 Fax 541-747-7348 www.subutil.com

February 21, 2023

U.S. Army Corps of Engineers
Attn: CENWP-PME-E / Willamette EIS
P.O. Box 2946
Portland, OR 97208-2946

SUBJECT: ***WILLAMETTE VALLEY SYSTEM DRAFT EIS***
COMMENTS FROM SPRINGFIELD UTILITY BOARD

Thank you for the opportunity to comment on the USACE's Willamette Valley System (WVS) Draft Environmental Impact Statement (DEIS). The Springfield Utility Board (SUB) appreciates the tremendous amount of work the USACE put into developing the DEIS and its efforts to balance the needs of listed fish species with a host of other water demands in the WVS.

SUB is a publicly-owned water system and the municipal water supplier for Springfield. Our drinking water sources include both the Middle Fork Willamette and McKenzie watersheds. We therefore have a strong interest in reservoir management in both basins and how future changes in management may impact water availability to fulfill our existing water rights, our source water quality, and our water treatment operations.

Background: SUB Water Sources

SUB operates 28 wells in the Springfield area, including 13 in the Middle Fork Willamette watershed and one in the McKenzie watershed that are designated as groundwater under the direct influence of surface water (GWUDI). From a water treatment perspective, the water pumped from GWUDI wells is considered surface water. SUB has a surface water intake at our Willamette Wellfield on the lower Middle Fork Willamette River, where water diverted directly from the river and water pumped from the nearby wells is treated at our slow-sand filtration plant. SUB is also in the process of planning a new membrane filtration surface water treatment plant on the McKenzie River in the Thurston area of Springfield, which is expected to go online in 2027.

Section 3.13 of the DEIS describes existing water supply in the Willamette River Basin and analyzes environmental consequences for water supply that could result from the Proposed Action and alternatives. The DEIS states that Tables 3.13-1 and 3.13-2 "list the number of diversions and permitted flow of water for withdrawals in tributaries with a Corps dam and reservoir and on the mainstem Willamette River" (DEIS at 3-999). Table 3.13-2 summarizes "Water Use in Select Tributaries to the Willamette River," using data obtained from OWRD WRIS for the year 2021 (DEIS at 3-1000). However, Table 3.13-2 lists the total municipal surface water diversions for the Middle Fork Willamette River as 6.95 cfs. *Id.* Though it is not clear by what method this data was compiled, "6.95 cfs" appears to underrepresent the importance of the Middle Fork Willamette River as a source of municipal water supply. For example, SUB currently holds one certificated water right to divert 10.0 cfs from the Middle Fork Willamette River, as well as one water right

permit authorizing SUB to develop an additional 10.0 cfs from the same point of diversion. SUB has already diverted and put to beneficial use 2.28 cfs under this permit. This means SUB has already demonstrated the ability to divert and put to beneficial use 12.28 cfs from the Middle Fork Willamette River under its existing water rights.

SUB requests that the USACE accurately account for the full permitted amounts of municipal water as part of the environmental baseline and long-term planning horizon described in the DEIS, and that the USACE further analyze the environmental consequences to permitted but not-yet-developed municipal water rights that could result from the Proposed Action and alternatives.[1]

Water Quality Concerns

As described in Section 3 of the DEIS, there are numerous potential water quality impacts from WVS operations that may affect municipal drinking water sources. SUB is most concerned about increased sediment loading resulting from deep reservoir drawdown. On the Middle Fork Willamette River, high turbidity taxes the slow-sand filters and shortens their life span; and high turbidity events can force us to take the river intake offline. Operation of our forthcoming membrane filtration plant on the McKenzie River will also be affected by fluctuations in river turbidity levels.

In addition to sediment loading, changes in flows from the dams can increase nutrient levels and the amount of algae/cyanobacteria in the river. Potential risks to SUB include algae clogging water treatment filters and a shut-down of the system due to cyanotoxins (which can be produced by the cyanobacteria).

Coordination with Public Water Systems

The USACE's near-term measures and proposed long-term operational changes both have the potential for significant water quality impacts to Springfield's source water. SUB staff currently stay in communication with USACE staff regarding the Fall Creek drawdown, which we monitor closely due to the turbidity spikes it causes in the Middle Fork Willamette River. The preferred alternative (Alternative #5) plans for deep drawdowns at Cougar Reservoir, which will have consequences for SUB's new treatment plant on the McKenzie River. According to the DEIS, management changes at Cougar may trigger adjustments at Lookout Point/Dexter, which would create consequences for SUB's treatment plant on the Middle Fork Willamette as well, in addition to the impacts we already manage from the Fall Creek drawdown.

The DEIS notes that the preferred alternative is meant to offer operational flexibility: "The measures are intended to improve conditions for ESA-listed fish while providing flexibility for USACE to meet water demands for fish and wildlife, water supply, hydropower generation, and recreation in the WRB" (DEIS at ES-43). Given the prospect of elevated turbidity levels that have significant adverse impacts to downstream users, SUB encourages the USACE to explore how that flexibility can be optimized to reduce impacts to the public water supply. For example, can the USACE set a downstream turbidity threshold, in consultation with the public water systems, that triggers operational adjustments?

Section 3.19 of the DEIS addresses the consequences to drinking water and summarizes the magnitude and extent of the eight alternatives. In reality, different municipal water systems will be impacted differently depending on multiple factors, including location and the nature of their sources and treatment works.

[1] Likewise, SUB currently holds one water right permit authorizing SUB to develop a total of 40 cfs from the McKenzie River, of which 35.9 cfs are authorized for municipal use and 4.1 cfs are authorized for corresponding "fish and wildlife uses." Currently, SUB can divert and put to beneficial use at least 1.4 cfs under this permit. SUB requests that Table 3.13-2 and the corresponding analyses in the DEIS accurately account for that full permitted amount as well.

Again, SUB encourages the USACE to include direct consultation and coordination with impacted water systems in its plans and future analyses, for the purposes of:

- Obtaining water-system-specific details about impacts of near-term and long-term measures;
- Establishing turbidity management as an operational objective;
- Setting operational procedures related to the minimization of disruption to the public water supply; and
- Developing an adverse-event notification system.

As the DEIS noted, adjustments to meet one need will have ripple effects on other components of the WVS. SUB recognizes the complexity of this endeavor, and we look forward to future communications with USACE regarding the considerations for drinking water supply.

If you have questions about SUB's water system or our interests in the McKenzie and Middle Fork Willamette watersheds, feel free to contact our Drinking Water Source Protection Coordinator, Amy Chinitz, at 541-744-3745 or amyc@subutil.com.

Sincerely,

Greg Miller
Director - Water Engineering & Operations

cc: David Donahue, Eugene Water & Electric Board (email)
Jamie Porter, Rainbow Water District (email)

From:	PETERSEN, Erik S CIV USARMY CENWP (USA)
To:	Janes, Kelly A CIV USARMY CENWP (USA)
Subject:	Willamette NF Comments to USACE Willamette Valley System Programmatic DEIS
Date:	Friday, February 24, 2023 7:58:34 AM
Attachments:	image001.png image002.png image003.png image004.png
Importance:	High

Good morning – this came in yesterday – wondering if you could ensure the USFS Willamette National Forest's comments are managed as part of the record. I'm not sure if they routed them through channels.

Thanks in advance!

V/r - Erik

From: Warnack, David - FS, OR <david.warnack@usda.gov>
Sent: Thursday, February 23, 2023 7:38 PM
To: PETERSEN, Erik S CIV USARMY CENWP (USA) <Erik.S.Petersen@usace.army.mil>
Cc: Bishop, Duane - FS, OR <duane.bishop@usda.gov>; Torres, Omero - FS, OR <omero.torres@usda.gov>
Subject: [URL Verdict: Neutral][Non-DoD Source] Willamette NF Comments to USACE Willamette Valley System Programmatic DEIS

Hi Erik,
Again, thank you for presenting the Willamette Valley System Programmatic EIS to the Willamette National Forest Leadership Team and providing us an opportunity to comment.

Below is a summary of concerns and mitigations regarding potential drawdown levels, resulting from the preferred alternative, for some USACE-administered reservoirs on the Willamette National Forest.

CLARIFICATIONS

- According to USACE's Preferred Alternative, it appears Detroit Reservoir levels would remain similar to current operations, while Cougar and Blue River reservoirs would experience heavy drawdowns. What about Hills Creek and Lookout Point reservoirs? It is unclear how severely, in terms of depth and time, those reservoirs on the Middle Fork Ranger District would experience drawdowns.

FIRE/FUELS

- Some reservoirs historically used as water draft sites (e.g. Cougar Reservoir) could become unusable or need to be altered for wildland fire suppression.
- The ability for aircraft (e.g. helicopters) to dip out of reservoirs for extended periods of time may change during fire season.
- Use of water dropping aircraft, such as Scoopers, may be hindered.

The reservoirs are the main site for scooper use for fires on the Willamette.
    - They require approximately 1 mile of water way to gather enough water
- It would be helpful for fire managers to know/plan ahead of time when the depth of reservoirs reach a limit that they are no longer safe or functional for aircraft to retrieve water.
- Prolonged drawdown conditions could increase vegetation/fine fuels making areas more susceptible to fire.
- There is potential for additional fires from dispersed camping, due to loss or changes to developed camping opportunities, and the desire to camp close to water.
- Modeling vegetation growth at reservoirs with extended drawdowns could help determine wildfire suitability.

RECREATION

- Such substantial impacts to recreation management are expected at reservoirs with heavy and extended drawdown levels (e.g. Cougar Reservoir) that the forest needs active USACE engagement to help plan and fund mitigations for these effects.
- The forest manages 12 campgrounds (10 of which have boat ramps), four additional boat ramps, and four day-use sites that are all located on the shores of USACE managed reservoirs under consideration in this EIS.
- With consistently lower reservoirs through the summer recreation season, an expected recreation impact will be a substantial increase in recreational use of exposed reservoir bottoms. The Forest Service does not have the resources to effectively control and manage this use. Additionally, the current approach to restrict all access to reservoir bottoms is untenable and unsustainable at any reservoir that will be less than full pool consistently in the summer recreation season.
- The forest has recreation infrastructure around these reservoirs that will no longer be functional and/or desirable under many of the alternatives under consideration. For example, Slide Creek Campground is on the shore of Cougar Reservoir and has a large boat ramp and parking area providing access when the reservoir is at or near full pool. Under the preferred alternative, all of this boating infrastructure will no longer serve any purpose; additionally, the desirability of the campground will be substantially less without nearby water.
- Proposed Mitigation suggestions for USACE:
    - USACE should provide the resources to develop recreation management plans for each reservoir and the resources for implementation of those plans. The recreation management plans may include: identifying sustainable recreation opportunities in the reservoir bottoms; managing recreation access (including both restricting/block access in areas and enhancing access if and where appropriate)
    - USACE should identify long-term functionality of recreation infrastructure, identify future use of impacted recreation sites, provide the resources to either modify or decommission recreation sites that become unusable or undesirable, based on the new reservoir operations.

Wildlife

- Deep and extended drawdown levels could potentially affect bald eagles and osprey through loss of foraging habitat (less lake area to forage in).
- Deep and extended drawdown levels could potentially affect western pond turtles through

loss of basking habitat

Botany

- Weeds already exist around the reservoir and could spread, although there is not much to mitigate in that case.
- USACE should monitor for new invasives migrating into the reservoirs and make efforts to keep them from establishing.
    - One mitigating action would be to replant native vegetation that can handle being submerged, such as willows. Refer to Kaweah Reservoir administered by USACE in CA as an example.

Heritage

- There is concern for exposure of cultural resources that have long been submerged by reservoir waters.

Law Enforcement

- There is concern that extended drawdowns would attract crowds of people and vehicles to reservoir bottoms resulting in unauthorized use, parties, fires, damage to natural and cultural resources, and other illegal activities.

Please reach out to Omero Torres with any questions or needs regarding these comments.
-Dave

David Warnack
Forest Supervisor

Forest Service
Willamette National Forest

p: 541-315-1227
david.warnack@usda.gov

www.fs.fed.us

Caring for the land and serving people

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Columbia River Fish and Wildlife Conservation Office
1211 SE Cardinal Court, Suite 100
Vancouver, Washington 98683

February 23, 2023

U.S. Army Corps of Engineers
Attn: CENWP-PME-E / Willamette EIS
P.O. Box 2946
Portland, OR 97208-2946

Subject: U.S. Fish and Wildlife Service (USFWS) Comments on the U.S. Army Corps of Engineers (USACE) 2022 Willamette Valley System Operations and Maintenance Draft Programmatic Environmental Impact Statement (dPEIS)

The USFWS has reviewed sections of the dPEIS for the WVS Operations and Maintenance (dated November 25, 2022) as they pertain to bull trout and Pacific lamprey, primarily focusing on passage. We provide comments on the following pages, generally, and those more specifically addressing climate change, bull trout, Pacific lamprey and the adaptive management framework.

Thank you for the opportunity to provide these comments. If you have any questions, please contact Michael Hudson (michael_hudson@fws.gov). We look forward to continuing to work with you in the Willamette River basin.

Sincerely,

Christina Wang

Christina Wang
Acting Project Leader for
Janine Castro
Project Leader

GENERAL

The USFWS is significantly concerned with the Preferred Alternative Implementation Timeline (p. 5-38). Planned construction of fish passage solutions needed immediately are spread across the next 20 years; and that may be a best case scenario.

We would like to see upstream and downstream passage solutions for fish at all Federal projects

- Providing upstream and downstream passage at projects provides the opportunity for bull trout and other species to reduce the risk from local threats that may be present both upstream and downstream of the project through connectivity that allows individuals to move away from the threat. This is the solution that provides the most flexibility for bull trout and other species.
- Remove jargon. E.g., Sec 4.21.2, p 4-302, "This would result in an uptick of illicit collection…"

  "Uptick" is synonymous with "increase", but increase is more understandable to a broad audience and hence more inclusive. Using inclusive language is a Federal agency responsibility and should be a Federal agency priority.

CLIMATE CHANGE

Climate change analyses include no reference to species' climate change vulnerability assessments for bull trout (Dunham 2015) or Pacific lamprey (Wang et al. 2020). Cannot do an adequate assessment of climate impacts on species addressed in EIS without referencing information available from CCVAs.

Given the qualitative nature of the climate change assessment, this statement is rather definitive: "The EIS actions will not exacerbate climate change impact or adversely affect the WVS and its environment." The summary and conclusions do a good job a qualifying the relationships between climate change, the EIS actions and related uncertainty. This statement should also be qualified by framing it relative to uncertainty and the NAA.

The exacerbation of potential impacts from climate change are focused on implementation of actions, and one in particular: deep drawdowns (as referenced below). More information on the potential impacts due to lack of action could be conveyed. For example, the potential impacts of climate change could be exacerbated for species due to lack of passage at projects (e.g., Hills Creek Reservoir)

- P. 3-799, Sec 3.9.2.5.2 – "On the other hand, deep drawdowns (the deep fall drawdown at Detroit) are anticipated to exacerbate climate change effects (longer drier summers) to wildlife species and habitat."

- P. 3-802, Sec. 3.9.2.6.2 – "On the other hand, deep drawdowns (at Cougar and Green Peter) are anticipated to exacerbate climate change effects (longer drier summers) to wildlife species and habitat."
- P. 3-806, Sec. 3.9.2.7.2 – "On the other hand, deep drawdowns (at Cougar, Blue River, Lookout Point, Hills Creek, Green Peter, and Detroit) are anticipated to exacerbate climate change effects (longer drier summers) to wildlife species and habitat."
- P. 3-810, Sec. 3.9.2.8.2 – "On the other hand, deep drawdowns (at Cougar, Blue River, Lookout Point, Hills Creek, Green Peter, and Detroit) are anticipated to exacerbate climate change effects (longer drier summers) to wildlife species and habitat."
- P. 3-816, Sec. 3.9.2.10.2 – "On the other hand, deep drawdowns (at Cougar and Green Peter) are anticipated to exacerbate climate change effects (longer drier summers) to wildlife species and habitat."

COMMENTS ON BULL TROUT

The USFWS finds the USACE's effects analysis to bull trout populations affected by Hills Creek and Cougar Dams inconsistent and difficult to follow (e.g., Tables 3.1-6 (lines 3.8 and 3.24 and supporting text). The USFWS has previously provided review and comment indicating the shortcomings in the analysis conducted. Some of these are reiterated below. The USFWS maintains that bull trout in the Willamette Basin are adfluvial only because they are not afforded passage, and this forced adfluvial life history does not benefit the recovery of bull trout in the Willamette Basin. The USFWS also maintains that restoration of passage within the Middle Fork Willamette and the McKenzie Basins is critical to bull trout and that the benefits of safe and effective passage outweighs the stated risks (increased exposure to recreational fisheries and predatory fish, loss of reservoir habitat, exposure to warmer habitats below dams, etc.). Providing and maintaining connectivity is one of the more important climate adaptation actions that can be taken in the face of a changing climate (e.g., https://www.sciencedirect.com/science/article/pii/S0006320720307369 (and references within)). As a cooperating agency, USFWS is happy to assist USACE with improving these sections for bull trout, and will continue to work with the USACE on developing an improved proposed action for the WVS via the ongoing Endangered Species Act Section 7 consultation.

p. 3-695/p. E-220, Additional variables not explicitly considered by Schaller et al. (2014) which are important when assessing reservoir use by bull trout are predation and fisheries. – Please provide a reference for this statement indicating that predation and fisheries are additional variables which are important when assessing reservoir use. This is not stated by Schaller et al.

p. E-222 - "Lacking emigration and upstream return rates of bull trout at WVS dams, we assume that risks of mortality are high for emigrants passing below dams due to the numerous limiting factors present, prediction in further habitat degradation, and that there would not be spawning below dams."

- These are small populations that will not likely ever provide the power/rigor to support a quantitative analysis.
- This comment also applies to the adaptive management framework that is in place to assess the need for passage for bull trout at Hills Creek.
- USFWS suggests pursuing another approach to decision support using bull trout experts.

P. E-222, "Since existing bull trout populations above Cougar and Hills Creek dams, which are currently stable or increasing, rely on reservoirs for rearing and foraging, we also considered the extent that reservoir conditions would change in each alternative. A fish passage measure which results in a reservoir pool which is largely drained would be expected to significantly affect rearing and forage opportunity. Passage measures which maintain a reservoir year-round were assumed not to significantly affect rearing and forage opportunity."

- This is an incorrect statement restricted by available information. Bull trout in the Willamette River basin were historically fluvial and did not rely on reservoirs for rearing and forage, and were likely stable as well. The assumption that a drained reservoir impacts rearing and forage opportunity is not necessarily true with adequate fish passage.

P. E-223, "For alternatives where fish passage is not changed from existing conditions, we categorized the risks as low. This is primarily based on available information showing existing populations of bull trout above Cougar and Hills Creek as stable or increasing, and the assumption that habitat conditions will degrade and known limiting factors will be exacerbated below dams with climate change."

- USFWS does not agree that bull trout isolated above projects "where fish passage is not changed from existing conditions" benefit from that situation and are at lower risk. We have provided previous comments and information to this end, and provide it again herein.

Comment previously provided that the harvest risk does not necessarily change above and below projects, so the harvest risk/fisheries variable score would be a null variable. USFWS recommended eliminating the decrement to the habitat score in this assessment. The USACE responded:

- A socioeconomic analysis would be needed to support the hypothesis presented in this comment. This type of analysis was not included in the DEIS. ODFW reported an alarming high catch rate for bull trout in Hills Creek (Reis et al. 2012). Bull trout are known to be exceptionally vulnerable to hook and line fisheries, which occur in each WVS reservoir and downstream of WVS dams. In the USACE's assessment, lacking a socioeconomic analysis or additional information, we assumed that when downstream passage is provided at WVS dams, bull trout exposure to fisheries risks increase due to reduced proximity to human populations. Can the USFWS provide information

supporting the assumption that harvest risk does not necessarily change above and below projects, so would be a null variable?

- The rationale for increased risk downstream of the projects is confusing and based on assumption, as stated above. Why assume a change when that is not supported by the data presented? In fact, the data presented indicates that the harvest risk may be higher in the reservoir itself.

p. 3-695, "We included a population above Detroit Dam since USFWS also plans to reintroduce bull trout above Detroit Dam (Hudson 2017). "

- USFWS asked that this statement be revised prior to public review to more accurately reflect our intention, "…may potentially reintroduce…"

USFWS would like to see Measure 392 and Measure 722 included in the preferred alternative for Hills Creek Reservoir.

- Providing upstream and downstream passage at projects provides the opportunity for bull trout and other species to reduce the risk from local threats that may be present both upstream and downstream of the project through connectivity that allows individuals to move away from the threat. This is the solution that provides the most flexibility for bull trout and other species.

We encourage the USACE to fully incorporate all of the implementation actions that will address the demographic threats identified in the USFWS's 2015 Bull Trout Recovery Coastal Recovery Unit Implementation Plan for Bull Trout (USFWS 2015, pp. A- 85- 87). The WVS dams that are addressed by these actions are highlighted below:

- Action 2.1.1. Continue to document and evaluate entrainment of bull trout at **Cougar,** Trail Bridge, and **Hills Creek dams** as changes occur in reservoir operations.
- 2.1.2 Provide appropriate screening to prevent unsafe entrainment of bull trout through dams in the **McKenzie and Middle Fork Willamette Rivers Subbasins.**
- 2.1.3 Re-establish connectivity by providing safe upstream and downstream passage at Trail Bridge, **Hills Creek, Lookout Point and Dexter dams and downstream passage at Cougar Dam**. Options for downstream and upstream passage at Trail Bridge Dam are components of EWEB's FERC relicense application awaiting FERC approval. In concordance with the NMFS and Service 2008 Biological Opinion, implement the **Terms and Conditions associated with providing downstream fish passage through the USACE dams** including assessing survival and efficiency through all available routes (i.e., turbines, spillways, and regulating outlets) and proposing alternatives for reducing mortality to bull trout.
- 2.1.6 Continue to capture and move as appropriate bull trout holding below **Hills Creek** and Trail Bridge dams until upstream fish passage facilities are constructed and proven

effective. Implement measure 1.2.1 from the Upper Willamette Basin Bull Trout Action Plan, which details recommendations for successful salvage of bull trout.

- 2.2.1 Maintain a law enforcement presence in areas occupied by bull trout in order to ensure compliance with angling regulations, and concentrate patrols in known problem areas, including the McKenzie River, **South Fork McKenzie,** Trail Bridge Reservoir, **Cougar Reservoir,** Leaburg Lake, **Hills Creek Reservoir, and the Middle Fork Willamette River above the reservoir**.
- 2.4.1 Continue to provide historical prey base by outplanting excess live hatchery spring Chinook salmon into above dam habitats occupied by bull trout. Juvenile spring Chinook Salmon are an important prey source for bull trout. The construction and operation of dams on **the McKenzie River and Upper Willamette River** eliminated spring Chinook above the dams for many years. The absence of spring Chinook limited the production of bull trout populations above the dams. Release adult salmon, out-plant viable eggs, or release hatchery fry above Trail Bridge, **Cougar and Hills Creek dams** until volitional fish passage is provided for spring Chinook.
- 3.1.2 Continue to investigate and implement methods to suppress nonnative fish. Use methods such as reservoir manipulations to control non-native fish, including walleye and various centrarchids, in **Hills Creek Reservoir** and the McKenzie River.
- 4.2.2 Continue to monitor and evaluate the status of the **Middle Fork Willamette** River bull trout population. Implement necessary actions to ensure its persistence and the success of the rehabilitation program.

P. E-220, "The U.S. Fish and Wildlife Service (USFWS) also plans to reintroduce bull trout above Detroit Dam (C. Allen, pers. comm. insert date 2021)."

- Please revise to state "The U.S. Fish and Wildlife Service (USFWS) may potentially reintroduce bull trout above Detroit Dam…"

COMMENTS ON PACIFIC LAMPREY

Background:

Pacific lamprey are both culturally and ecologically important. Pacific lamprey are a Tribal Trust species, and have a high cultural significance to Native American tribes throughout the Columbia River Basin. At this time, Pacific lamprey are extirpated above all of the WVS dams, with the exception of Fall Creek Dam (which is discussed later). Consideration of Pacific lamprey passage at the WVS is important because their abundance and distribution has significantly declined throughout its range over the past three decades, and efforts to reverse this decline are needed (USFWS 2019; ODFW 2020). ODFW, in its Coastal, Columbia, and Snake Conservation Plan for Lampreys in Oregon (ODFW 2020,p. 35, 38) identified habitat access (up- and downstream passage) as a primary limiting factor in the Willamette Basin, identifying the 13 dams of the WVS.

Lampreys likely provide substantial benefits to ecosystem health and water quality on which ESA-listed fish rely. Lamprey have been documented as prey by many different animal species, including 20 species of fish (both native and non-native), 11 species of birds, and 9 marine mammals (ODFW, 2020, p.119; Table A3.4). Because the caloric content of Pacific Lamprey is significantly higher than salmon (Close et al. 2002; Clemens et al. 2019 as cited in ODFW 2020), lampreys may serve as important "predation buffers" for ESA-listed salmonids, and distract predators away from feeding upon salmon at times. ODFW (2020, p. 116) summarized ecological benefits into three categories:

1) 'ecosystem engineers;'
2) nutrient suppliers to freshwater ecosystems and recyclers of nutrients within these systems; and
3) prey sources for other animals / predation buffers to salmonid species."

ODFW, in its Coastal, Columbia, and Snake Conservation Plan for Lampreys in Oregon (ODFW 2020, p. 116) further describes these categories follows:

"As 'ecosystem engineers' lampreys benefit the surrounding habitat in freshwater streams in ways that differ by life stage. For example, as adults, lampreys construct redds in which they spawn. Construction of these redds alters the streambed in ways that favor aggregations of aquatic insects that process stream nutrients and feed juvenile fishes (Hogg et al. 2014). In addition, the burrowing behavior of larval lamprey has been associated with increased water exchange between the stream and substrate in the streambed, increased oxygen in the substrate, and an increase in fine particulate matter on the surface of the substrate (Shirakawa et al. 2013; Boeker and Geist 2016).

"Anadromous lampreys provide marine-derived nutrients to freshwater ecosystems (Close et al. 2002; Nislow and Kynard 2009). Their spawned-out carcasses decay and release nutrients into the surrounding water (Weaver et al. 2015). These nutrients are assimilated by aquatic insects (Weaver et al. 2016), which may be consumed by juvenile salmonids. As nutrient recyclers, larval lamprey feed on detritus and algae and convert these food sources into energy stored as animal (larval lamprey) tissue (Close et al. 2002) that is then available to larger predators that eat them. Lampreys are a prey source for humans (see below) and many different animals (Table A3.4).

"Larval and juvenile lampreys migrating downstream may focus the attention of predatory fishes and birds, thereby potentially offering a predation reprieve for juvenile salmon and steelhead. Similarly, the high caloric content, ease of capture (relative to salmonids), and the tendency to migrate in schools may make Pacific Lamprey desirable prey sources for pinnipeds, thereby buffering adult salmon and steelhead from predation (Close et al. 2002)."

Section 2.2.4.1. Provide Pacific Lamprey Passage and Infrastructure (#52, or in some instances erroneously referred to as #53). This title and section are misleading to readers. To date, the USACE has not completed any upstream lamprey passage facilities and the proposed action does not commit the USACE to providing lamprey passage at any of the 13 dams. The current proposed action only to provide features that benefit lamprey is easily misinterpreted as lamprey passage will be provided. This inaccuracy is also provided in summary tables, which suggest that all of the alternatives "includes lamprey passage measures" or otherwise suggest that lamprey passage is provided (See Table 3.1-6, line 3.24; and Tables 2.4-7 through 2.4-14).

However, as the USFWS understands the proposed action #52, the proposal is to only incorporate design elements that could be beneficial to upstream lamprey passage in the future, when other lamprey-specific structures are added to Adult Fish Facilities used for trap and haul of anadromous salmonids. USACE is not proposing passage for effective lamprey or constructing facilities to collect and pass lamprey upstream as part of this proposed action at any of its 13 WVS dams. While the most recently upgraded facilities do have aspects that are likely to assist in collecting lampreys, passage of lampreys will not happen until other separate, lamprey-specific facilities are constructed. Language and summary tables in the dPEIS should accurately reflect the lack of commitment to lamprey passage, if the USACE does not expand action #52.

The only potential alternative currently in the dPEIS that could improve lamprey passage and increase its distribution is the fish passage restoration at the small dam and drop structures below Fern Ridge Dam on the Long Tom River. USFWS is supportive of this action (measure #639), but suggests keeping it separate from measure #52, which introduces confusion.

Lamprey Passage Planning. In the USFWS Fish and Wildlife Coordination Act Report, developed for the USACE's use in this dPEIS, the USFWS included Recommendations for Pacific lamprey passage, including

1) Complete an upstream lamprey trap and haul for passage Fall Creek Dam to sustain the recently reintroduced population of Pacific lamprey, and
2) Create and implement a prioritization framework for Pacific lamprey conservation and reintroduction of lamprey into historical habitats above the USACE dams in collaboration with the USFWS and other partners in the Willamette Basin, aka the WVS Lamprey Passage Plan.

The USFWS believes these two items are important commitments the USACE should include in its proposed action, which covers the WVS for the next 30 years. The current alternatives do not address lamprey passage, and as presented are confusing. All alternatives (1- 5) only suggest that lamprey passage features (not effective passage) would occur at one or more of the following WVS dams: Green Peter, Hills Creek or Blue River (depending on alternative). There is no mention of completing passage at Fall Creek Dam, despite effective passage is

needed at Fall Creek within ~5 years to maintain the successful reintroduction of Pacific lamprey above Fall Creek Dam.

Despite the purpose and need of the proposed action is to provide fish passage for the next 30 years and specifically names Pacific lamprey, none of the alternatives results in passage at any of the 13 WVS dams. A commitment by the USACE to collaboratively develop WVS Lamprey Passage Plan is needed within the proposed action to address the lack of access to historical habitats for over 60 years and benefit this species in decline.

COMMENTS ON APPENDIX N. ADAPTIVE MANAGEMENT PLAN (AMP)

General comment: We recommend the USACE acknowledge that USFWS has significant influence and approval authority over future USACE actions taken under this plan that affect bull trout migration and local populations so that we can ensure that the impacts are consistent with our ongoing ESA Section 7 analysis and that the action supports recovery of bull trout in the Willamette Basin. The AMP does not include USFWS where appropriate and does not adequately identify the important role USFWS and NMFS must have in future decisions to ensure the proposed action and any actions taken via adaptive management meet the intent and conditions of the future Biological Opinions on the WVS.

Section 5: Appendix N of the dPEIS (AMP) provides the framework and criteria for future decisions made over the next 30 years under the proposed action. Adaptive management for Cougar, Hills Creek, Lookout Point, and Dexter dams, all affect connectivity of bull trout across the designated critical habitat within the Willamette Basin. Detroit/Big Cliff dam complex will affect reintroduction of bull trout into the North Santiam Basin. Section 3.1 states Adaptive management "demands the clear statement of objectives." Yet there is little specificity or clarity in the objectives (as stated under "performance metrics", "targets" or "decision triggers") stated for fish passage, and except for Hills Creek Dam, there is no mention of bull trout or bull trout passage considerations for any of the dams that affect bull trout (Cougar, Hills Creek, Lookout Point, and Dexter dams and the Detroit/Big Cliff complex). This document is intended to guide WVS operations for the benefit of ESA-listed fish, but largely does not consider or address bull trout needs. The document as does not adequately include sufficient detail on monitoring or decision triggers to provide guidance on bull trout passage in the future at any of the dams affecting bull trout. We recommend the USACE work with USFWS to add text that will address bull trout passage considerations in its performance metrics, targets, and decision triggers, and identify and fund studies to address unknowns, risks and uncertainties.

Section 5.4.1.1. Text states "During storms and flood risk reduction events, USACE and NMFS may jointly decide to allow the reservoir to fill rather than use the turbines to increase outflows out of Cougar Dam and develop a strategy to manage water releases following this and future storm events." As bull trout are present in this system above and below Cougar Dam, and these future adaptive management decisions affect bull trout passage and critical habitat, USFWS should be included in these discussions. Please revise text to include USFWS.

Section 5.4.1.1. (COU). Text states: “The goal is to start refill early enough that the reservoir can reach elevation 1571 ft. by summer so that the Cougar Water Temperature Control Tower (WTCT) weirs can be used for downstream water temperature management.” If the reservoir is much reduced, use of the WTCT may not be needed for downstream temperatures, and bringing the reservoir up and switching to powerhouse operations during this time will substantially reduce fish passage efficiency and survival. There is no discussion on how the reduction in the reservoir will change the need for existing operations, or what targets/ performance measures will help guide future decisions on this operation to benefit fish passage. There should be an analysis that addresses this trade-off between temperature management and fish passage, and the AMP should include specific criteria to aid in future decisions. We recommend USACE work collaboratively with NMFS and USFWS to better appropriate targets and potential actions for operations at Cougar Dam.

Section 5.4.1.1. The following two “targets” are common for 6 dams, lack clarity, and need revision: “Increase in the number of juveniles passing as compared to previous operational conditions (baseline/NAA).” & “ Increase in the distribution of fish lengths passing downstream as compared to previous operational conditions (baseline/NAA).” These targets lack specificity and meaning for future adaptive management. Simply “increasing the number” of fish (by 1?by 10?) regardless of their condition (injured, dead, alive) collected below the dam will not indicate better passage or survival of downstream migrants. It should matter if this increased distribution is representative of live /surviving /uninjured fish, and what level of increase for surviving fish without injury is to better define targets.

The USFWS suggests more appropriate and informative targets should be included, such as “Substantially increase the number of fish passing without delay” and “substantially increase the percentage of fish surviving”. Providing a specific level of increase (e.g., 50%) would be more informative and better frame the decisions that must be made in the future. While these targets presumably are about chinook, there should be some recognition or statement as to how USACE will use this information for bull trout, unless bull trout specific targets can be identified. We recommend USACE work collaboratively with NMFS and USFWS to better determine all targets given the significance of this AMP to operations over the next 30 years.

Section 5.5.7.5 - Bull Trout : Text states: “If the review of traps finds that it is feasible to construct and operate an effective trap for bull trout in the tailrace of Hills Creek Dam, then the design and construction process will proceed pending funding authorization. The approximate timing for completion of this trap would be 6.5 years, given funding and assuming 1.5 each for EDR, DDR, P&S, and 1 year for construction. The chosen design concept will influence the final timing of completion of the design and construction process.” The USFWS recommends the USACE: 1) Provide a detailed description of what will be included in the “review of traps” or cite appropriate section for cross-referencing. This review does not appear to be mentioned or described elsewhere in the AMP; 2) Provide a date by when the “review of traps” will be completed, so there is a clear timeline of events and understanding of when bull trout passage

will be provided; and 3) provide criteria for a fish passage facility that includes "safe, timely and effective" passage of bull trout and chinook from below to above Hills Creek Dam.

REFERENCES CITED

Boeker, C., and J. Geist. 2016. Lampreys as ecosystem engineers: Burrows of *Eudontomyzon* sp. and their impact on physical, chemical, and microbial properties in freshwater substrates. Hydrobiologia. 777: 171 – 181.

Clemens, B.J., L. Weitkamp, K. Siwicke, J. Wade, J. Harris, J. Hess, L. Porter, K. Parker, T. Sutton, and A.M. Orlov. 2019. Marine biology of the Pacific Lamprey *Entosphenus tridentatus*. Reviews in Fish Biology and Fisheries. Available: https://doi.org/10.1007/s11160-019-09578-8

Close, D.A., Fitzpatrick, M.S. and Li, H.W. 2002. The ecological and cultural importance of a species at risk of extinction, Pacific Lamprey. Fisheries. 27: 19 – 25.

Hogg, R. S., S. M. Coghlan, Jr., J. Zydlewski, and K. S. Simon. 2014. Anadromous sea lampreys (*Petromyzon marinus*) are ecosystem engineers in a spawning tributary. Freshwater Biology. 59: 1294 – 1307.

Nislow, K. H. and, B. E. Kynard. 2009. The role of anadromous Sea Lamprey in nutrient and material transport between marine and freshwater environments. American Fisheries Society Symposium. 69: 485 – 494.

ODFW (Oregon Department of Fish and Wildlife) 2020. Coastal, Columbia, and Snake Conservation Plan for Lampreys in Oregon. February. 193 electronic pages. Available: https://www.dfw.state.or.us/fish/CRP/docs/coastal_columbia_snake_lamprey/CPL%20-%20Final%202-14-20.pdf

Shirakawa, H., S. Yanai, and A. Goto. 2013. Lamprey larvae as ecosystem engineers: Physical and geochemical impact on the streambed by their burrowing behavior. Hydrobiologia. 701: 313 – 322.

U.S. Fish and Wildlife Service. 2015. Coastal Recovery Unit Implementation Plan for Bull Trout (*Salvelinus confluentus*). September 2015. Prepared by Washington Fish and Wildlife Office (Lacey, WA) and Oregon Fish and Wildlife Office (Portland, OR). ecos.fws.gov/docs/recovery_plan/Final_Coastal_RUIP_092915_1.pdf

U.S. Fish and Wildlife Service. 2019. Pacific lamprey (*Entosphenus tridentatus*) Assessment. 283 pp. Available: Pacific Lamprey Assessment

Weaver, D. M., S. M. Coghlan, Jr., and J. Zydlewski. 2016. Sea lamprey carcasses exert local and variable food web effects in a nutrient-limited Atlantic coastal system. Canadian Journal of Fisheries and Aquatic Sciences. 73: 1616 – 1625.

Weaver, D. M., S. M. Coghlan, Jr., J. Zydlewski, R. S. Hogg, and M. Canton. 2015. Decomposition of sea lamprey Petromyzon marinus carcasses: temperature effects, nutrient dynamics, and implications for stream food webs. Hydrobiologia. 760: 57 – 67.

From:	Stephanie Tidwell
To:	CENWP-PME-Williamette-Valley-System-EIS
Subject:	[URL Verdict: Unknown][Non-DoD Source] Willamette Valley System DEIS comments
Date:	Thursday, February 23, 2023 8:17:34 PM

To whom it may concern:

These comments are submitted on behalf of Water Climate Trust, a 501(c)(3) non-profit organization dedicated to restoring aquatic ecosystems with the people who depend on them for food, jobs, health, and cultural survival. To this end, we work to improve water quantity and quality as well as climate policy and investments through advocacy, research, education, and stakeholder capacity building. We provide these comments in hopes of seeing an increased focus on ensuring adequate flows and passage for threatened and endangered fish in the final Willamette Valley System PEIS and ROD.

Specifically, we are concerned that the Draft PEIS failed to even cursorily evaluate dam removal as the most obvious fish passage solution. When I asked about this glaring absence at an open house in Springfield, Oregon last month, I was told by an Army Corps staff member that, since the original 'flood control' purpose of the dams was Congressionally-mandated, removing them is beyond the scope of the PEIS. This is simply not true. NEPA in fact requires consideration of alternatives that may be outside of the agency's current authorities, particularly if the project is in violation of other federal laws like the ESA (as evidenced by the injunction for Cougar Dam operations, as well as other issues forcing the development of this new PEIS). However, the Draft PEIS that we are now being asked to comment on completely ignores that the public has requested a no-hydropower alternative, as removing hydro allows for a greater range of operational measures that would be more effective for fisheries recovery, particularly to assist with downstream passage issues. An alternative on removing hydropower would trigger analysis of, at minimum, decommissioning Big Cliff and Dexter Dams, as both are 100% for the purpose of hydropower generation and serve no purported flood control purpose. This would also drastically increase the potential effectiveness of volitional fish passage at Detroit and Lookout Point, whereas the current preferred alternative is proposing to (eventually) construct non-volitional passage structures that probably won't work. These critically imperiled salmon runs could well be extinct by then.

Furthermore, the original Congressional authorization of dam construction for flood control does not preclude the agency from looking at decommissioning, especially when a structure is no longer really serving that purpose, as is currently the case with Cougar dam. I have been there twice recently, and it is a stretch of the imagination to see this remote, rural reservoir as a significant community flood preventative. Even under the proposal to eventually draw it down most of the year for volitional fish passage through the diversion tunnel at the bottom of the dam, far too many fish will not survive passing through the structure. It really needs to go. At absolute minimum, the Corps needs to speed up the timeline on getting there or make some changes to the interim drawdown operations to improve survivability through the interim route agreed to under the injunctive order.

I understand that bringing this massive dam system to a point where it will no longer imperil our declining fisheries is a Herculean task, and I do not envy you the job. However, the era of dam building is drawing to a close, and we must hasten their removal if our living rivers are to survive the coming upheaval of snowballing climate change. Please, I beg you to take a step back and ask 'what does the river and its inhabitants NEED to thrive,' and then to

do whatever you can to make it happen in partnership with the communities that depend on it.

Sincerely,

Stephanie Tidwell, Advisor
Water Climate Trust
1072 Maclay Drive
Eugene, Oregon 97404
www.waterclimate.org

WaterWatch of Oregon
Protecting Natural Flows in Oregon Rivers

February 23, 2023

VIA EMAIL

U.S. Army Corps of Engineers
Attn: CENWP-PME-E / Willamette EIS
P.O. Box 2946
Portland, OR 97208-2946

Email: willamette.eis@usace.army.mil

Re: Willamette Valley System Evaluation EIS

Dear Army Corps of Engineers:

Thank you for the opportunity to review and comment on the draft Willamette Valley System Environmental Impact Statement (Draft EIS).

WaterWatch of Oregon (WaterWatch) is a nonprofit river conservation organization dedicated to protecting and restoring streamflow in Oregon for the benefit of fish, wildlife and people who depend on healthy rivers. WaterWatch submits the following comments on the Draft EIS:

1. Reservoir operations should prioritize instream flows for fish, wildlife, and recreation, including but not limited to instream flows needed for ESA-listed winter steelhead and spring Chinook salmon.[1] Water provided for instream flows should be fully protected, with instream water rights and contracts for stored water, as recommended in the Willamette Basin Review BiOp (2019) (WBR BiOp).

2. Reservoir operations should fully incorporate the WBR BiOp as required by the Congressional authorization and the ESA. The alternatives analysis should also assume full compliance with all RPAs in that BiOp. Several sections of the Draft EIS, including those related to flow management in low-water years, are not clear on that topic. (*E.g.*, Section 3.13.3),

[1] The analysis of flow needs seems to derive primarily from the needs of spring Chinook. (A-21). Those needs are obviously important, but the EIS should consider all instream flow needs affected by operation of the dams and reservoirs.

3. Reservoir operations should also incorporate, as proposed, other measures that will increase survival and abundance of listed salmon and steelhead, including fish passage improvements and reservoir drawdowns to aid migration. These measures should be balanced with needs for stored water to meet instream flow needs in the spring, summer, and fall. Given the potential benefits to fish from both drawdowns and stored water, storage for power production should be de-emphasized, particularly since power production appears to provide limited economic benefit.

4. The EIS should include more information and analysis on management and protection of stored water for fish and wildlife. Models suggested for use in that process should be independently verified for scientific reliability and rigorously tested against outcomes for fish and wildlife. Absent a scientific basis to do otherwise, management of stored water should continue to use the flow targets set in the 2008 biological opinion.

5. The Draft EIS overstates the need for and importance of stored water for municipal and industrial use. (Appendix J, Section 1.1.2.) For example, it refers to a "Growing Communities Doctrine" that has not been recognized by Oregon courts, misdescribes the preference for "human consumption" as being in relation to only instream water rights and as synonymous with municipal and industrial use when it is only a small fraction of such use, and assumes municipal and industrial water demands will grow at the same rate as population when data on the subject shows growth can be accommodated by increased water use efficiency.

6. Constraints in the modeling may have affected the alternatives analysis. According to Appendix J, Section 2.3, the alternatives analysis did not alter downstream withdrawals and consumptive use to coincide with different levels of reservoir releases for consumptive use. Moreover, it appears that irrigation use was modeled at significantly less than projected actual use (1.3 percent of the lower Willamette seems significant even if difficult to gauge). Finally, it is not clear why the 2008 BiOp cap on irrigation contracts would remain in place under the NAA but not the alternatives to which it was compared, particularly since the 2019 BiOp cap on municipal and industrial use is assumed to be lifted even under the NAA.

7. The EIS should consider possible changes to rule curves and flood risk management for the benefit of ESA listed species and other priorities, including whether changes in flood insurance and land use practices that could reduce flood control needs.

8. The EIS should explain, as to each resource issue raised in the scoping process and considered significant enough to mention, (Section 6.2.), how and where that issue is addressed in the EIS, or the reasons that issue was not addressed.

Thank you for considering our comments.

Very truly yours,

Brian Posewitz

Brian Posewitz
Staff Attorney

February 23, 2023

U.S. Army Corps of Engineers
Attn: CENWP-PME-E / Willamette EIS
P.O. Box 2946
Portland, OR 97208-2946

Submitted via email to willamette.eis@usace.army.mil

Re: Willamette Valley System Draft Programmatic Environmental Impact Statement

To Whom It May Concern:

Please consider the following comments from Willamette Riverkeeper,[1] Cascadia Wildlands,[2] Center for Biological Diversity (Center),[3] Oregon Wild,[4] and Oregon Clean Water Action Project[5] concerning the U.S. Army Corps of Engineers' (Corps) Draft Programmatic Environmental Impact Statement (PEIS) for the Willamette Valley System.

More than a million Chinook salmon and steelhead once returned to the Willamette River Basin, and there once was a robust population of bull trout. Over the last hundred years, with the 1938 authorization of the Willamette Valley System, the effects of flood control and hydropower operations and resulting loss of habitat have driven steep declines in these fish populations in the Willamette Basin.[6] These collective pressures contributed to the listing of bull trout under the Endangered Species Act in 1998, and the listing of Upper Willamette River spring Chinook salmon and steelhead under the Endangered Species Act in 1999. The Southern Resident orcas have also been pushed closer to extinction as their

[1] Willamette Riverkeeper represents thousands of members in Oregon and the Pacific Northwest and focuses on protecting and restoring the Willamette River Basin.
[2] Cascadia Wildlands represents 12,000 members and supporters and is a part of a movement to protect and restore wild ecosystems of the Cascadia Bioregion.
[3] The Center has an office in Portland, Oregon, and is a national, nonprofit conservation organization with more than 1.7 million members and online activists dedicated to the protection of endangered species and wild places.
[4] Oregon Wild is a statewide charitable non-profit organization that has about 20,000 members and supporters who share a mission to protect and restore Oregon's wildlands, wildlife, and waters as an enduring legacy.
[5] Oregon Clean Water Action Project works to protect the quality of the waters of Oregon by representing other organizations (including Cascadia Wildlands, Oregon Wild, and Willamette Riverkeeper) in legal actions seeking compliance with the Clean Water Act and other laws affecting water quality.
[6] *See* NOAA Fisheries, Upper Willamette River Chinook Salmon Recovery Plan, https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/upper-willamette-river-chinook-salmon#:~:text=The%20Upper%20Willamette%20River%20Chinook,under%20the%20Endangered%20Species%20Act.

primary prey, Chinook salmon, have declined, and the Southern Residents are also listed as an endangered species.

In 1980 the Corps created the first programmatic EIS for the Willamette Valley System. Less than twenty years later, however, the Upper Willamette River Chinook Salmon, Upper Willamette River Steelhead, and bull trout were listed as federally threatened species under the Endangered Species Act. In the twenty-four years since these species were listed, the Corps has neglected to prioritize the survival of these threatened species, and the continued operation of the Willamette Valley System has put them at greater risk of extinction each year.

Willamette Riverkeeper, Cascadia Wildlands, the Center, Oregon Wild, and Oregon Clean Water Action Project have significant concerns about the Corps' draft PEIS and its preferred alternative, Alternative 5. The Alternatives presented in the draft PEIS, including the preferred Alternative 5, are inadequate to meet the Corps' statutory obligations under the Endangered Species Act to ensure that the Willamette Valley System does not jeopardize listed species.

The Corps must consider a broader range of measures in the Alternatives analyzed in the PEIS, including those that would require Congressional deauthorization of hydropower or Willamette Valley System dams. In particular, the Corps should include and consider the removal or modification of reregulating dams (Big Cliff, Dexter, and Foster) and subsequent downstream passage measures at Detroit Dam, Hills Creek Dam, and Lookout Point Dam, including one or more of the following measures: decommissioning and removing dams; improving fish passage at existing facilities such as though use of floating fish structures; providing earlier spill at Detroit Dam to assist downstream passage; modifying dam operations to improve habitat conditions below the dams; and implementing changes on an expedited timeline to prevent further harm to listed species.

Commenters urge the Corps to seriously consider adopting an alternative that would necessitate hydropower deauthorization. Short of that, Commenters request that the Corps consider Alternative 2A as the preferred alternative, as it will ensure the highest survival rates for federally threatened Willamette Basin salmonids, allow the Willamette River to be more resilient in the face of climate change, and continue to support power generation and unsurpassed recreation opportunities in the basin. In the alternative, we urge the Corps to consider actions that are not yet authorized by Congress to bolster the effects of its currently preferred Alternative 5.

FACTUAL BACKGROUND

I. Bull Trout

The bull trout is a type of char in the salmonid family native to waters of western North America. Its range includes the Columbia River and Snake River basins, extends east to headwater streams in Idaho and Montana, stretches north into Canada and southeast

Alaska, and encompasses the Puget Sound and Olympic Peninsula watersheds of western Washington and the Klamath River basin of south-central Oregon.

The bull trout is one of the most threatened salmonids. It has been nicknamed the “grizzly bear of the fish world” due to its large size, fierce disposition, and reliance on pristine, unspoiled cold-water habitat. Bull trout may be found only in the coldest, cleanest waters of high mountainous areas and primarily live in deep pools of large, cold rivers and cold, clear lakes.

Bull trout require specific habitat components, often referred to as “the four Cs”: cold, clean, complex, and connected habitat. They require cold water temperatures (less than 12 degrees Celsius/54 degrees Fahrenheit); the cleanest water and stream substrates; complex stream habitat including deep pools, overhanging banks, and large woody debris; and connectivity between spawning and rearing areas and downstream foraging, migration, and overwintering habitats.

Bull trout may be either resident or migratory. Resident bull trout complete their entire life cycle in the same streams where they spawn and rear. Migratory bull trout spawn in tributaries, where juveniles rear for up to five years before migrating either to a lake (adfluvial) or, in coastal areas, to saltwater (anadromous). Resident and migratory bull trout may be found together, and either form may spawn offspring exhibiting either resident or migratory behavior.

Bull trout live longer than any other salmonid. Although maximum age is unknown, bull trout have been recorded as old as 24 years old. Unlike Pacific salmon species that spawn once and then die, bull trout may spawn multiple times in their lifetime, migrating numerous times between spawning streams and their large river or lake habitats.

Migratory bull trout begin their spawning migration as early as April, and some travel upstream up to 250 kilometers (155 miles) to find suitable spawning habitat. Bull trout typically spawn between August and November but will not begin spawning until the water cools to specific temperatures. Bull trout construct their nests, or redds, in low-gradient stream reaches with loose, clean gravel substrates. Bull trout fry emerge from redds in early April through May, depending on stream temperatures and flows. Once hatched, young fry remain in the gravel substrate as long as ideal temperatures are maintained. Juvenile bull trout spend considerable time foraging and rearing in the creek where they were spawned until they grow to the optimal size for out-migration.

Juvenile bull trout prey on terrestrial and aquatic insects, macro-zooplankton, and small fish. Adult bull trout are carnivorous, feeding primarily on a wide variety of fish species.

Sedimentation, or the delivery of fine sediment to the streambed, reduces bull trout egg survival, fry emergence, and forage opportunities.

The current distribution of bull trout is fragmented across its historical range. Bull trout occur in low numbers in many areas, and many populations are depressed, and declining.

The U.S. Fish & Wildlife Service (the Service) listed bull trout in the coterminous United States as one distinct population segment that is threatened with extinction under the ESA in 1999.[7] The Service determined that bull trout are threatened by the combined effects of: (1) habitat degradation, fragmentation, and alteration associated with dewatering, road construction and maintenance, mining, and grazing; (2) the blockage of migratory corridors by dams or other diversion structures; (3) poor water quality; (4) incidental harvest; (5) entrainment (a process by which aquatic organisms are pulled through a diversion or other device) into diversion channels; and (6) introduced nonnative species.[8]

The Service designated critical habitat for bull trout in 2010.[9] The primary conservation role of bull trout critical habitat is to support viable core area populations that reflect the overall structure of the metapopulation.

The Service developed a recovery plan for bull trout in 2015 (Recovery Plan). In the process of developing the Recovery Plan, the Service classified 109 "core areas" currently occupied by bull trout based on their importance to the species' survival and recovery. The Recovery Plan distinguishes two types of core areas for bull trout conservation: complex core areas and simple core areas. Complex core areas contain multiple local bull trout populations, include both migratory and resident bull trout, and include diverse patterns of connected spawning and rearing and foraging, migratory, and overwintering habitats. Simple core areas are smaller, isolated habitats that typically contain a single population, may not include foraging, migratory, and overwintering stream habitat, and may include only the resident life history form or a very simple migratory pattern.

The Coastal Recovery Unit includes 21 core areas spanning western Oregon and Washington, including the Upper Willamette River. The Coastal Recovery Unit also includes four historically occupied core areas that could be reestablished, including the South Santiam River and North Santiam River drainages. The Upper Willamette River Core Area has been identified as a complex core area and hosts four bull trout populations. The Coastal Recovery Unit Implementation Plan identifies the operation of the major dams on the Upper Willamette River as one of the primary threats to bull trout habitat, because it has altered the natural flow regime and geomorphic processes and eliminated pools and complex habitat suitable for juvenile and adult rearing. Dams are also listed as a primary demographic threat to bull trout because they impair habitat connectivity by entraining fish, impeding passage, causing passage related mortality, and isolating what was once one population into four small populations.

Habitat connectivity is essential for the conservation and recovery of bull trout because migration facilitates gene flow among local populations when individuals from different local populations interbreed, or stray, to non-natal streams, and extirpated populations

[7] 64 Fed. Reg. 58,910 (Nov. 1, 1999).
[8] *Id.*
[9] 75 Fed. Reg. 63,898 (Oct. 18, 2010).

have the potential to become reestablished by migrating bull trout. Migratory corridors link seasonal habitats for all bull trout life histories.

Water control structures and agricultural diversions have contributed to the decline of bull trout in several recovery units. Providing fish screens and fish passage at existing water control structures and ensuring sufficient water quantity and quality for bull trout have been identified as necessary for recovery.

While the detrimental effects from dams continue across the range of bull trout, there are numerous examples of significant conservation benefits to bull trout realized since 1999, resulting from the FERC relicensing process of major hydropower facilities. Within the Coastal Recovery Unit, the relicensing process has led to fish passage or complete dam removal (Elwha and Glines Canyon dams on Elwha River, Conduit Dam on White Salmon River, and Powerdale Dam on Hood River) at several formerly impassible sites.

II. Upper Willamette Spring Chinook Salmon

The Upper Willamette River spring Chinook salmon is an anadromous salmonid native to the Willamette River above Willamette Falls. As an anadromous fish, these Chinook salmon are born in freshwater streams in the Upper Willamette River basin and migrate down the Willamette River and Columbia River to the ocean, where they live for several years before returning to their natal streams to spawn and complete their life cycle.

Upper Willamette River spring Chinook salmon are considered one of the most genetically distinct groups of Chinook salmon in the Columbia River Basin. They adapted to the natural flows in the Willamette River by returning from the ocean and entering the river in late winter and getting past Willamette Falls, which historically acted as an intermittent physical barrier to upstream migration into the upper Willamette basin. Adult spring Chinook salmon could only ascend the falls in the spring when flows were high enough to support their passage over the falls.

Historically, the peak migration of adult salmon over Willamette Falls occurred in late May. Low flows during summer and autumn months prevented fall-run Chinook salmon and Coho from reaching the Upper Willamette River basin. Due to changes in water flows caused by the Willamette Valley System dams, the fish now ascend Willamette Falls through a fish ladder.

Upper Willamette River spring Chinook salmon begin appearing in the lower Willamette River in January and February, and most of the run ascends Willamette Falls from April through July. After ascending the falls, adult Chinook migrate quickly to upper subbasins and “hold” in deep pools with cool water temperatures through the summer.

The historic spawning period for spring Chinook likely extended from July through October, but now spawning generally begins in late August and continues into early October, with peak spawning in September.

Adult Chinook salmon must deposit their eggs at a time that will ensure that fry emerge the following spring to support survival and growth. Exact timing varies with water temperature with fish in colder areas, such as the headwaters, spawning earlier than fish lower in the subbasin. The success of spawning is greatest in areas with relatively stable substrates so that gravel and cobbles shifting during high water events do not damage the eggs. Chinook fry emerge from gravels from February through March, and sometimes as late as June. Juveniles rear in areas with a variety of cover types that provide protection. Most young spring Chinook emigrate from freshwater as yearlings.

Unnaturally warm water released in the fall from the large Willamette System flood control dams on several tributaries hastens the development of eggs and emergence of fry compared to emergence in tributaries with unregulated water flows.

Historically, the Upper Willamette River supported hundreds of thousands of spring Chinook salmon, but populations have declined dramatically. Now, about 80 percent of Upper Willamette River spring Chinook salmon are hatchery-origin fish. In 2016, only 11,600 wild Upper Willamette River spring Chinook salmon entered the mouth of the Columbia River, with less than 7,000 counted at Willamette Falls and only 3,600 entering the Clackamas River below the falls. Counts of wild Upper Willamette River spring Chinook have averaged less than 10,000 fish at Willamette Falls since 2010.

In 1999, NMFS listed the Upper Willamette River spring Chinook salmon as threatened under the ESA and designated critical habitat in the Upper Willamette River basin. NMFS considers Upper Willamette River Chinook salmon to be at high risk of extinction, with five of the seven local populations at very high risk of extinction.

There are seven geographically distinct populations of Upper Willamette River Chinook salmon: Clackamas, Molalla, North Santiam, South Santiam, Calapooia, McKenzie, and Middle Fork Willamette. NMFS considers the Middle Fork population a core population that is critical to the long-term persistence of Upper Willamette River spring Chinook salmon, but there are very few wild fish left in this population. These seven river basins also contain critical habitat for Upper Willamette River spring Chinook.

III. Upper Willamette Steelhead

Like the spring Chinook salmon, the Upper Willamette River steelhead is an anadromous salmonid native to the Upper Willamette River above Willamette Falls that is born in freshwater streams and migrates to the ocean, where they live for several years before returning to their natal streams to spawn.

Similar to spring Chinook salmon, Upper Willamette River steelhead have adapted to the Willamette River's natural flows by returning from the ocean and entering the river in late winter and getting past Willamette Falls in spring when flows were high enough for the fish to ascend the falls. Due to changes in water flows caused by the dams, the fish now ascend Willamette Falls through a fish ladder.

Upper Willamette River steelhead are considered winter-run steelhead, returning from the ocean and entering the Willamette River starting in November, with the bulk of the run moving past Willamette Falls from December through April. They spawn from March to early June, with peak spawning in late April and early May, and eggs incubate in gravels through the summer. After hatching, juvenile steelhead rear in freshwater for one to three years before migrating down the Willamette and Columbia Rivers to the ocean March through June.

The run timing of Upper Willamette River steelhead is a legacy of the fact that, before the fish ladder was constructed at Willamette Falls in the early 1900s, flow conditions allowed steelhead to ascend Willamette Falls only during the late winter and spring.

Upper Willamette River steelhead typically migrate further upstream than spring Chinook and can spawn in smaller, higher gradient streams and side channels. Unlike the salmon, Upper Willamette River steelhead are able to spawn more than once, although the frequency of repeat spawning is relatively low. Repeat spawners are predominantly females and usually spend one year post spawning in the ocean and spawn again the following spring.

Juvenile Upper Willamette River steelhead rear in the headwater tributaries and upper portions of the subbasins for one to four years (most often two years). As smoltification proceeds in April through May, when juveniles change to adapt to salt water, they migrate quickly downstream through the mainstem Willamette River and Columbia River estuary and into the ocean. The speed of downstream migration depends on river flow, with faster migration occurring at higher river flows.

Like Upper Willamette River spring Chinook, Upper Willamette River steelhead have significantly declined in numbers compared to historic levels. Over the past ten years, the number of Upper Willamette River steelhead passing Willamette Falls averaged about 5,600. In 2017, just 822 Upper Willamette River steelhead made it past Willamette Falls. Since 2009, each of the local populations has dropped dramatically in average annual run size, with the North Santiam population dropping 35%, the South Santiam population dropping 55%, the Mollala population dropping 28%, and the Calapooia population dropping 53% compared to pre-2009 annual run sizes.

In 1999, NMFS listed Upper Willamette River steelhead as threatened under the ESA and designated critical habitat in the Upper Willamette River basin.

Upper Willamette River steelhead consists of four geographically distinct populations: Molalla, Calapooia, North Santiam, and South Santiam. Designated critical habitat occurs in each of these sub-basins. Upper Willamette River steelhead do not occupy the Middle Fork Willamette or McKenzie sub-basins.

LEGAL BACKGROUND

I. National Environmental Policy Act (NEPA)

Congress enacted NEPA to, among other things, "encourage productive and enjoyable harmony between man and his environment" and to promote government efforts "that will prevent or eliminate damage to the environment."[10] As a general matter, NEPA requires federal agencies to analyze and disclose to the public the environmental impacts of their actions.[11] To this end, the Council on Environmental Quality (CEQ) has promulgated regulations implementing NEPA, which, among other things, are intended to "ensure Federal agencies consider the environmental impacts of their actions in the decision-making process."[12]

To fulfill its mandates, NEPA requires federal agencies to prepare an environmental impact statement ("EIS") for all "major Federal actions significantly affecting the quality of the human environment."[13] In an EIS, the action agency must "succinctly describe the environment of the area(s) to be affected or created by the alternative under consideration."[14] NEPA regulations also require the action agency to evaluate a reasonable range of alternatives including a "no action" alternative when analyzing environmental impacts of the proposed action.[15]

The action agency must also identify the direct, indirect, and cumulative impacts of each reasonable alternative to the action, including a project's ecological, aesthetic, economic, social, and health effects.[16] Direct impacts are "caused by the action and . . . occur at the same time and place."[17] Indirect impacts are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable."[18]

Federal agencies have an ongoing duty under NEPA to issue supplemental environmental analysis when the agency "makes substantial changes in the proposed action that are relevant to environmental concerns"; or when "significant new circumstances or information" arise.[19]

II. Endangered Species Act (ESA)

Congress enacted the ESA to provide a "program for the conservation of . . . endangered species and threatened species" and "a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved."[20] The Supreme Court has declared that the ESA "represent[s] the most comprehensive legislation for the

[10] 42 U.S.C. § 4321.
[11] *Id*. § 4332(2)(C).
[12] 40 C.F.R. § 1500.1(a).
[13] 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1501.4.
[14] *Id.* § 1502.15.
[15] *Id.* § 1502.14.
[16] 40 C.F.R. §§ 1508.7 (defining cumulative impact); 1508.8 (defining environmental effects); 1508.9(b) (requiring NEPA analyses to disclose the "environmental impacts of proposed action and alternatives").
[17] *Id.* § 1508.8(a).
[18] *Id*. § 1508.8(b).
[19] 40 C.F.R. § 1502.9(c)(1)(i) and (ii).
[20] 16 U.S.C. § 1531(b).

preservation of endangered species ever enacted by any nation."[21] As the Court recognized, "Congress intended endangered species be afforded the highest of priorities."[22]

To these ends, section 7 of the ESA requires that all federal agencies work to recover listed species and contains both procedural and substantive requirements.

Substantively, section 7 requires federal agencies to ensure that any action authorized, funded, or carried out by an agency is not likely to jeopardize the continued existence of any endangered or threatened species, or result in the destruction or adverse modification of critical habitat for such species.[23] To "jeopardize" means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."[24]

To carry out the substantive duty to avoid jeopardy and destruction or adverse modification of critical habitat, section 7 also sets forth procedural requirements directing any agency proposing an action (*i.e.*, the "action agency") to consult with an expert agency—in this case, the Service and NMFS (collectively, the "Services")—to evaluate the consequences of a proposed action on a listed species.[25]

In formal consultation, after the Services evaluate the status of the listed species and the proposed action's effects on the species and critical habitat using the best scientific and commercial data available, the Services issue a "biological opinion" that addresses "whether the action, taken together with cumulative effects, is likely to jeopardize the continued existence of listed species."[26]

The Services' biological opinion must evaluate the direct, indirect, and cumulative effects of the proposed action within the action area and "add the effects of the action and cumulative effects to the environmental baseline in light of the status of the species."[27] The "environmental baseline" must include the past and present impacts of all federal actions and other human activities in the action area, including those that have already undergone consultation with the Services under section 7 of the ESA.[28] The "action area" includes "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."[29]

If the Services conclude that an action will incidentally "take" a listed species but is not likely to jeopardize the continued existence of the species or result in the destruction or

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[21] *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978).
[22] *Id.* at 174.
[23] 16 U.S.C. § 1536(a)(2).
[24] 50 C.F.R. § 402.02.
[25] *Id.*
[26] 16 U.S.C. § 1536(a)(2); 50 C.F.R. §§ 402.14(d), (g)(4).
[27] 50 C.F.R. § 402.14(g)(3)(4).
[28] *Id.* § 402.12.
[29] *Id.* § 402.02.

adverse modification of its critical habitat, the Services must provide an "incidental take statement."[30] The incidental take statement must specify the amount or extent of the incidental taking on the listed species, set forth any "reasonable and prudent measures" that the Services consider necessary or appropriate to minimize such impact, and provide the "terms and conditions" that the action agency must comply with to implement those measures and avoid jeopardy to the species.[31]

Take of a listed species without a valid incidental take statement is a violation of the ESA.[32] The ESA defines "take" broadly to encompass all manner of harm and harassment, including direct injury or mortality and any acts or omissions that disrupt or impair significant behavioral patterns.[33]

DISCUSSION

I. The Corps should create and choose an alternative that prioritizes listed species and climate resiliency.

After decades of neglect and years of litigation, it is well beyond time for the Corps to create and choose an alternative that prioritizes Upper Willamette Chinook, Upper Willamette steelhead, and bull trout, as well as the Southern Resident orcas that rely on Chinook salmon as their primary source of prey (see section V below). All of the alternatives the Corps has put forth in the draft PEIS are woefully inadequate to protect listed species in the Willamette River Basin and fail to ensure against jeopardy and destruction and adverse modification of their critical habitat. The actions that are necessary for protecting these species and that will ultimately lead to their survival and recovery include actions not yet authorized by Congress, such as hydropower decommissioning.

The 2016 UWR Chinook and Steelhead Recovery Report noted that one huge risk to the Upper Willamette salmonid populations is that access to historical spawning and rearing areas "is restricted by large dams in the four historically most productive tributaries [North Santiam, South Santiam, Middle Fork Willamette, and McKenzie rivers], and in the absence of effective passage programs will continue to be confined to more lowland reaches where land development, water temperatures, and water quality may be limiting."[34] Additionally, "areas immediately downstream of high head dams may also be subject to high levels of total dissolved gas."[35] This high level of total dissolved gas "could affect a significant portion of the incubating embryos, in-stream juveniles, and adults in the basin."[36]

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[30] *Id.* § 402.14(g)(7).
[31] 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i).
[32] 16 U.S.C. § 1538.
[33] *Id.* § 1532(19); 50 C.F.R. § 222.102.
[34] National Marine Fisheries Service, 2016 5-Year Review: Summary & Evaluation of Upper Willamette River Steelhead Upper Willamette River Chinook at 14, https://repository.library.noaa.gov/view/noaa/17028 [hereinafter 2016 5-Year Review].
[35] *Id.* at 15.
[36] *Id.*

The Corps must guarantee adequate fish passage, for both spawning adults (upstream) and juveniles (downstream), at every high head dam in the Willamette Valley System to ensure that threatened salmonids, including bull trout, have access to their historical spawning and rearing areas and reduce "relatively high pre-spawning mortality rates."[37] The Corps must build and operate up and downstream passage facilities, spillways, other outlets, and floating fish structures, among other structural and operational measures, to increase juvenile and pre-spawning survival. The Corps must also guarantee that the fish passage plans do not increase water temperature below the dams, through temperature control structures and other means, and make every effort to safeguard against other pollutants that may degrade habitat and increase mortality rates for threatened salmonids.

One fish passage measure the Corps must seriously consider is removing Cougar Dam to open upriver habitat for native salmonids. The McKenzie Core Legacy population is an evolutionarily significant unit of Upper Willamette River spring Chinook salmon and opening their historic spawning and rearing areas along the McKenzie will increase survival rates and help revive this core population. Removing Cougar Dam would also open spawning habitat for steelhead and bull trout, and generally improve habitat for native salmonids and trout. In analyzing this alternative, the Corps must also analyze other methods of flood control, as Cougar Dam serves a flood prevention function in the Willamette Valley.

In addition to guaranteeing fish passage, the Corps also must work to protect and restore historical spawning and rearing areas. This includes restoring "floodplain connection and function, off-channel habitat, and channel migration processes to improve rearing habitat."[38] The Corps must prioritize removing non-essential levees, bank armoring structures, and other man-made revetments to increase habitat complexity to improve juvenile rearing habitat.

The Corps must acknowledge and work to actively incorporate the unique historical and cultural perspectives and vast ecological knowledge held by Pacific Northwest tribes, the original inhabitants and environmental stewards of what is now the Willamette Valley. The Corps should evaluate ways in which tribal governments and communities can have a meaningful, ongoing advisory role in managing and operating the Willamette Valley System given their deep historical and cultural connection to the landscapes and species impacted by the Corps' decisions and unique ability to aid in species recovery and restoration.[39]

As required by Congress, the Corps must study deauthorizing hydropower at some or all of the Willamette System dams.[40] The draft PEIS does not analyze this possibility. The Corps must include its plans and timelines for studying hydropower deauthorization of the Willamette Valley System dams and, specifically, how the agency will incorporate the

[37] *Id.*
[38] *Id.* at 19.
[39] *See* Washburn, Kevin K., Facilitating Tribal Co-Management of Federal Public Lands (October 27, 2021). 2022 Wis. L. Rev. 263-328 (2022), U Iowa Legal Studies Research Paper No. 2021-45, https://ssrn.com/abstract=3951290 or http://dx.doi.org/10.2139/ssrn.3951290.
[40] *See* Water Resources Development Act of 2022 §8220(a)(1).

findings from these studies into the Operations and Maintenance Plan. The Corps may find that deauthorizing hydropower at the Willamette Valley Systems dams is the most practical option given that all of the alternatives the Corps is considering would create "long-term, major, adverse effects on economic viability of WVS power generation."[41] If true, the Corps must put in place a plan to begin decommissioning hydropower at all or some of the dams and include its plan in the updated Operations and Maintenance Plan to ensure there is not a multi-decade delay in implementing these necessary actions. If the Corps determines that deauthorizing hydropower at some or all of the dams is the practical choice, the Corps must also consider removing hydropower-specific dams, including Big Cliff, Dexter, and Foster dams. The Corps should also consider placing dams into caretaker status.

As extreme weather events and the threats of forest fires increase in frequency and intensity, the Corps must analyze and select an alternative that prioritizes climate resiliency. This alternative must not include deep drawdowns behind high head dams, which will lead to warmer water temperatures and less dissolved oxygen in the rivers. Such deep drawdowns will negatively affect the aquatic life in the rivers and leave less water in the system in a time of drought. The Corps must not choose an alternative that would reduce flows across the Willamette Valley System, especially as climate change leads to less water in the system.

The Willamette Valley has also suffered an increasing number of wildfires over the years, a trend that is likely to continue. As the ongoing drought continues in Oregon, the Willamette Valley System can assist by providing power to communities and water for firefighting. Additionally, the Willamette Valley System is used for municipal and industrial water supplies and for irrigation throughout the Willamette Basin. The Corps cannot risk these water supplies through deep drawdowns and lower flows, especially as less water enters the system. The Corps must ensure that the Willamette Valley System is climate resilient and prepared to withstand less water and warmer temperatures.

Even though Alternative 2A does not include deep drawdowns and is the best alternative for the Basin's threatened fish species, it still falls short, as does the Corps' preferred Alternative 5. However, short of creating a new alternative, the Corps should seriously consider making Alternative 2A the preferred alternative as it has a higher survival rate of listed species and bolsters the Willamette Basin's climate resiliency, which Alternative 5 seriously lacks.

II. The Corps should choose Alternative 2A to ensure the highest survival rate of federally threatened species and enable the Willamette River to be more resilient to climate change.

The Corps should select Alternative 2A because it will ensure the highest survival rate of bull trout and Upper Willamette River spring Chinook salmon and steelhead and contribute to their recovery. This alternative is also best suited to allow the Willamette River to be

[41] ES-27; *See also* ES-31, ES-34, ES-37, ES-40, ES-42, ES-44.

resilient to the effects of climate change while also continuing to support hydropower generation and the unmatched recreation opportunities in the Willamette Basin.

Alternative 2A, also referred to as the Hybrid Alternative with Cougar Floating Screen Structure, performs the best at meeting the ESA-focused Proposed Action objectives. This alternative was developed to improve fish passage through the Willamette Valley System dams using a combination of modified operations and structural improvements, along with other measures to balance water management flexibility and meet ESA-listed fish obligations. Alternative 2A uses a combination of structural measures for fish passage and temperature control and shifts release of stored water from spring to summer and fall, augmenting instream flows by using power and inactive pools. This alternative was designed to increase access to habitat through additional conservation storage to manage temperatures later in the conservation season. Alternative 2A reduces the risk to the McKenzie Core Legacy Chinook population and provides more habitat gains for bull trout.

The Corps decided not to choose Alternative 2A in part because of purported uncertainty associated with the Floating Fish Structure. In particular, the Corps claimed that there was "uncertainty associated with how well the [Floating Fish Screen Structure] would collect fish."[42] The Endangered Species Act, however, does not require scientific certainty.[43] If effective, the Floating Fish Structure would not only help with survival of migrating salmonids but it would also contribute to the recovery of Upper Willamette River spring Chinook salmon, allowing all four Chinook populations to reach replacement and three out of four to have high persistence.

In contrast, the Corps' preferred Alternative 5 would result in fewer Chinook populations with high persistence. This difference in persistence is because there would be an increase in downstream survival for fish populations with a structure at Cougar Dam rather than a deep drawdown operation.

Biologists estimate that before the Corps built Cougar Dam on the South Fork McKenzie River in the 1960s, the habitat above the dam once supported more than 4,000 returning adult spring Chinook salmon. Although the dam's temperature control tower helps to mimic pre-dam downstream water temperatures, it poses serious risks for endangered juvenile spring Chinook salmon trying to migrate downstream on their journey out to sea. All water passing Cougar Dam must flow though the tower, but flow conditions at the corner of the reservoir where the tower is located make it hard for fish to find and enter it. The current passage efficiency and survival rates of juveniles that do manage to enter the tower are not high enough to support a self-sustaining wild Chinook population.

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[42] *See* ES-32.

[43] *See* *Nw. Ecosystem All. v. U.S. Fish & Wildlife Serv.*, 475 F.3d 1136, 1147 (9th Cir. 2007) (NOAA Fisheries "may not ignore evidence simply because it falls short of absolute scientific certainty"); *see also* *Ariz. Cattle Growers' Ass'n*, 606 F.3d at 1164 (noting that using the "best scientific data available" means that "[a]lthough the [consulting agency] cannot act on pure speculation or contrary to the evidence, the ESA accepts agency decisions in the face of uncertainty" and the agency does not have to act "only when it can justify its decision with absolute confidence").

The Corps must not take the easy way out and should instead choose the alternative that provides the best scientifically supported passage for ESA-listed salmonids, even if there is not 100% certainty at the outset. A Floating Fish Structure that operates at a large range of depths like what would be needed at Cougar Dam can be a viable option for fish passage if the Corps decides to make it one. Floating fish screens have been effective at other dams, including at the Lewis River Hydroelectric Project in southwest Washington.[44] The Corps hides behind a lack of certainty instead of creating an opportunity for significant gains in Upper Willamette fish passage through a structure that the Corps has the ability to authorize and construct.[45] Newer methods naturally lack "perfect" data or certainty. In reality, the Floating Fish Structure—if implemented properly—is likely to result in a better outcome for listed salmonids, hydropower production, and recreation.

Alternatively, if the Corps attempts to create a floating fish structure and is unsuccessful, the Corps could still go back to drastically drawing down Cougar Reservoir to allow for the fish passage planned in Alternative 5. Alternative 2A does not eliminate the Corps' ability to draw down Cougar at a later time, but it does require the Corps to work on creating a structure that could protect more fish and could be the blueprint for other high head dams.

Alternative 2A is also the best alternative to ensure that the Willamette River Basin is resilient in the face of increasing threats associated with climate change. The Basin has already felt the effects of prolonged drought, wildfire, and power outages associated with extreme weather events and fire. Alternative 2A would not risk local hydropower generation since Hills Creek and Cougar dams would be able to operate islanded from the rest of the power system, providing power to Oakridge and Blue River communities during power system outages resulting from weather events or fire, which are greatly increasing due to climate change. Additionally, under Alternative 2A, reservoirs will stay higher for more of the conservation season, which could be important during wildfire events in the area. Higher reservoirs would assist in aerial firefighting as the water could be obtained with a helicopter bucket. This higher reservoir would also allow for flows at Salem to be higher than the No Action Alternative, which could be necessary as Oregon has been more prone to drought over the years.

In contrast, under Alternative 5, Cougar Reservoir would be significantly drawn down, decreasing system-wide storage by 64,000 acre-feet. This deep drawdown in the fall and spring would compromise Cougar Reservoir's ability to serve communities under outage conditions, which have become more common. This would result in temporary but major adverse effects on transmission services to Blue River, which has been at risk from major weather and wildfire events. Drawing down storage at Cougar Reservoir to allow for fish passage would require other reservoirs to release additional water to meet mainstem flow targets, which would make the area more vulnerable to wildfire events, in part because

[44] PacificCorp uses a floating fish collector at the reservoir of the Lewis River Hydroelectric Project. This structure "allows fish moving downstream to make their way to the ocean safely" by "creating flow conditions to attract out-migrating fish." *See* PacificCorp, Swift Reservoir Fish Collector (2013), https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/energy/hydro/lewis-river/construction-for-lewis-river-fish-passage-projects/FSC_News_2013.pdf.
[45] https://www.nwp.usace.army.mil/willamette/cougar/fish-collector/.

there would be less water available to fight fires. Finally, Alternative 5 would lead to lower flows through Salem and create a greater drought risk for the Willamette River Basin.

Alternative 2A would contribute to an overall increase in annual hydropower generation by 4 aMW, which could power 3,185 households annually. In contrast, Alternative 5 would decrease annual hydropower production by 18 aMW, enough to power 14,334 households annually. This equates to Alternative 2A providing 22 aMW more power than Alternative 5. Nevertheless, both alternatives would stress the long-term viability of Willamette System power generation; however, there are viable, cost-effective options for power replacement services, such as properly-sited wind and distributed solar, in addition to demand reduction efforts through energy efficiency and conservation. Further, hydropower is neither a carbon-neutral nor zero-emission energy source. Decomposing organic material built up in dam-created reservoirs produces the potent greenhouse gas methane, more so than natural lakes.[46] Water level drawdowns lower pressure in reservoirs and can lead to greater methane release.[47]

Finally, Alternative 2A does not eliminate recreation at Cougar Reservoir. Alternative 2A would result in minor to moderate benefits in reservoir recreation and continue to provide recreational opportunities for the surrounding communities and visitors. This is in stark contrast with Alternative 5, which forecloses any meaningful recreation opportunities through deep drawdowns during peak recreation seasons.[48]

III. The Corps must consider the full range of alternatives, including actions that are not yet Congressionally authorized.

NEPA requires that in preparing an EIS, the Corps must "rigorously explore and objectively examine all reasonable alternatives."[49] The Corps' EIS must evaluate a "reasonable range" of alternatives, which is dictated by the "nature and scope of the proposed action" and must be sufficient to permit the agency to make a "reasoned choice."[50] The analysis must include the alternative of no action, as well as alternatives not within the federal lead agency's jurisdiction.[51]

Here, the Corps' scope of the proposed action is unreasonably narrow. According to the draft PEIS:

> The purpose of the proposed action is to address the continued operations and maintenance of the WVS in accordance with authorized project purposes;

[46] Bridget R. Deemer et al., Greenhouse Gas Emissions from Reservoir Water Surfaces: A New Global Synthesis, *BioScience*, Volume 66, Issue 11, 1 November 2016, 949–964, https://doi.org/10.1093/biosci/biw117.
[47] *Id.*
[48] Alternative 5 would "result in major adverse effects to reservoir recreation" at Cougar. (ES-44).
[49] 40 CFR 1502.14(a).
[50] *Alaska Wilderness Recreation and Tourism v. Morrison*, 66 F.3d 723, 729 (9th Cir. 1995).
[51] 40 CFR s. 1502.14(c), (d).

while meeting Endangered Species Act (ESA) obligations to avoid jeopardizing the continued existence of listed species.

The project's purpose, or the goal of the project, is to continue to operate and maintain the WVS for the authorized purposes of flood risk management (FRM), hydropower generation, irrigation, navigation, recreation, fish and wildlife, water supply, and water quality.[52]

The Corps should be considering actions beyond continued operation and maintenance that may be warranted, including dam removal, hydropower deauthorization, and placing dams in caretaker status.

Further, NEPA requires the Corps to consider alternatives that may be outside of the agency's current authorities. CEQ has explained that "[a]lternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies. *Section 1500.1(a)*."[53] However, when asked why the Corps did not consider dam removal in this draft PEIS—a document that will guide agency action for the next few decades—the Corps has claimed that it has not considered options that are not currently authorized by Congress. This reasoning is flawed because Congress cannot know what action(s) should be authorized in the Willamette Valley System without the expert agency, the Corps, guiding them by analyzing and presenting viable options. The Corps is currently hiding behind Congress to avoid seriously considering decommissioning one or more of the Willamette Valley System dams.

Without the Corps taking the lead, the purposes and authorized uses of the Willamette Valley System dams may never change because decision-makers will be unaware that changes must be made. It is legally required, entirely reasonable, and well-beyond time for the Corps to take a hard look at the Willamette Valley System dams and consider the opportunities for returning river segments, or entire rivers, to their natural flow state.

a. The Corps must consider removing Cougar Dam to open pristine fish habitat along the McKenzie River.

In January 2023, the Eugene Water & Electric Board (EWEB) Commissioners voted to begin the process of decommissioning and removing Leaburg Dam on the McKenzie River.[54]

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[52] Willamette Valley System O&M Draft Programmatic Environmental Impact Statement, Appendix A: Alternatives Development, at A-2.
[53] Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations (CEQ, 1986), https://www.energy.gov/nepa/articles/forty-most-asked-questions-concerning-ceqs-national-environmental-policy-act.
[54] Adam Spencer, Commissioners Approve Resolution to Decommission Leaburg Hydroelectric Project (Jan. 4, 2023), https://www.eweb.org/about-us/news/commissioners-approve-resolution-to-decommission-leaburg-hydroelectric-project#:~:text=EWEB%20Commissioners%20voted%20to%20decommission,Decommissioning%20Action%20Plan%20(LDAP).

There are no dams between Cougar Dam on the South Fork McKenzie River and Leaburg Dam on the mainstem McKenzie River. The EWEB Commissioners' decision creates a unique opportunity for the Corps to investigate the possibility of decommissioning and removing Cougar Dam and opening many miles of pristine habitat for the federally listed salmonids in the area. The Corps must study the possibility of dam removal on the South Fork McKenzie to protect the threatened species that rely on the river and to bring a large portion of the McKenzie River back to its natural state.

Under the Corps' preferred Alternative 5, hydropower and recreation at Cougar Dam become negligible. While Alternative 5 may provide more certainty associated with fish passage, there are still unknowns that come with operating parts of the dam that were never meant to be used continuously. Even if the fish passage operations work exactly as the Corps hopes, there will still be lower survival of fish populations than other alternatives.

b. The Corps must consider removing Big Cliff, Dexter, and Foster dams.

The Corps must consider removing Willamette Valley System dams that are currently only used for hydropower production and/or reregulation. For example, Big Cliff Dam is a re-regulating dam for Detroit Dam and is used to assist Detroit Dam in meeting electricity demands. In addition, Dexter Dam is a re-regulating dam for Lookout Point Dam, used to assist in meeting electricity demands. Similarly, Foster Dam is a re-regulating dam for Green Peter Dam that is used to assist in meeting electricity demands but, if removed, could provide access to fish habitat on the South Santiam River and important tributaries, including tribal cultural sites. Foster Dam in particular poses a high safety risk to downstream communities in the event of seismic and flood hazards.[55]

The main purpose of the re-regulating dams is to deliver steady flows to the river and dampen the extreme effects of hydropeaking. If power production is removed as a purpose of the Willamette Project, and if the re-regulating dams, Big Cliff, Dexter, and Foster, are removed, it will require modified operations at Detroit, Lookout, and Green Peter dams to reduce rapid unnatural flow variations caused by hydropeaking.

By choosing Alternative 5, the Corps will be choosing to make Willamette Valley System hydropower economically unviable and reduce the amount of electricity that can be generated by the Willamette Valley System. Accordingly, the Corps must consider removing Willamette Valley System dams that are currently only used for hydropower production and/or reregulation. Indeed, Congress has already directed the Corps to study "deauthorizing hydropower as an authorized purpose, in whole or in part, of the Willamette Valley hydropower project."[56] While it may be expensive in the beginning, removing Big Cliff, Dexter, and Foster dams would make more financial sense going

[55] US Army Corps of Engineers, Foster Dam & Reservoir, https://www.nwp.usace.army.mil/Locations/Willamette-Valley/Foster/ ("As of May 2021, results of the advanced study for Foster Dam identified the risk associated with the dam to be High.").
[56] Water Resources Development Act of 2022 §8220(a)(1).

forward as the Corps will no longer need to pay for upkeep of the dams and will not have continuing costs associated with the dams.

IV. The Corps must prioritize removing revetments and naturalizing banks.

The Corps must prioritize using nature-based methods to provide fish and wildlife habitat in the river and riparian areas. In the Willamette Basin, the Corps has constructed 100 miles of revetments, consisting of 193 active bank protection structures, to stabilize and protect riverbanks from erosion and prevent flooding. However, revetments are bad for fish and wildlife because, in part, they reduce average flow depth in the upper and middle parts of a river bend, cause an increase in average flow velocity in the upper and middle parts of a river bend, and reduce the availability of spawning-size gravels.[57] In the 2016 Upper Willamette River Chinook and Steelhead Recovery Plan 5-Year Review, NMFS included "removal of non-essential levees and other bank armoring structures along the Willamette River" as a high priority action item because they reduce "habitat complexity and therefore rearing habitat."[58] Despite this, the draft PEIS does not include a plan or timeline for removing these structures.

Additionally, the Corps does not mention the benefits of restoring floodplain habitat, nor does the Corps provide any plans for studying restoring floodplain habitat in the Willamette Valley. The Corps must consider restoring floodplain habitat when they remove revetments and naturalize banks. Extended river flows and floodplain inundation "provide increased recharge to the underlying aquifer."[59] "Active and connected floodplains also promote carbon storage in the soil…" and "contribute to the functionality, biodiversity, and resilience of river systems broadly."[60] During floods, healthy floodplains benefit communities by slowing and spreading flood water that could harm people and property.[61] Floodplains also act as a natural filer, "absorbing harmful chemicals and other pollution" making rivers healthier for all of the living species that use and rely on the water.[62] Flooding also creates fertile soil for crops by depositing sediment and nutrients in floodplains, and historic flooding being one of the main reasons the Willamette Valley is known for its bountiful soil.[63] FEMA promotes the benefits of natural floodplains, stating that the "considerable economic, social, and environmental value [that floodplains provide] are often overlooked when local land-use decisions are made."[64] The benefits of floodplains include fish and wildlife habitat protection, natural flood and erosion control, surface water

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[57] *See* Michael D. Harvey & Chester C. Watson, *Effects of Bank Revetment on Sacramento River, California*, 47, 49 (1989), https://www.fs.usda.gov/psw/publications/documents/psw_gtr110/psw_gtr110_a_harvey.pdf.
[58] 2016 5-Year Review, at 19.
[59] Anna Serra-Llobet, et al., *Restoring Rivers and Floodplains for Habitat and Flood Risk Reduction: Experiences in Multi-Benefit Floodplain Management from California and Germany*, Frontiers in Environmental Science (March 16, 2022), https://www.frontiersin.org/articles/10.3389/fenvs.2021.778568/full.
[60] *Id.*
[61] American Rivers, Why We Need to Restore Floodplains, https://www.americanrivers.org/threats-solutions/restoring-damaged-rivers/benefits-of-restoring-floodplains/.
[62] *Id.*
[63] *See id*
[64] FEMA, Benefits of Natural Floodplains, https://www.fema.gov/floodplain-management/wildlife-conservation/benefits-natural,

quality maintenance, groundwater recharge, biological productivity, and higher quality recreational opportunities.[65] The Corps must consider restoring floodplains throughout the Willamette Basin in coordination with removing manmade revetments and naturalizing banks.

Currently, the Corps' plan for relying on nature-based methods to remove revetment and naturalize banks is vague, saying that nature-based methods will be included "to the extent the project purpose is maintained… while maintaining the authorized project purposes." (2-54). The Corps must establish a timeline for removing constructed revetments and improving nature-based fish and wildlife habitats in river and riparian areas.

The Corps claims that it will consider nature-based engineering options as part of maintenance activities, but the Corps fails to explain how often these maintenance activities will take place, where they will occur, or if there are any specific plans or goals for naturalizing these areas. The Corps claims it requires a non-federal sponsor to alter a federal project for ecosystem restoration purposes and that the sponsor must share the cost of the project, acquire all necessary real estate permissions, and agree to operate and maintain the project in perpetuity. The Corps states that the non-federal sponsor requirement "severely limits the ability for USACE to carry out large scale changes under" the program. (2-55). The Corps needs to bring this issue to the legislators who can grant more authority to the Corps to perform these projects without a non-federal sponsor. Revitalizing and restoring these habitats should be a priority for the Corps, especially considering the listed species that rely on these habitats.

Finally, the Corps must actively seek out non-federal partners for these projects to ensure that bank naturalizing happens as quickly and meaningfully as possible. There are many entities that the Corps could partner with, including the many watershed councils in the Willamette River Basin. The final EIS must include the Corps' plans for seeking out these co-sponsors and timelines and benchmarks for using nature-based methods to restore habitats that are currently being harmed by hard-surface revetments.

V. The Corps must properly analyze the impact of the Willamette Valley System on Southern Resident orcas.

We appreciate that the Corps included the Southern Resident orcas in its draft PEIS and recognized the broad ecosystem impacts that the Willamette Valley System has by impeding native salmon survival—particularly Upper Willamette River spring Chinook salmon. However, the information included about the orcas and their dependence on salmon is improperly, narrowly focused on fishery management, which is just one part of the suite of challenges facing both species and is not directly related to the operation and maintenance of the Willamette Valley System. We, therefore, ask the Corps to include comprehensive information about the Southern Resident orcas' connection to salmon, particularly spring Chinook, and how operations of the Willamette Valley System that affect the spring Chinook population also affect the Southern Resident orcas.

[65] *Id.*

By discussing Southern Resident orcas only related to federally managed ocean salmon fishing, the Corps has failed to adequately analyze the impacts of the Willamette Valley System on prey availability for the orcas. While the management of ocean salmon fisheries is an important factor affecting the abundance and availability of salmon for the Southern Residents, these actions are outside the scope of Willamette Valley System operations and this draft PEIS.

The short section on Southern Resident orcas recognizes that "UWR Chinook are important to the SRKW due to the timing of their return to the mouth of the Columbia and energetic need for SRKW in that time period…. measures that improve production of the salmon stock in freshwater areas can have a potentially large effect on the strength of the return, and thereby would be expected to accrue larger benefits to SRKW."[66] We fully agree with this statement and emphasize the importance of Chinook salmon, including Willamette River spring Chinook, to the Southern Resident orcas.

The final PEIS must properly analyze the impacts of the Alternatives on prey quantity *and quality* for the Southern Residents.

Accordingly, we request the Corps modify the section on Southern Resident orcas to appropriately reflect the effects of upstream actions taken in the Willamette watershed as part of the Willamette Valley System. To achieve that change, we recommend the following:

1) Separate "fishery management and killer whales" in the draft PEIS. The very title of the section (4.1.2.3.6) suggests that fishery management is the only salmon-related action that impacts orcas, and the rest of the text focuses primarily on recent actions to improve prey availability for Southern Resident orcas. While fishery management does affect prey availability, improving salmon survival and abundance to support the Southern Resident orcas and other species and human communities that depend on them requires a holistic, long-term strategy to address the threats. We question why ocean salmon fisheries were included as the main element for Southern Resident orcas, when ample information is available on the broader impacts of prey depletion.

2) NMFS has published substantial new information on coastal habitat use by Southern Resident orcas. In particular, NMFS has recognized the mouth of the Columbia River as a "high use foraging area" for the Southern Residents, who spend approximately 50 percent of their time foraging in coastal waters between Grays Harbor, Washington and the Columbia River.[67] Long-term monitoring of the Southern Residents indicates they are spending less time in their traditional spring and

[66] PEIS section 4.1.2.3.6 at 4-16.
[67] Final Rule to Revise the Southern Resident killer whale Critical Habitat Designation: August 2, 2021. Final Biological Report, July 2021. Available: https://repository.library.noaa.gov/view/noaa/31587

summer habitat in the Salish Sea, and more time foraging in coastal waters.[68] This is likely driven by reduced Chinook salmon availability in the Salish Sea, and corresponds to recent research estimating a significant increase in the potential contribution of Columbia Basin salmon, including Upper Willamette spring Chinook, to the orcas' diet.[69] As the Southern Residents spend more time in the coastal part of their range, they will rely more on salmon from the Columbia Basin, including Upper Willamette spring Chinook.

3) NMFS's coastal habitat use research supported the 2021 revision of federally designated critical habitat for the Southern Resident orcas to include coastal areas off Washington, Oregon, and California.[70] Specifically, NMFS noted that "[d]am and hydropower operations occurring upstream of coastal Southern Resident killer whale critical habitat may have an impact on the essential habitat features, particularly the prey feature."[71] While not within the boundaries of critical habitat, these "upstream activities" may affect the essential features of critical habitat, and NMFS stated that such activities must be analyzed to determine any potential adverse modification on critical habitat. In the draft PEIS, the Corps failed to fully consider and analyze the impacts of the Alternatives on Southern Residents or their critical habitat. In the Final PEIS, the Corps must address the effects of the Alternatives on the essential features of prey and water quality in the Southern Residents' critical habitat, and the subsequent effects on orca recovery.

4) In the draft PEIS, the Corps accurately notes that Southern Resident orcas specialize their diet on Chinook salmon, and feed on Chinook year-round. However, in the final PEIS, the Corps should refine this information to reflect the Southern Residents' *dependence on*, not simply the preference for, Chinook salmon. The Southern Residents prey on Chinook year-round, even when other species are more abundant and regardless of the overall abundance of Chinook salmon.[72] Research published by NMFS in 2021 further confirms the prevalence of Chinook in the orcas' diet: Chinook accounts for approximately 50% to 100% of the Southern Residents' diet,

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[68] Shields, M.W., J. Lindell, and J. Woodruff. 2018. Declining spring usage of core habitat by endangered fish-eating killer whales reflects decreased availability of their primary prey. Pacific Conservation Biology 24, 189-193.
https://doi.org/10.1071/PC17041

[69] Couture F. et al. 2022. Requirements and availability of prey for northeastern pacific southern resident killer whales. PLoS ONE 17(6): e0270523. https://doi.org/10.1371/journal.pone.0270523

[70] Revision of Critical Habitat for the Southern Resident killer whale Distinct Population Segment. 86 FR 41668.

[71] Final Rule to Revise the Southern Resident killer whale Critical Habitat Designation: August 2, 2021. Final Biological Report, July 2021. Available: https://repository.library.noaa.gov/view/noaa/31587: Section A.12.b, at pg. 85.

[72] Ford, J. K. B., & Ellis, G. M. 2006. Selective foraging by fish-eating killer whales Orcinus orca in British Columbia. Marine Ecology Progress Series 316, 185-199; Ford, J.K.B. et al. 2009. Chinook salmon predation by resident killer whales: seasonal and regional selectivity, stock identity of prey, and consumption rates. Fisheries and Oceans Canada (DFO), Nanaimo, BC.

depending on the season.[73] In mid-winter through spring, the time of their highest use of coastal waters, Chinook salmon is 70-80% of their diet.[74] The final PEIS must properly reflect the effects of the Willamette Valley System as including prey depletion for the Southern Resident orcas and include additional information on the long-term impacts on orca survival and recovery. The quality and quantity of Chinook salmon directly influences the health and nutritional status of the orcas, and prey depletion has negative health effects such as reduced growth rates and adult length, increased mortality and decreased fecundity, as well as changes in social cohesion.[75] The operation and maintenance of the Willamette Valley System affects the health and abundance of spring Chinook salmon, further depleting a primary source of prey for Southern Resident orcas, contributing to the negative impacts on individual and population health.

5) Aside from the impacts of harvest (both ocean and freshwater fishing), the primary drivers for the decline of salmon are recognized as habitat loss, hydropower, hatcheries, and climate change impacts.[76] These activities harm the Southern Resident orcas by decreasing the quantity and quality of their prey.[77] As noted, only considering the Southern Resident orcas in relation to ocean salmon fishing is inadequate and unrelated to the potential changes in the Willamette Valley System. As an upstream activity that directly impacts prey resources and water quality for Southern Resident orcas, the Alternatives included in the Final PEIS should reflect this ecosystem-wide impact and appropriately analyze the potential changes.

The alternatives presented in the draft PEIS do not fully address the Corps' statutory requirement to avoid jeopardy for either Chinook salmon and Southern Resident orcas, and are, therefore, inadequate to support the recovery of both species. The Corps must consider

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[73] Hanson M.B, et al. 2021. Endangered predators and endangered prey: Seasonal diet of Southern Resident killer whales. PLoS ONE 16(3): e0247031. https://doi.org/10.1371/journal.pone.0247031

[74] *Id.*

[75] Fearnbach, H. et al. 2018. "Using aerial photogrammetry to detect changes in body condition of endangered southern resident killer whales." Endang Species Res 35:175-180. https://doi.org/10.3354/esr00883; Ford, J.K.B. et al. 2005. "Linking prey and population dynamics: Did food limitation cause recent declines of 'resident' killer whales (Orcinus orca) in British Columbia." Fisheries and Oceans; Ford J.K.B et al. 2010. "Linking killer whale survival and prey abundance: food limitation in the oceans' apex predator?" Biology Letters, 6:139–142; Groskreutz et al. 2019. "Decadal changes in adult size of salmon-eating killer whales in the eastern North Pacific." Endang. Species Res. (40):183-188. https://doi.org/10.3354/esr00993; Ward E.J et al. 2009. "Quantifying the effects of prey abundance on killer whale reproduction." Journal of Applied Ecology, 46: 632–640; Final Rule to Revise the Southern Resident killer whale Critical Habitat Designation: August 2, 2021. Final Biological Report, July 2021. Available: https://repository.library.noaa.gov/view/noaa/31587; Final Rule to Revise the Southern Resident killer whale Critical Habitat Designation: August 2, 2021. Final Biological Report, July 2021. Available: https://repository.library.noaa.gov/view/noaa/31587

[76] NRC, Committee on Protection and Management of Pacific Northwest Anadromous Salmonids. Upstream: salmon and society in the Pacific Northwest. Vol. Board on Environmental Studies and Toxicology. Commission on Life Sciences (National Academies Press, 1996).

[77] National Marine Fisheries Service (NMFS) 2008. Recovery Plan for Southern Resident Killer Whales (Orcinus orca). NMFS, Northwest Region, Seattle, Washington

alternatives that include dam removal options, which will still allow the Willamette Valley System to serve its project purposes, including flood control.

The draft PEIS fails to adequately analyze the impacts of the Willamette Valley System on prey availability for Southern Resident orcas. Changes to the Willamette Valley System will have ecosystem effects on orcas and other species dependent on Upper Willamette River salmon, and there is abundant information available on this connection. To truly assess the environmental consequences of the Willamette Valley System and the impact of the Alternatives, the Corps must include this information in the final EIS.

We urge the Corps to refine the draft PEIS to include more definite targets and indicators for salmon recovery and the contribution to prey availability of Southern Resident orcas; to ensure transparency and adaptive management are maintained in changes to operation and maintenance of the Willamette Valley System, and to consider actions that do not just avoid jeopardy for ESA-listed species, but support recovery and long-term survival.

VI. The Corps must prepare for other species to become federally listed in the Willamette River Basin and changes in the needs of the already listed species within the Basin.

In the over two decades since bull trout and Upper Willamette salmonids were federally listed as threatened, the Corps has shown reckless disregard for these species and their critical needs. For many years, the Corps' failure to provide adequate fish passage through the Willamette Valley System dams and mitigate water quality issues has caused "substantial, irreparable harm to the salmonids."[78] It took a court order to get the Corps to start acting to mitigate these serious issues, after the Corps vigorously defended its "business as usual" approach to operating and maintaining the Willamette Valley System. The Corps' position does not strike confidence that the Corps considers protection of federally listed species to be a priority. The Corps must demonstrate its commitment to following and prioritizing the consultation under section 7 of the ESA with the Service for bull trout and with NMFS for salmon, steelhead, and orcas. The Corps can no longer ignore the reasonable and prudent alternatives and terms and conditions required by the Services to avoid jeopardy and destructions and adverse modification of critical habitat.

In addition to the federally listed species that depend on the Willamette River Basin, the Corps must adopt a plan for when other species become federally listed. When a species is listed, the Corps must take immediate action to ensure its actions do not cause jeopardy or destruction or adverse modification of critical habitat. In essence, the Corps must actively work to prevent extinction.

In 2020, the Xerces Society petitioned the Service to list the Western Ridged mussel as an endangered or threatened species under the Endangered Species Act. If this species is listed, the Corps must reinitiate consultation under section 7 of the ESA and not wait until the next PEIS is created in thirty-plus years. Willamette Riverkeeper is actively studying

[78] 558 F.Supp.3d 1056, 1064 (2021).

freshwater mussels throughout the Willamette River Basin to help determine the extent to which dams and other barriers restrict movement of host fish, harm plants, and alter water levels in a way that harm these species, which can live over 60 years without human intervention. The Service is currently conducting a status review after finding that the petition presented "substantial scientific or commercial information indicating" that listing the western ridged mussel may be warranted. The Service found that the western ridged mussel is threatened by "habitat destruction, modification, and curtailment of range; impacts to water quantity, water quality, and natural flow and temperature regimes; aquatic invasive species; and disease."[79]

Populations of Pacific lamprey have declined drastically throughout their historic range due to stresses including passage barriers, contaminants, and dewatering for power hydropeaking.[80] Many Pacific Northwest tribes hold deep cultural ties to Pacific lamprey and have been harvesting lamprey as a food source since time immemorial.[81] Pacific lampreys were listed as an Oregon State sensitive species in 1993 and given further legal protected status by the state in 1996 through restriction of harvest and harvest methods.[82] The Oregon Pacific lamprey Species Management Unit is not currently listed under the ESA but was deemed "vulnerable" per its state status and "at risk" of federal listing in the Oregon Department of Fish and Wildlife's Native Fish Status Report.[83] The Corps must take a hard look at the Willamette Valley System's threats to lamprey populations and work to achieve long-term persistence of Pacific Lamprey and their habitats and support traditional tribal cultural use of Pacific Lamprey throughout their historic range in the Willamette Valley.

The Corps must specify in the final PEIS how it is prepared to address additional needs of listed species and how it plans to address other species that may be listed in the next thirty-plus years. If the Corps cannot do so, then it needs to be prepared to create a PEIS whenever a species is listed to ensure the operation and maintenance of the Willamette Valley System is not degrading critical habitat and is protecting listed species.

VII. Conclusion

The Corps must consider and respond to these comments and work to ensure that the final PEIS prioritizes the listed species in the Willamette River Basin. In doing so, we ask the

[79] 86 Fed. Reg. 40186, 40189 (July 27, 2021), https://www.fws.gov/sites/default/files/federal_register_document/2021-15497.pdf.
[80] Brian McIlraith et al., "Synthesis of Threats, Critical Uncertainties, and Limiting Factors in Relation to Past, Present, and Future Priority Restoration Actions for Pacific Lamprey in the Columbia River Basin," November 15, 2017, at 83–86, https://www.critfc.org/wp-content/uploads/2018/04/Synth-Threats-LAMPREY-ISAB-response-2017.pdf.
[81] *See* Columbia River Inter-Tribal Fish Commission, "Pacific Lamprey," https://critfc.org/fish-and-watersheds/columbia-river-fish-species/lamprey/.
[82] OAR 635-044-0130, OAR 635-017-0090.
[83] ODFW, Oregon Native Fish Status Report, available at https://www.dfw.state.or.us/fish/crp/native_fish_status_report.asp.

Corps to seriously consider dam removal as an option for reconnecting fish habitat and naturalizing these areas. Thank you for considering these comments.

Sincerely,

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Re: Technical comments on the Willamette Valley System Draft Programmatic Environmental Impact Statement (PEIS)

Dear Colonel Helton:

The Columbia River Inter-Tribal Fish Commission (CRITFC) appreciates this opportunity to comment on the draft Programmatic Environmental Impact Statement (PEIS) for the Willamette Valley System. CRITFC submits these comments at the direction of its member tribes: the Nez Perce Tribe, the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs Reservation of Oregon. The Willamette River provides integral habitat to all four of our member tribes' treaty resources, including and especially Pacific lamprey ("lamprey"). CRITFC is particularly concerned about restoring up-and downstream passage for lamprey, which will benefit stocks throughout the Columbia River basin.

CRITFC and its member tribes reviewed and provided feedback on this proposal in 2019 as part of the scoping process. While some of the actions we identified in the scoping process were included in the alternatives analyzed in the Draft PEIS, not all the tribal recommendations were considered or applied to the identified preferred alternative (Alternative 5). These recommendations include setting infrastructure in place to collect, hold, and transport lamprey in trap-and-haul until actual passage is restored, as well implementing RM&E to monitor for passage success. CRITFC requests that you review the recommendations made in the June 19, 2019 letter, attached.

The Willamette Valley System (WVS) operations (including dams, reservoirs, adult fish facilities, hatcheries, and revetments) have negatively affected the natural chemical and biological integrity of the river as well as cultural resources of the Willamette River basin. Impacts include water quality (temperature, TDG, etc.), flow, upstream and downstream passage, spawning and rearing habitat, all of which affect fish and wildlife, plant species, cultural resources, and predator/prey relationships. The WVS operations have contributed to the significant decrease in historical numbers of Pacific lamprey and a contraction of the historical

range, with lamprey blocked from prime spawning and rearing habitat by thirteen dams and other passage barriers.

A primary concern is the impact the hydrosystem facilities have had and will continue to have on the Pacific lamprey in the Willamette Basin. These lamprey provide a vital food source for the tribes in the region, and traditional harvests have occurred at Willamette Falls for generations. Unfortunately, the abundance of Pacific lamprey at the falls has been significantly diminished due to the dams in the area. These structures have blocked passage to prime habitat and caused the loss of spawning and rearing areas, floodplain function, and stream sinuosity, as well as introducing and retaining contaminants.

Despite restoration efforts by CRITFC and its member tribes, these benefits have primarily been seen upstream of Bonneville Dam. Therefore, it is imperative to initiate directed restoration efforts within the Willamette River basin to increase the abundance of Pacific lamprey locally. The Tribal Pacific Lamprey Restoration Plan for the Columbia River Basin outlines some of the work that has been done to conserve lamprey populations in the Willamette Basin.

The Action Alternatives do not Adequately Protect for Lamprey.

This comment letter focuses on the potential impact of Alternative 5, the preferred option in the PEIS, on Pacific lamprey and future restoration efforts. Measure 52, which outlines lamprey measures for action alternatives, is described in the PEIS. The measure aims to provide features for lamprey passage during the construction and design of new adult fish facilities. However, there are no funds allocated to Measure 52 in the cost estimate, which is concerning.

Moreover, none of the alternatives presented in the PEIS adequately address Pacific lamprey passage throughout the basin or provide effective plans to restore lamprey populations within the Willamette Basin. (See Table 3.1-1 and 3.1-6**).** Additionally, climate change impacts on lamprey populations need to be considered, and appropriate measures should be developed to address these impacts. The Implementation Plan and the Adaptive Management Plan do not sufficiently address Pacific lamprey restoration efforts. (See §§ 5.4, 5.5, Appendix N).

There is little assurance that lamprey will be considered in further ESA and EIS consultation. Increasing lamprey numbers in historically occupied locations to self-sustaining levels could have positive ecological impacts and support treaty-reserved tribal harvest. The Preferred Alternative, Alternative 5, aims to improve conditions for ESA-listed fish while providing more flexibility for USACE to meet demands for fish and wildlife, FRM, water supply for M&I, water quality, water supply, irrigation, hydropower generation, and recreation in the Willamette River Basin.

The WSV Lacks Valuable Lamprey Passage Infrastructure.

The Columbia Basin Fish Accords have been working on various issues related to Pacific lamprey since 2008, guided by the Tribal Pacific Lamprey Restoration Plan. However, the lack of lamprey trapping infrastructure means that lamprey passage is rare, and specific trapping and passage infrastructure for lamprey should be included at all 13 dams to provide adequate lamprey passage.

To address this, the USACE should fund a full-time lamprey biologist to provide technical expertise on lamprey passage needs, and lamprey should be considered when implementing passage improvements for salmonids. The draft PEIS aims to continue operating and maintaining the WVS for authorized purposes while minimizing the impact on ESA-listed species and their critical habitats and should also include non-ESA listed species such as lamprey.

The PEIS highlights the absence of juvenile lamprey passage infrastructure, with USACE only incorporating lamprey features into adult salmonid facilities for upstream passage. (See, PEIS 3-650). Therefore, it is necessary to review previous studies and establish priorities for developing passage infrastructure at each dam location. A radio tag study conducted in 2009 and 2010 by Clemens et al. (2017) revealed that most lamprey detections were found in the Mainstem Willamette River (69.9%), followed by East-side tributaries like Santiam (19%), Molalla (3.5%), and West-side tributaries like Yamhill (3.5%). These results suggest potential key areas to focus initial efforts, but other areas should also be considered based on lamprey habitat potential.

The PEIS Should Include a Lamprey Passage Framework.

CRITFC recommends that the USACE include a Lamprey Passage Framework in the PEIS as part of its proposed action for the WVS for the next 30 years. The framework includes immediate implementation of lamprey passage via trap and haul for a set of "first-phase" dams then develop a Comprehensive Passage Plan with the state, tribes, and federal entities. The Plan will address implementation of Pacific lamprey passage, modification of all adult fish facilities, and add a RM&E plan. The RM&E plan should evaluate the population establishment and passage success within each basin, and the results from the RM&E should be provided to the parties in an annual report. The Comprehensive Passage Plan for Pacific Lamprey should be reviewed and collaboratively revised by the parties to update the plan based on available data, new information, and refine passage and data collection after 5 years of implementation.

Therefore, CRITFC recommends the following actions to be added to the PEIS for the WVS:

1) Immediate implementation of trap-and-haul from the closest available source in the basin (e.g. the Willamette Falls) to historical habitats above WVS dams. This will be the first phase of the Lamprey Passage Framework and will focus on a set of dams that the USACE already intends to provide passage structures or operations for downstream passage of salmonids (i.e., Cougar, Detroit, Fall Creek, and Foster). The purpose of this passage is to immediately reinstate Pacific lamprey spawners to these key habitats and provide progeny for future outmigration studies.

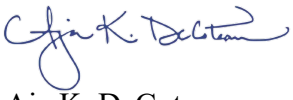
2) Within one year of signing the Record of Decision (ROD) for the WVS, the USACE , state, tribes and federal entities (parties) will work together to create a Comprehensive Passage Plan for Pacific Lamprey (Lamprey Passage Plan) to implement permanent Pacific lamprey passage, including timelines, at each of the dams of the WVS.
3) The Lamprey Passage Plan should include lamprey reintroduction and subsequent supplementation of adult lampreys into all subbasins to jump-start the population above each dam that in all likeliness provided historical habitat for Pacific lamprey. Reintroduction and supplementation would be expanded above other WVS dams beyond those targeted in the "first phase" listed above. The "second-phase" dams should begin equivalent levels of supplementation as "first-phase" dams by prioritization based on habitat availability and likelihood of re-establishment of lamprey, including consideration of available downstream passage routes.
4) The USACE should modify all Adult Fish Facilities (AFF) within five years of signing the ROD to enable effective collection and transportation of Pacific lamprey adults above their dams.
5) Develop a comprehensive RM&E plan for all "first-phase" and "second-phase" dams to evaluate the population establishment and passage success within each basin. Such plan development for downstream evaluation should co-occur with reintroductions, as it will take multiple years (4+ years) for juveniles to begin outmigration for evaluation. RM&E plan should evaluate/include the following:
    - Spawning distribution and success upstream of each dam (equivalent success rates as anadromous salmon counterparts).
    - Outmigrant monitoring to document timing for movement/migration by life phases.
    - Genetic monitoring of all life phases to understand population structure, parentage-based tagging, species identification, age and timing of transformation and migration, and address critical uncertainties.
    - Route selection and passage survival at each dam for larval and juvenile outmigrants.
    - Migration success of larval and juvenile Pacific lamprey downstream of WVS dams (in equivalent rates as anadromous salmon counterparts).
    - Collection efficiency of adults returning to each AFF as modified to collect and transport lampreys.
    - Adaptive management targets and criteria to improve efficient passage of larvae and juveniles at each dam and evaluate the relative productivity of each stream reach for the Willamette River basin as a whole. This type of monitoring will require infrastructure such as rotary screw traps above and below each dam and a means to sample outmigrating juveniles at the Willamette Falls via modifications to the current juvenile bypass facility to allow for biosampling.
    - Development and collection of a long-term data set including coordination with other studies and monitoring in the Willamette Basin (such as other juvenile outmigration monitoring efforts and adult mark/recapture to estimate abundance of Pacific lamprey) to evaluate how much overall Pacific lamprey juvenile productivity has translated to increases in adult abundance at the falls in future years.
6) Results from the RM&E should be provided to the parties in an annual report, and each year's report should incorporate and build upon previous years' data and results.

7) After 5 years of implementation, we recommend the Comprehensive Passage Plan for Pacific Lamprey should be reviewed and collaboratively revised by the parties to update the plan based on available data, new information, and refine passage and data collection. This Revised Comprehensive Passage Plan for Pacific Lamprey would be completed within one year and this plan will be updated every five years until the last year of coverage by the USACE's proposed action in the PEIS to ensure continued and restored passage and evaluation of Pacific lamprey at WVS dams.

CRITFC requests that the USACE consult with the tribes to develop a comprehensive Pacific Lamprey Strategic Passage Plan as part of the final PEIS. In support of this, CRITFC is providing its lamprey plan, "Framework for the Pacific Lamprey Strategic Passage Plan" (attached). CRITFC supports and incorporates the scoping comments of the Yakama Nation (attached) and the recommendations of the USFWS and ODFW.

Thank you for your time. If you have any questions, please contact CRITFC Lamprey Lead Laurie Porter at (503) 238-0667 or porl@critfc.org.

Sincerely,



Aja K. DeCoteau
Executive Director

Enclosures

Framework for the Pacific Lamprey Strategic Passage Plan

GOAL: Restore self-sustaining Pacific lamprey abundance in historical habitats affected by Willamette Valley System dams by providing permanent long-term up- and downstream Pacific lamprey passage.

BACKGROUND:

One of our greatest concerns is the impact the hydrosystem facilities has had and will continue to have on the Pacific lamprey in the Willamette Basin. Pacific lamprey is not only vital to the Pacific Northwest rivers and streams ecologically, but also provide an important source of food for the tribes within the basin. The CRITFC member tribes (Confederated Tribes of Warm Springs of Oregon, Confederated Tribes and bands of Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, and the Nez Perce Tribe) and other local tribes have harvested Pacific lamprey at the Willamette Falls for millennia. Due to the near extirpation of Pacific lamprey in many locations within the Columbia River Basin upstream of dams and other impediments to passage, the Willamette Falls is one of the few remaining traditional harvest locations for the CRITFC member tribes and other local tribes. The cultural and traditional significance of the Willamette Falls and its importance in maintaining ties to Pacific lamprey and providing lamprey for subsistence and ceremonial purposes cannot be overstated. The dams of the Willamette Valley have blocked passage of Pacific lamprey to prime habitat and have diminished the abundance of the species at the Willamette Falls (abundance was historically estimated to be well over 1 million and commercial harvest peaked at ~200 tons [roughly 400,000 lamprey] in 1946). These dams have had other notable negative impacts including loss of spawning and rearing habitat, loss of stream sinuosity through channelization, loss of floodplain function, and introduction and retention of contaminants. Although CRITFC member tribes have implemented restoration work throughout the interior Columbia River Basin via translocation and artificial propagation, we have observed that the benefits of these restoration efforts may primarily serve areas upstream of Bonneville Dam (Hess et al. 2022). This is because direct increases to larval abundance occur near the sites of translocation releases. Further, any direct increases to adult abundance (via returning offspring to the Columbia River as adults) will likely occur at Bonneville Dam, because Snake River origin Pacific lamprey have been found to largely bypass the Willamette River and preferentially migrate to Bonneville Dam and further upstream. These findings provide impetus for directed restoration efforts that need to occur within the Willamette River Basin to increase abundance of Pacific lamprey locally. Some of the work CRITFC and its member tribes have conducted to conserve Willamette Basin lamprey populations can be found in the Tribal Pacific lamprey Restoration Plan for the Columbia River Basin. However, we strongly recommend that the following basic restoration actions take place to begin a timely remedy for the loss of blocked passage above the Willamette Valley dams:

We recommend the Corps include a Lamprey Passage Framework in the EIS as part of their proposed action for the Willamette Valley System (WVS) for the next 30 years. This Lamprey Passage Framework will include the following:

1) We recommend immediate implementation of Pacific Lamprey Passage via trap and haul (First Phase). We recommend the Corps fund or implement trap and haul of Pacific lamprey from the closest available source in the basin (e.g. the Willamette Falls) to historical habitats above WVS dams. This trap and haul / reintroduction will target a set of “first-phase” dams that the Corps already intends to provide passage structures or operations for downstream passage of

salmonids (i.e., Cougar, Detroit, Fall Creek, and Foster). The purpose of this passage is to immediately reinstate Pacific lamprey spawners to these key habitats and provide progeny for future outmigration studies.

2) We recommend that within 1 year of signing the Record of Decision (ROD) for the WVS, the Corps develop collaboratively with the state, tribes and federal entities (parties) a Comprehensive Passage Plan for Pacific Lamprey to address implementation of Pacific lamprey passage, including timelines, at each of the dams of the WVS (Lamprey Passage Plan). The plan should be developed collaboratively with the parties, striving to reach consensus among the parties. The plan should include the following:
    a. Lamprey reintroduction and subsequent supplementation of adult lampreys into all subbasins to jump-start the population above each dam that in all likeliness provided historical habitat for Pacific lamprey. Reintroduction and supplementation would be expanded above other WVS dams beyond those targeted in the "first phase" listed above. The "second-phase" dams should begin equivalent levels of supplementation as "first-phase" dams by prioritization based on habitat availability and likelihood of re-establishment of lamprey, including consideration of available downstream passage routes.
    b. Modification of all Adult Fish Facility (AFF) to provide for the Corps to effectively implement the collection and transportation of Pacific lamprey adults above the Corps' dams within 5 years of signing the ROD.
    c. Collaborative development of a comprehensive RM&E plan for all "first-phase" and "second-phase" dams to evaluate the population establishment and passage success within each basin. Such plan development for downstream evaluation should co-occur with reintroductions, as it will take multiple years (4+ years) for juveniles to begin outmigration for evaluation. RM&E plan should evaluate/include the following:
        i. Spawning distribution and success upstream of each dam (equivalent success rates as anadromous salmon counterparts).
        ii. Outmigrant monitoring to document timing for movement/migration by life phases.
        iii. Genetic monitoring of all life phases to understand population structure, parentage-based tagging, species identification, age and timing of transformation and migration, and address critical uncertainties.
        iv. Route selection and passage survival at each dam for larval and juvenile outmigrants.
        v. Migration success of larval and juvenile Pacific lamprey downstream of WVS dams (in equivalent rates as anadromous salmon counterparts).
        vi. Collection efficiency of adults returning to each AFF as modified to collect and transport lampreys.
        vii. Adaptive management targets and criteria to improve efficient passage of larvae and juveniles at each dam and evaluate the relative productivity of each stream reach for the Willamette River Basin as a whole. This type of monitoring will require infrastructure such as rotary screw traps above and below each dam and a means to sample outmigrating juveniles at the Willamette Falls via modifications to the current juvenile bypass facility to allow for biosampling.

viii. Development and collection of a long-term data set including coordination with other studies and monitoring in the Willamette Basin (such as other juvenile outmigration monitoring efforts and adult mark/recapture to estimate abundance of Pacific lamprey) to evaluate how much overall Pacific lamprey juvenile productivity has translated to increases in adult abundance at the falls in future years.

d. Results from the RM&E should be provided to the parties in an annual report, and each year's report should incorporate and build upon previous years' data and results.
e. After 5 years of implementation, we recommend the Comprehensive Passage Plan for Pacific Lamprey should be reviewed and collaboratively revised by the parties to update the plan based on available data, new information, and refine passage and data collection. This Revised Comprehensive Passage Plan for Pacific Lamprey would be completed within 1 year and this plan will be updated every 5 years until the last year of coverage by the Corps' proposed action in the PEIS to ensure continued and restored passage and evaluation of Pacific lampreys at WVS dams.

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June 28, 2019

Colonel Aaron L. Dorf
Commander and District Engineer of the Portland District
U.S. Army Corps of Engineers, CENWP-PME-E
P.O. Box 2946
Portland, OR 97208-2946

RE: National Environmental Policy Act Scoping for the Willamette River System Operations Environmental Impact Statement

Dear Colonel Aaron L. Dorf:

The Columbia River Inter-Tribal Fish Commission (CRITFC) hereby responds to your solicitation for scoping comments on development of the Willamette River System Operations (WRSO) environmental impact statement (EIS).

CRITFC was created by and provides technical and policy coordination services to the Confederated Tribes of the Warm Springs Reservation of Oregon, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes and Bands of the Yakama Nation, and the Nez Perce Tribe. These four tribes possess rights they reserved by treaties with the federal government to take a fair share of those fish destined to pass their usual and accustomed fishing places in the interior Columbia River basin and its tributaries. Inherent in the right to take fish is the conservation and protection of the fishery resource. These reserved rights are not geographically limited to lands ceded to the United States. *See e.g.*, *Seufert Bros. vs. United States,* 249 U.S. 194, *State v James,* 72 Wn.2d 746, 435 P.2d 521 (1967).

The treaties between the federal government and tribes create a federal trust responsibility under which the federal government maintains an affirmative obligation to safeguard the subject matter of federal treaties. Thus, federal agencies must use their authorities in a manner that will protect and enhance – not degrade – the fish species that underlie treaty fishing rights. This duty does not cease once a fish run becomes viable.

The *U.S. v. Oregon* and *U.S. v. Washington* cases also affirmed that Northwest tribes, by virtue of their treaties with the U.S. government, have co-management status on fisheries resources. In reserving the right to fish at all usual and accustomed places, tribes retained their authority to regulate the tribal fishery. State and federal government co-managers are therefore required to have meaningful consultation on actions that affect the treaty-protected fisheries resources. These actions include non-tribal fisheries, hatchery production, protection of the natural spawning environment, and protection on the downstream and upstream migration through the river.

At the direction and on behalf of its member tribes, CRITFC offers the following comments to help identify actions to be included in the suite of programmatic alternatives to avoid and minimize impacts on the tribal fishery resource and issues that must be considered in the impact analysis of those alternatives.

Cumulative Impact Requirement

The National Environmental Policy Act (NEPA) requires federal agencies to look at the cumulative impact of their action. 40 C.F.R. § 1508.25, 40 C.F.R.§1508.27.

> Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. 40 CFR § 1508.7 2019.

The U.S. Army Corps of Engineers (USACE) needs to look at the cumulative impact of this and other on-going projects in the Willamette Basin to satisfy NEPA requirements. Since impacts to Pacific lamprey were not assessed in the current Willamette Basin Water Reallocation Environmental Assessment (EA), that project should be suspended and instead be subsumed into this EIS to fully address the effects of storage allocation and operations on lamprey and other aquatic species. The storage allocation and operations decisions are thoroughly intertwined and, currently, the Willamette Basin Water Reallocation EA is in violation of CEQ requirements by not evaluating the cumulative impact on lamprey.

An EIS for the Willamette Basin Water Reallocation Project is needed to better understand the impacts of that action, particularly on Pacific lamprey that are not even mentioned in that EA. Additional planning at the state level is needed before the federal approval of either storage allocation or storage operations decisions. The two matters should be considered together since operational limitations will affect storage allocation and vice versa. The EA is clear that allocation and operations affect one another. What is not clear is how these effects will occur and how they will be managed.

At the State level the unknowns of how enforcement will work, when and where the water will be drawn from, distribution of the drought plan, and distribution of instream flows is also unclear. There is the uncertainty of how the implementation of instream flow protections for fish and wildlife will work. Incorporating this project into the Willamette River System Operations EIS would present the opportunity to address the mitigation needs for lamprey and the opportunity to satisfy NEPA's cumulative impacts requirements.

Pacific Lamprey

Since 2008, the Columbia Basin Fish Accords lamprey projects, with guidance from the Tribal Pacific Lamprey Restoration Plan, have worked to address a variety of issues for Pacific lamprey in the Columbia Basin (CBFWA 2005; USFWS 2011; CRITFC 2011) including improving mainstem and tributary passage, providing regional abundance and distribution information, conducting

supplementation research (e.g. adult translocation and artificial propagation), describing lamprey population substructure, identifying high-value habitat types (e.g. migration, spawning, and rearing), providing tributary escapement estimates, and guiding contaminant and water quality research.

One of our greatest concerns is the impact the project will have on the Pacific lamprey in the Willamette Valley. Lamprey provide an important source of food for the tribes in the basin. The Commission's member tribes have harvested lamprey at Willamette Falls for millennia. Due to the near extirpation of lamprey in many locations within the Columbia River Basin upstream of dams and impediments to passage, Willamette Falls is one of the few remaining traditional harvest locations for the CRITFC member tribes. The cultural and traditional significance of Willamette Falls can not be overstated to maintaining ties to Pacific lamprey and providing lamprey for subsistence and ceremonial purposes. Some of the work CRITFC and its member tribes have conducted to conserve Willamette Basin lamprey populations can be found in The Tribal Pacific Lamprey Restoration Plan for the Columbia River Basin.[1] The Willamette Basin is one of the most prominent habitats for lamprey, with Willamette Falls as a significant historical fishing site. Additionally, within the basin, the largest proportion of lamprey in the Willamette Basin inhabit the Santiam River, a tributary that will be affected by this project. Diminished in the Columbia River, the Willamette is one of the last few basins for lamprey to thrive. It's also important to add that there has been a number of restoration projects done for the lamprey in the basin and without enough flow they may be all for naught.

There is ample information that can be considered about lamprey populations in USACE's study effort. Chapter 13 of the USFWS' Lamprey Assessment is dedicated to lamprey populations in the Willamette Valley and states:

> Water diversions and impoundments alter the quantity and timing of flow events, which may impact adult and juvenile lamprey migration cues, decrease spawning habitat availability, prevent access to backwater or side channel habitats, create low water barriers, and contribute to mortality if incubating eggs or burrowing larvae are dewatered or exposed to a high temperature or low oxygen environment (Clemens et al. 2017b). Some improvements to flow regimes have occurred in the Willamette Basin.[2]

Improving the passage environment for Pacific lamprey, at all life history stages, remains the highest priority for restoration within the Willamette Basin.

- *Improvements to passage by adult lamprey:* Increase focus on addressing known adult lamprey passage bottlenecks in fishway sections that are upstream of entrances (i.e. transition pools, serpentine weirs). Evaluation of historic telemetry data suggests this will enhance likelihood of improving overall dam passage efficiency and conversion to upriver dams (Keefer et al. 2013).
- *Development of alternative forms of passage:* Efforts to develop and improve alternative forms of passage should continue in parallel with passage improvements. This would include

[1] https://critfc.org/wp-content/uploads/2012/12/lamprey_plan.pdf.
[2] https://www.fws.gov/pacificlamprey/Documents/PacificLamprey_2018Assessment_final_02282019.pdf at page 165.

expansion of adult translocation efforts that aim to bypass the difficult migration corridor and release adults into high-value spawning habitat in strategic locations within the Willamette Basin.

- *Implementation of RM&E plan for larval/juvenile lamprey:* Strongly consider multiple approaches (e.g. PIT and acoustic tagging) to inform management decisions regarding juvenile lamprey passage improvements, in addition to the current strategy of developing a juvenile lamprey acoustic transmitter.

Pacific lamprey migration timing is influenced by a number of factors including water temperature and flow (Clemens et al. 2011, 2012). As temperatures increased, lamprey were observed holding overwinter in the mainstem Willamette River prior to resuming the spawning migration the following spring (Clemens et al. 2012). Testicular atresia of male lamprey has been observed in lamprey collected at Willamette Falls when temperatures exceeded 20°C. Lamprey may also respond to chemical cues from larval lamprey to guide their spawning migrations (Moser et al. 2015). Thus it is important that habitat and water quantity and quality are maintained in upstream tributaries where larval lamprey are observed to reside.

Water Quality

Another concern is how changes in Willamette River System Operations will affect water quality in the Willamette Basin. Shifting water flow will affect the water quality of the basin from dilution of pollutants to affecting water temperature and availability of dissolved oxygen for aquatic species. The quality of water disproportionately impacts juvenile lamprey, which spend up to seven years filter feeding in the silt and gravel of stream beds, making them particularly susceptible to toxics that settle in and out of the water. ESA-listed steelhead and chinook salmon are also vulnerable to water quality degradation and rely on flow objectives to dilute concentrations of toxics from municipalities, industry, and agricultural runoff.

Climate Change

Thoroughly considering the likely effects of climate change is essential to an accurate Willamette River System Operation EIS. Climate change was not thoroughly taken into consideration in the Willamette River Basin EA, which provides this EIS an opportunity to assess the impacts to the Willamete River Basin. The EIS should contend with the possibility that reservoirs may not adequately fill since tributaries, such as the North Santiam, are snowpack driven, which may be affected by climate change differently than rain-driven tributaries. Additionally, climate change will affect the local flows, including timing of flows, that are relied upon in the data to meet the BiOp objectives. The temperature of the water will also be affected by climate change and lamprey, steelhead and chinook salmon may require more live flow to keep Willamette tributaries at a habitable temperature. Overall, the inevitability of climate change impacts must be factored into this EIS.

Adequate Flows for Fish and Wildlife

Perhaps the greatest concern is that there is not enough live flow to sustain fish and wildlife to meet BiOp requirements year-round. Models from the Willamette River Reallocation EA show that BiOp

flow requirements are not consistently met, and in years of deficit and insufficient water availability, they are missed significantly. It would be wrong to assume that a water allocation decision in an EA that does not mention lamprey will in anyway override the needs of this species.

Tribal Cultural Resources

Archaeological and cultural sites are the evidence tribes and tribal members have to connect themselves to the past of their tribe and their ancestors. The National Historic Preservation Act recognizes historic properties of religious and cultural significance to tribes, 54 USC § 302706(a), those sites that may not have an archaeological component but possess deep tribal connections through use from time immemorial. Sometimes they are called Traditional Cultural Properties, however TCPs can be recognized for any cultural group whereas historic properties of religious and cultural significance can only be recognized relating to tribes. The Archaeological Resources Protection Act also recognizes these areas as sites that have religious or cultural importance, 16 USC § 470cc. These sites are often related to the gathering of the First Foods, those foods tribes have relied upon for their survival since the beginning of time and have deep cultural meanings. Hunting, fishing, gathering, and other cultural sites contribute to and connect the tribes to their homelands and their cultures which are based on this place.

The interests of tribes in the protection of cultural resources associated with the Willamette River are not limited to the information contained in the archaeological sites. Salmon and lamprey are tribal cultural resources that play an integral part of tribal religion, culture, and physical sustenance. Salmon and lamprey shaped the lives of the people who have lived here since time immemorial. The cultures, intertribal interactions, fishing technologies, and very religions of the Pacific Northwest tribes were all impacted and influenced by salmon and lamprey. These fish have been an important part of the economies of the region for thousands of years, from the ancient Indian trade routes to modern commercial fishing.

Specifically, salmon also play an important role in the ecosystem of the region, returning ocean nutrients to the rivers and streams where they were born, feeding wildlife and even the forests with their bodies. *Wy-Kan-Ush-Mi Wa-Kish-Wit*, the salmon's spirit, is sacred life. The salmon was provided a perfect world in which to thrive. For thousands of years the salmon unselfishly gave of itself for the physical and spiritual sustenance of humans.[3]

USACE will need to work closely with the member tribes of CRITFC and their cultural resources departments during their analysis of cultural resources. CRITFC may be able to assist in coordination with the tribes.

Hydro System Operations

The EIS should consider a range of system operations and improvements with the goal of improving fish passage and maximizing system survival. Alternatives should include the following operation changes:

[3] http://plan.critfc.org/2013/spirit-of-the-salmon-plan/about-spirit-of-the-salmon/.

- A spill/flow program optimized for salmon survival under existing water quality waivers; set spill/flow at optimal levels based on individual project characteristics to maximize juvenile survival. Such spill may be greater than current spill, but may not necessarily require spill to the gas caps.
- Modified reservoir operating elevations at specific projects for either permanent drawdown or seasonal drawdown.
- Use spill/flow operations during the summer to deal with downstream water quality issues.
- Altered flood control operations in low- and mid-range water years to guarantee flows downstream of projects.

Hydro System Structural Modifications

Alternatives reviewed under the EIS should include structural modifications to again improve fish passage and system survival. The modifications for lamprey passage measures discussed above should be considered.

- Install additional temperature structures at appropriate projects to reduce summertime thermal issues.
- Install surface passage structures/collectors at designated projects such as outlined at Detroit and Cougar dams.
- Improve adult passage at existing ladders. Add trap-and-haul facilities if adult ladders are infeasible or not cost-effective options
- Evaluate different smolt transport options of trucking or long distance piping to move fish around dams.

Off-site Mitigation

Inclusion of mitigation actions, such as those implemented through actions in the estuary and tributaries, as well as hatchery actions, is a requirement of the Northwest Power Act and must be included as part of the WRSO action so long as there are dams on the rivers; there is no system operation alternative that can alleviate the mitigation requirement. The alternatives in the EIS must therefore include an appropriate suite of tributary and estuary mitigation actions.

Mitigation funding plays a significant role in the economics of interior basin communities. Therefore, when analyzing the effects of tributary actions, the agencies will need to include analysis of the socio-economic benefit that mitigation funded tributary actions have on local communities, both tribal and non-tribal, and how those benefits change under the various alternatives.

Reservoir Ecology

The EIS will need to consider the effects of the existence and operation of the federal hydropower system on reservoir ecology. Before the dams, the Willamette River was just that – a river of free flowing water. The Willamette River system has turned these rivers into a system of connected reservoirs, bringing with it changes to the natural ecological river system, including invasive species, algae, seaweed, altered flood dynamics, sequestration of sediment, sand bars, water quality issues, and changes in temperature, to name a few. The WRSO EIS will need to evaluate the change in reservoir ecology associated with each alternative and how these changes affect fish and wildlife

resources. We encourage the agencies to consider alternative actions – including system operation and restoration actions – to address reservoir ecology and its impacts on the fishery resource.

Data and Metrics

The EIS should review and include a range of fish metrics and data, including project survival, reach survival, and delayed mortality. Alternative development and analysis in the EIS should consider at least reach, project, and SAR survival metrics. In addition to these metrics, the analysis should look to using various models and tools and not be completely dependent on the COMPASS model.

Conclusion

Thank you for the opportunity to comment. We look forward to working with USACE in carrying out the WRSO EIS processes.

Executive Director

Agency	Chapter	Section # if applicable	Page # if	Comment/ Concern	Basis for the concern	Significance	Recommended actions to resolve the concern	USACE Response	Address in Final	Topic
Grand Ronde				GENERAL: The 30-day turnaround to offer substantive comment as a cooperating agency on a document of this size is inadequate. If USACE truly wants this review process to offer us the opportunity to make substantive comment, the process needs to be longer. We are also concerned that, in order to fit into the predetermined timeline for public review, USACE will not give our comments the full consideration they require.		High		This was intended to be a red flag review of major issues. Please provide any additional substantive comments in the formal DEIS public comments.		General
Grand Ronde				GENERAL: Please do a "find and replace" for the spelling of Grand Ronde. There are a few places throughout (including in charts) where it is misspelled as "Grande Ronde"		High		Editors worked to make this global change. A few others have been noted and will be corrected for the final.	X	Editorial
Grand Ronde				GENERAL: It would be helpful for us if there were a separate list/alternative that explicitly listed out actions designed to optimally benefit salmonids and ESA-listed species in the WVS. There are actions represented in some of the non-preferred alternatives (ex. fish passage at Hills Creek) that we would like to advocate for being included in the preferred alternative, but it is difficult to read through each section to see the proposed impacts and compare them to Alternative 5.		High		A plan for fish passage at Hills Creek Dam has been contemplated in the EIS under Alternative 4. Although not included in the Preferred Alternative for implementation it is in the adaptive management plan. The AM Plan proposes an on ramp for including downstream passage at Hills Creek based on specific metrics. This comment and any others on what alternative should be selected or what measures should be included in the selected alternative will be considered, before a final decision is made in a Record of Decision. Section 2.2.3 describes all the downstream fish passage measures. There are tables in Section 2.4 that note what measures are included in the respective alternative. A table will also be include for the preferred alternative in the final EIS.		Fish Passage
Grand Ronde				GENERAL: The Willamette Valley System falls entirely within the ceded lands of the 1855 treaties signed with the tribes and bands that were eventually moved to the Grand Ronde reservation. Our tribes were living at these dam sites when the treaties were signed, and as our ceded lands they take on a greater importance for us than simply usual and accustomed places.		High		Acknowledged and included in the text of the EIS.		Tribal
Grand Ronde				GENERAL: For the preferred alternative, fish passage and adult fish facilities are not being considered for Hills Creek. We ask for additional assessment of the benefits of including these interventions as part of Alternative 5 and encourage the Corps to adopt these measures as part of the preferred alternative.		High		A plan for fish passage at Hills Creek Dam has been contemplated in the EIS under Alternative 4. Although not included in the Preferred Alternative for implementation it is in the adaptive management plan. The AM Plan proposes an on ramp for including upstream passage at Hills Creek based on specific metrics.		HCR
Grand Ronde	Chapter 2	2.2.4.1	2-27	We support increased Pacific Lamprey passage and infrastructure (52). We would also like to see information on potential approach ramps to the ladders that actually encourage lamprey passage in addition to in-ladder infrastructure that makes it easier for them to navigate once they're inside it.		High		Edited Measure 52 description as follows: "Features and modification could include but are not limited to rounded corners in turning pools, rounded side edges of orifices, replacement of diffuser screens with lamprey-friendly screens and other nature-based features. Features could also include improvements to the facility fishway entrance(s) and transition pools including bridges made from solid plate, ramps at fishway entrances, flat plates spanning diffusers, and procedures and methods for trapping and removing lamprey, either at the facility entrance or farther upstream in the AFF. Features included for improved lamprey passage will depend on the opportunities and constraints present at individual facilities. The appropriate features will be assessed during the detailed design phase for each individual facility."		Lamprey
Grand Ronde	Chapter 2	2.2.4.3	2-28	We support the construction of new adult fish facilities (722).		High		Comment noted.		Fish Passage

Grand Ronde	Chapter 3	3.8	3-25	We are concerned about moderate to major adverse effects on Chinook salmon being identified in ALL of the alternatives, as well as minor adverse effects for winter steelhead and bull trout in all alternatives. Any impact to these species should be considered significant because of the compounding effects stressing populations within the river system. All of these species are already severely impacted, and any adverse effects should be treated as significant.		High		The DEIS effects analysis is relative to the NAA, not the historic baseline to provide a means of comparison for what actions we may take to improve the status of the species.		Fish
Grand Ronde	Chapter 3	3.21	3-39	We are deeply concerned about major effects to cultural resources being listed in all alternatives. We ask that the Corps identify specific strategies to moderate, mitigate, and prevent these effects. Specifically, we are asking for A) funding for site protection, B) the creation of designated spaces to reinter items and ancestral remains that may be affected, along with any relevant policy change necessary to make that happen, C) specific educational resources and ongoing funding to develop and implement looting prevention strategies in affected communities, as well as leaving open the possibility of prosecution and enforcement of existing law, and D) a cooperative agreement with USACE so that the Tribe can provide culturally relevant support and education around cultural resources in the WVS.		High	Added language to 3.21.2.2. Also, recommend tribal liaison reaching out to Grand Ronde, other cooperators, and other tribes to discuss management and mitigation based on potential adverse effects to cultural resources.	Thank you for the comment. The Corps will reach out to the Grand Ronde to collaborate on this comment and how to best incorporate it and resulting actions for the Final PEIS.		Tribal
Grand Ronde	Chapter 3	3.8.1.1	3-660	We support considering Pacific lamprey along with ESA-listed anadromous and migratory fish.		High		The DEIS has considered Pacific lamprey along with ESA-listed anadromous and migratory fish.		Lamprey
Grand Ronde	Chapter 3	3.20-5	3-1330	We have several comments regarding the "Environmental Justice" section and the Tribe's representation in this section. The Tribe is represented as having its reservation and off-reservation lands in Yamhill County, but the Tribe also owns off-reservation lands in Polk County. We would also ask that this section specifically acknowledge that the entire WVS lies within the ceded lands of the 1855 treaties with the tribes and bands who were moved to the Grand Ronde reservation—these are our ceded lands. We would also like acknowledgement that although our reservation is only in one part of the region, our members live all across the communities in and around the WVS; thus, the metric that connects the physical distance from one reservation to places for subsistence fishing (ex. Figure 3.20-1) does not accurately represent the effects the WVS has on tribal member access to places for subsistence fishing.		High		The following text was added to the paragraph preceding Figure 3.20-1: "Note that while many or most Tribal members may live on, for example, the Grand Ronde Reservation, members also live across the communities in and around the WVS (Grand Ronde, 2022)." And the following introductory paragraph in Section 3.20.3.1 (Confederated Tribes of Grand Ronde Community of Oregon) was updated to read as follows: "The Confederated Tribes of Grand Ronde is a community formed of more than 30 Tribes and bands from the Kalapuya, Mollala, Chasta, Umpqua, Rogue River, Chinook, and Tillamook, originating throughout western Oregon, northern California, and southwestern Washington. The entire WVS lies within the ceded lands of the 1855 treaties with the tribes and bands who were moved to the Grand Ronde reservation. Through the seven treaties listed in Table in this section, Affected Indian Tribes and WRB-Relevant Treaties in Section (Tribal Resources), Grand Ronde ancestors ceded all of the Willamette Valley and beyond for a significantly reduced reserve of tribal lands. The Tribal reservation extends over an area of 11,500 acres in Yamhill County, Oregon (CTGR No Date; CTGR 2014). The Tribe also owns off-reservation lands in Polk County. Members of the Confederated Tribes of Grand Ronde members live on the reservation and in off-reservation lands across the communities in and around the WVS (Grand Ronde, 2022)."		Tribal

Grand Ronde	Chapter 3	3.20	3-38	We are disappointed that all alternatives list minor to moderate adverse effects to subsistence fishing for the Tribes. It is inappropriate that not a single alternative identified options that could promote the health of the system, increase tribal sovereignty, and improve access to spaces to practice culture. We are being asked to select from a menu of options that does not offer us any benefits, but instead requires us to select an alternative that simply produces the least amount of harm to our cultural resources, natural resources, and ways of life. This is inappropriate.		High		Comment noted. Please also submit substantive comments during the formal public comment period so we can ensure they are fully responded to in a public manner. The Corps will follow up if not included in substantive comments and continue coordination.		Tribal
Grand Ronde	Chapter 4		4-149	In addition to restoration, access to wildlife resources, and initiatives to preserve cultural resources, the Tribe is also working to improve access for tribal members to practice culture in these spaces. Our culture still exists today as an active culture, and we'd like that represented along with protecting the resources of our ancestors.		High		Comment noted.		Tribal
Grand Ronde	Chapter 5	5.2.1.3.2	5-16	It is inappropriate that that preferred alternative would have adverse effects on the majority of cultural resources within the WVS, and we are confused as to why USACE explicitly lists that "no improved access and wildlife/plant habitat at traditional cultural properties" is an outcome. Why is USACE choosing NOT to increase access to these spaces for tribal members, especially when major adverse effects to cultural resources have been identified?		High		This language is no longer in Chapter 5 as there is no differentiation in impacts to cultural resources or wildlife among alternatives that would inform the decision. Essentially, the Preferred Alternative and other action alternatives would provide no change to access from existing conditions. Increasing or improving access and wildlife/plant habitat at traditional cultural properties is outside the scope of this O&M EIS, which deals expressly with water management not land use.	X	Cultural Resources