

2018 Oversupply Management

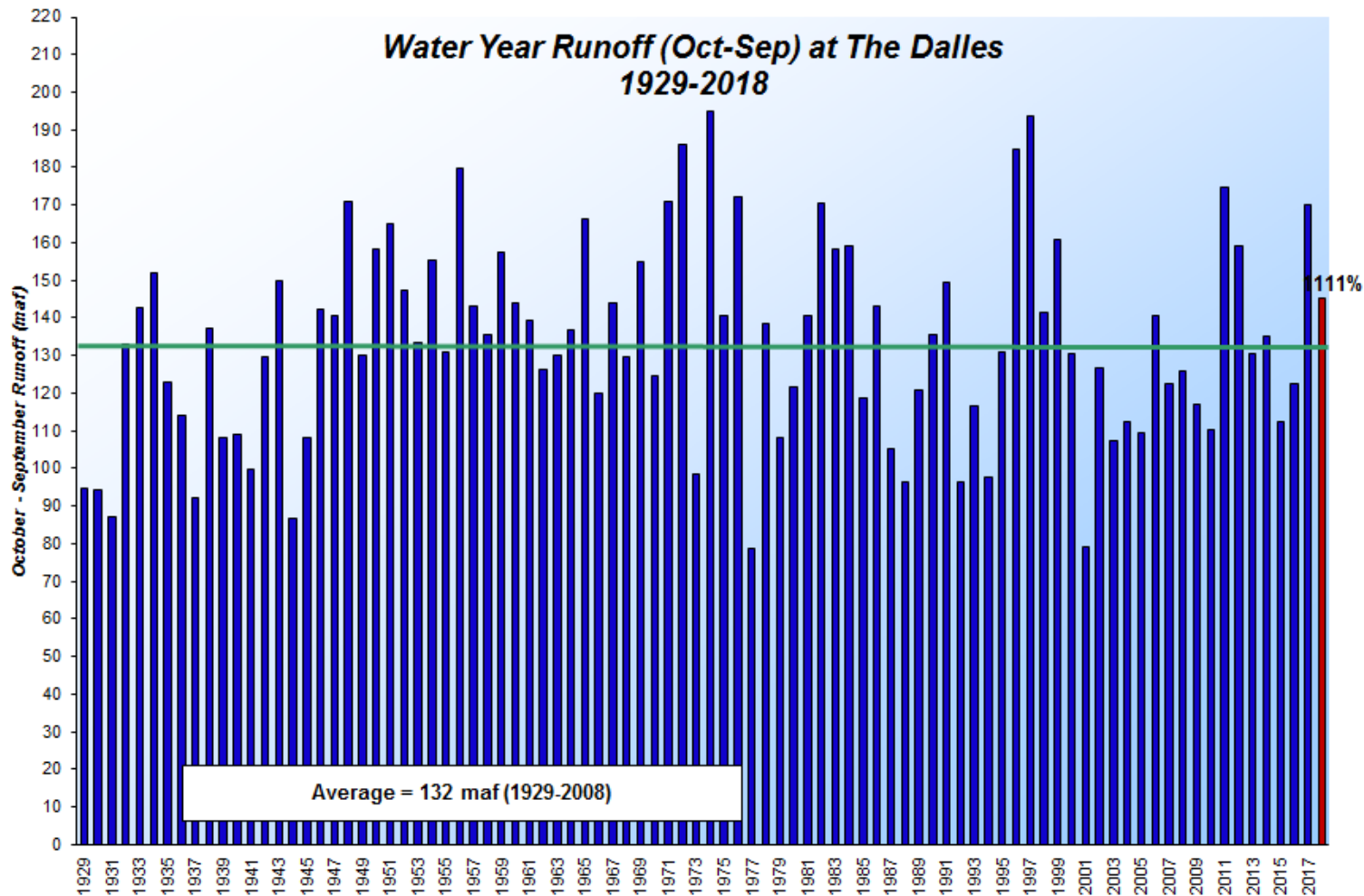
Oct. 25, 2018



Factors Contributing to the Implementation of the Oversupply Management Protocol (OMP) in 2018.

- Water supply volume was 113% of average. (Slide 3) The projected volume had an unprecedented increase across the spring.
- 2018 the FCRPS Spring fish operations were under an injunction to operate at gas cap spill at all 4 Lower Snake and 4 Lower Columbia projects.
- The FCRPS was under Army Corp of Engineers (COE) directed emergency flood risk management operations starting 5/17 to 5/24 for protecting Portland.
 - COE Total Dissolved Gas (TDG) Reporting:
http://pweb.crohms.org/ftppub/water_quality/tdg/
- AC intertie was derated a few times for maintenance.
 - Intertie Capacity Reporting:
<https://transmission.bpa.gov/Business/Operations/Paths/>
- CGS tripped offline 5/18, and was operated at less than 100% output for 12 days (5/18-5/24) following the unexpected outage.

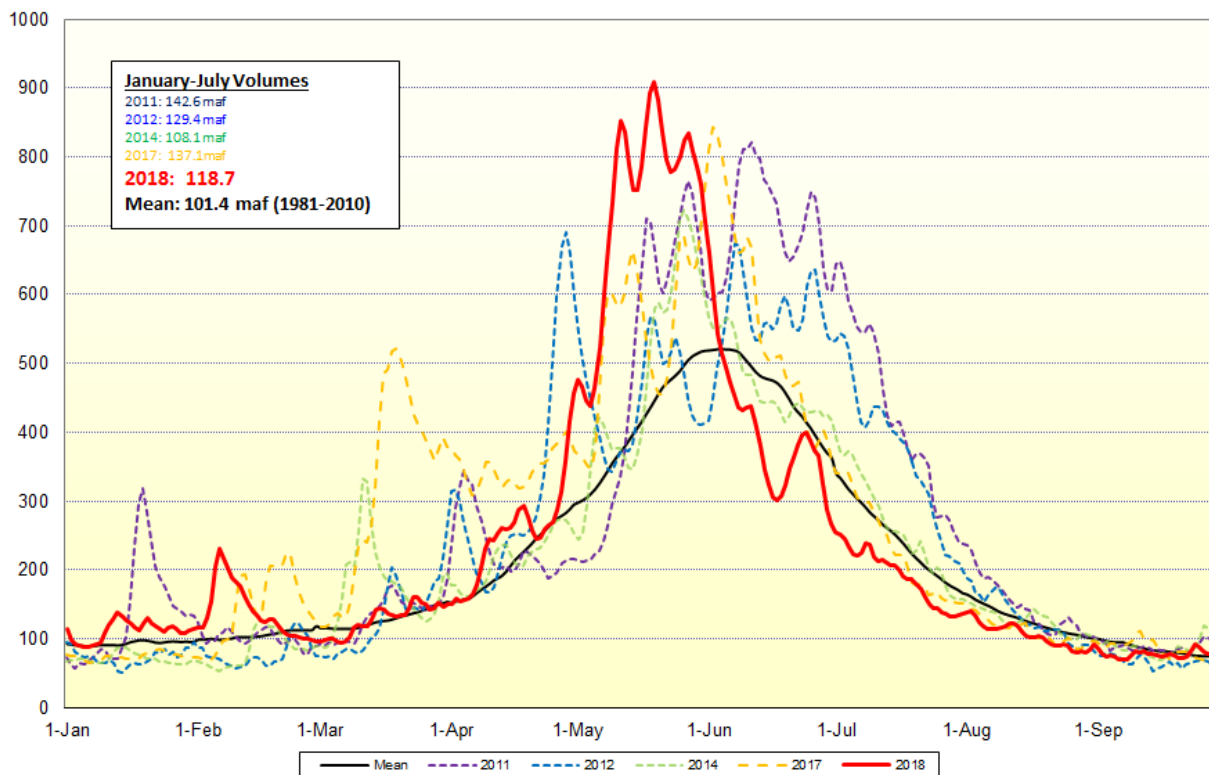
Historical Comparison of Water Years



- 2018 annual runoff at The Dalles was above the long-term average (145 maf)
- 2018 was not an extreme water year compared to 2011, 2012, and 2017, but was in the 75th percentile of the long-term average

Comparison of Water Years

Natural Flows Comparison at The Dalles



Year	Jan - July (MAF)	Line color
2011	142.6	Purple dash
2012	129.4	Blue dash
2017	137.1	Yellow dash
2018	118.7	Red

- 2018 had an unusually rapid and high spring run off, and equally fast drop off
- Highest unregulated runoff since 2008 (peaked near 900 kcfs)
- June-August unregulated flows were below normal

Summary of OMP in 2018

- OMP called on 24 times from 4/28/18 through 6/2/18.
- 5 days had significant requests for displacement during HE7 – HE22, only 1 was a week day.
- 2018 had a peak day of requested OMP of ~43,500 MW on 5/26. The event started 5/25 HE 24 and continued until 5/27 HE 12, with a total event request of ~57,000 MW of OMP relief.
 - Previous 1 day total request peak was ~20,000 MW on 4/2/17.
- This year's OMP was driven more by runoff shape (Slide 4), than high water year volume. The peak natural flows this year in May were higher than in previous years with OMP, however the water year volume is significantly lower than in 2012 and 2017.
- The amount of OMP requested was 113,604 MW-hrs.
- The displacement costs of OMP was around \$4.87m.
- From 4/27/18 through 7/1/18 BPA waived 144,009 MWh of loss return obligations.