Characterization of Yakima and Columbia River Water Resources

Yakima River Basin Study Task 1

Yakima River Average Annual Runoff – Unregulated Flow

- Reservoir system inflow = 1.71 MAF
  - Drainage area = 579 mi
- Unregulated flow at Parker = 3.39 MAF
  - Drainage area = 3,660 mi
- Unregulated flow at Kiona = 3.97 MAF
  - Drainage area = 5,615 mi

Source: IOP, 2002

Yakima River Average Annual Runoff – Regulated Flow Comparison

- Regulated flow at Parker = 1.65 MAF
- Unregulated flow at Parker = 3.39 MAF
- Regulated flow at Kiona = 2.35 MAF
- Unregulated flow at Kiona = 3.97 MAF

Source: IOP, 2002

Yakima River Basin Surface Surface Water Entitlements

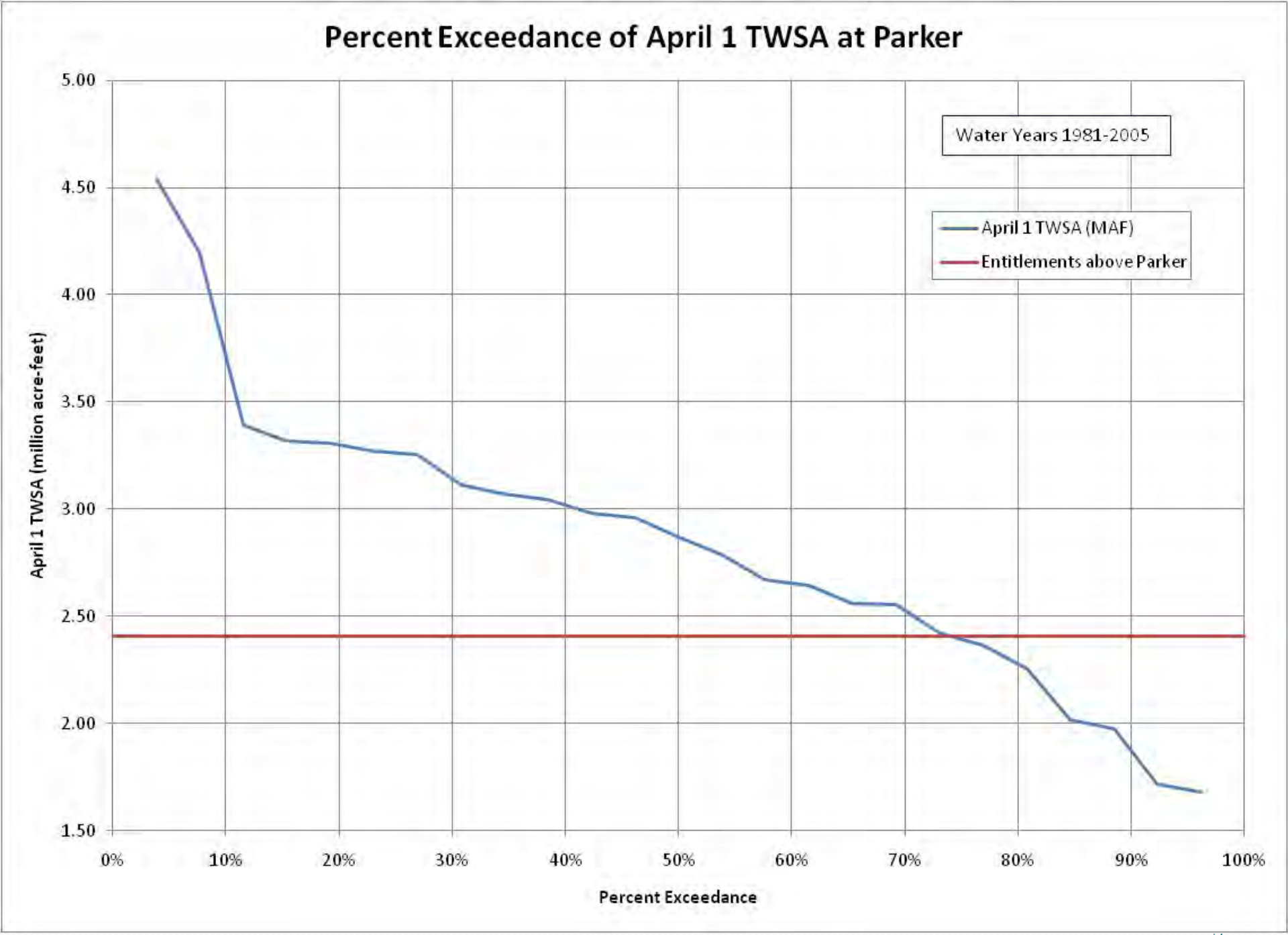
- Total surface water entitlements in Yakima River basin = 3.03 MAF
  - Non-proratable entitlements = 1.60 MAF
  - Proratable entitlements = 1.40 MAF
  - Post-1905 entitlements = 0.03 MAF

Surface Water Entitlements above Parker

- Annual surface water entitlements above Parker gage on Yakima, Tieton, and Naches Rivers
  - 2.41 MAF total
  - 1.09 MAF non-proratable
  - 1.32 MAF proratable/post-1905

TWSA

- TWSA – Total Water Supply Available is measure of water supply used by Reclamation in operation of Yakima Project
  - TWSA = April-July runoff forecast
    + August-September projected runoff
    + April 1 reservoir storage contents
    + Usable return flow upstream of Parker
- Median TWSA (1981-2005) = 2.87 million acre-feet (MAF)
- Drought year TWSA (2001) = 1.68 MAF


Percent Exceedance of April 1 TWSA at Parker
Water Years 1981-2005
April 1 TWSA (MAF)
Entitlements above Parker
April 1 TWSA (million acre-feet)
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance

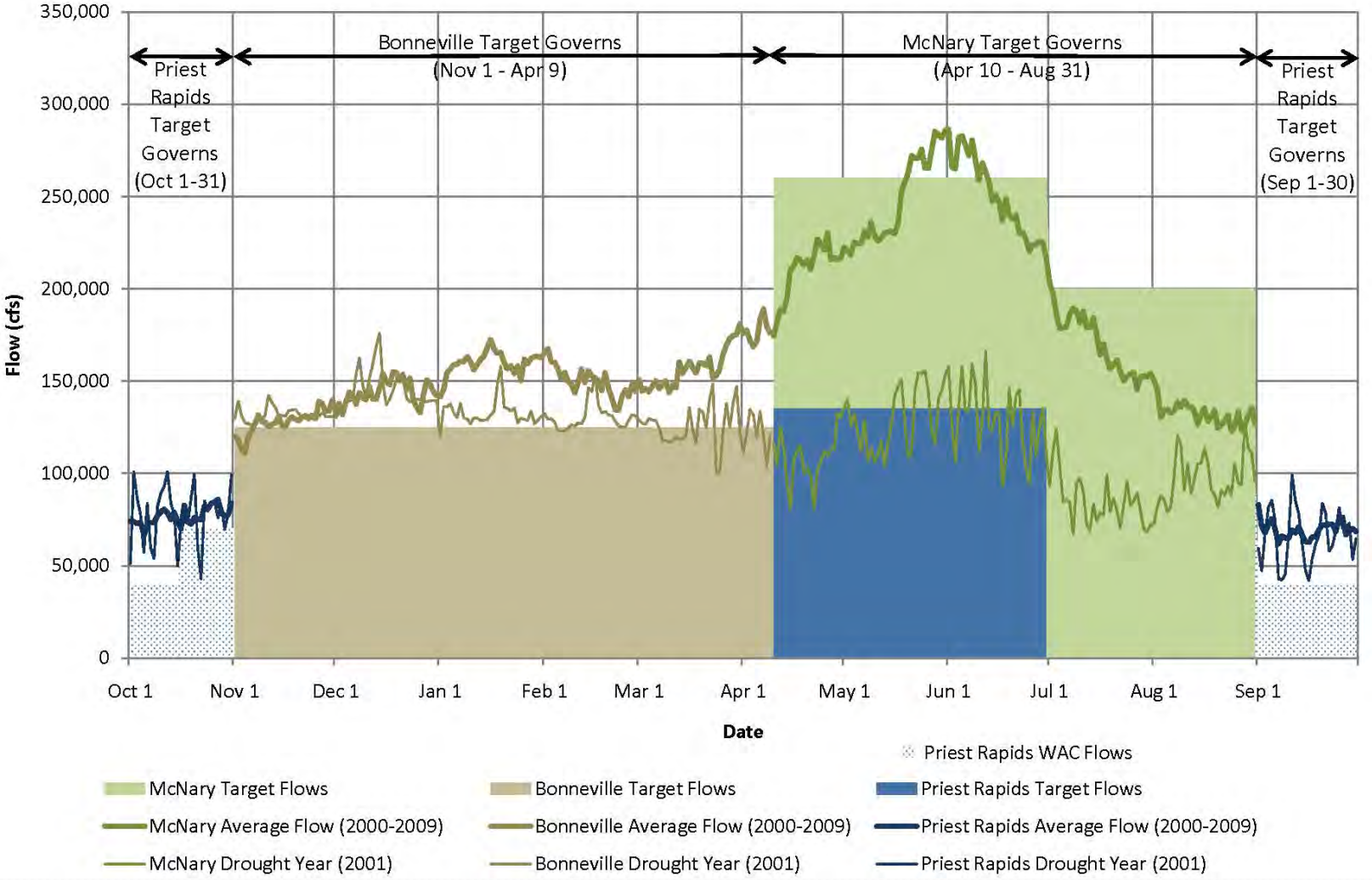
Columbia River Average Annual Flow

- Water years 2000-2009
  - Below Priest Rapids Dam: 77.2 MAF
  - Below McNary Dam: 111.2 MAF
  - Below Bonneville Dam: 119.5 MAF

Columbia River Water Available for Pumping

- Water assumed available if above minimum flows
  - Biological Opinion target flows – set below Priest Rapids, McNary, and Bonneville Dams
  - WAC Minimum flows
- Assumed no pumping in July or August because of requirement for no negative impact to streamflow in Columbia River during those months

Columbia River Target and Minimum Instream Flows

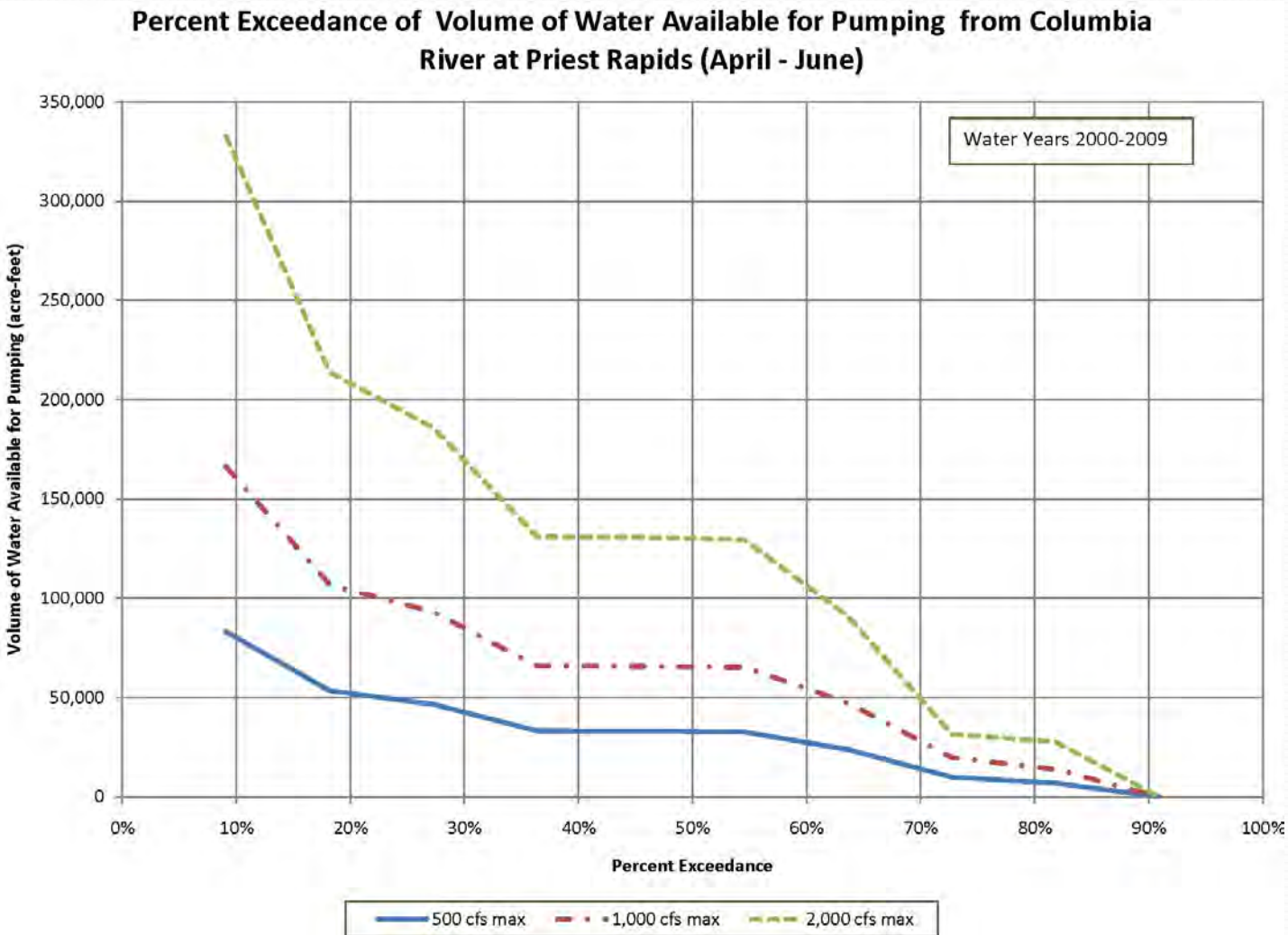


Columbia River Water Available for Pumping

- April – June pumping
  - Median water available (Water Years 2000-2009)
    - 65,100 AF assuming 500 cfs maximum pumping rate
    - 129,800 AF assuming 1,000 cfs maximum pumping rate
    - 257,600 AF assuming 2,000 cfs maximum pumping rate
  - No water available during 2001 drought year

Note: Preliminary results; subject to change

Columbia River Water Available for Pumping

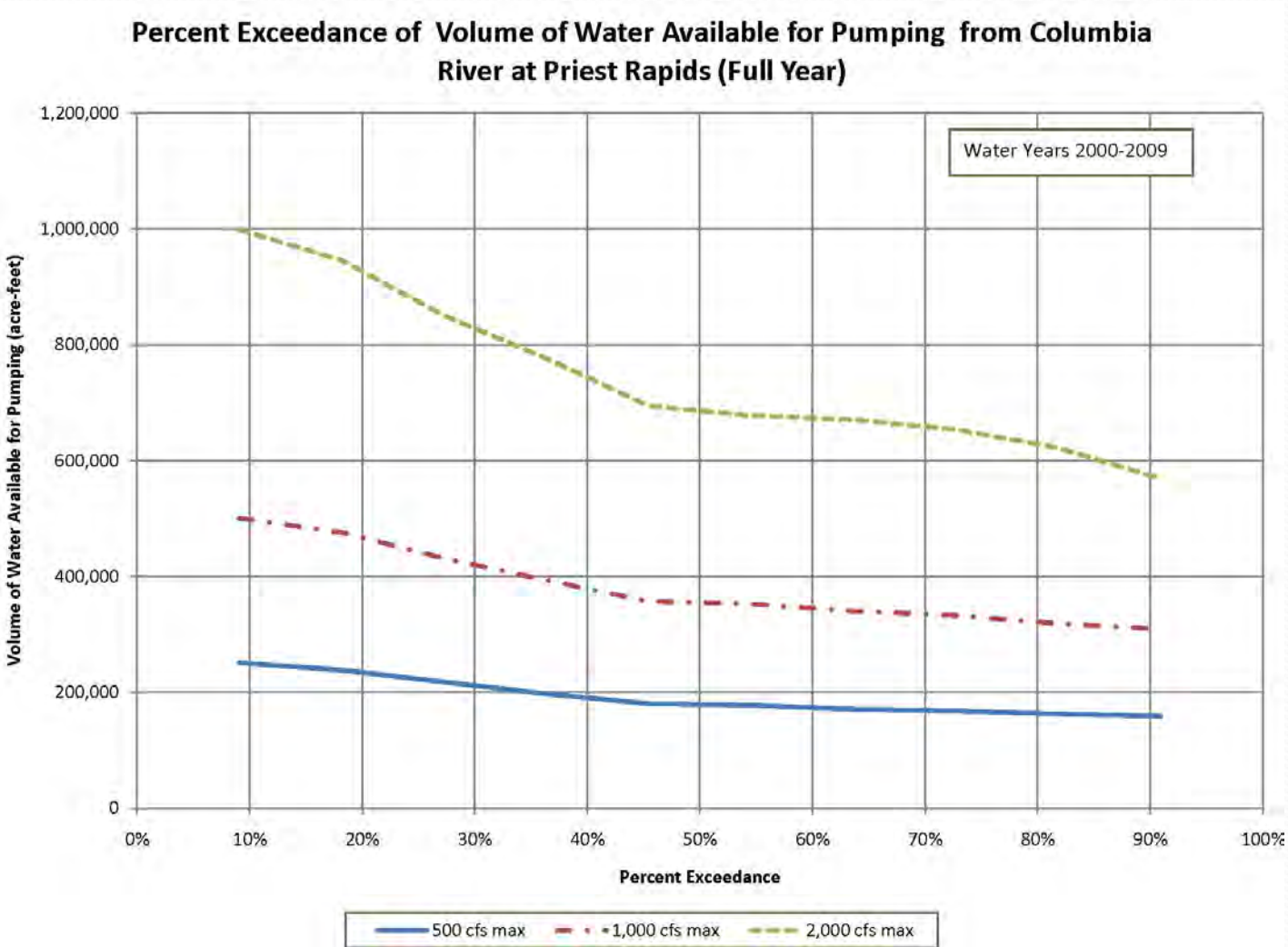


Columbia River Water Available for Pumping

- Full year pumping
  - Median water available (Water Years 2000-2009)
    - 354,200 AF assuming 500 cfs maximum pumping rate
    - 702,100 AF assuming 1,000 cfs maximum pumping rate
    - 1,358,200 AF assuming 2,000 cfs maximum pumping rate

Note: Preliminary results; subject to change

Columbia River Water Available for Pumping



Next Steps

- Inquire as to possibility to pump from Columbia River in July and August

Disclaimer

- Results discussed today are working drafts
- Data and calculations are still being checked and results may be updated