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May 26, 2011

MEMORANDUM

TO: Council Members

FROM: Steve Crow

SUBJECT: Bonneville Briefing on Dam Operations under Spring Run-off Conditions

The Pacific NW is fortunate in many ways to be experiencing an above average water year, but it is not without its challenges.

Peter Cogswell, Steve Oliver (via phone) and Rick Pendergrass (via phone) will update Council Members on the current status of the Federal Columbia River Power System. In so doing, they will discuss the operational challenges that the federal agencies are confronting and the strategies they are using to manage the high volume of water while balancing the different demands.

To help set the stage, attached for your advance review is the latest Power Operations report prepared by BPA. In particular, note that the natural stream flow above The Dalles through May 15 is 127 percent of average and that precipitation above the The Dalles through May 16 is 160 percent of average. In other words, a large amount of water still needs to make its way through the system, more than the region has experienced in over a decade.

enclosure

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POWER SYSTEM DATA
Week ending May 20, 2011

STREAMFLOW CONDITIONS					
	Jan	Feb	Mar	Apr	May
Natural Streamflow at The Dalles (as percent of 71-year average)	157.3%	104.0%	110.6% ¹	118.7%	127.5% ¹
Critical Year Natural Streamflow at The Dalles	42.1%	48.7%	54.6%	56.9%	70.3%
FEDERAL HYDRO GENERATION					
	Jan	Feb	Mar	Apr	May
2010/2011 Federal Hydro Generation	10534	11705	11793	11281	
2009/2010 Federal Hydro Generation	6471	6318	5770	5068	
2007-2011 Average Federal Hydro Generation	8906	8008	8460	8545	
RESERVOIR CONTENT (Libby, Hungry Horse, Grand Coulee & Dworshak)					
	Jan	Feb	Mar	Apr	May
2010/2011 Reservoir Content (% full)	71.5%	53.9%	38.1%	21%	
2009/2010 Reservoir Content (% full)	71.2%	67.0%	65.8%	66%	
5 Year Average (% full)	68.7%	60.8%	55.0%	45%	
HISTORIC PRICES (Dow Jones HLH month average)					
	Jan	Feb	Mar	Apr	May
2010-11 Mid-C Prices in \$/megawatt-hour	29.49	28.14	20.60	29.38	27.46 ²
2009-10 Mid-C Prices in \$/megawatt-hour	46.78	44.66	40.31	38.38	30.41
Dow Jones HLH firm Mid-C Prices					
For week ending May 19 \$/megawatt-hour	\$19.04 - \$24.97				
PRECIPITATION AND TEMPERATURES					
	Jan	Feb	Mar	Apr	May
Precipitation above The Dalles as % of Avg.	120%	100%	167%	155%	160% ³
Load Center temperature departures in °F	+1.3	-3.7	-1.1	-4.6	-2.8 ³
VOLUME FORECAST (as percent of average)					
	Jan	Feb	Mar	Apr	May
2011 Snowpack as % of average as of first of month (Jan-May ONLY)	88%	95%	99%	110%	138%
Observed January - July runoff and (%) of average at The Dalles					
Monthly Final Forecast at The Dalles in MAF and as a (%) of average (RFC Jan-Jul final forecast)	104.0 97%	110.0 103%	109.0 102%	117.0 109%	128.0 119%
- average Jan.-Jul. vol. used by NWS is 107.3 MAF. - lowest Jan.-Jul. vol. on record is 53.8 MAF in 1977 - critical Jan.-Jul. vol. is 69.4 MAF					
¹ Observed through May 15th					
² Observed through May 19th					
³ Observed through May 16th					

BPA Briefing on dam operations under spring run-off conditions

For the Northwest Power and Conservation Council

Peter Cogswell

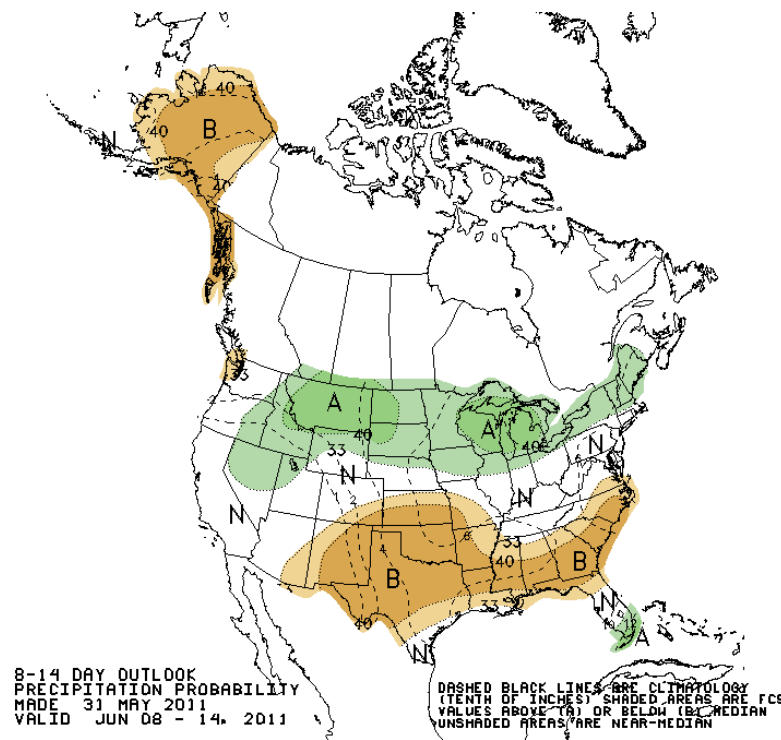
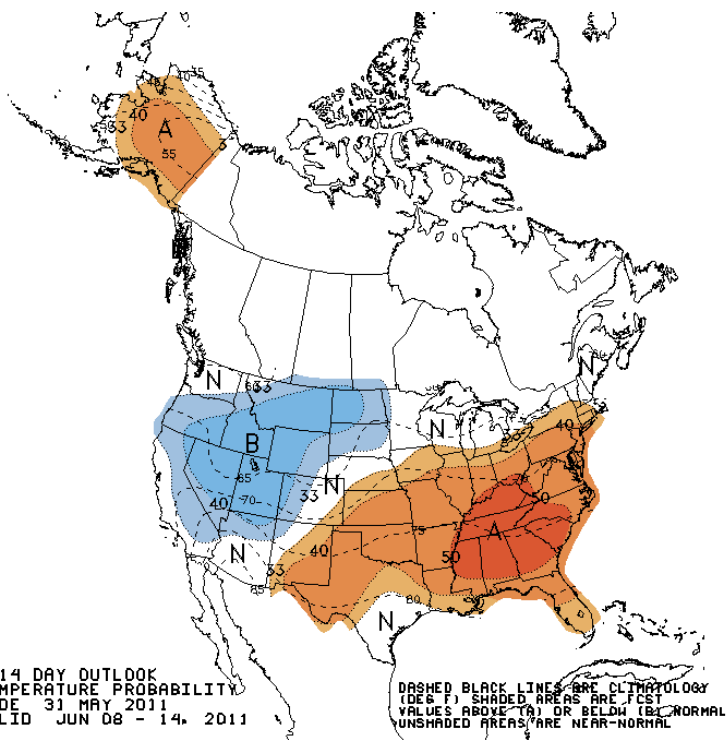
Steve Oliver

Rick Pendergrass

June 7, 2011



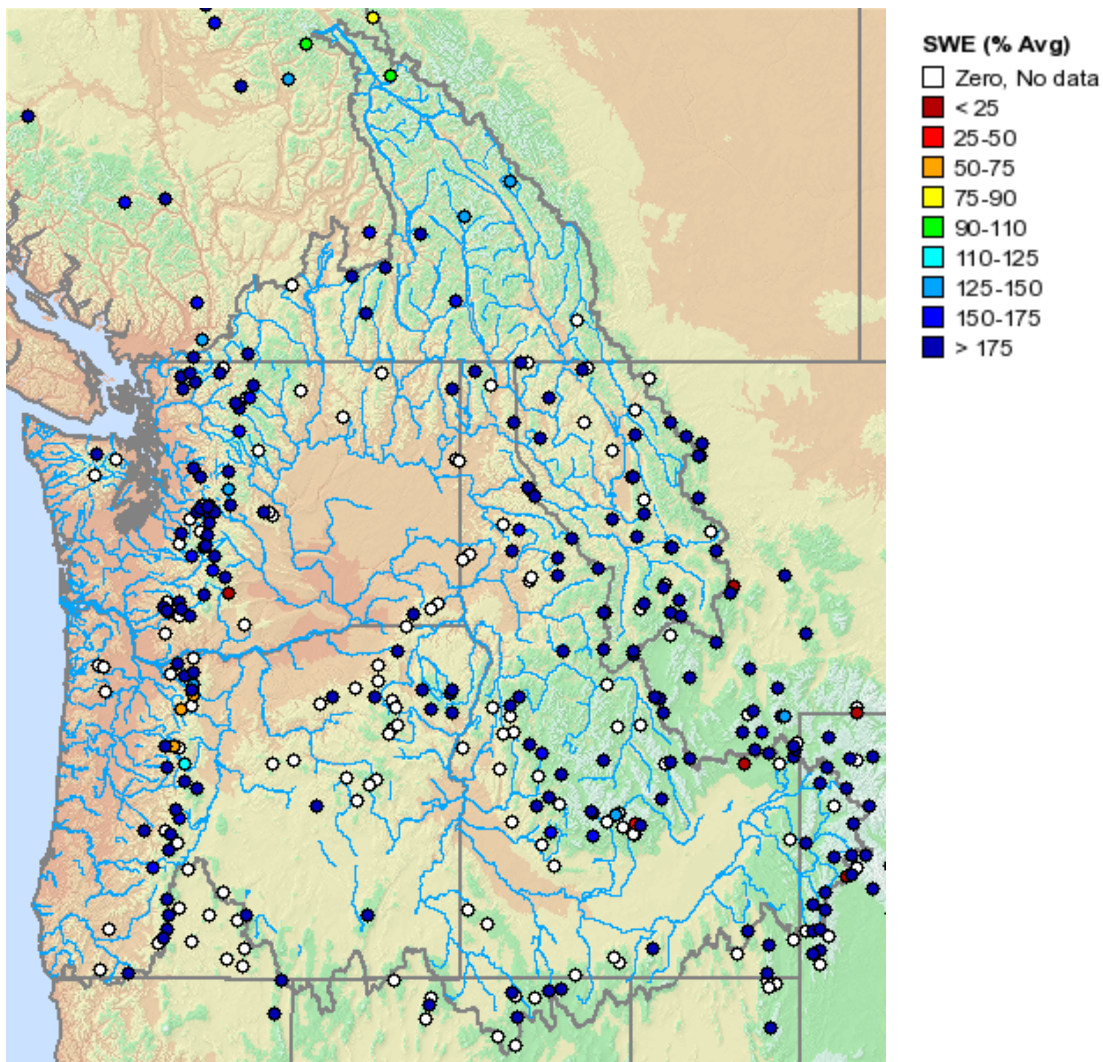
NOAA/NWS Outlook June 8-14



- Elevated chances for more cool and wet weather through mid June
- Some precipitation *still* falling as snow above 10,000ft

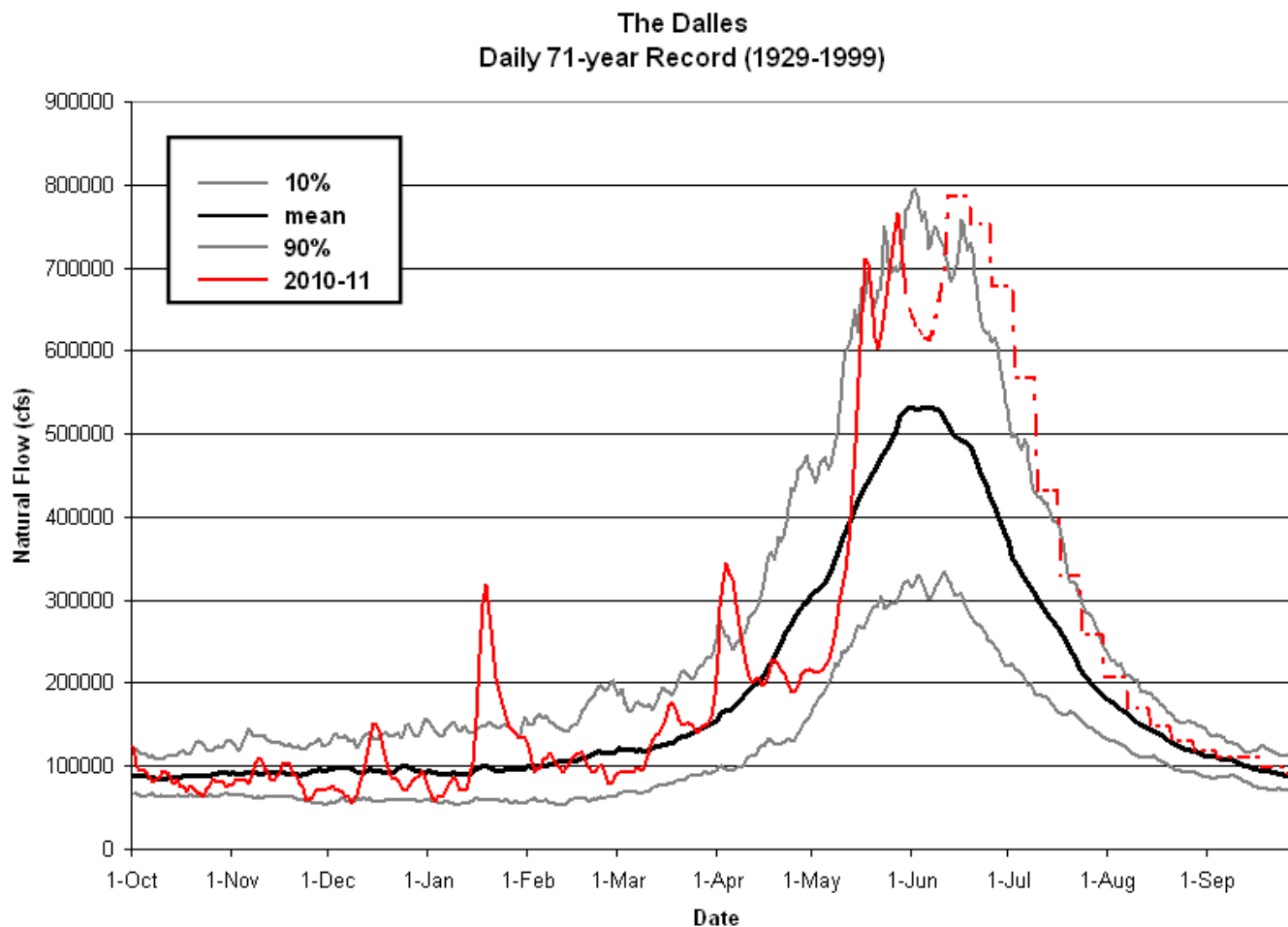


Snow Water Equivalent - NRCS





Unregulated Streamflow at The Dalles



Hydro Operations Update

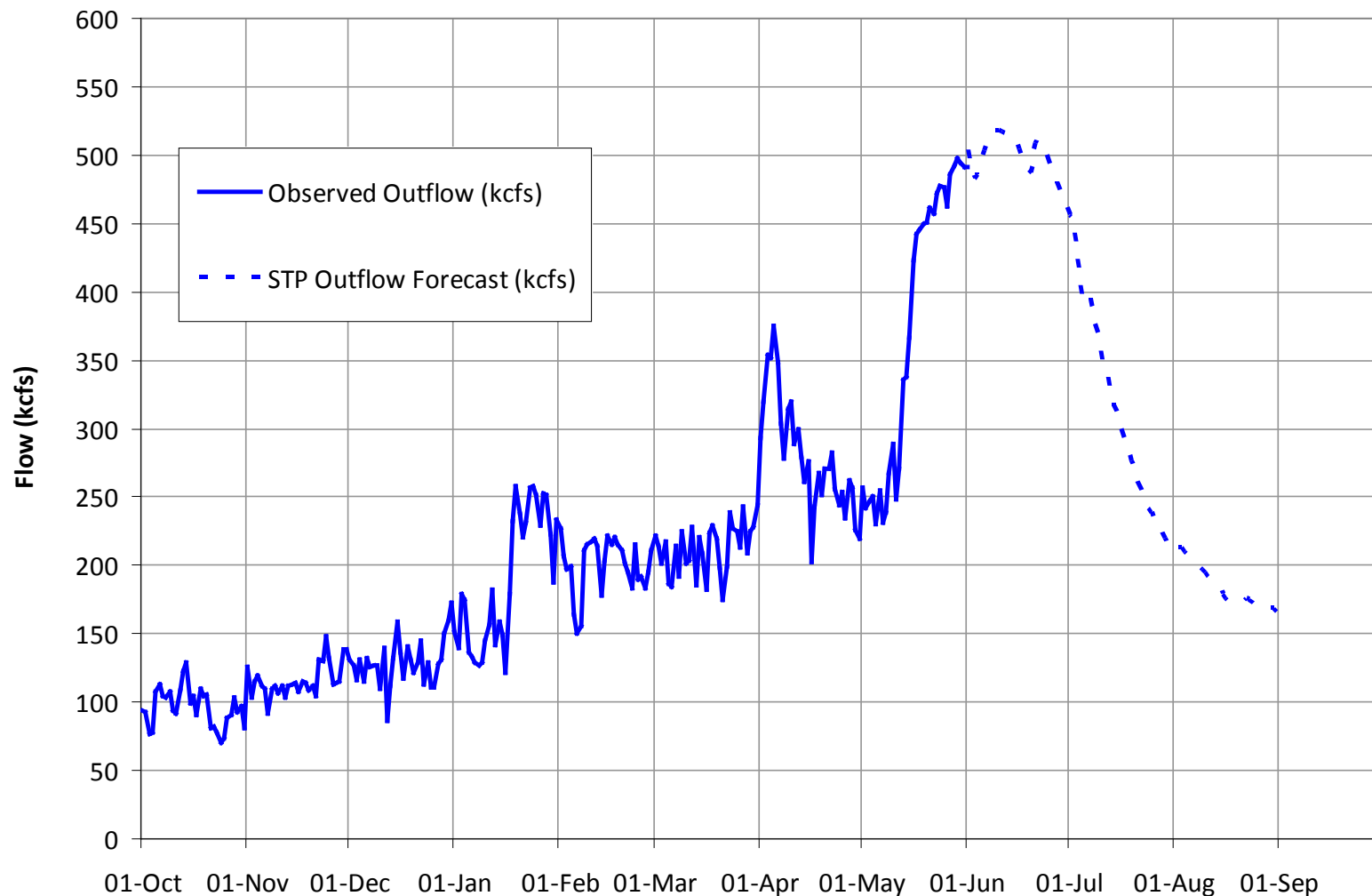
- The Corps of Engineers (COE) requested that Bonneville outflows be regulated to within 1 foot of flood stage (16- 17 feet measured at Vancouver)
 - Equivalent to about 505-515 KCFS discharge at Bonneville dam
 - Note that discharges from Grand Coulee/Chief Joseph (GCL/CHJ) need to balance flows on the Lower Snake in order to meet a flow objective at Bonneville.
 - Since the maximum turbine discharge is about 165 KCFS at GCL and 185 KCFS at CHJ, the resulting generation needs to be fairly flat across the day to minimize TDG

- We are currently experiencing over-generation supply conditions
 - Lack-of-Market (LOM) spill started again on May 10.
 - ER implemented daily (with the exception of 5/25 and 6/01) since Wednesday (5/18). These actions have displaced over 51,600 MW-hrs of wind generation during this period.

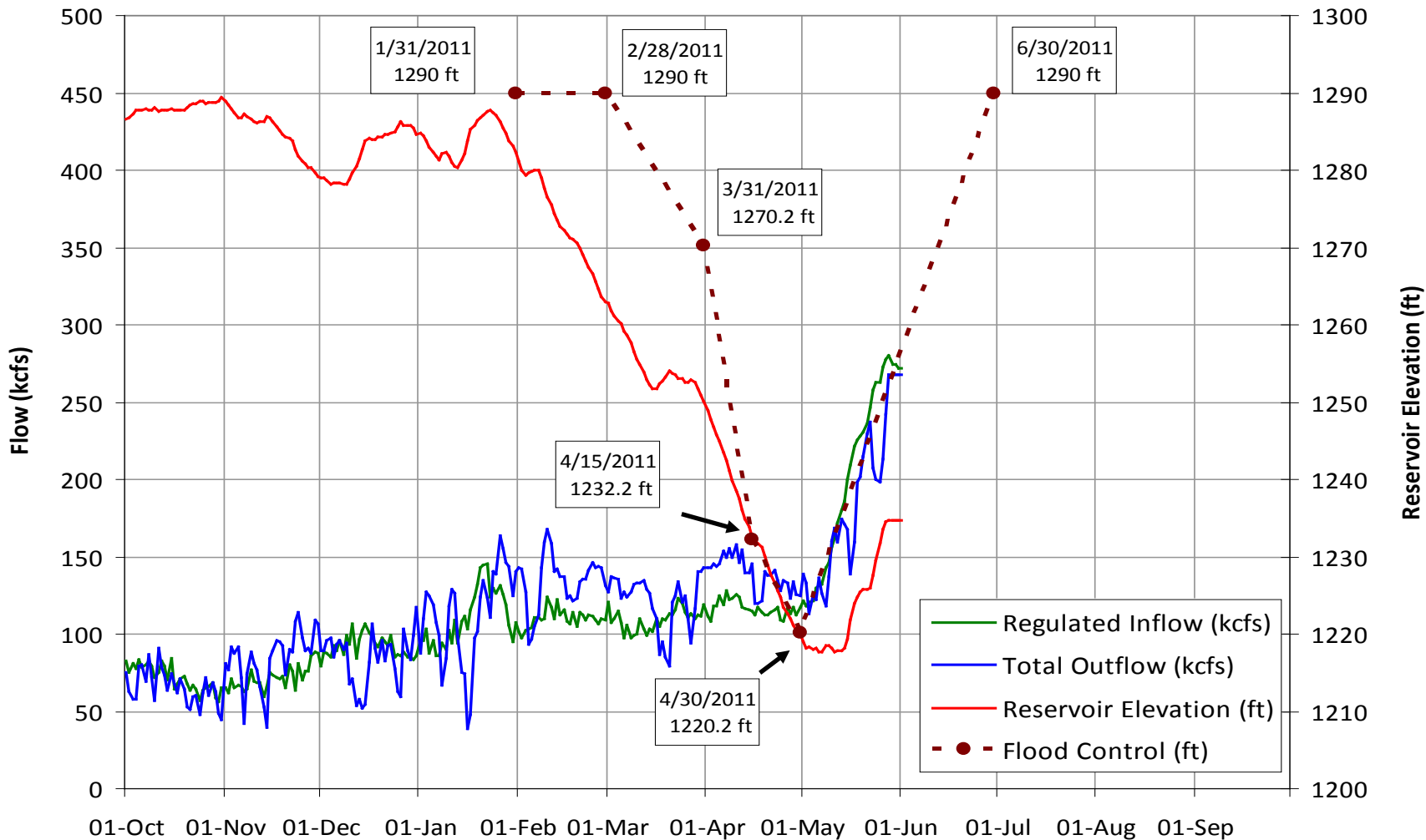
- LOM spill will continue this week and will likely persist for several weeks.

- June 2nd Early Bird - NW River Forecast Center Water Supply Forecast is 138.0 maf (129% of normal) for January-July 2011.

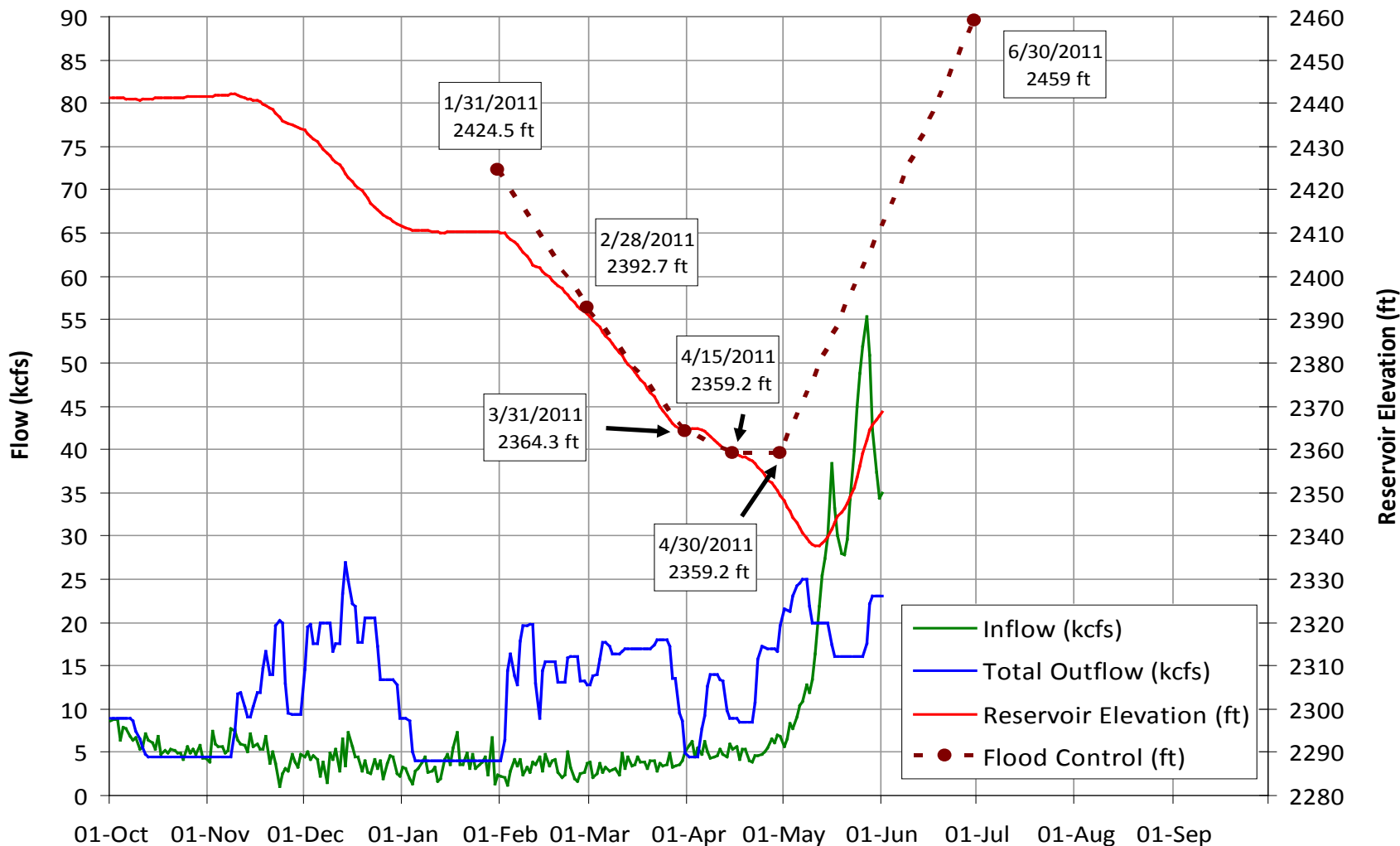
The Dalles Discharge: WY 2011



Grand Coulee Dam and Reservoir: WY 2011



Libby Dam and Reservoir: WY 2011



Status of Non-Treaty Storage Agreement

- BPA and BC Hydro have agreed to non-binding terms for a new long-term non-Treaty storage agreement.
- BPA is holding public meetings around the region to share the proposed terms, explain the expected benefits and answer questions about a potential new agreement.
- BPA and BC Hydro plan to begin negotiations of a new contract this summer.
- If negotiations are successful, a new agreement could be completed by year's end.

Important Provisions

- The agreement would expire Sept. 15, 2024.
- The agreement would coordinate 5 Maf of storage in Canadian reservoirs.
- BPA and BC Hydro would each have continuous access to 1.5 Maf of storage.
- Either party could decline a transaction if the flow impacts were unacceptable.
- BPA would have a right to 0.5 Maf of water releases in May/June of the lowest 20 percent of water conditions, if dry year release rights weren't used in the prior year.
- BC Hydro benefits from the energy value of generation changes at U.S. federal projects resulting from their use of storage to shape water flows.
- BC Hydro's benefits are either delivered at the B.C./U.S. border or are financially settled. The exception is BC Hydro's firm energy benefit which is always delivered to the border with all transmission costs paid by BC Hydro.