

Water Supply Conditions Update

Water Resources Business Area
Seattle Public Utilities

June 17, 2009

Seattle's Water Supply Status

June 17, 2009

Our overall water supply situation and outlook are good.

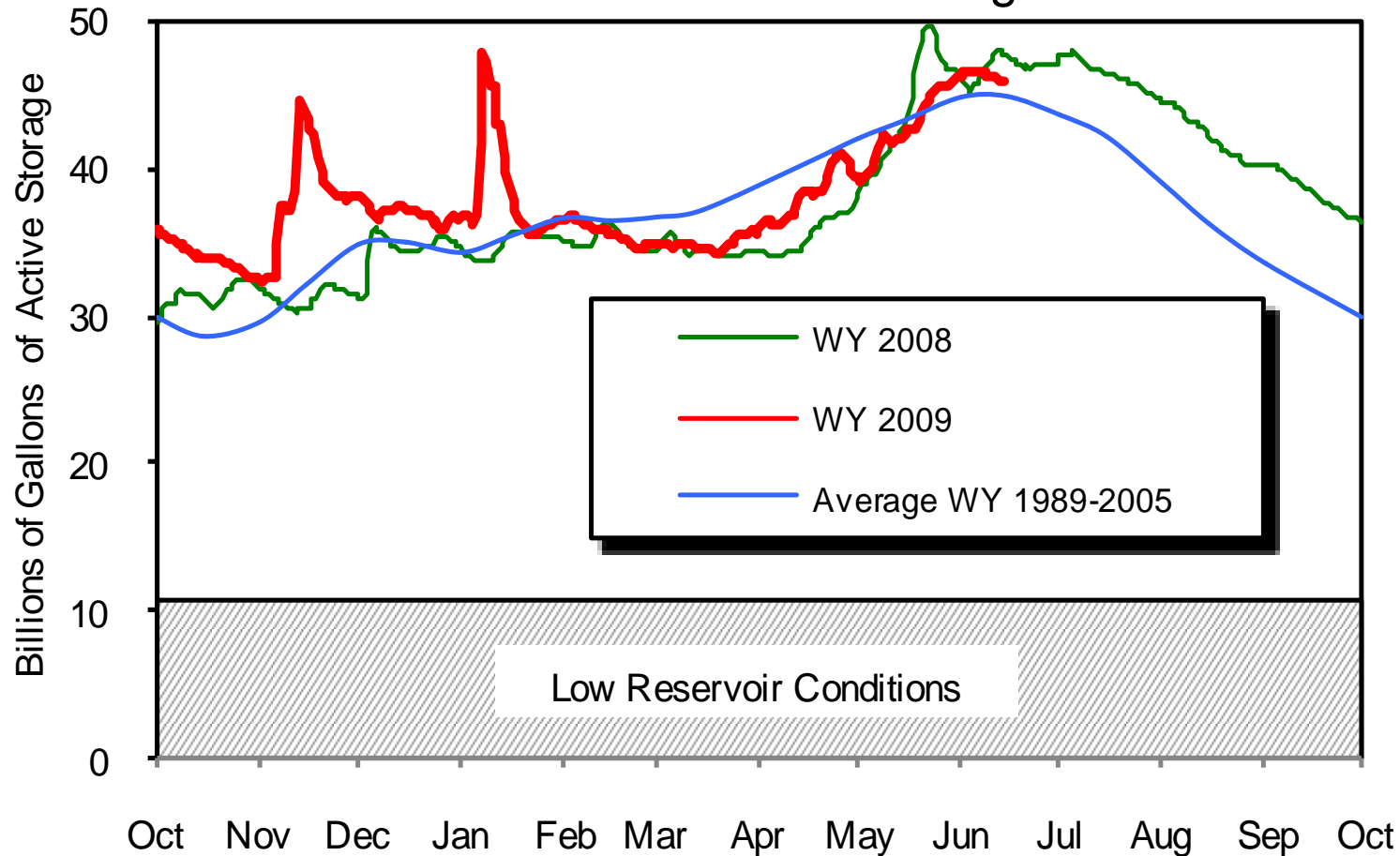
Seattle Water Supply Indicators		
Reservoir Storage	●	
Reservoir Inflows	●	
Snowpack	●	
Customer Use	●	
Overall	●	
● Good ● Fair ● Poor For more information, visit www.savingwater.org		



Seattle Public Utilities

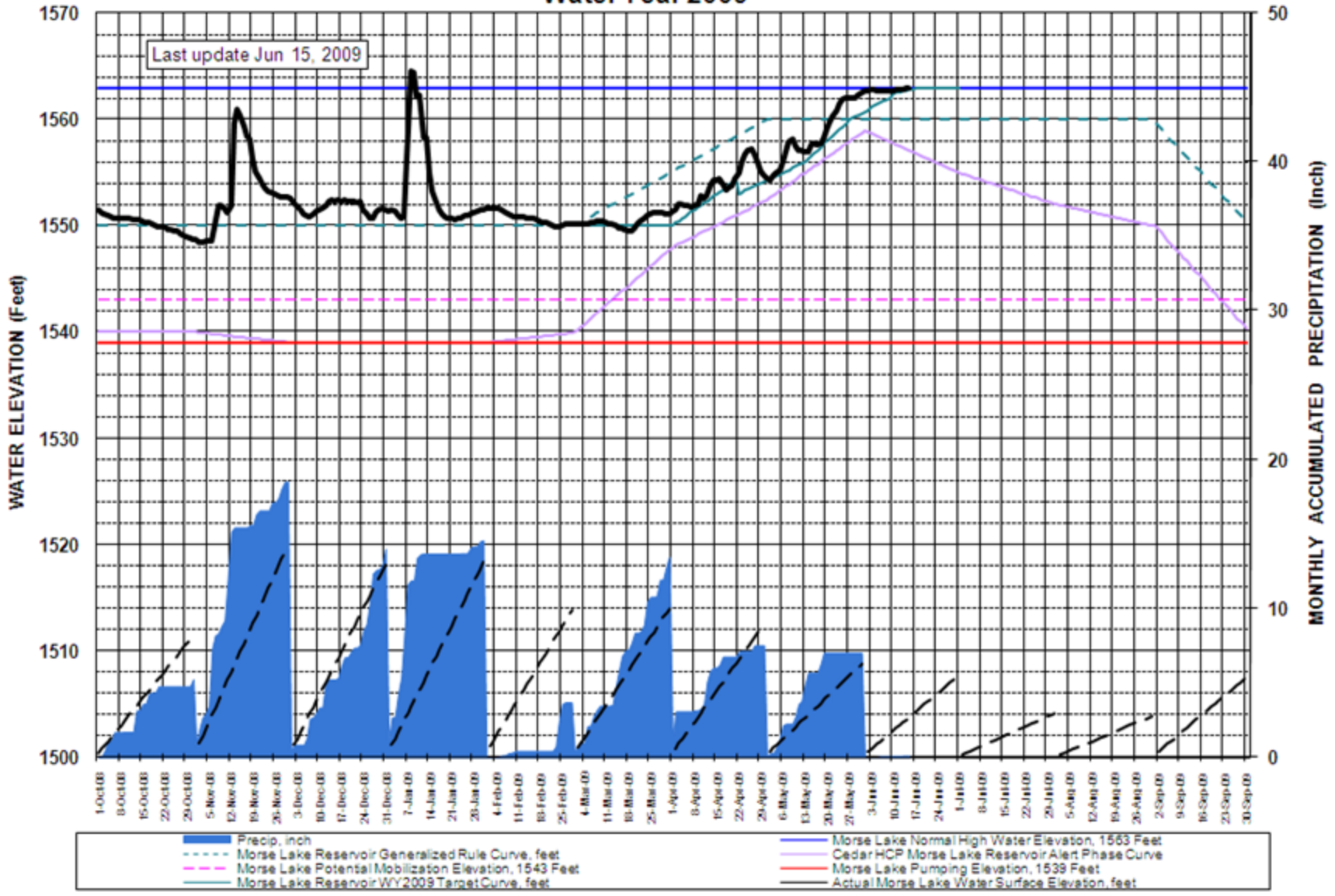
- Chester Morse Lake taken on June 14, 2009
- Photo Credit: Lloyd Buster

Combined Reservoir Storage



MORSE LAKE RESERVOIR

Water Year 2009

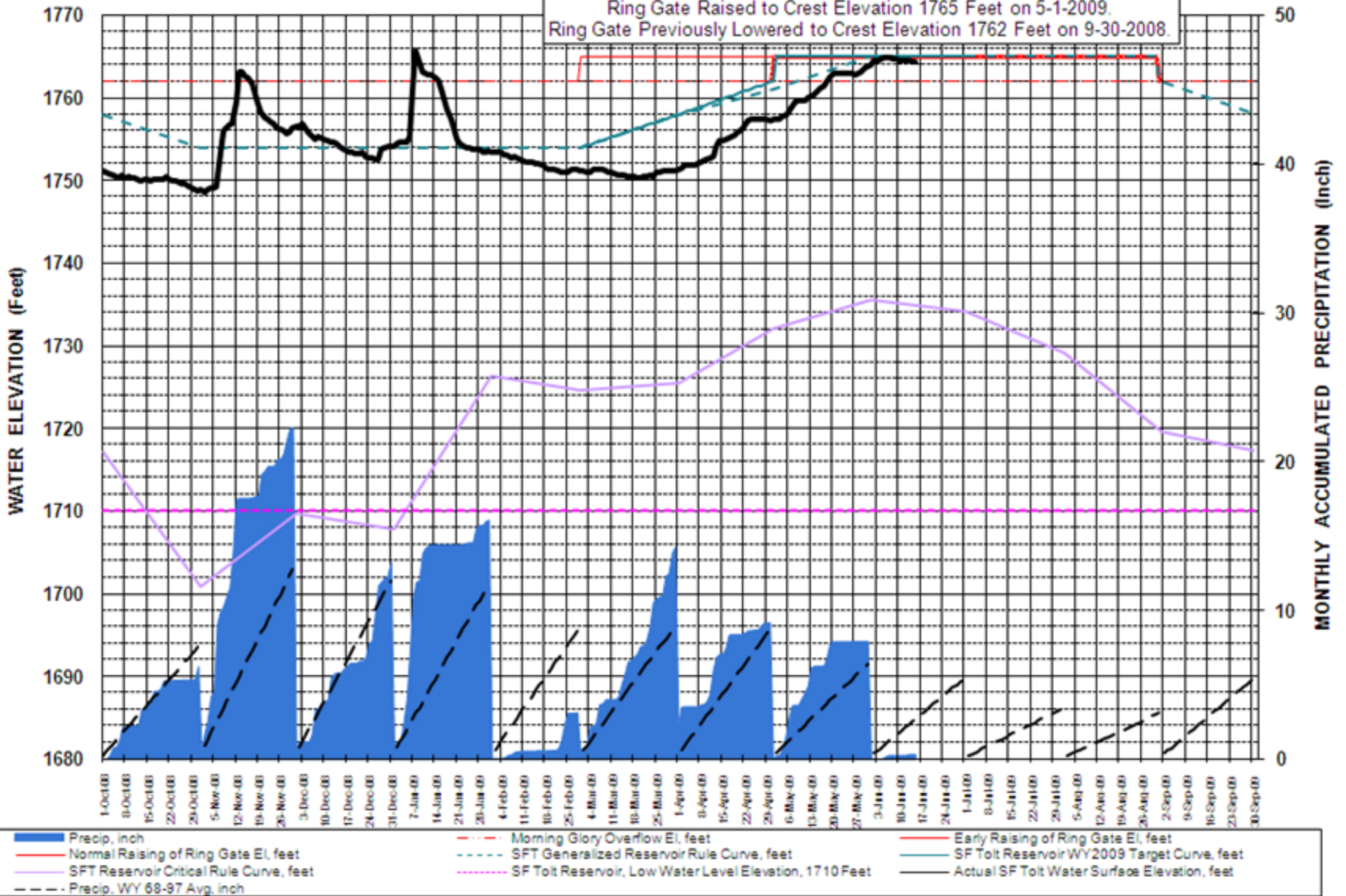


SOUTH FORK TOLT RIVER AT RESERVOIR

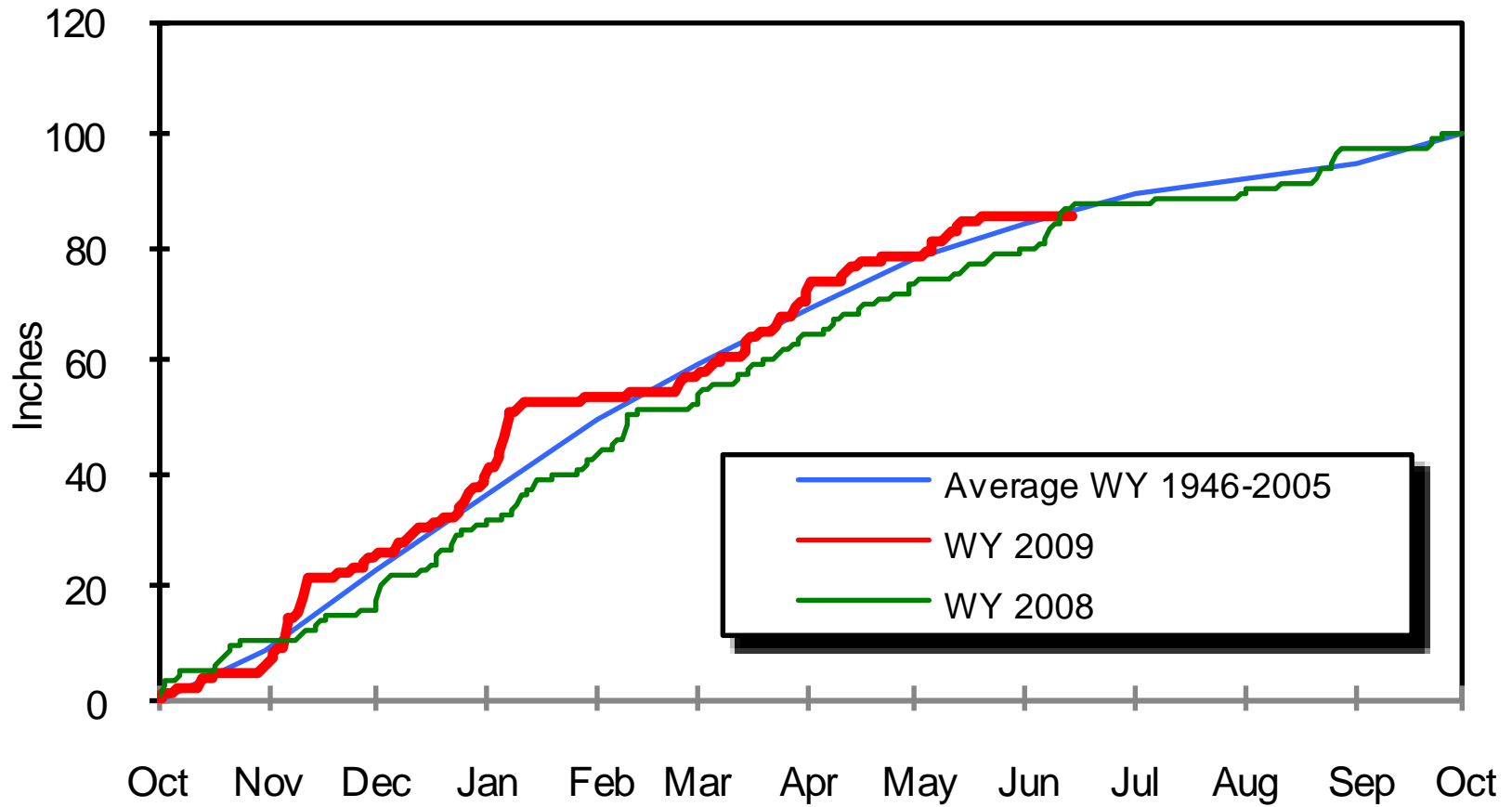
Last update Jun 15, 2009

Water Year 2009

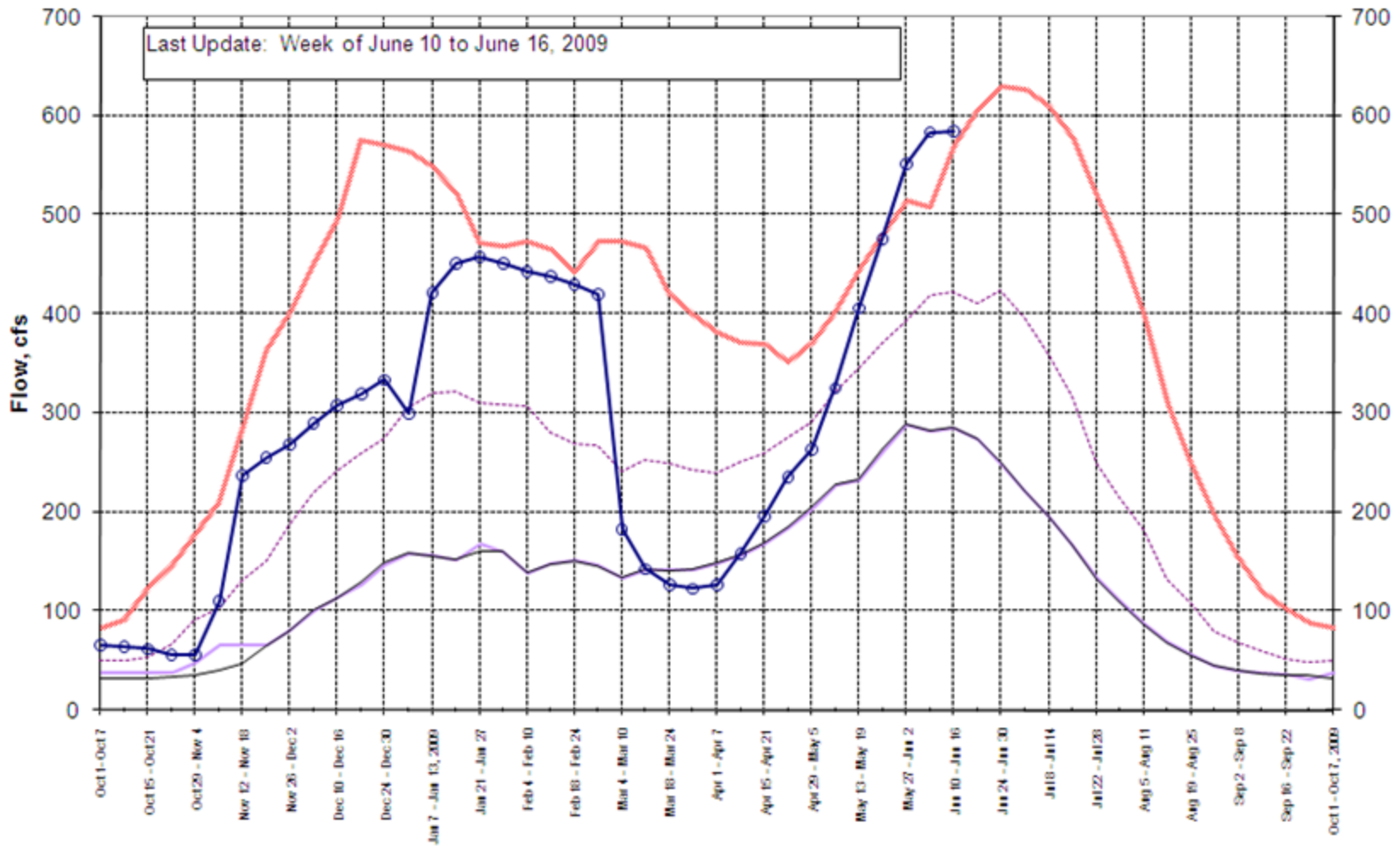
Ring Gate Raised to Crest Elevation 1765 Feet on 5-1-2009.
 Ring Gate Previously Lowered to Crest Elevation 1762 Feet on 9-30-2008.



Cumulative Precipitation Weighted Average Cedar/Tolt



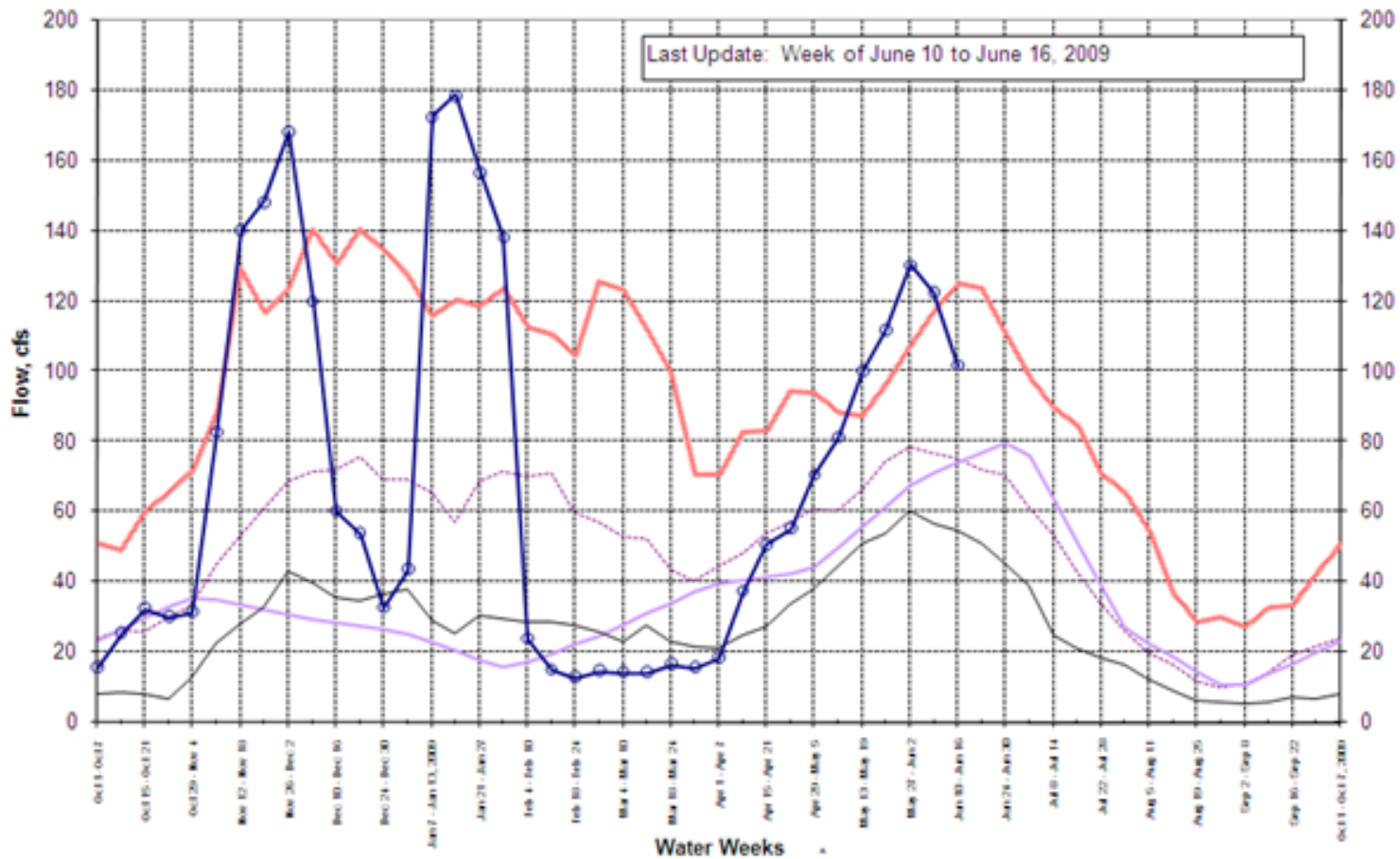
WY 2009 USGS Gage 12115000, Cedar River Near Cedar Falls, 8-Week Moving Average Flows
 Percentiles Calculated from WY 1929-1993 Historical Record



All Data is Provisional and Subject to Revision



WY 2009 USGS Gage 12147600, South Fork Tolt River Near Index, 4-Week Moving Average Flows
 Percentiles Calculated from WY 1960-1993 Historical Record

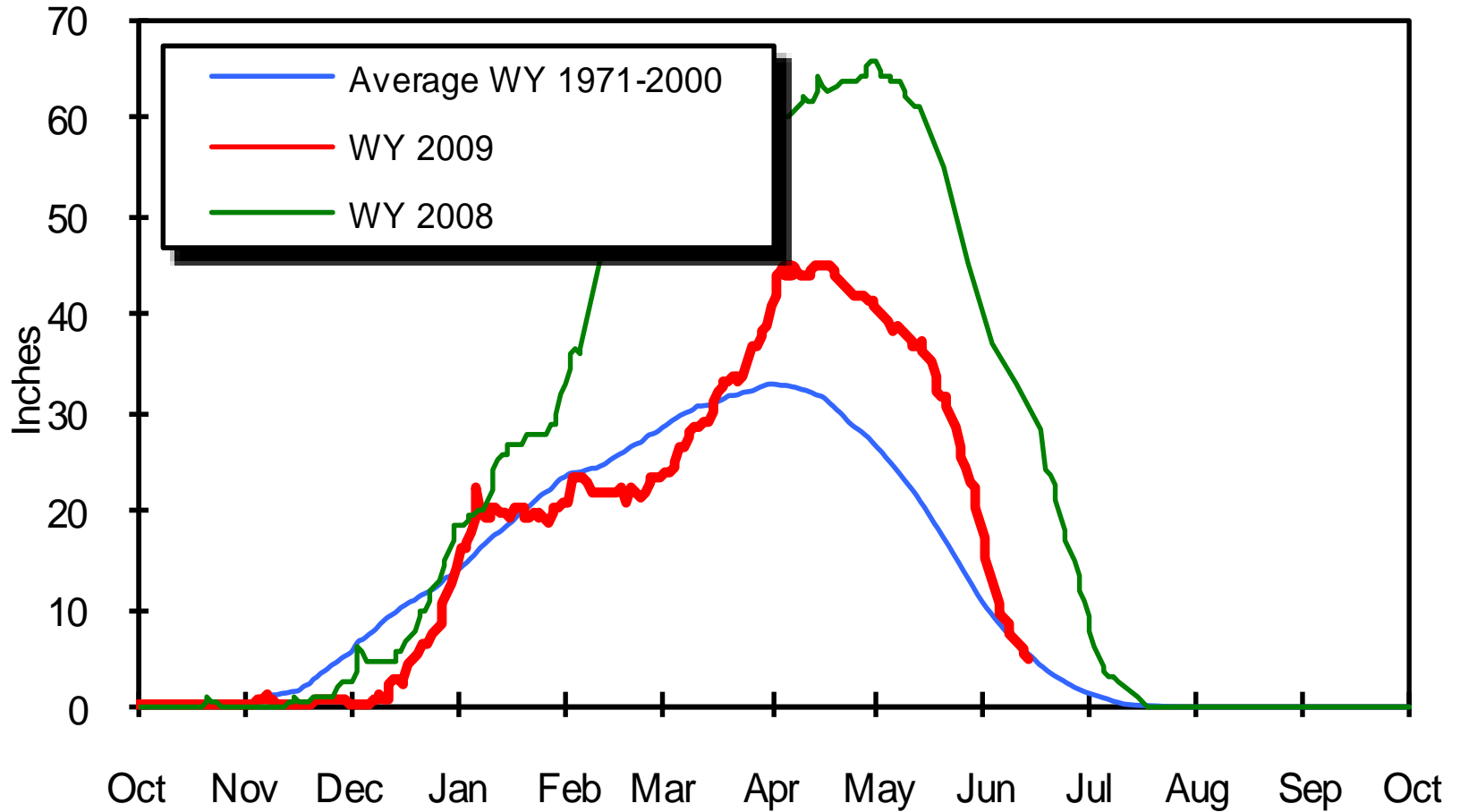


Last Update: Week of June 10 to June 16, 2009

All data is provisional and subject to revision.

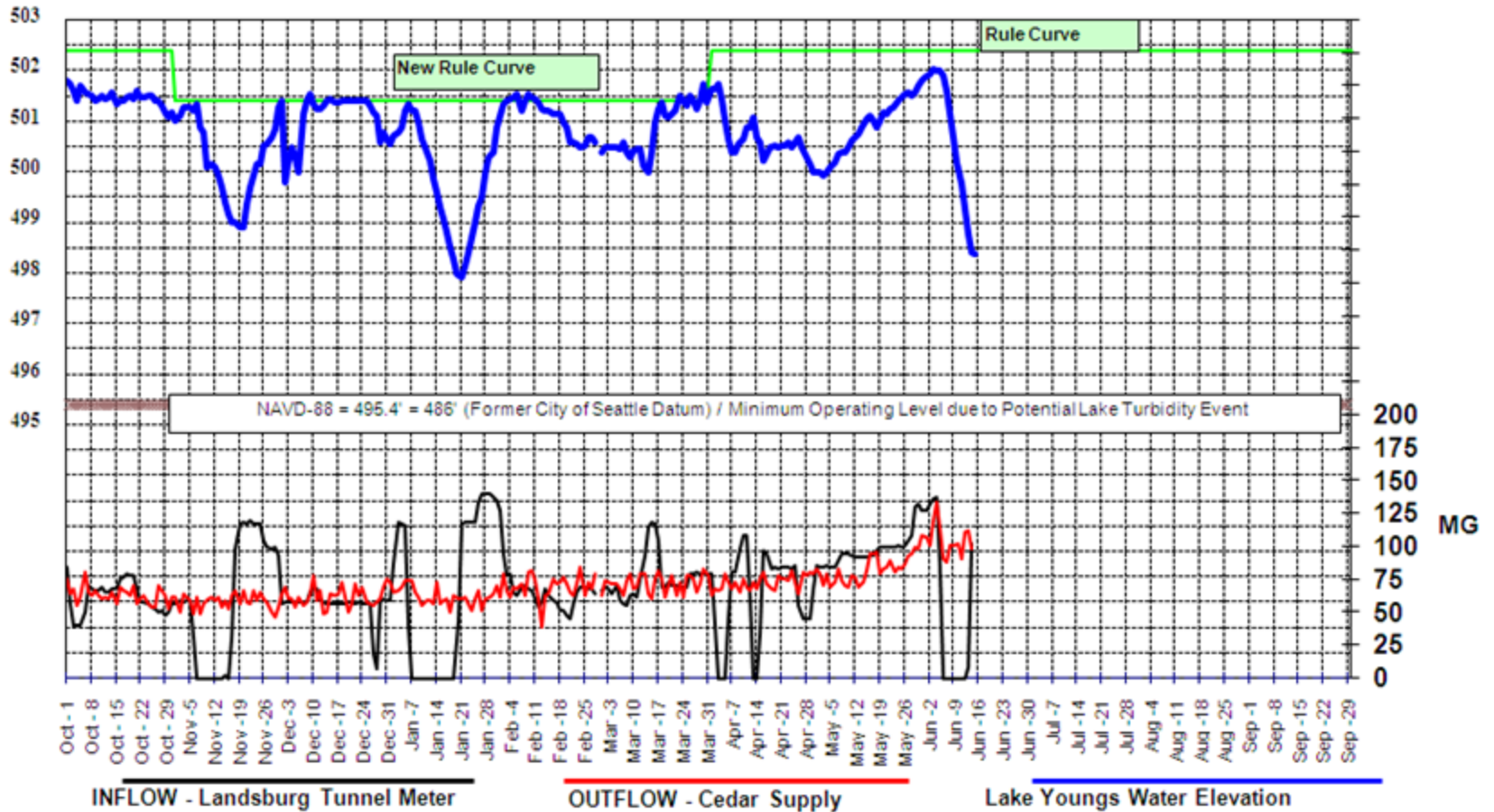
- 90th %ile
- 50th %ile
- Index Inflow Switching Criteria
- 10th %ile
- Actual WY 2009

Cumulative Snowpack (Snow Water Equivalent) Weighted Average Cedar/Tolt



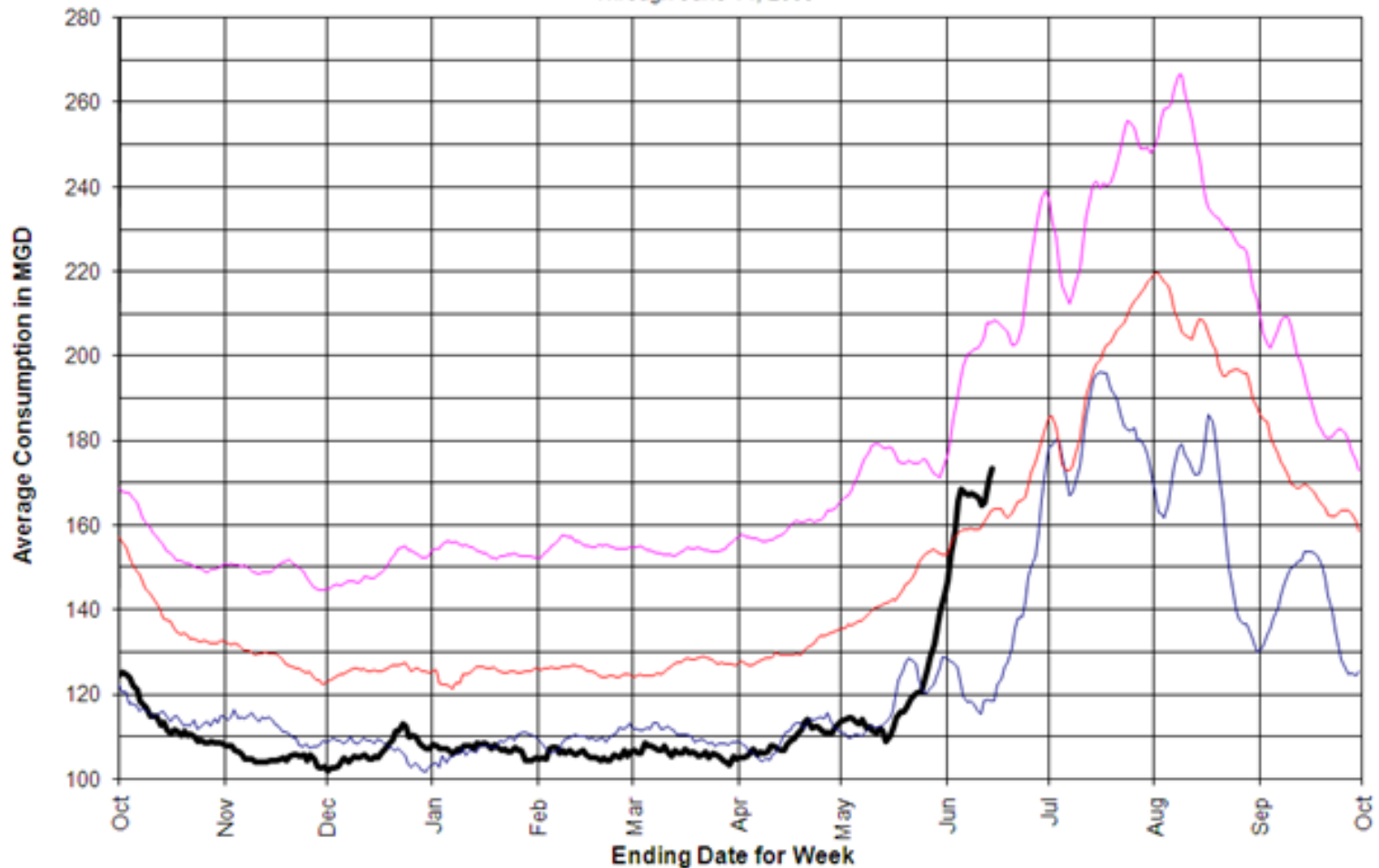
Feet

Lake Youngs Water Level During 2009 W. Y. and Daily Volumes (MG) In & Out



24-hr Consumption, 7-Day Moving Average

Through June 14, 2009



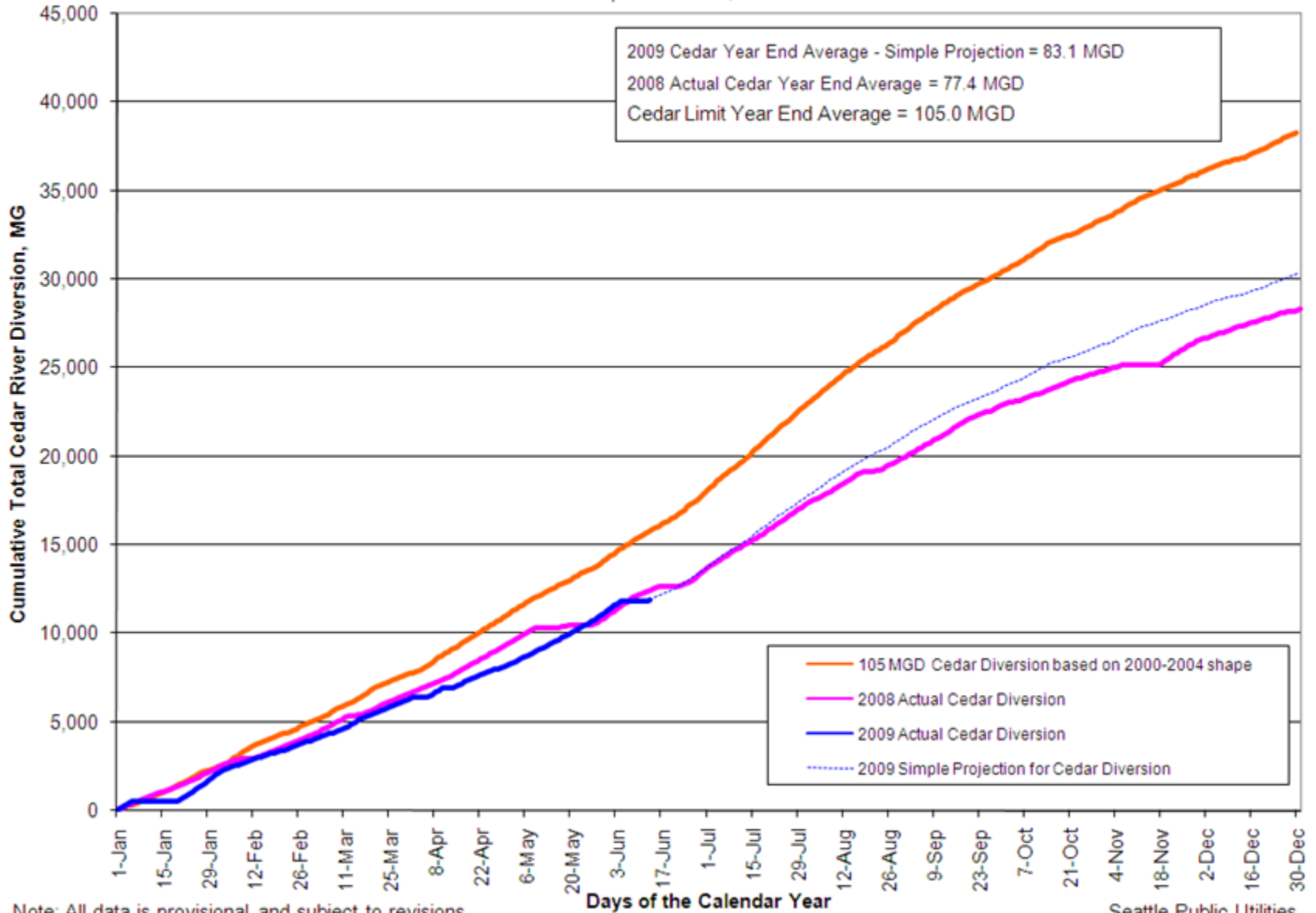
Notes: A 7-day moving average is calculated using data from the day of and the previous 6 days.
All Data is Provisional and Subject to Change



Cumulative Total Cedar River Diversion Calendar Year 2009 Monitoring and Tracking Graph

Last Update: June 14, 2009

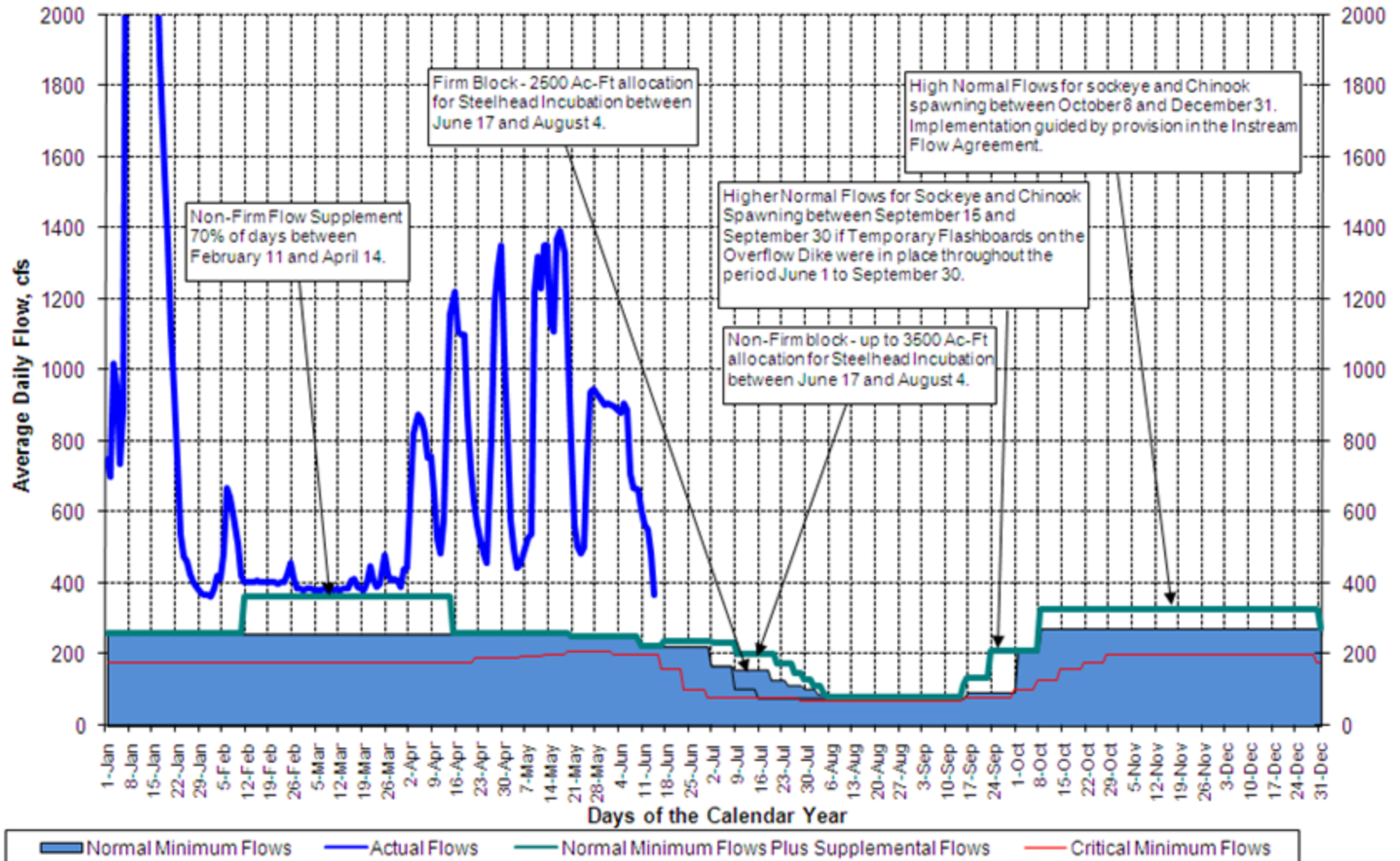
2009 Cedar Year End Average - Simple Projection = 83.1 MGD
 2008 Actual Cedar Year End Average = 77.4 MGD
 Cedar Limit Year End Average = 105.0 MGD



Note: All data is provisional and subject to revisions.

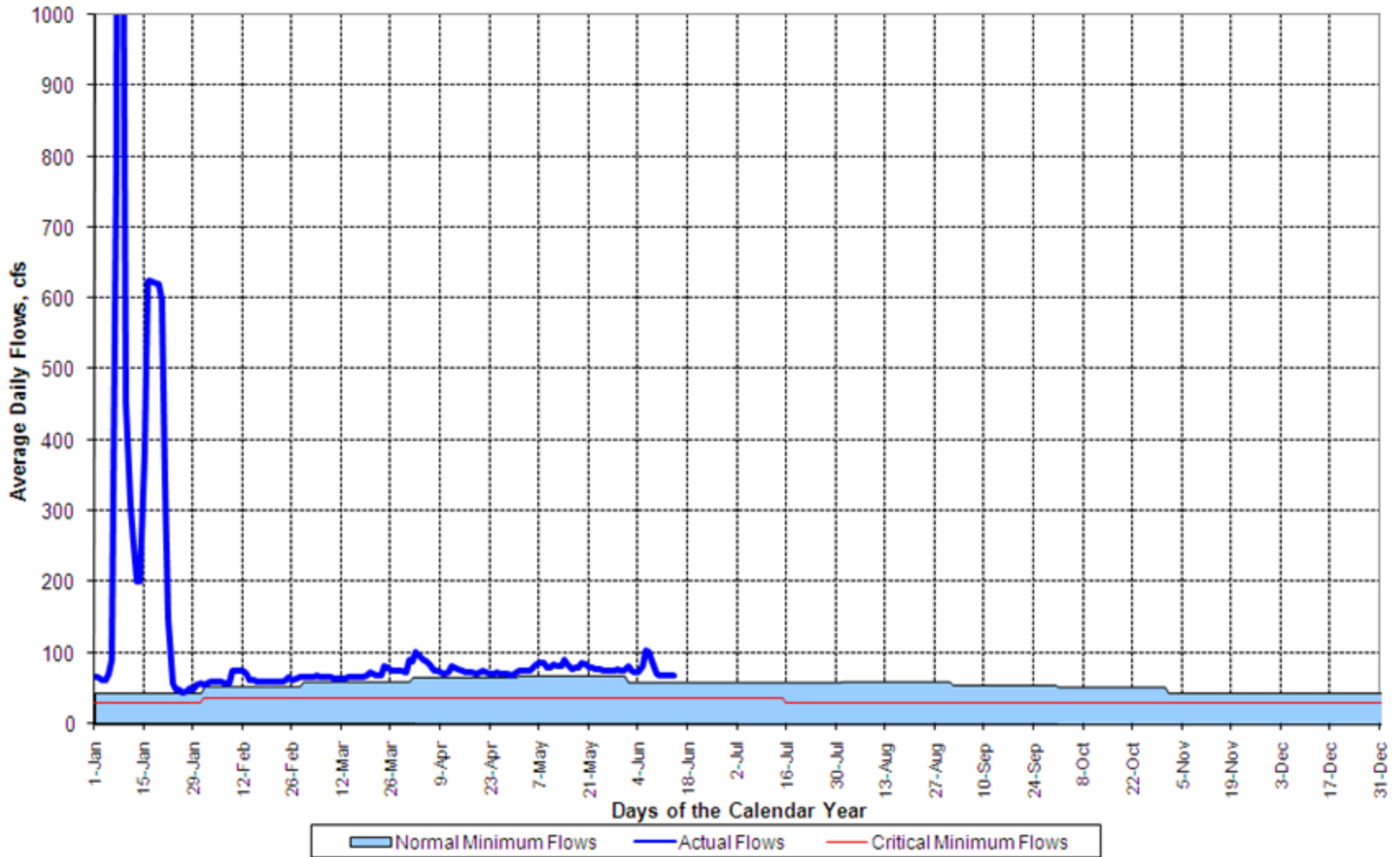
Last Update: 06/14/09

Calendar Year 2009 Cedar River Instream Flows Measured at USGS Stream Gage No. 12117600 All Data is Provisional and Subject to Revision



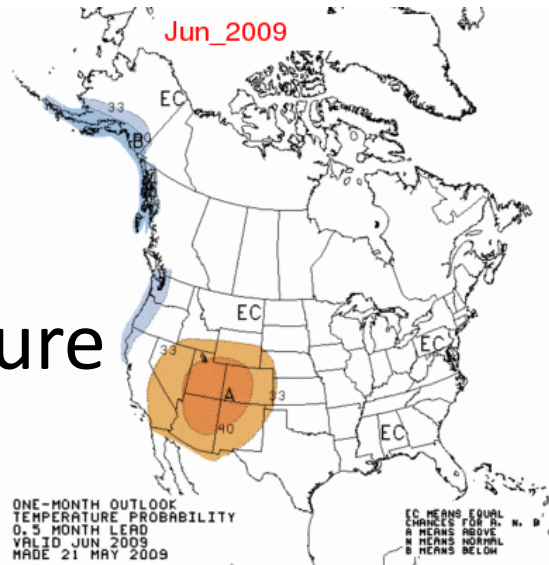
Last Updated: 6/14/2009

Calendar Year 2009
South Fork Tolt River Instream Flows Measured at USGS Stream Gage No. 12148000
All Data is Provisional and Subject to Revision

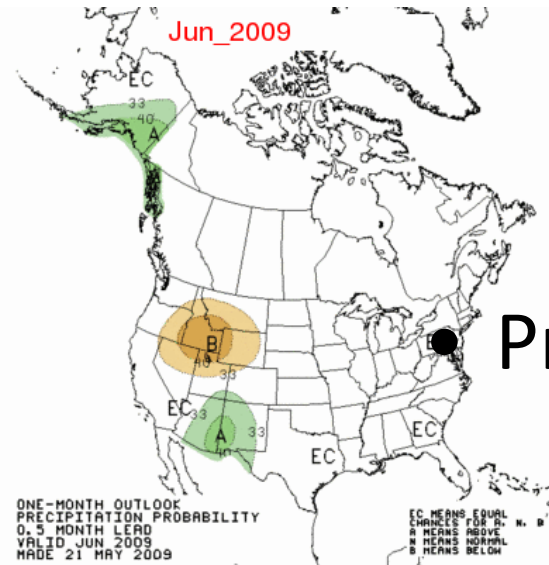


- NOAA Climate Prediction Center Outlook

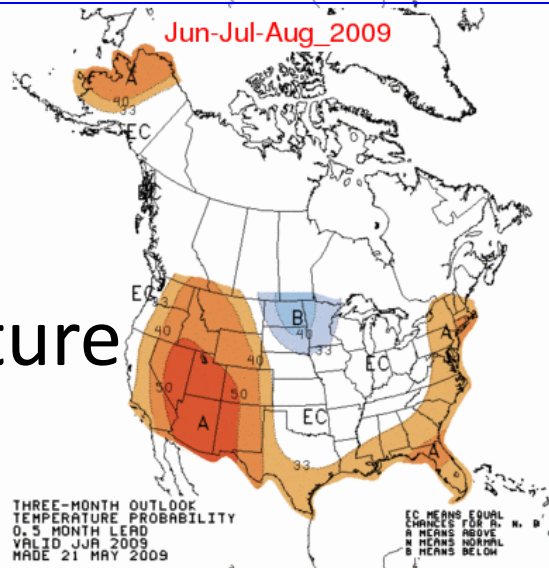
Temperature



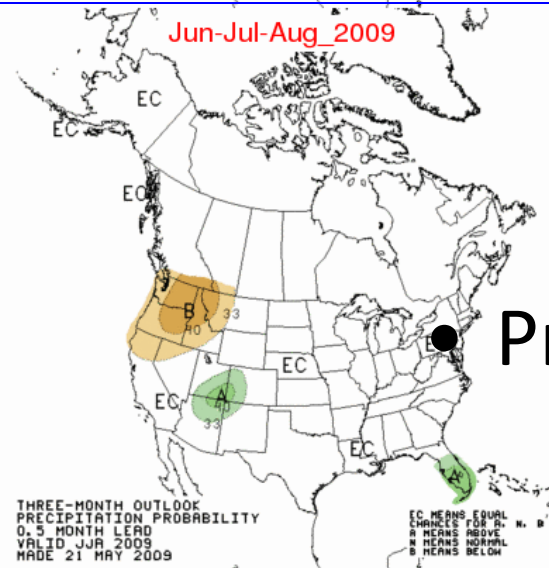
Precipitation



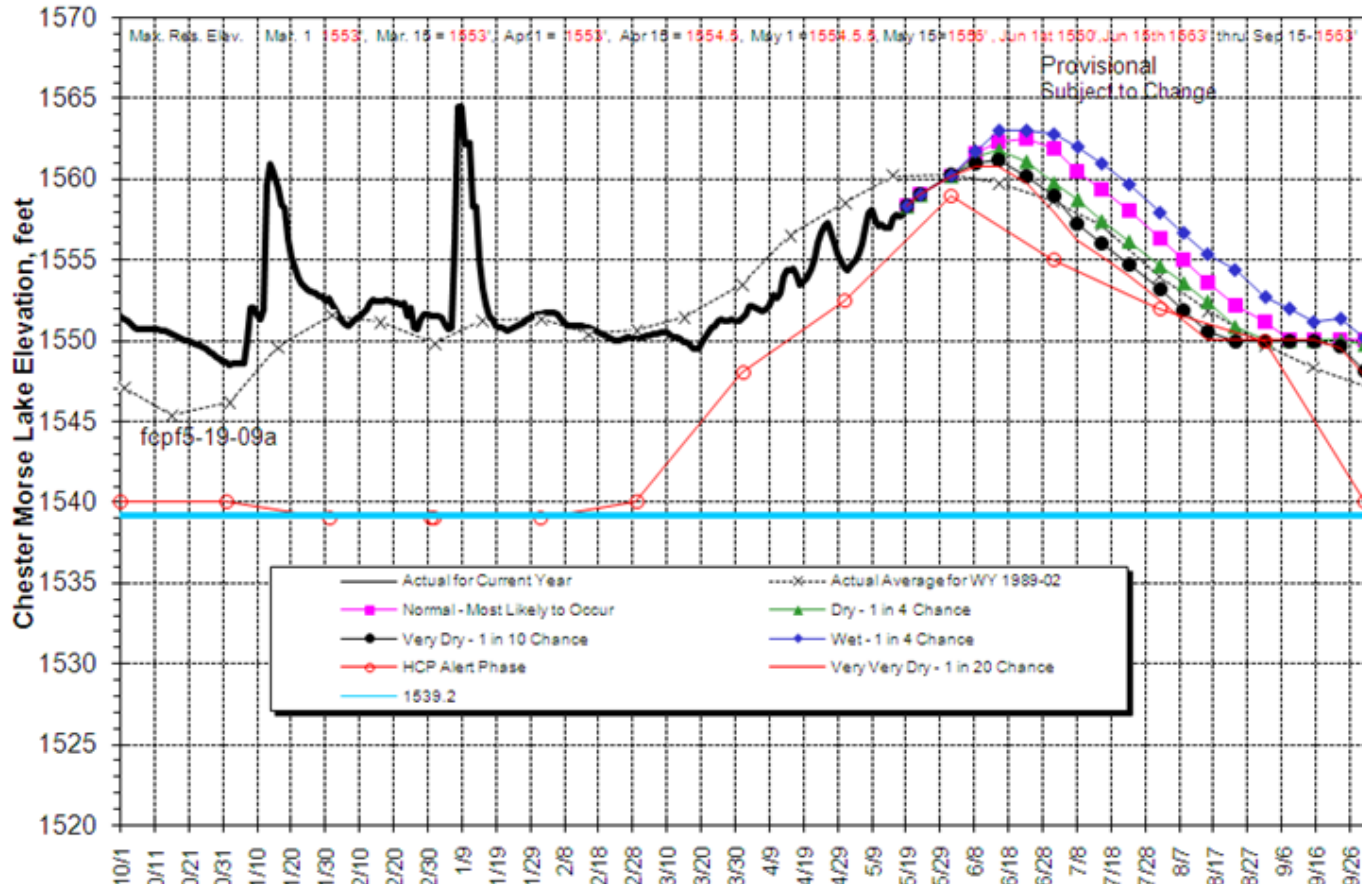
Temperature



Precipitation



SCENARIO : Forecast of Chester Morse Lk Elev
Actual Reservoir Elevation on 5/19/2009, Forecast thru 5-28
Flashboards 1550' & Min. Pool 1515'



Almost 13 billion gallons are stored between elevations 1539.2 and 1562 feet and more than 3.4 billion gallons between elevations 1532 and 1539.2 feet.

Pumps would be turned on at elevation 1539.2 feet

Instream Resource Update

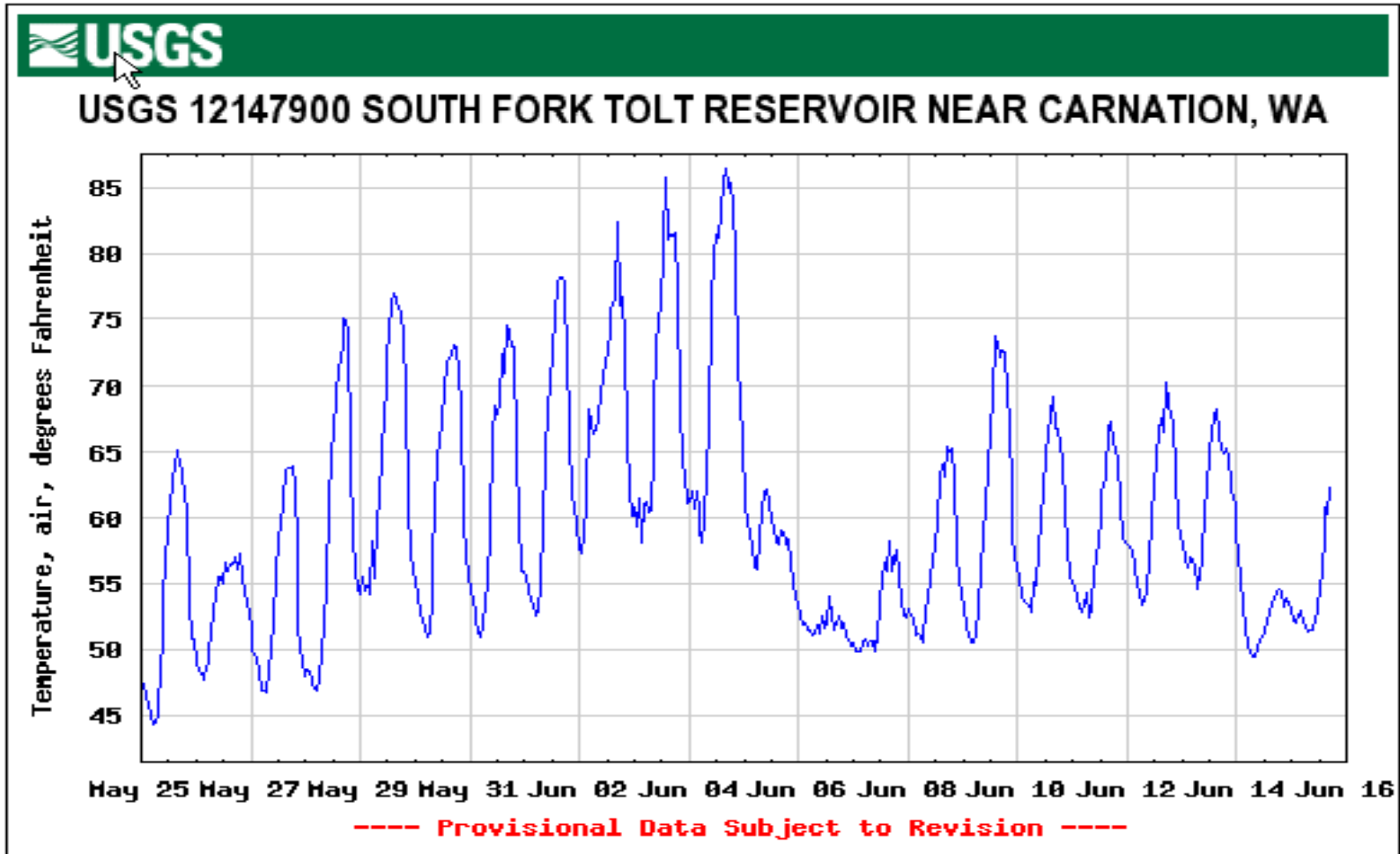
Water Resources Business Area
Seattle Public Utilities

June 17, 2009

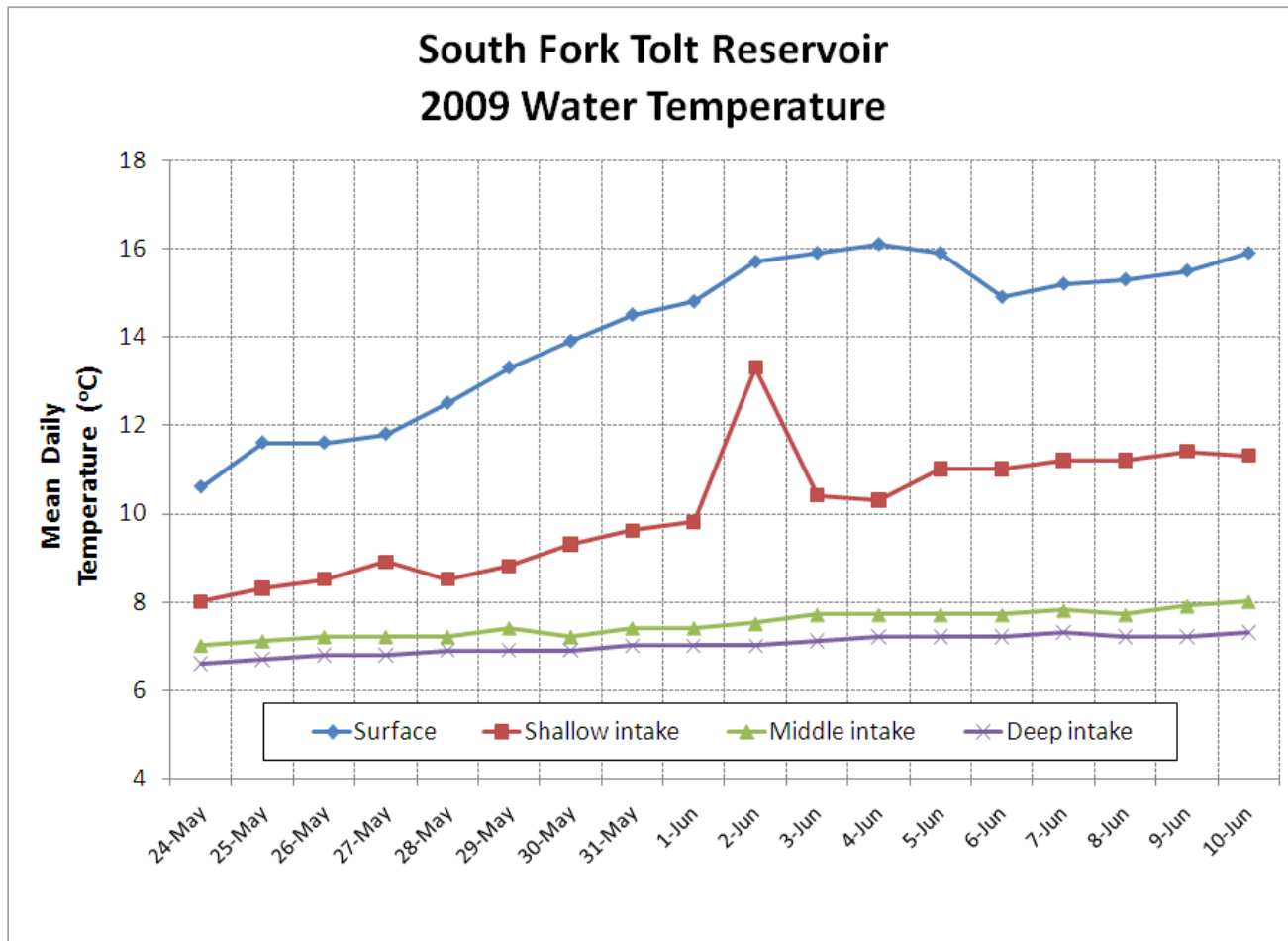
South Fork Tolt River Water Temperature Update

- Unusually **warm weather** in early June warmed reservoir surface water and river water downstream of the reservoir
- **Easterly winds** drove warm surface water to depth at the west end of the reservoir
- **Warm surface water was entrained** in the reservoir intakes and **warmed further** as it proceeded downstream
- Although a series of intake gate operations moderated impacts on downstream water temperature, river temperature targets were slightly **exceeded for several days**

South Fork Tolt River 2009 Air Temperature



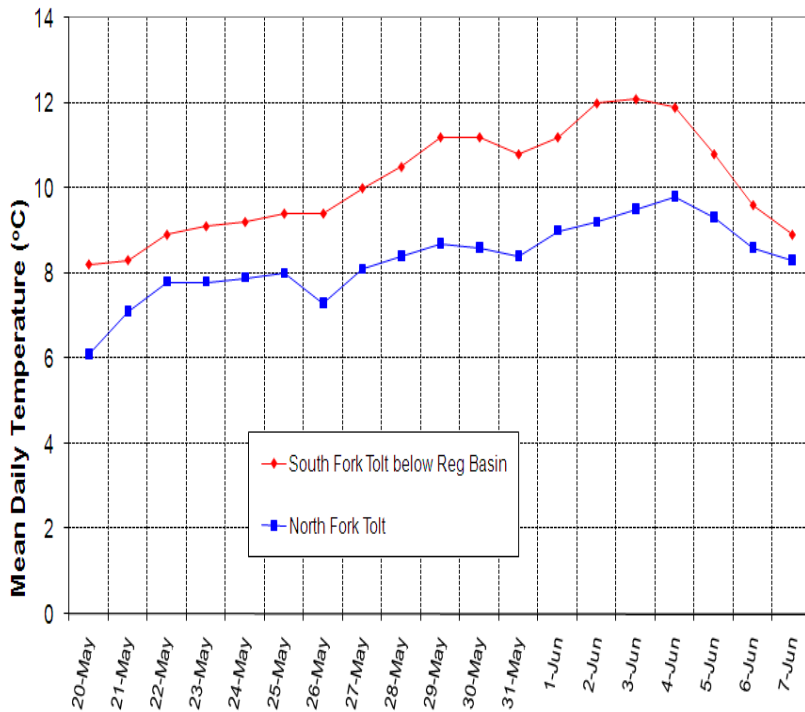
South Fork Tolt Reservoir



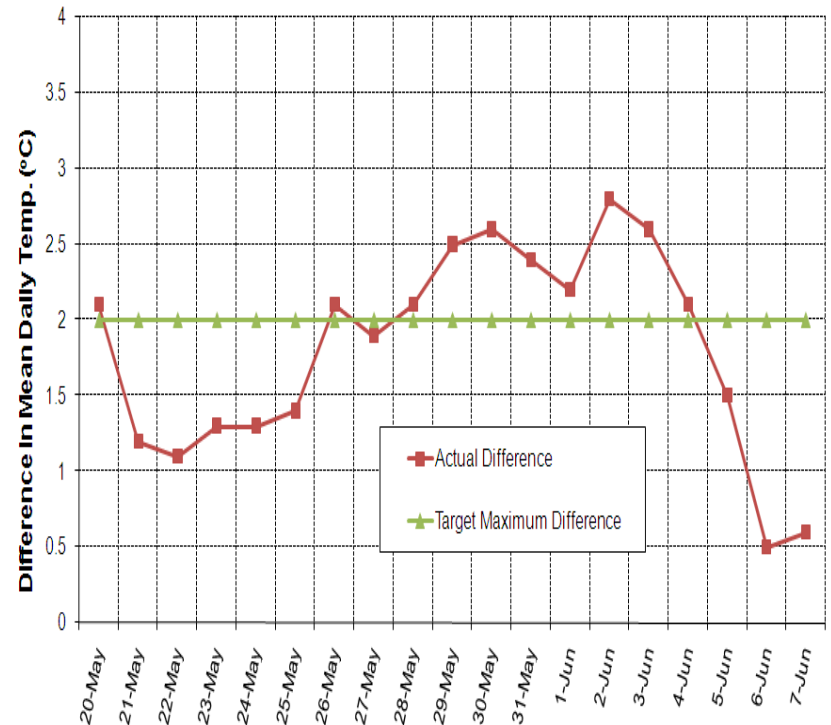
Tolt River

Mean Daily Water Temperature

2009 Tolt River Mean Daily Water Temperature



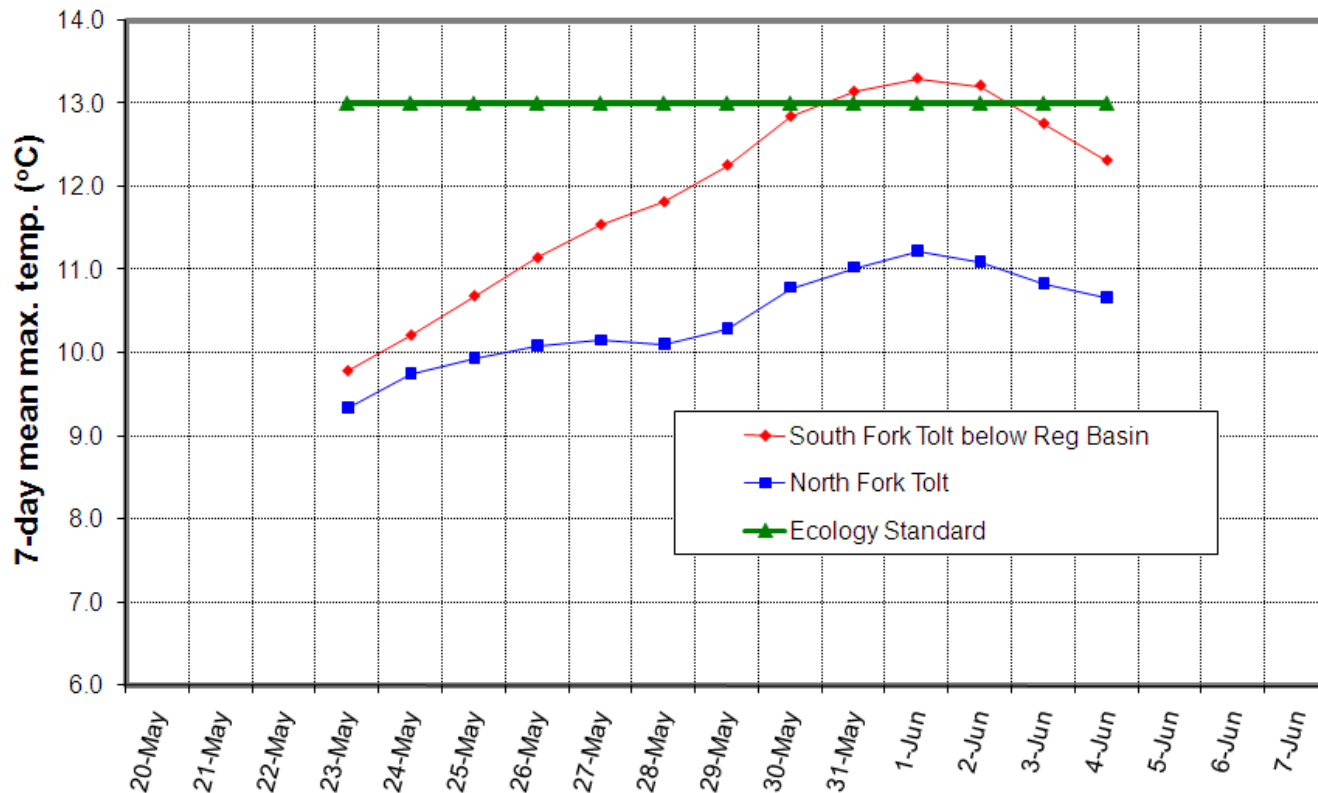
2009 Tolt River Temperature
Mean Daily Temperature Difference Between South Fork below Reg Basin and North Fork Tolt



Tolt River

7-Day Mean Maximum Water Temperature

2009 Tolt River 7-day Mean Maximum Temperature



South Fork Tolt River

Operational Responses

- **June 1– 4:** Series of **intake gate operations** to incrementally close shallow intake and open middle intake
- **June 5:**
 - Increase release from “fish valve”** at dam to reduce temperature in upper portion of river
 - Reservoir **release through SCL “river return”** to reduce temperature in lower river and prevent warm surface water from spilling through the morning glory spillway