

# Water Resources

## Operating Board Briefing

June 2, 2016

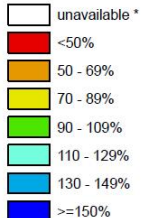
# Water Supply Outlook

- **Current water supply outlook is good**
- **Snow melt occurred earlier than normal with record hot weather**
- **Precipitation in April and May is below normal**
- **Cedar & Tolt flows are being held slightly above guaranteed flows providing full protection for incubating salmon and steelhead**

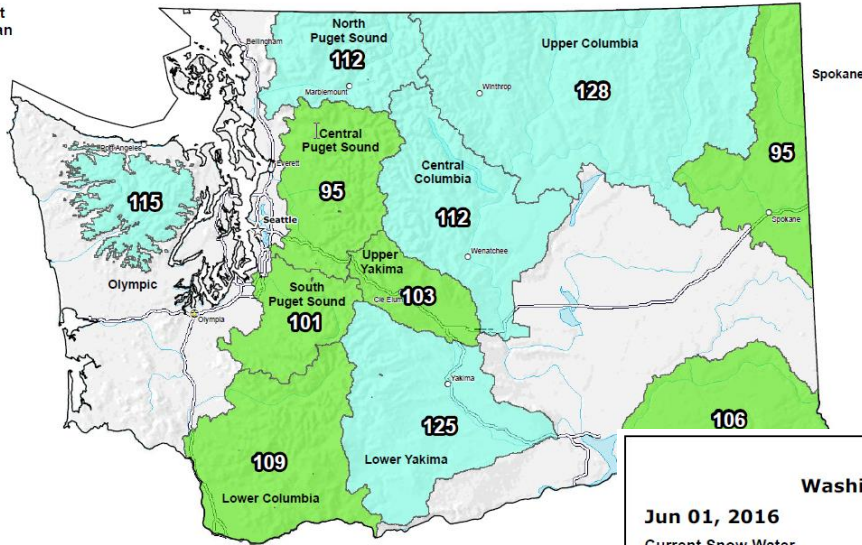
### Washington SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Apr 01, 2016

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



\* Data unavailable at time of posting or measurement is not representative at this time of year



Provisional Data Subject to Revision



The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

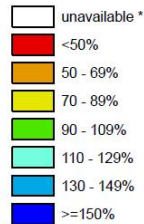


Prep USC Port http:

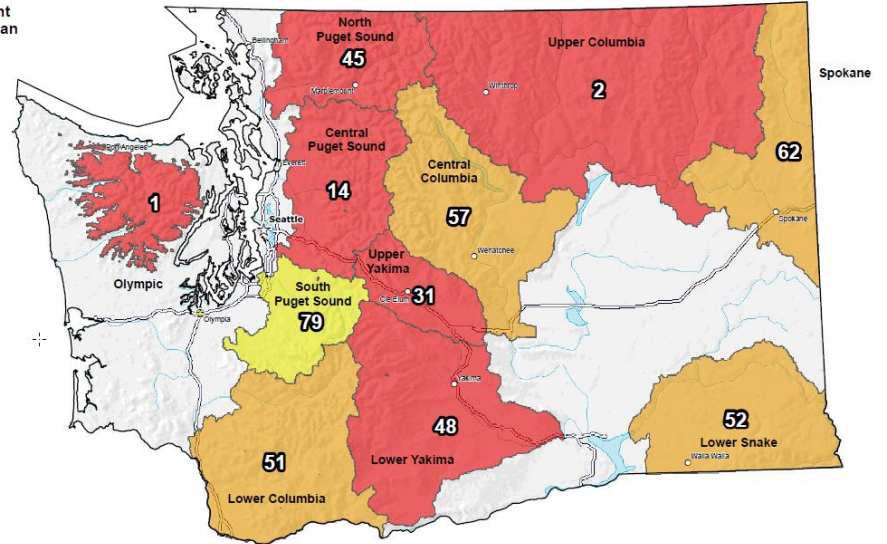
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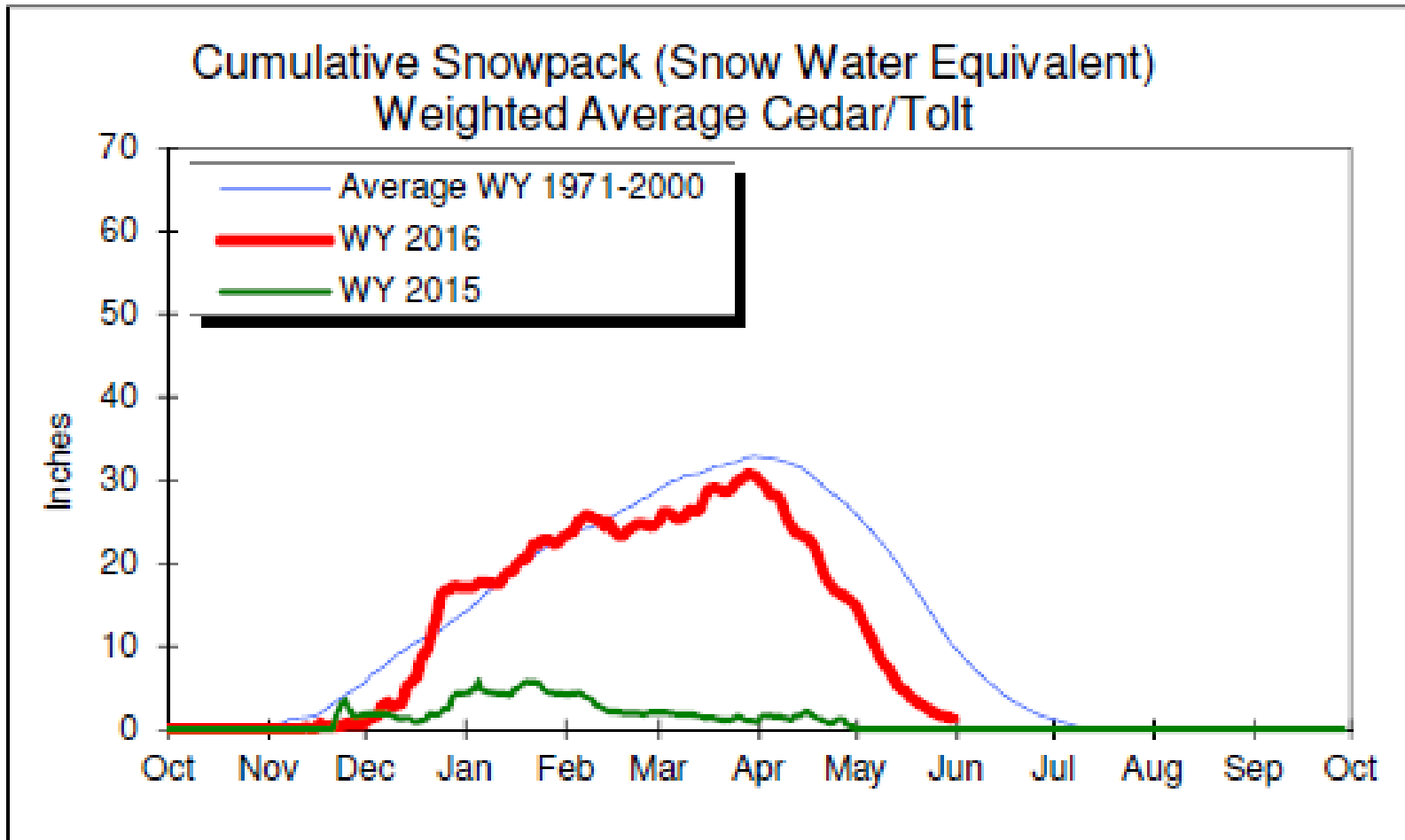


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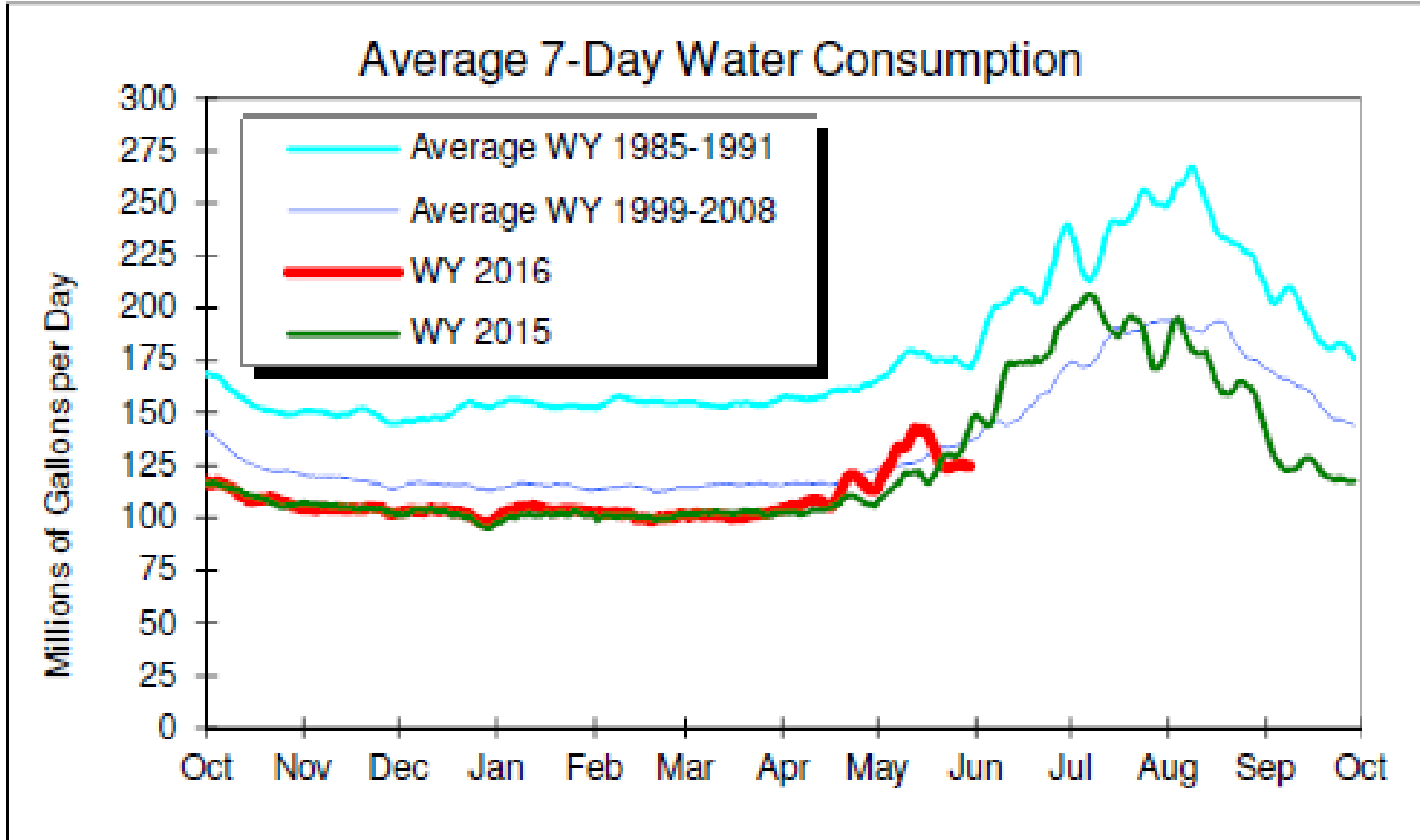
Prepared by: USDA/NRCS National Water and Climate Center Portland, Oregon <http://www.wcc.nrcs.usda.gov>



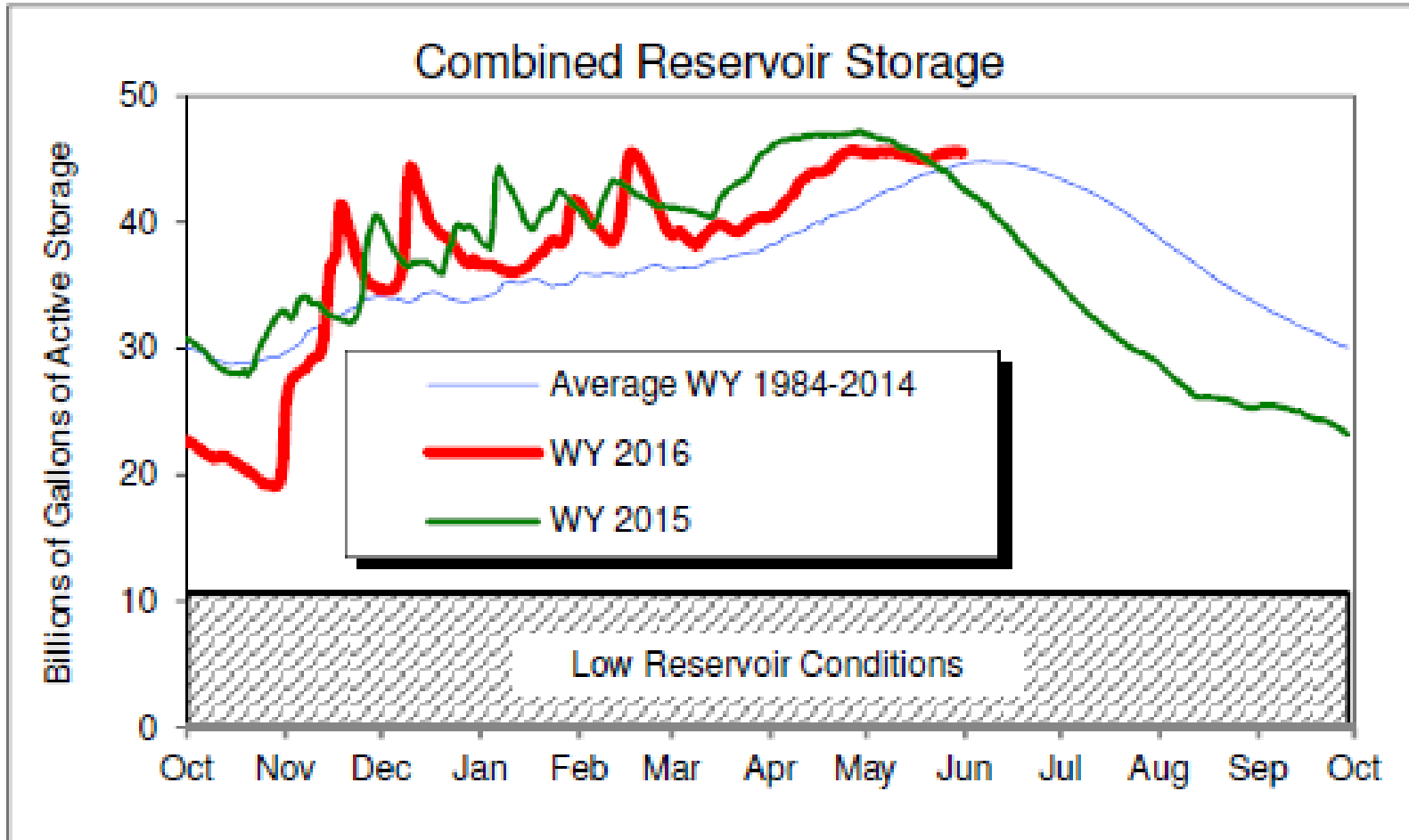
As of May 31, 2016



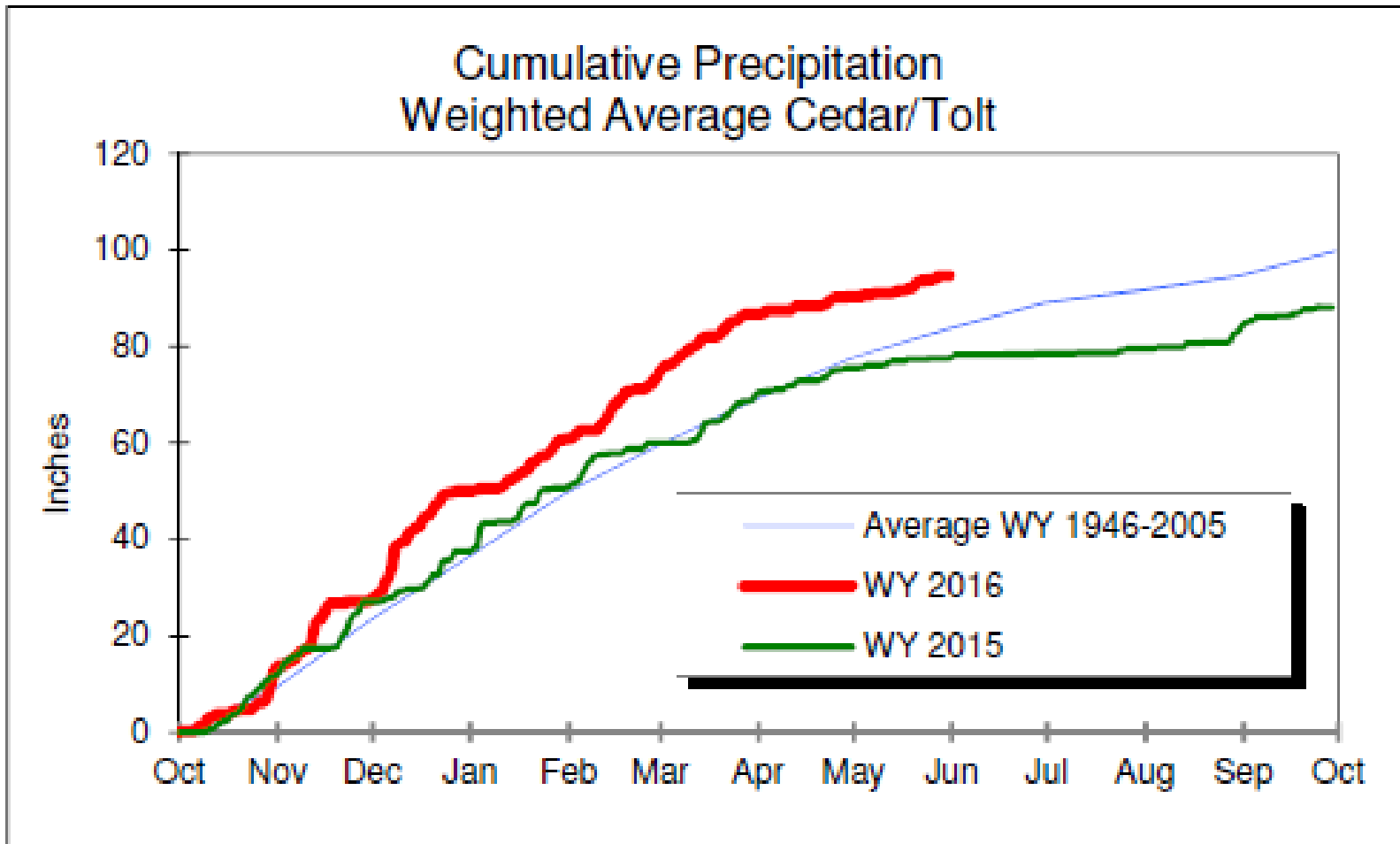
As of May 31, 2016



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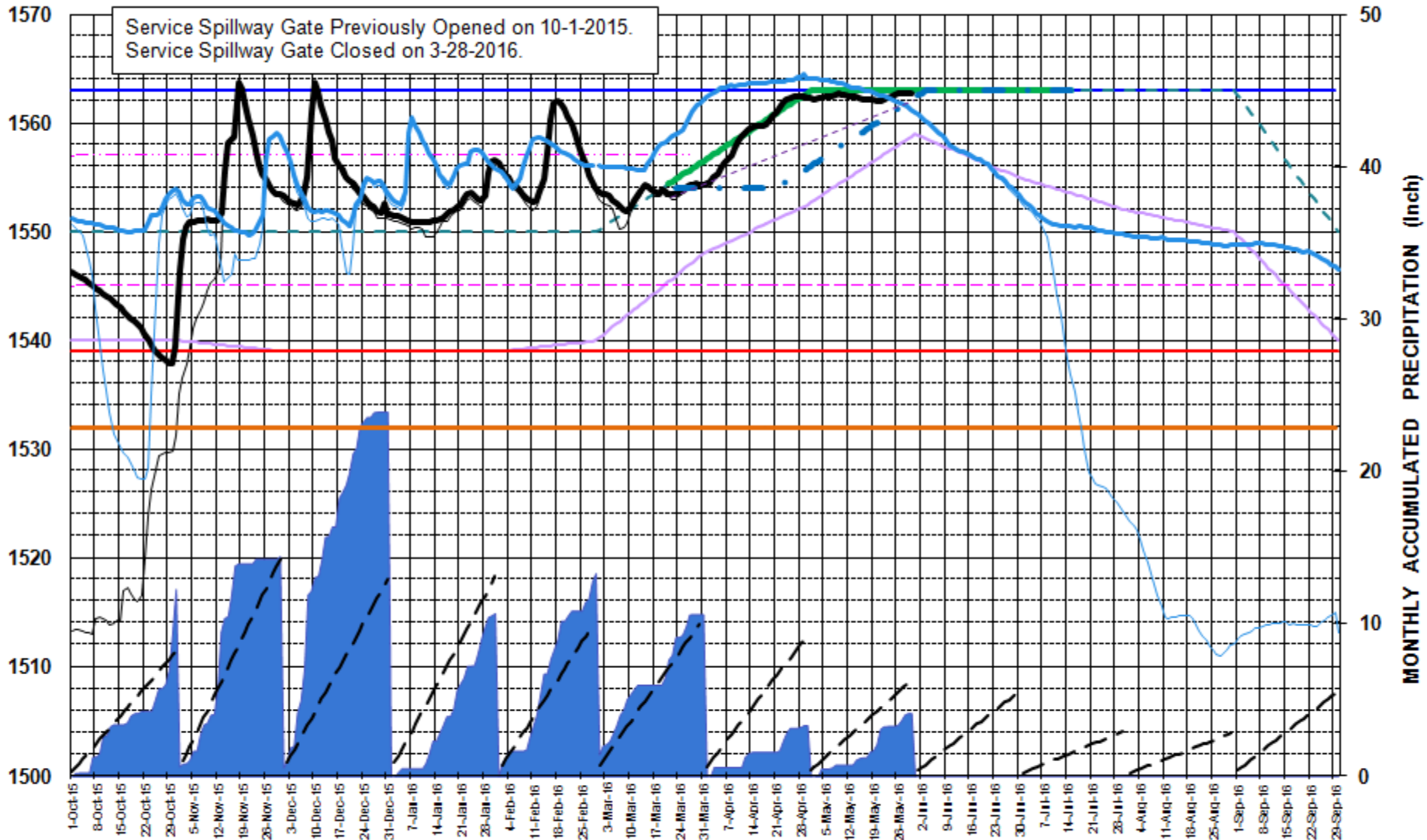
As of May 31, 2016



Last update May 30, 2016

# CEDAR RIVER AT RESERVOIR

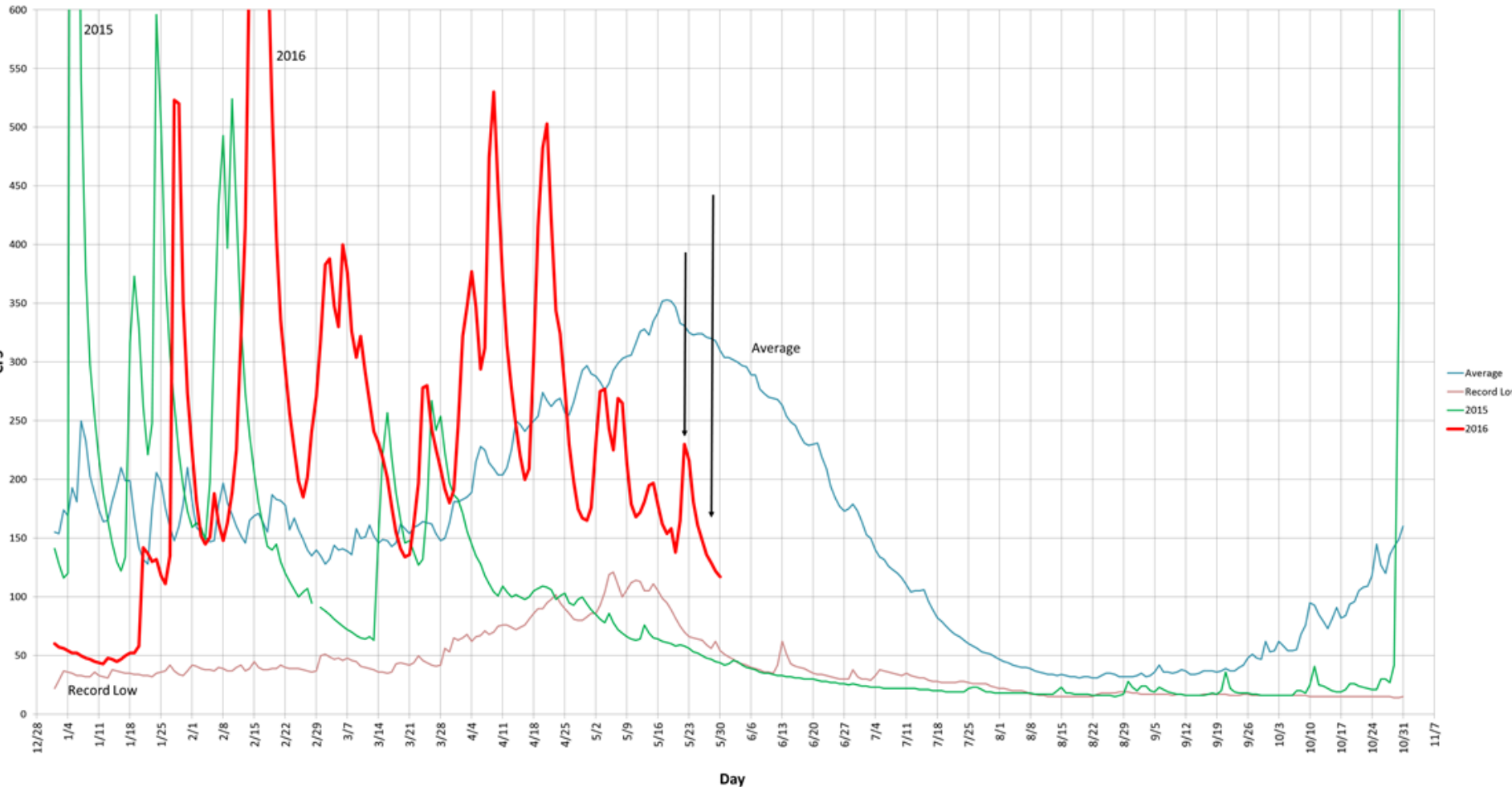
## Water Year 2016



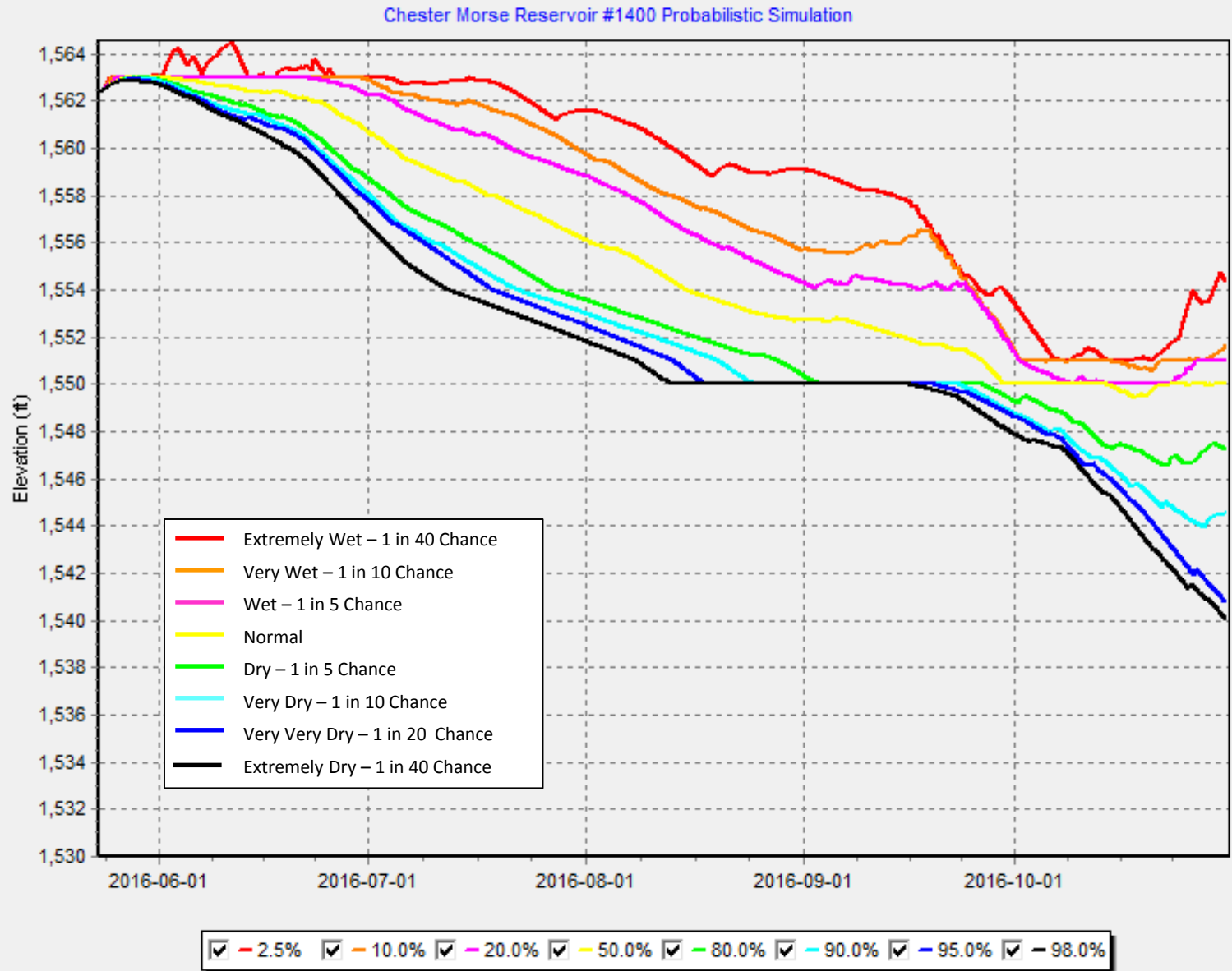
- Precip WY2016, inch
- Actual Masonry Pool Water Surface Elevation WY20 16, feet
- Morse Lake Emergency Pumping Elevation, 1539 Feet
- Morse Lake Reservoir WY2016 Target Refill Curve, feet
- CML WY2015
- Morse Lake Normal High Water Elevation, 1563 Feet
- Cedar HCP Morse Lake Reservoir Alert Phase Curve
- Morse Lake Elevation 1532 ft
- Actual Morse Lake Water Surface Elevation WY2016, feet
- MP WY2015
- Morse Lake Reservoir Generalized Rule Curve, feet
- Morse Lake Potential Mobilization Elevation, 1545 Feet
- Service Spillway Crest Elevation, Open Position, 1557 Feet
- Plan B - Delayed Reservoir Refill Curve, feet
- Precip, WY 68-97 Avg, inch



Cedar River Below Bear Average Daily Flows 2016



# HFAM Run 5-24-16, Cedar R., High Fall Flows and Firm Block

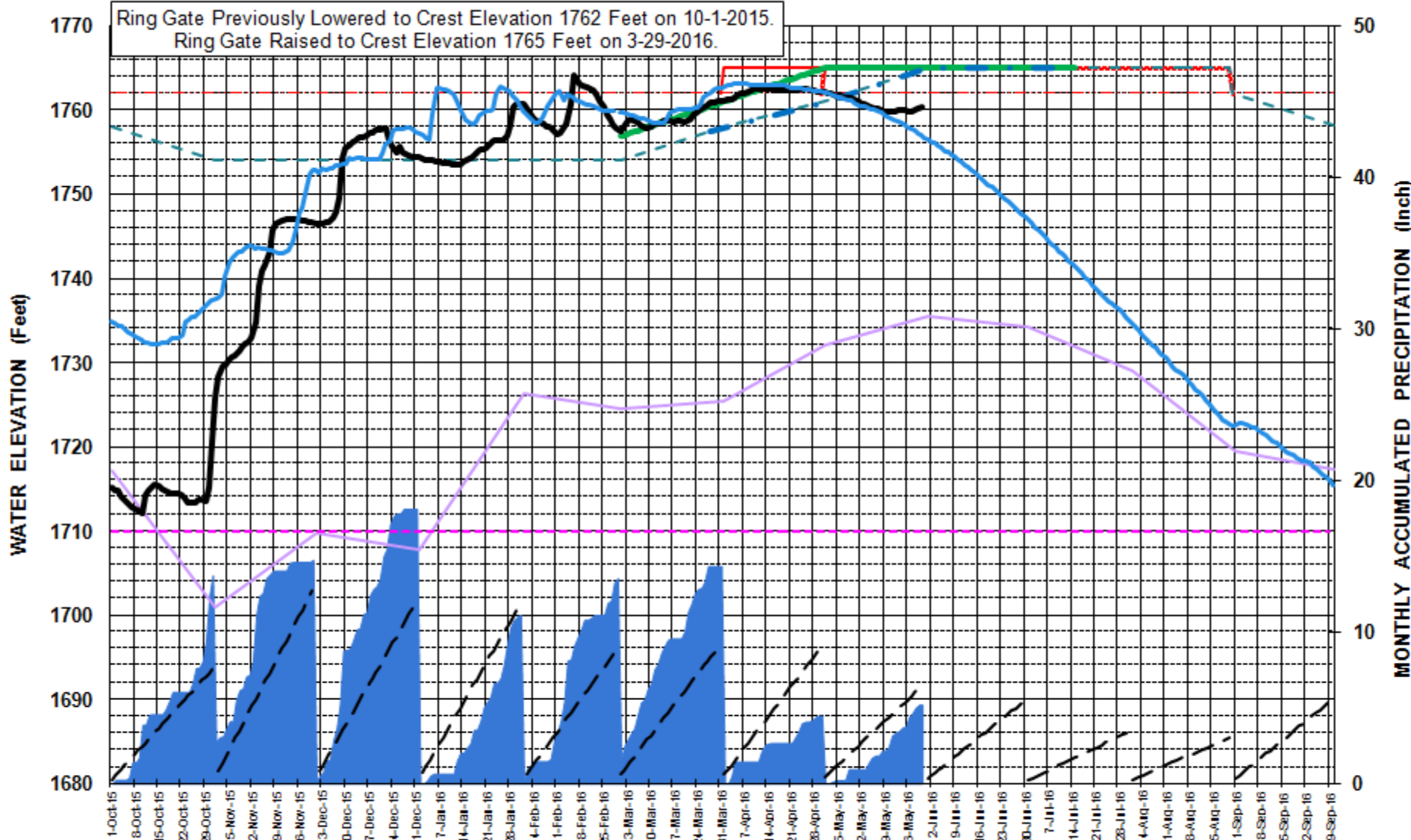


# SOUTH FORK TOLT RIVER AT RESERVOIR

Water Year 2016

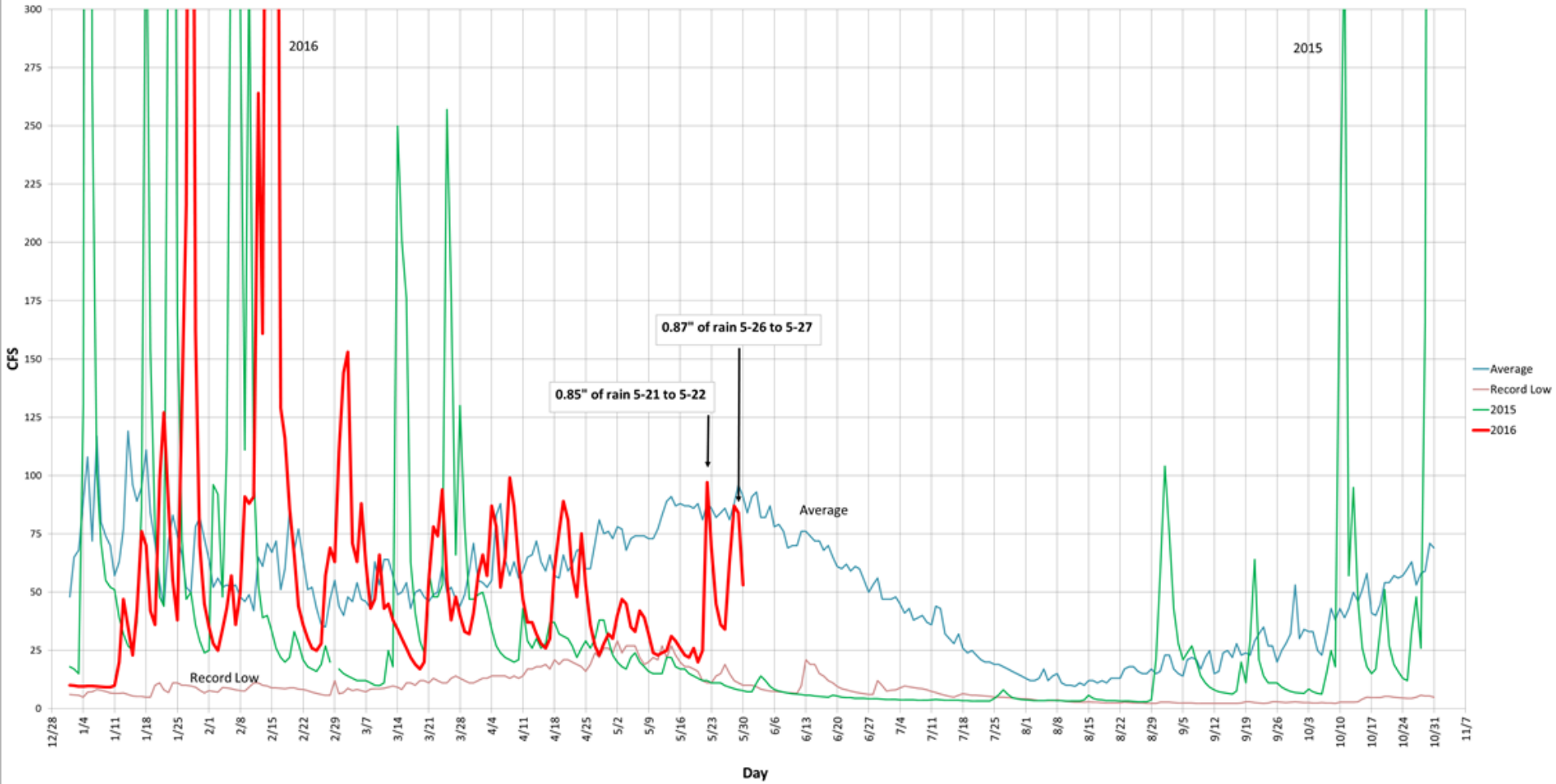
Last update May 30, 2016

Ring Gate Previously Lowered to Crest Elevation 1762 Feet on 10-1-2015.  
Ring Gate Raised to Crest Elevation 1765 Feet on 3-29-2016.

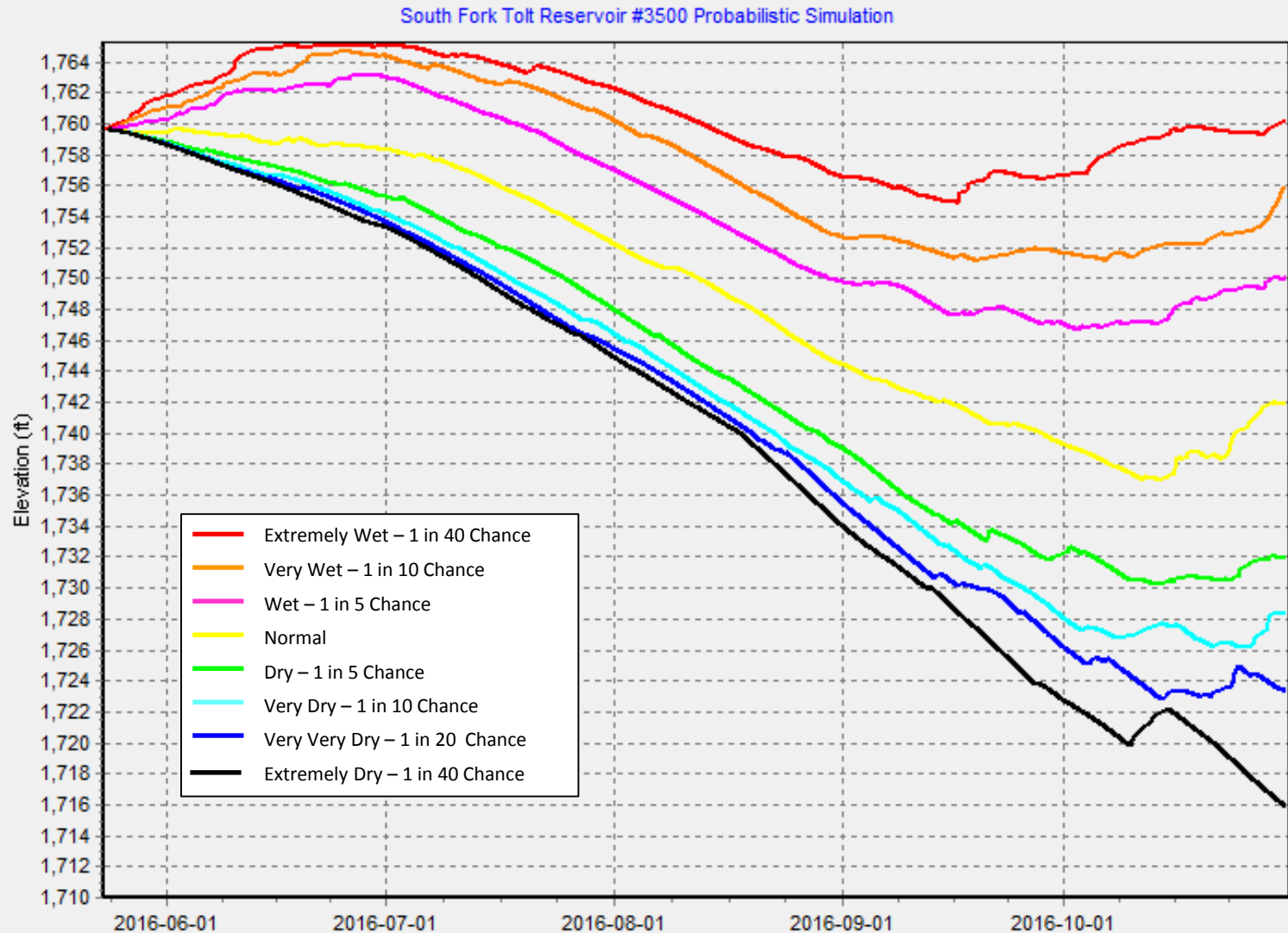


- Precip WY2016, inch
- - - Morning Glory Overflow EI, feet
- Early Raising of Ring Gate EI, feet
- - - Normal Raising of Ring Gate EI, feet
- - - SFT Generalized Reservoir Rule Curve, feet
- SF Tolt Reservoir WY2016 Target Curve, feet
- - - Plan B - Normal Reservoir Refill Curve, feet
- - - SFT Reservoir Critical Rule Curve, feet
- - - SF Tolt Reservoir, Low Water Level Elevation, 1710 Feet
- Actual SF Tolt Water Surface Elevation WY2016, feet
- SFT WY2015
- - - Precip. WY 68-97 Avg, inch

South Fork Tolt Average Daily Flows October 2016



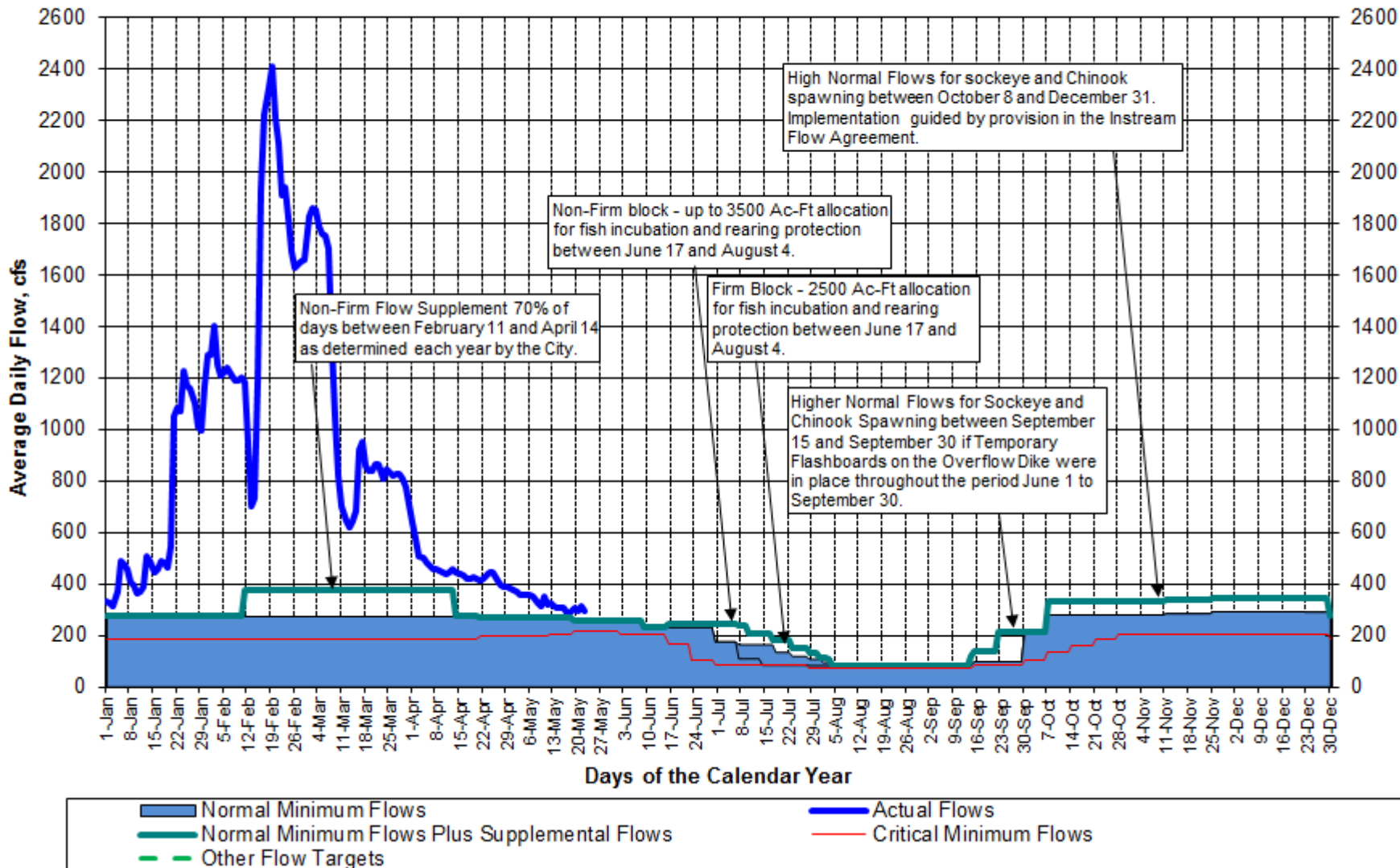
# HFAM Run 5-24-16, SF Tolt River



2.5%  10.0%  20.0%  50.0%  80.0%  90.0%  95.0%  98.0%

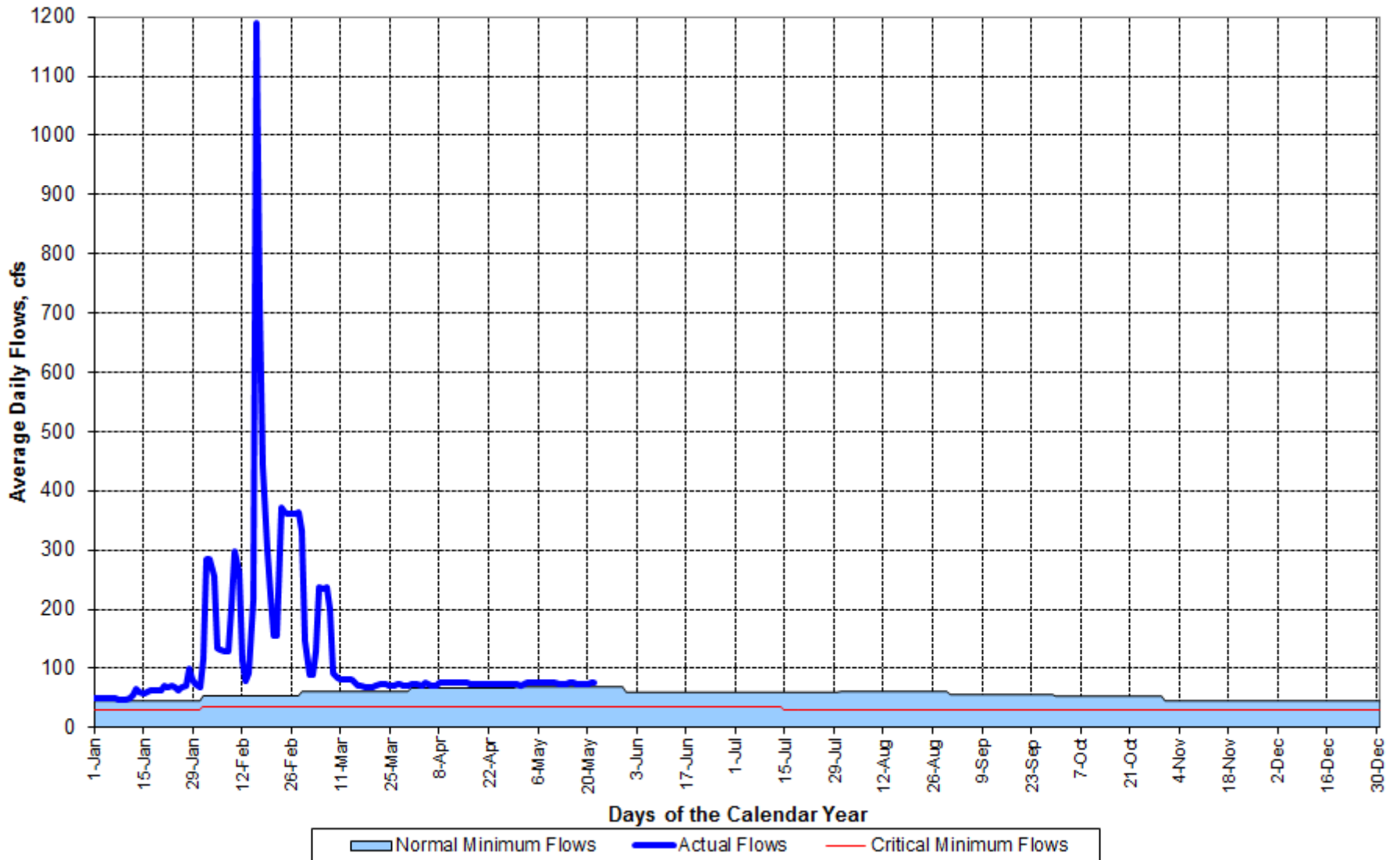
Last Update: 05/22/2016

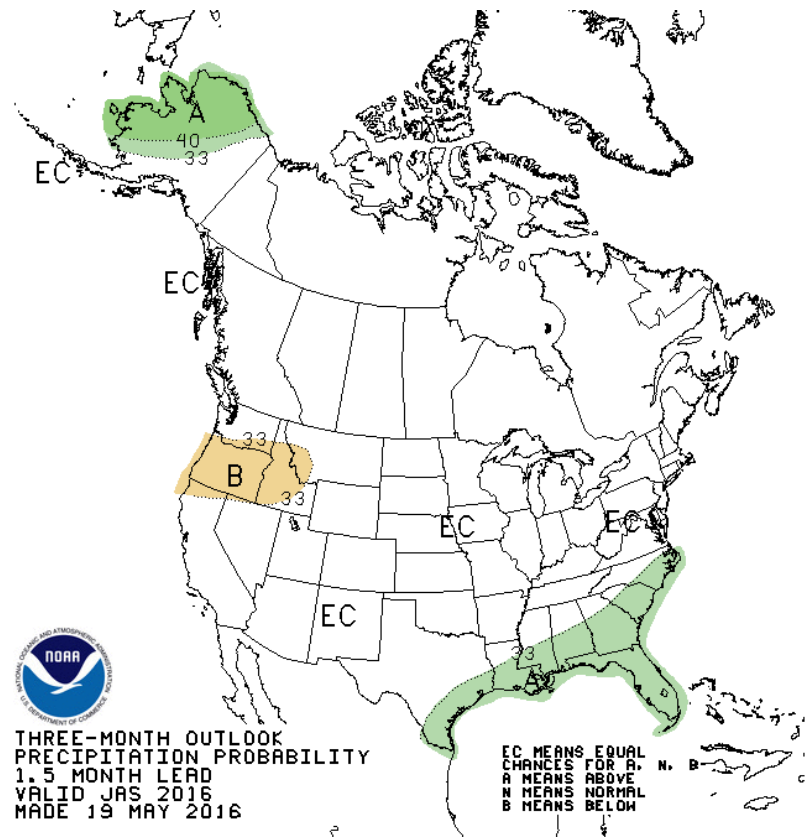
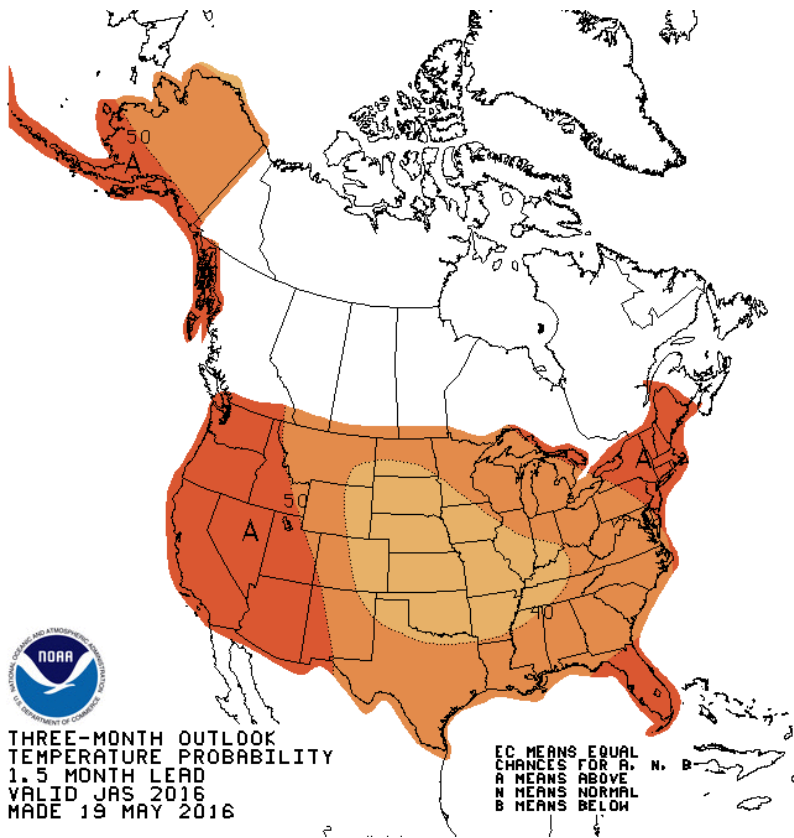
### Calendar Year 2016 Cedar River Instream Flows Measured at USGS Stream Gage No. 12117600 All Data is Provisional and Subject to Revision



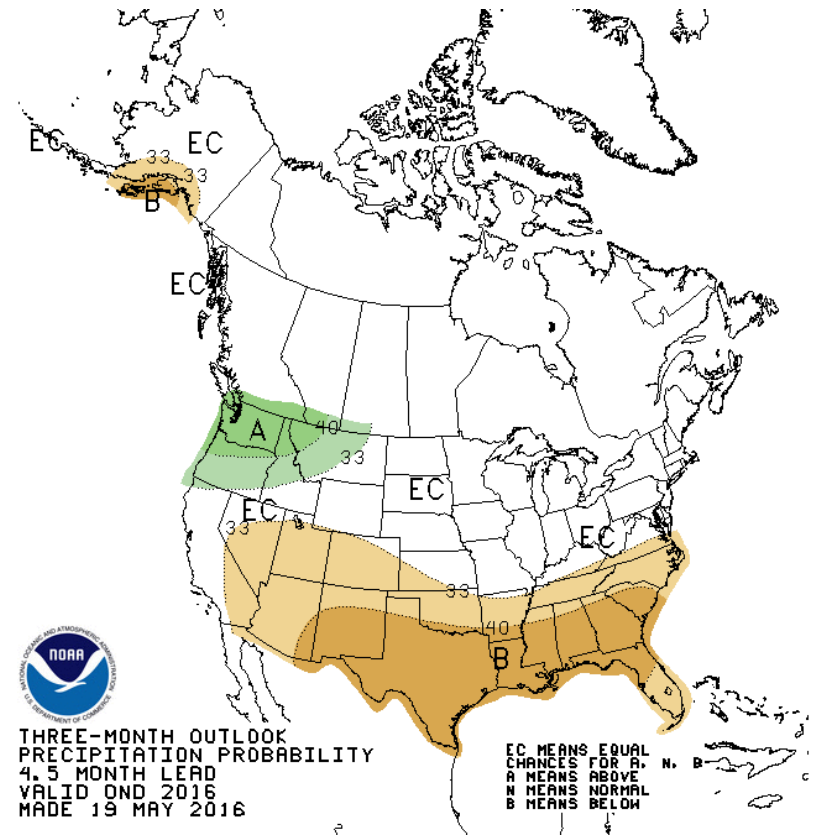
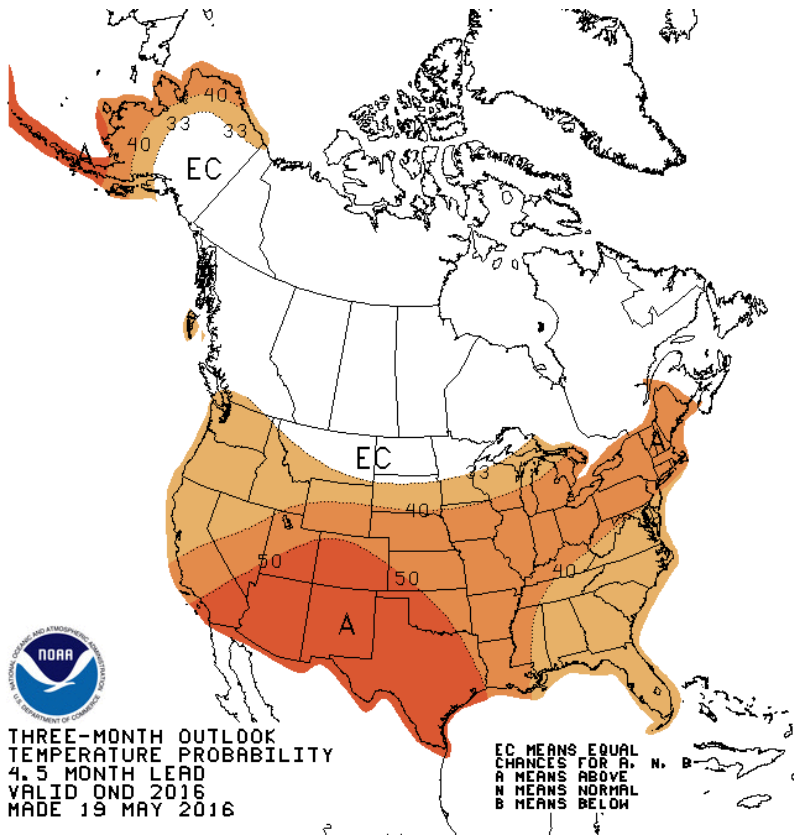
Last Updated: 5/22/2016

**Calendar Year 2016**  
**South Fork Tolt River Instream Flows Measured at USGS Stream Gage No. 12148000**  
All Data is Provisional and Subject to Revision



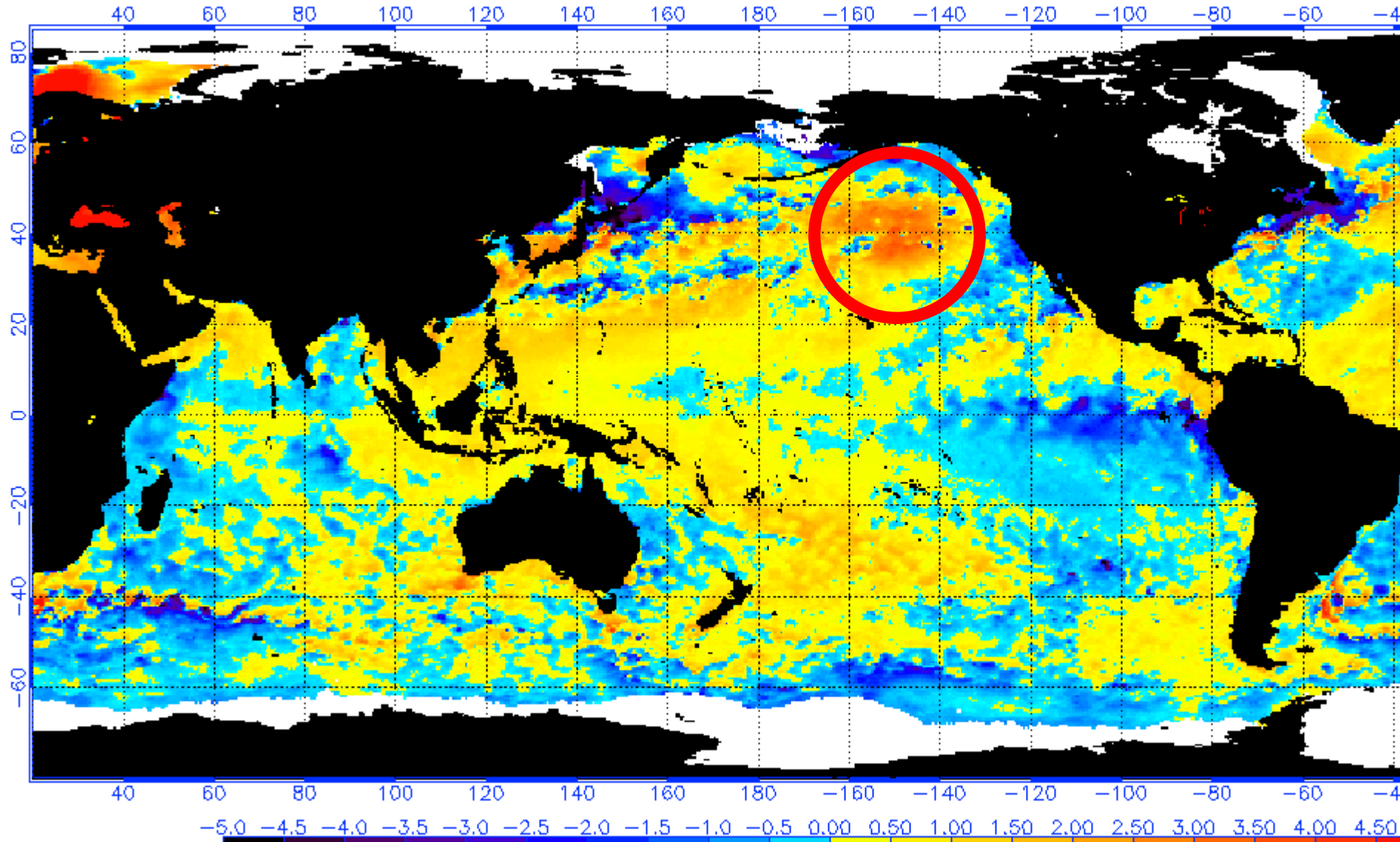






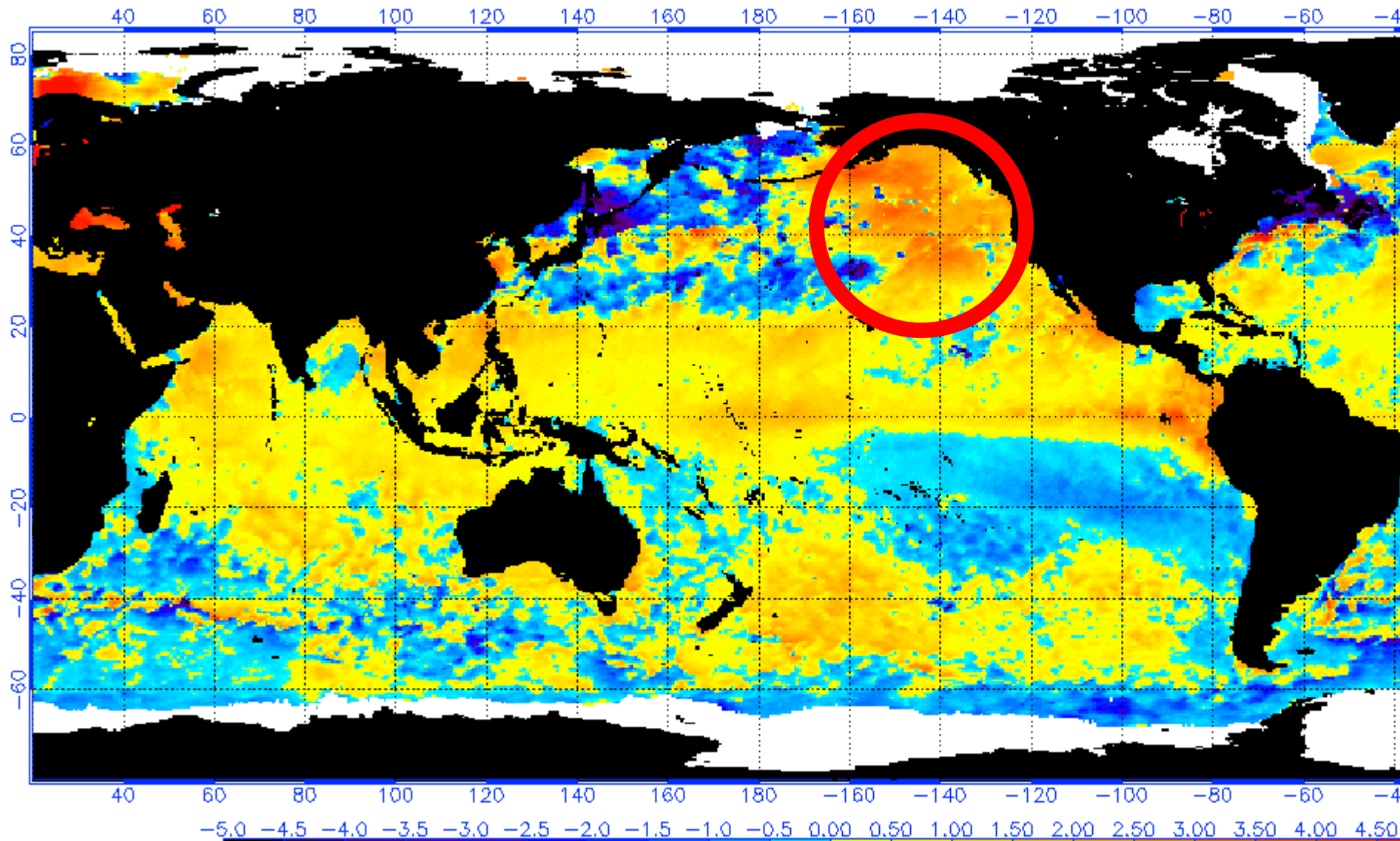
# 2013-05

NOAA/NESDIS 50 KM GLOBAL ANALYSIS: SST Anomaly (degrees C), 5/27/20  
(white regions indicate sea-ice)



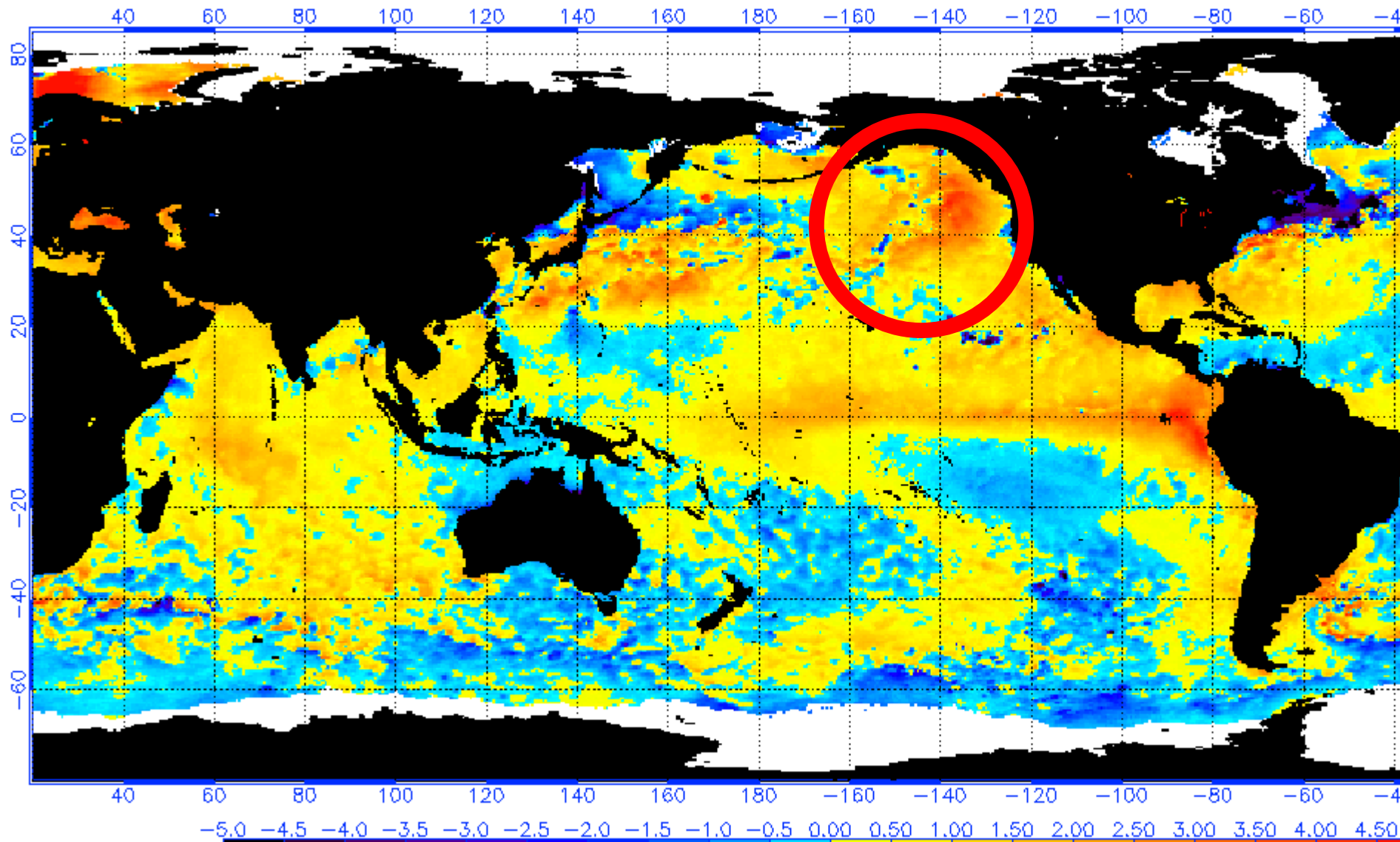
# 2014-05

NOAA/NESDIS 50 KM GLOBAL ANALYSIS: SST Anomaly (degrees C), 5/26/20  
(white regions indicate sea-ice)



# 2015-05

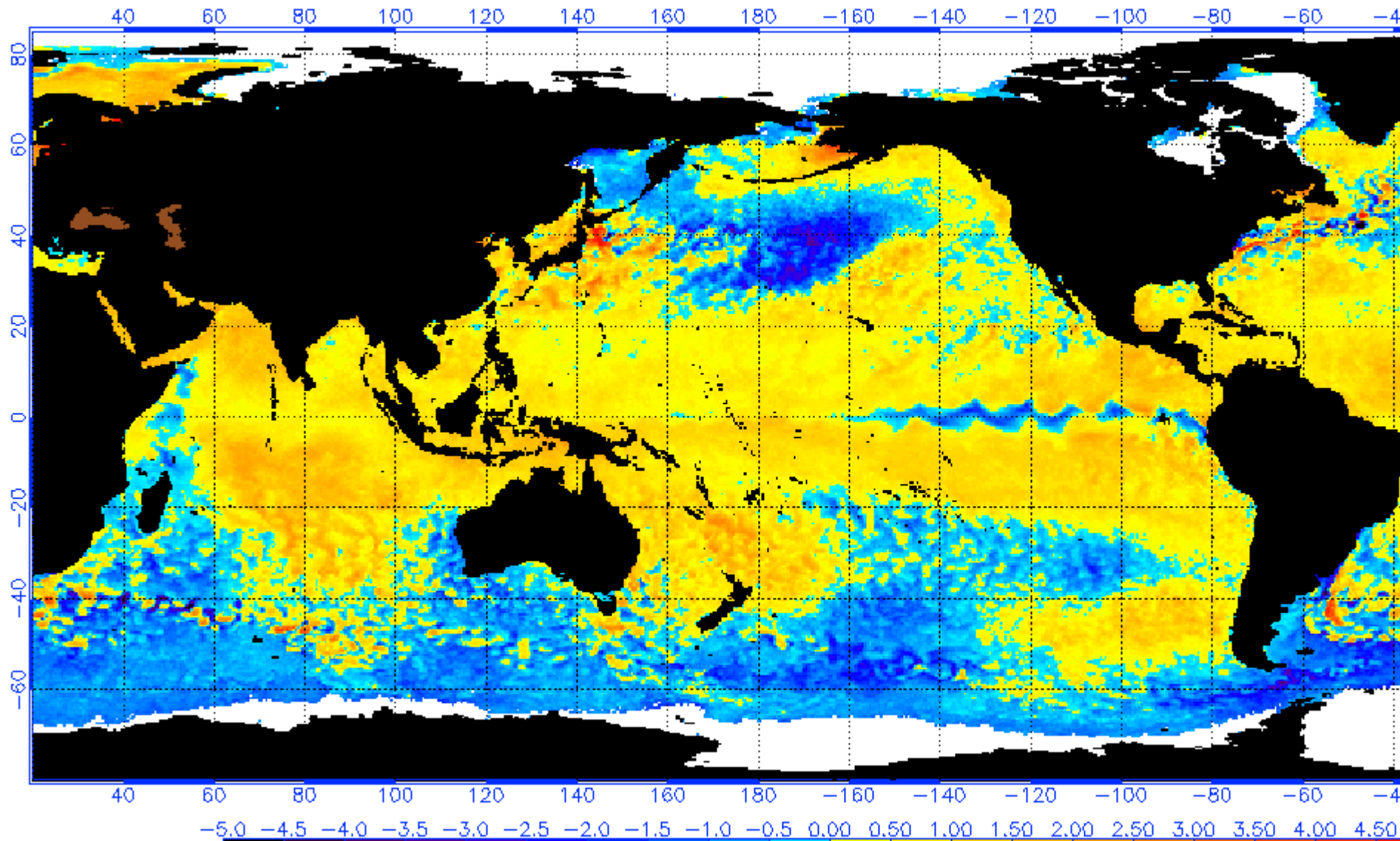
NOAA/NESDIS 50 KM GLOBAL ANALYSIS: SST Anomaly (degrees C), 5/25/20  
(white regions indicate sea-ice)





# 2016-05

NOAA/NESDIS 50 KM GLOBAL ANALYSIS: SST Anomaly (degrees C), 5/26/2016  
(white regions indicate sea-ice)



# Current supply plan

- **Monitor supply closely**
- **Capture additional spring rainfall and snowmelt runoff in reservoirs**
- **Push more Cedar water ~ 70% Cedar and 30% Tolt**
- **Not offer the 3,500 acre feet non firm block on Cedar to IFC if not needed for steelhead redds**
- **Cut Cedar Falls power generation flow to zero if we can maintain guaranteed flows with minimal release at Masonry Dam, seepage, etc..**

## **Other Tools:**

- **Forebay cleaning**
- **Wells**

# Questions?