

Seattle Public Utilities Water Supply Update

February 5, 2013

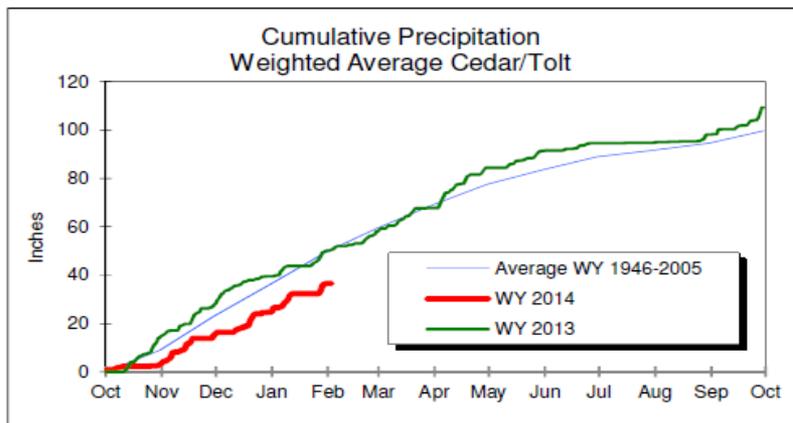
Status Summary

- State convening Water Supply Availability
- SPU continually monitors weather and snowpack conditions and has been preparing for less than average snowpack since late December
- Total Precip is less than normal
- Snowpack is low, 40% to 60% of median (Higher on the Tolt and lower on Cedar)

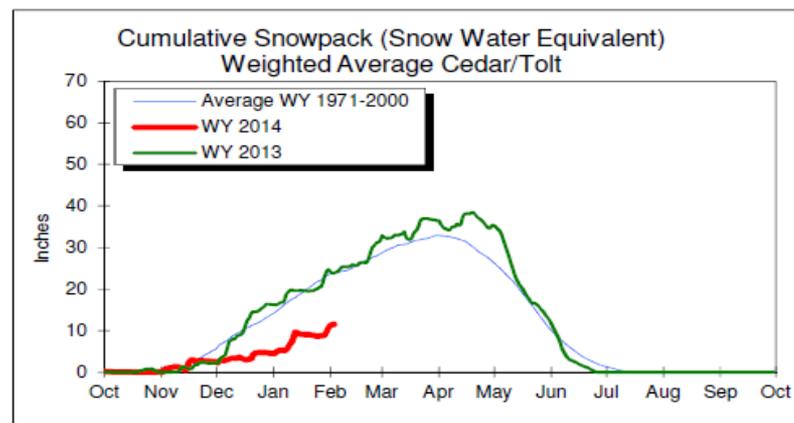
Things we have been doing and will do

- Maintain CML at 1553-54 unless storm (>3-4 in and Snow is >5000) is 3-5 days out
- Request permission from FERC to raise Tolt Ring gate 3/1 if Snow is less than 70% on Feb 15
- Start Refill Tolt 3/1 CML at or about that time
- Continue to meet supplemental flow as we can for Chinook redds
- Spring Supplemental flow – provide but recognize that it may not be possible to continue past mid March

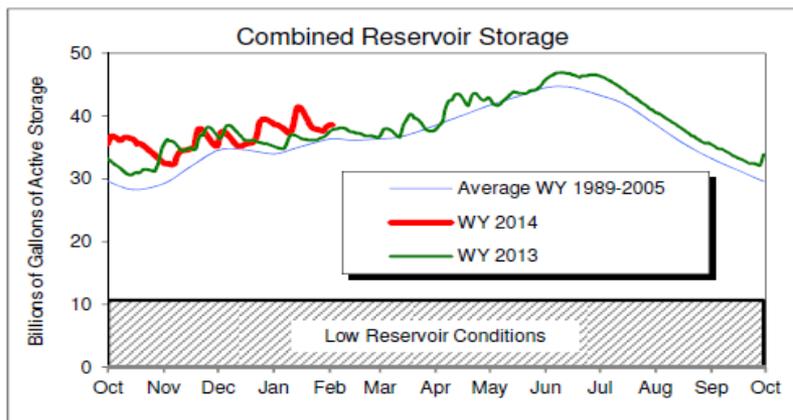
Seattle Public Utilities Water System Synopsis as of February 3, 2014



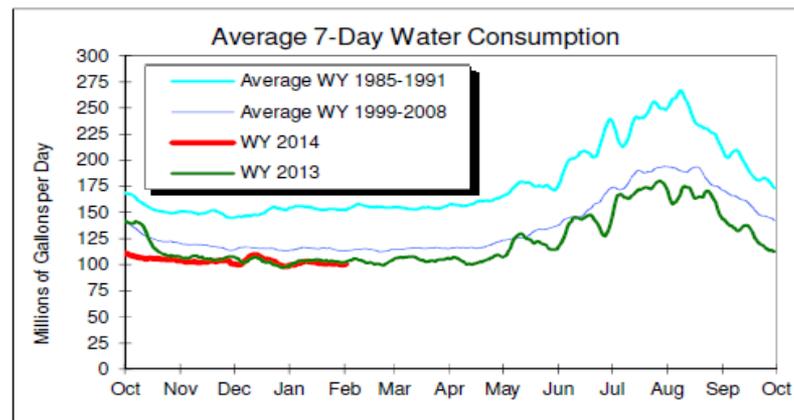
Precipitation was recorded in the Cedar and S.F. Tolt watersheds over the past week.



The average snow accumulation across the sites that we monitor is estimated to be about 11.5 inches snow water equivalent which is below the long term average for this time of the year.



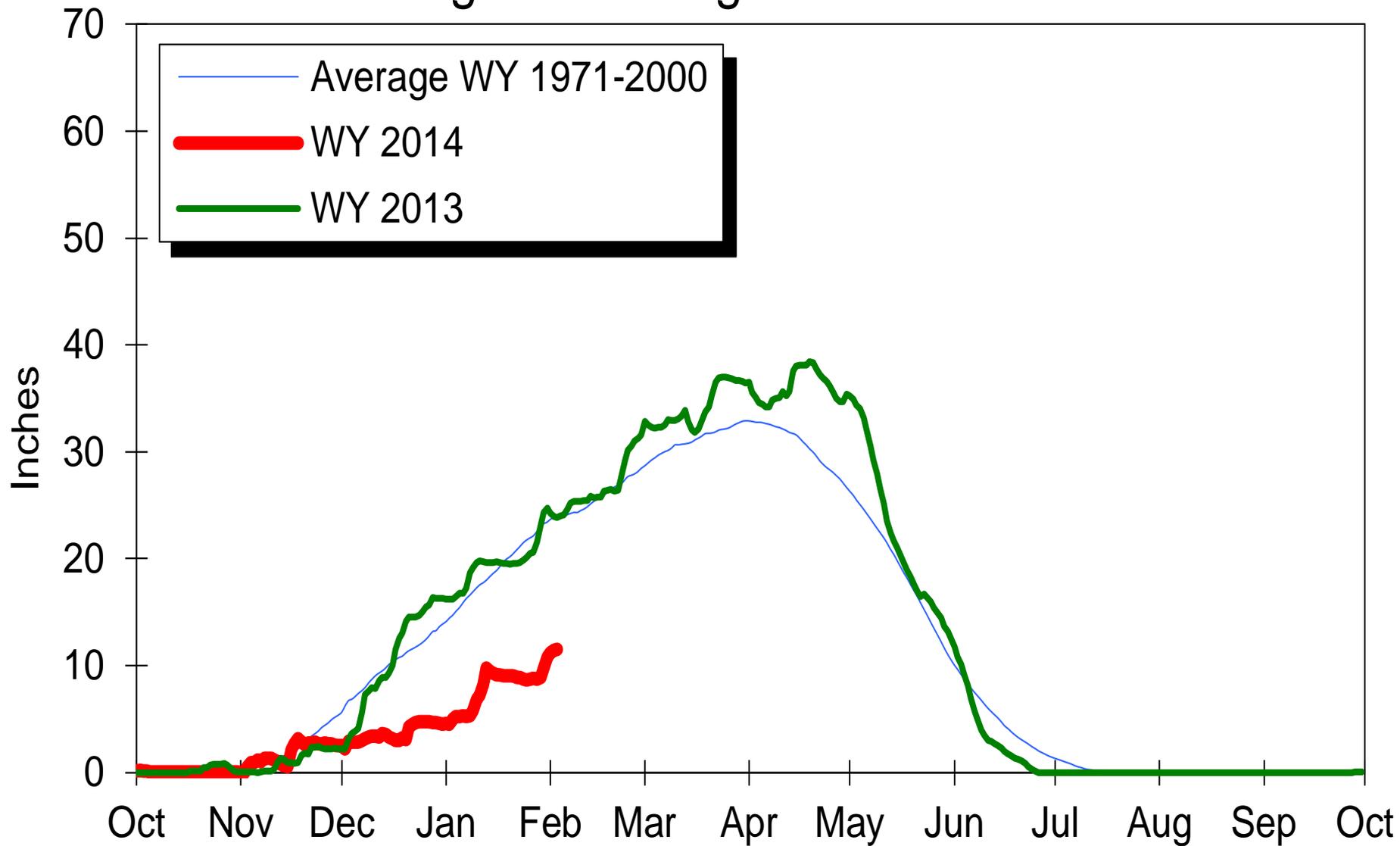
The combined reservoir storage of Chester Morse Lake, Masonry Pool, Lake Youngs and South Fork Tolt Reservoir is above the long term average for this time of year.



Water use over the past week averaged about 100 million gallons per day (mgd), which is less than the 113 mgd used during the same period over the years 1999-2008.

All data is provisional and subject to revision.

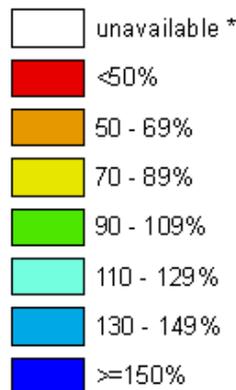
Cumulative Snowpack (Snow Water Equivalent) Weighted Average Cedar/Tolt



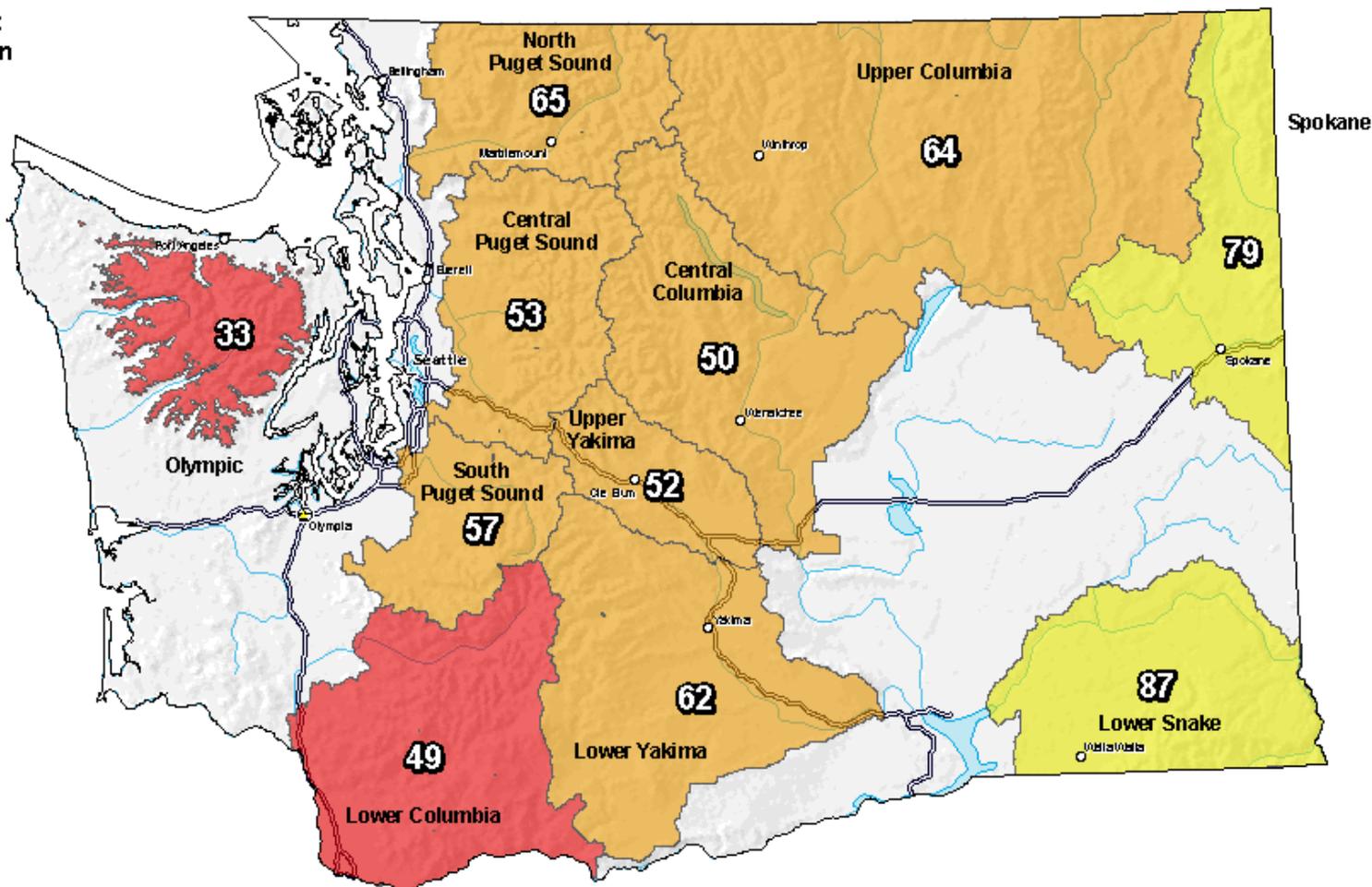
Washington SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Feb 04, 2014

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).



Prepared by the USDA/NRCS National Water and Climate Center, Portland, Oregon <http://www.wcc.nrcs.usda.gov/gis/>
Based on data from <http://www.wcc.nrcs.usda.gov/reports/>
Science contact: Jim.Marron@por.usda.gov 503 414 3047

Snotel Snow Water Equivalent (SWE) Information

Readings Current to 12 Mid., Feb 3, 2014. Current data is provisional.

Cedar River Basin

Location	WY Installed	Elev.	CURRENT, Feb 3, WY 2014		LAST WEEK, Jan 27, WY 2014		Feb 3, WY 2013		Feb 3, WY 2005		Feb 3, WY 71-00	Jan 27, WY 71-00	Apr 1 values of
			SWE, in	% long term avg	SWE, in	% long term avg	SWE, in	% long term avg	SWE, in	% long term avg	Long-term avg	Long-term avg	Long-term avg
Rex River*	1996	4000'	13.30 in	61%	11.20 in	54%	27.20 in	124%	0	0%	21.90 in	20.90 in	31.20 in
Stampede Pass	1983	3860'	11.40 in	36%	8.10 in	29%	21.20 in	67%	3.50 in	11%	31.50 in	28.40 in	45.30 in
Olallie Meadows	1983	3700'	22.70 in	57%	18.80 in	52%	36.20 in	92%	4.60 in	12%	39.50 in	35.90 in	55.90 in
Meadows Pass*	1994	3500'	9.90 in	52%	8.00 in	45%	21.00 in	111%	0	0%	19.00 in	17.60 in	23.90 in
Cougar Mt.	1982	3200'	1.00 in	7%	0	0%	16.90 in	122%	0	0%	13.80 in	13.00 in	17.70 in
Tinkham Creek*	1994	3070'	8.00 in	35%	5.80 in	27%	19.10 in	83%	3.30 in	14%	22.90 in	21.50 in	30.00 in
Mount Gardner*	1994	3000'	1.10 in	9%	0	0%	14.20 in	121%	0.30 in	3%	11.70 in	11.50 in	13.00 in
Average			9.63 in	42%	7.41 in	35%	22.26 in	97%	1.67 in	7%	22.90 in	21.26 in	31.00 in
Weighted Average		>2500'	9.87 in	43%	7.63 in	35%	22.51 in	97%	1.68 in	7%	23.19 in	21.51 in	31.48 in

Tolt River Basin

Location	WY Installed	Elev.	CURRENT, Feb 3, WY 2014		LAST WEEK, Jan 27, WY 2014		Feb 3, WY 2013		Feb 3, WY 2005		Feb 3, WY 71-00	Jan 27, WY 71-00	Apr 1 values of
			SWE, in	% long term avg	SWE, in	% long term avg	SWE, in	% long term avg	SWE, in	% long term avg	Long-term avg	Long-term avg	Long-term avg
Stevens Pass	1981	4070'	16.90 in	55%	15.10 in	53%	27.00 in	88%	7.80 in	25%	30.80 in	28.40 in	42.60 in
Skookum Creek* **	1996	3920'	15.20 in	79%	8.00 in	44%	20.70 in	107%	0.10 in	1%	19.30 in	18.18 in	29.30 in
Alpine Meadows	1995	3500'	21.90 in	74%	17.80 in	64%	39.70 in	134%	6.70 in	23%	29.70 in	27.80 in	43.60 in
Average			18.00 in	68%	13.63 in	55%	29.13 in	110%	4.87 in	16%	26.60 in	24.79 in	38.50 in

Combined Cedar and Tolt River Basins

Location	WY Installed	Elev.	CURRENT, Feb 3, WY 2014		LAST WEEK, Jan 27, WY 2014		Feb 3, WY 2013		Feb 3, WY 2005		Feb 3, WY 71-00	Jan 27, WY 71-00	Apr 1 values of
			SWE, in	% long term avg	SWE, in	% long term avg	SWE, in	% long term avg	SWE, in	% long term avg	Long-term avg	Long-term avg	Long-term avg
Weighted Average			11.50 in	48%	8.83 in	40%	23.84 in	100%	2.32 in	10%	23.87 in	22.16 in	32.89 in

Snow Depth and Density Information

Readings Current to 12 Mid., Feb 3, 2014. Current data is provisional.

Cedar River Basin

Location	WY Installed	Elev.	CURRENT, Feb 3, WY 2014		LAST WEEK, Jan 27, WY 2014	
			Depth, in	Snow Density	Depth, in	Snow Density
Rex River*	1996	4000'	38.00 in	35%	26.00 in	43%
Stampede Pass	1983	3860'	38.00 in	30%	25.00 in	32%
Olallie Meadows	1983	3700'	67.00 in	34%	53.00 in	35%
Meadows Pass*	1994	3500'	33.00 in	30%	20.00 in	40%
Cougar Mt.	1982	3200'	3.00 in	33%	0	---

Tolt River Basin

Location	WY Installed	Elev.	CURRENT, Feb 3, WY 2014		LAST WEEK, Jan 27, WY 2014	
			Depth, in	Snow Density	Depth, in	Snow Density
Stevens Pass	1981	4070'	63.00 in	27%	50.00 in	30%
Skookum Creek*	1996	3920'	32.00 in	48%	23.00 in	35%
Alpine Meadows	1995	3500'	48.00 in	46%	36.00 in	49%

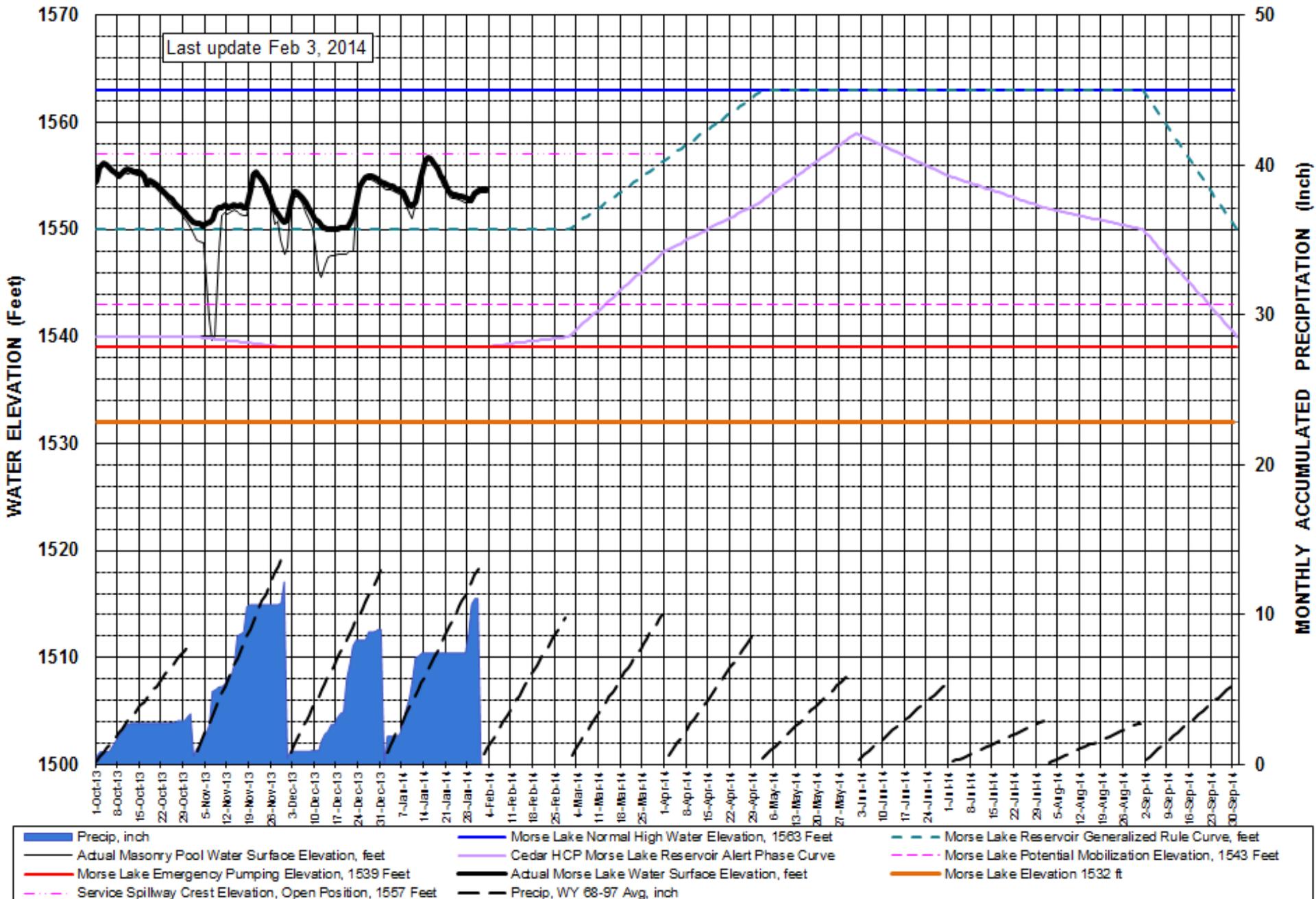
* Station is located within the watershed.

Italicized averages are estimated by NRCS and are not based on WY 71-00 data.

** WY 61-90 long-term average

CEDAR RIVER AT RESERVOIR

Water Year 2014

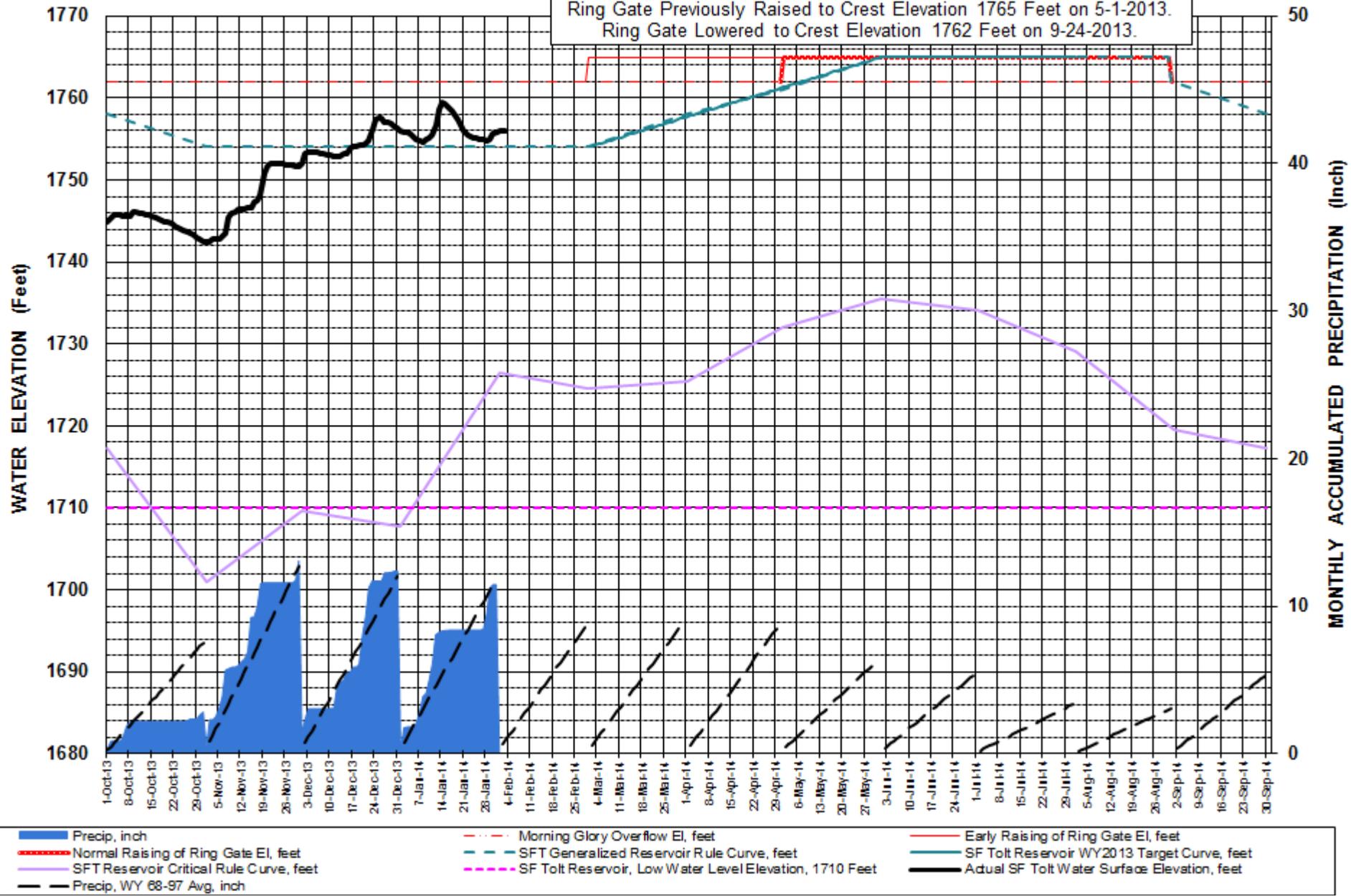


SOUTH FORK TOLTRIVER AT RESERVOIR

Water Year 2014

Last update Feb 3, 2014

Ring Gate Previously Raised to Crest Elevation 1765 Feet on 5-1-2013.
 Ring Gate Lowered to Crest Elevation 1762 Feet on 9-24-2013.

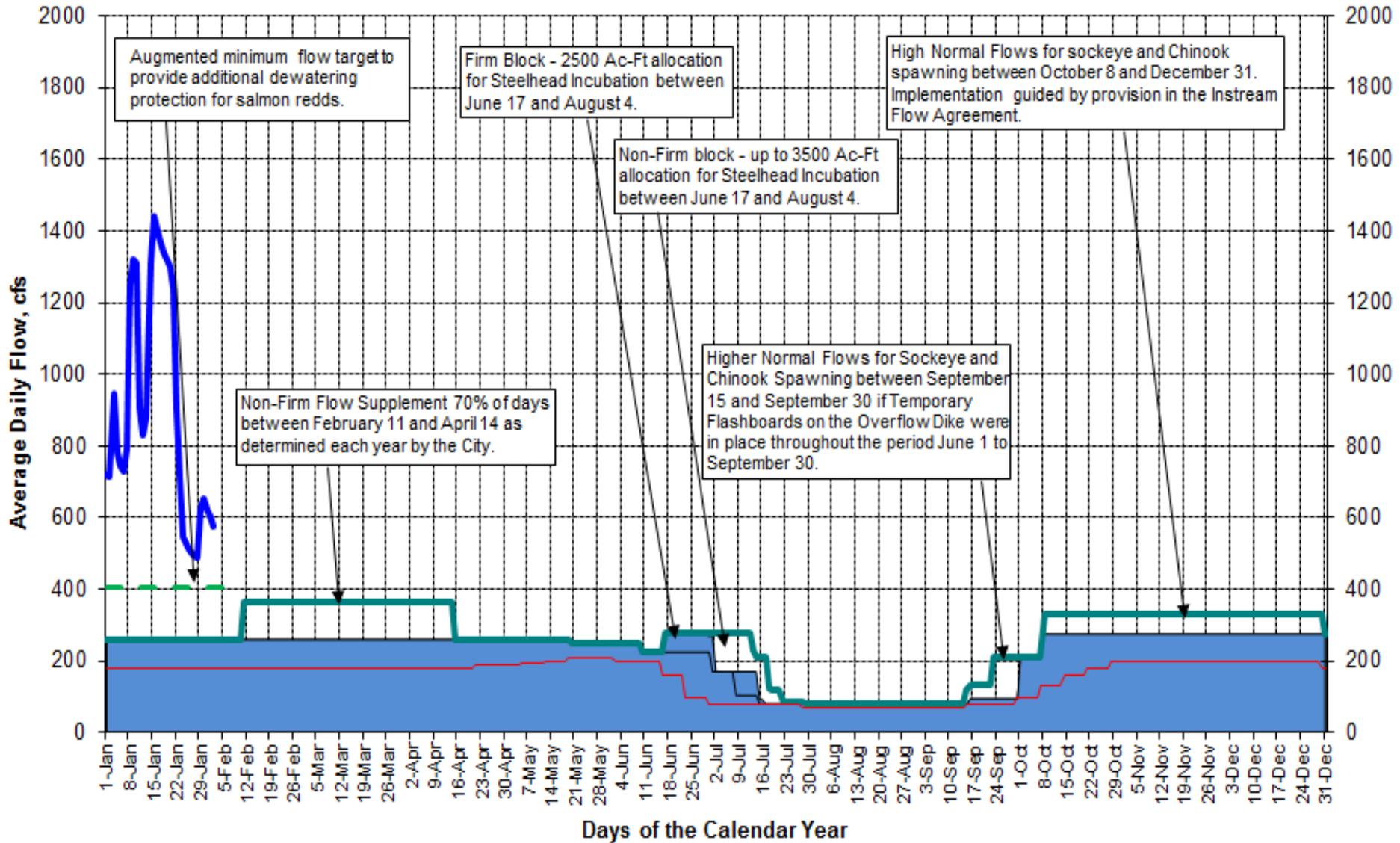


Last Update: 2/2/2014

Calendar Year 2014

Cedar River Instream Flows Measured at USGS Stream Gage No. 12117600

All Data is Provisional and Subject to Revision



Augmented minimum flow target to provide additional dewatering protection for salmon redds.

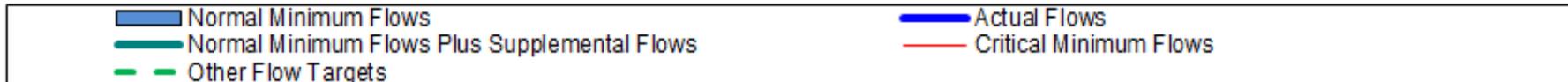
Firm Block - 2500 Ac-Ft allocation for Steelhead Incubation between June 17 and August 4.

High Normal Flows for sockeye and Chinook spawning between October 8 and December 31. Implementation guided by provision in the Instream Flow Agreement.

Non-Firm block - up to 3500 Ac-Ft allocation for Steelhead Incubation between June 17 and August 4.

Non-Firm Flow Supplement 70% of days between February 11 and April 14 as determined each year by the City.

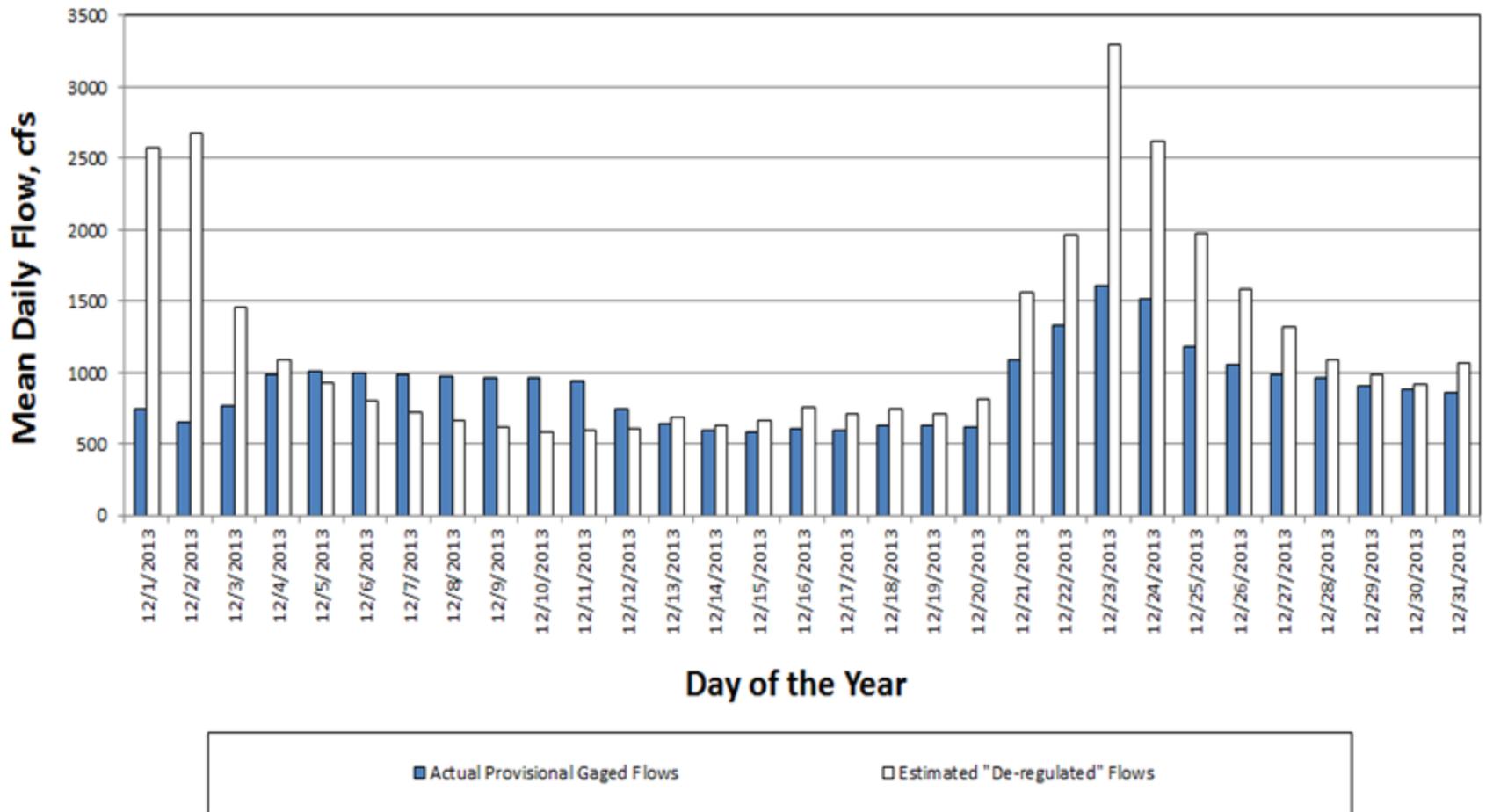
Higher Normal Flows for Sockeye and Chinook Spawning between September 15 and September 30 if Temporary Flashboards on the Overflow Dike were in place throughout the period June 1 to September 30.



Cedar River at Renton

All Data is Provisional and Subject to Revision

A simple rough estimation method was used to calculate the estimated De-regulated flow values. This graph is prepared for discussion purposes only. Do not use for decision-making.

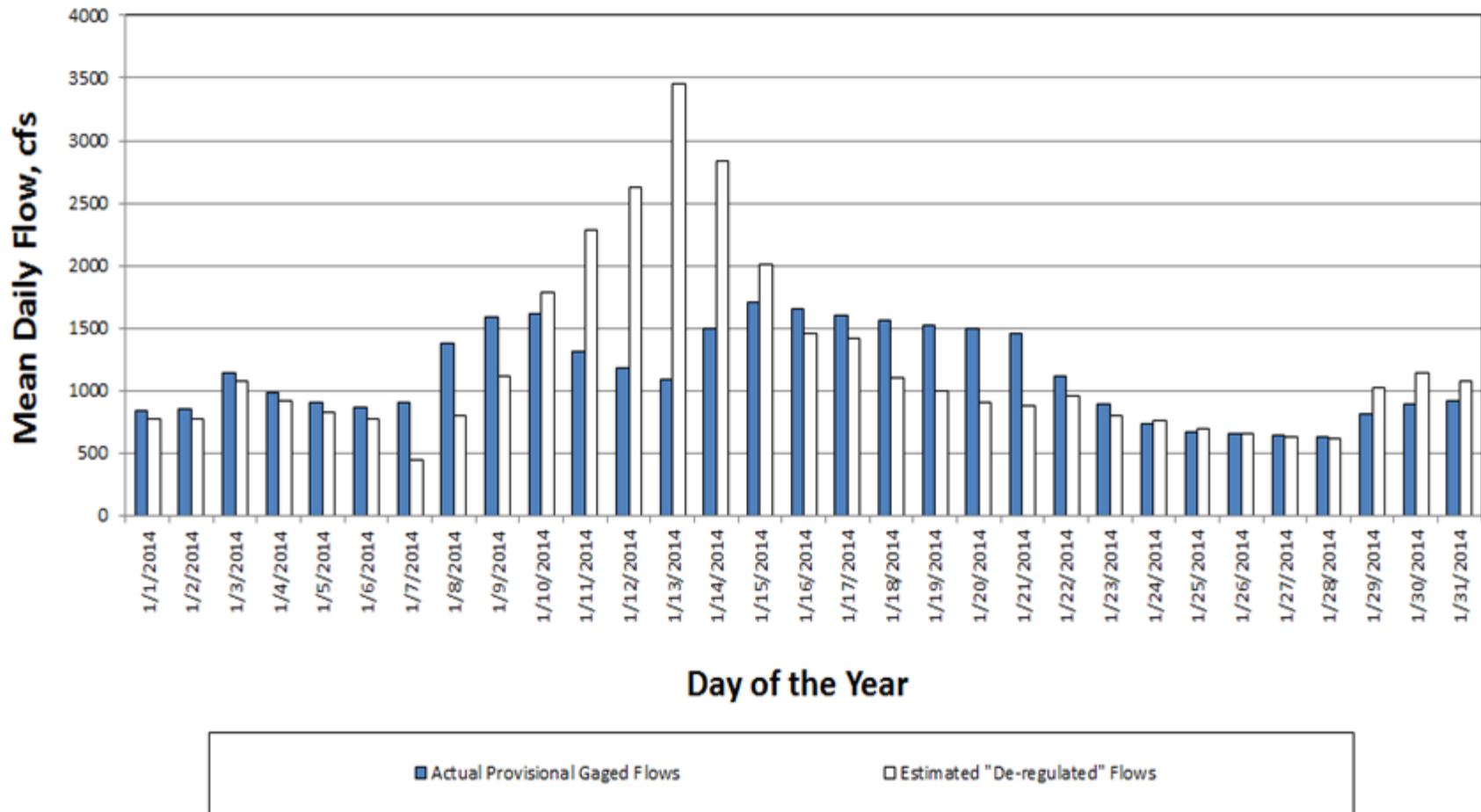


Notes: All calculations are based on realtime provisional mean daily flow readings calculated for the dates shown.
No flow adjustments are made to account for any gaging errors.
Rating tables used are approximate.
No flow adjustments are made for river time of travel.
Values calculated for estimated total local inflow may differ from actual values.
Water mass balance has not been checked.
All data are provisional and subject to revision.

Cedar River at Renton

All Data is Provisional and Subject to Revision

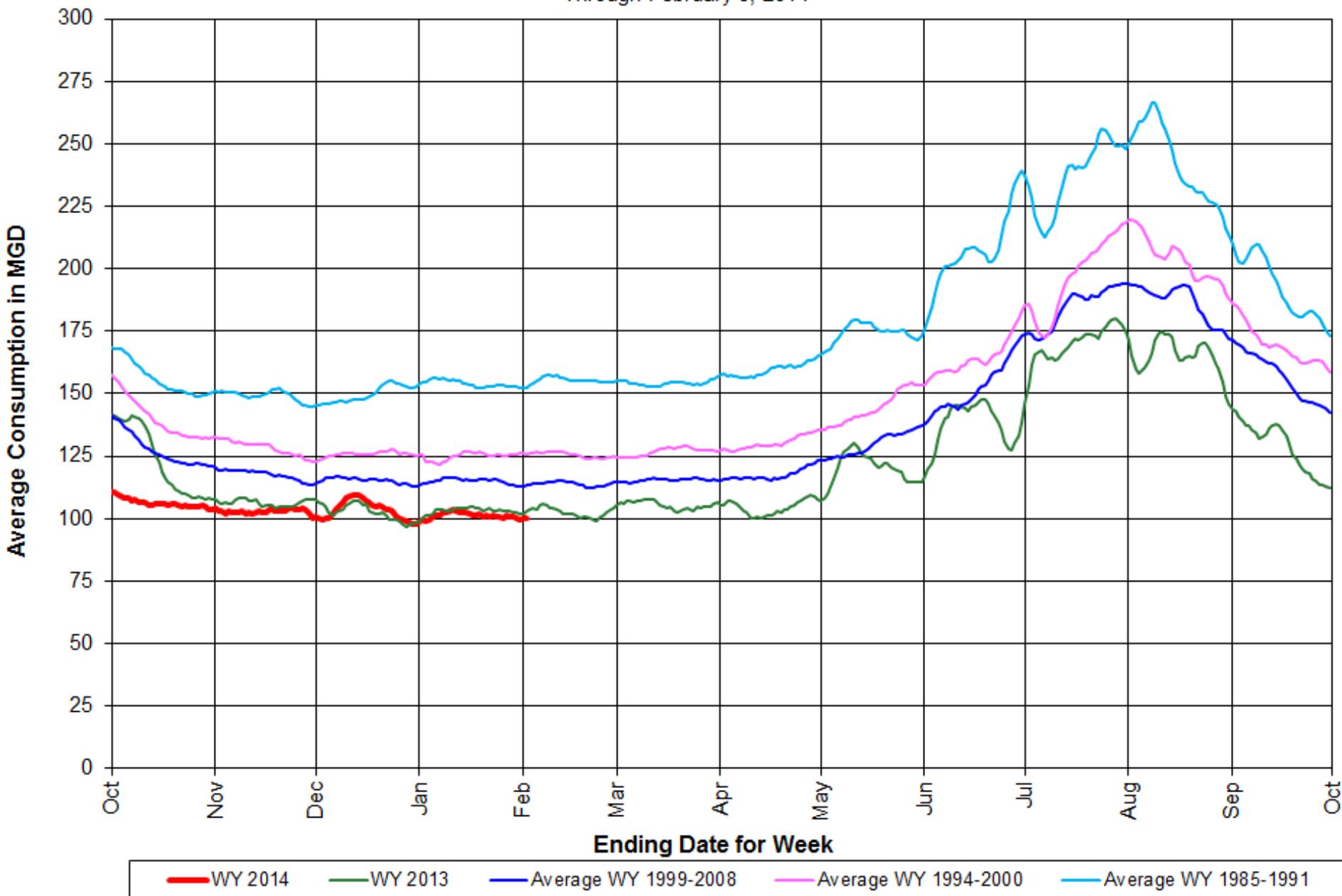
A simple rough estimation method was used to calculate the estimated De-regulated flow values. This graph is prepared for discussion purposes only. Do not use for decision-making.



Notes: All calculations are based on realtime provisional mean daily flow readings calculated for the dates shown.
 No flow adjustments are made to account for any gaging errors.
 Rating tables used are approximate.
 No flow adjustments are made for river time of travel.
 Values calculated for estimated total local inflow may differ from actual values.
 Water mass balance has not been checked.
 All data are provisional and subject to revision.

24-hr Consumption, 7-Day Moving Average

Through February 3, 2014



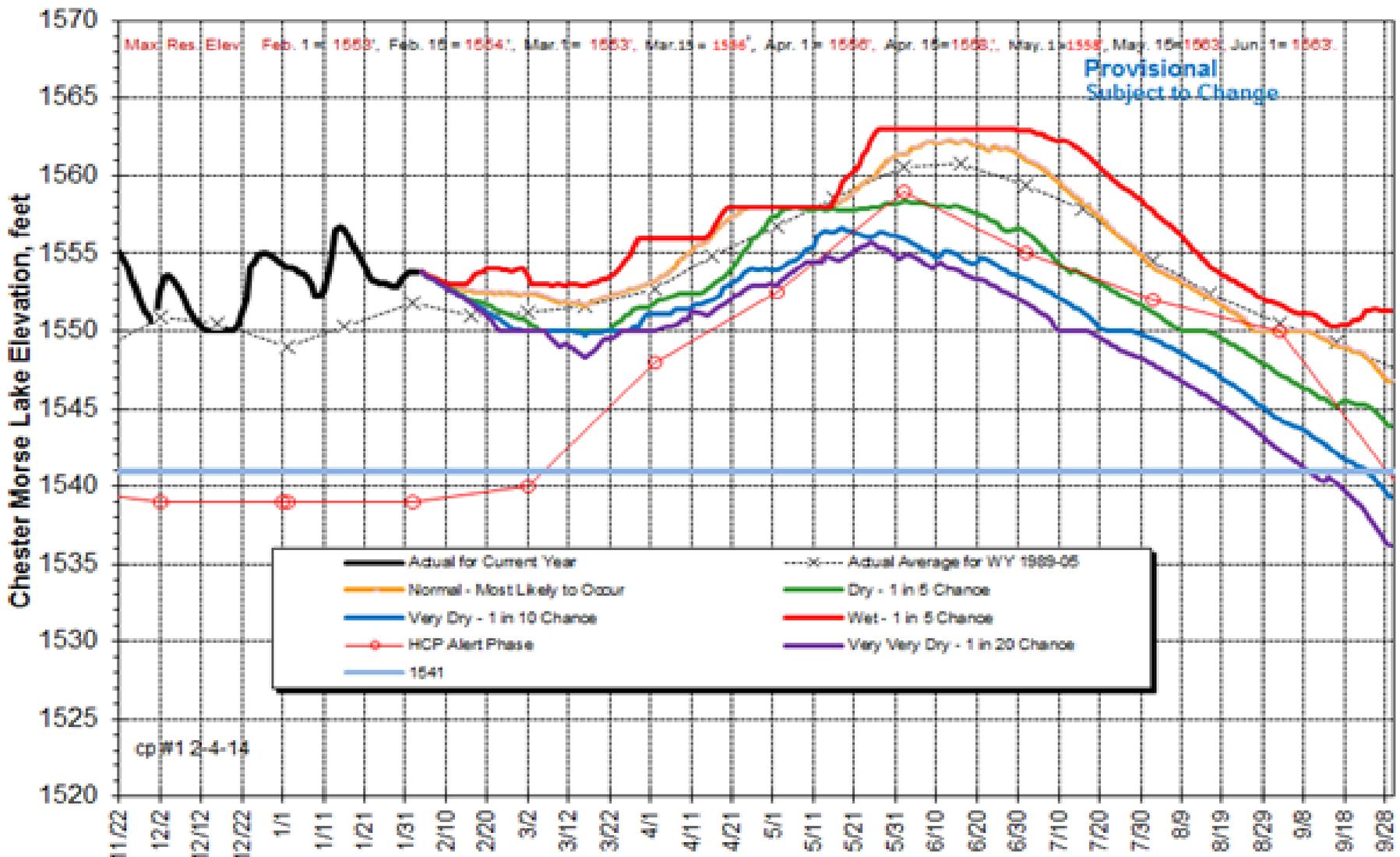
Notes: A. 7-day moving average is calculated using data from the day of and the previous 6 days.

All Data is Provisional and Subject to Change

SCENARIO : Probabilistic Run Chester Morse Lk Elev

Actual Reservoir Elevation on 2/3/2014, Historic Data 2-4 thru 9-30-14

Flashboards 1550' , Min. Pool 1515' & Landsburg Min. plus supplemental flows with 520cfs From: 2/4 To: 3/15 (SPU - tcj)

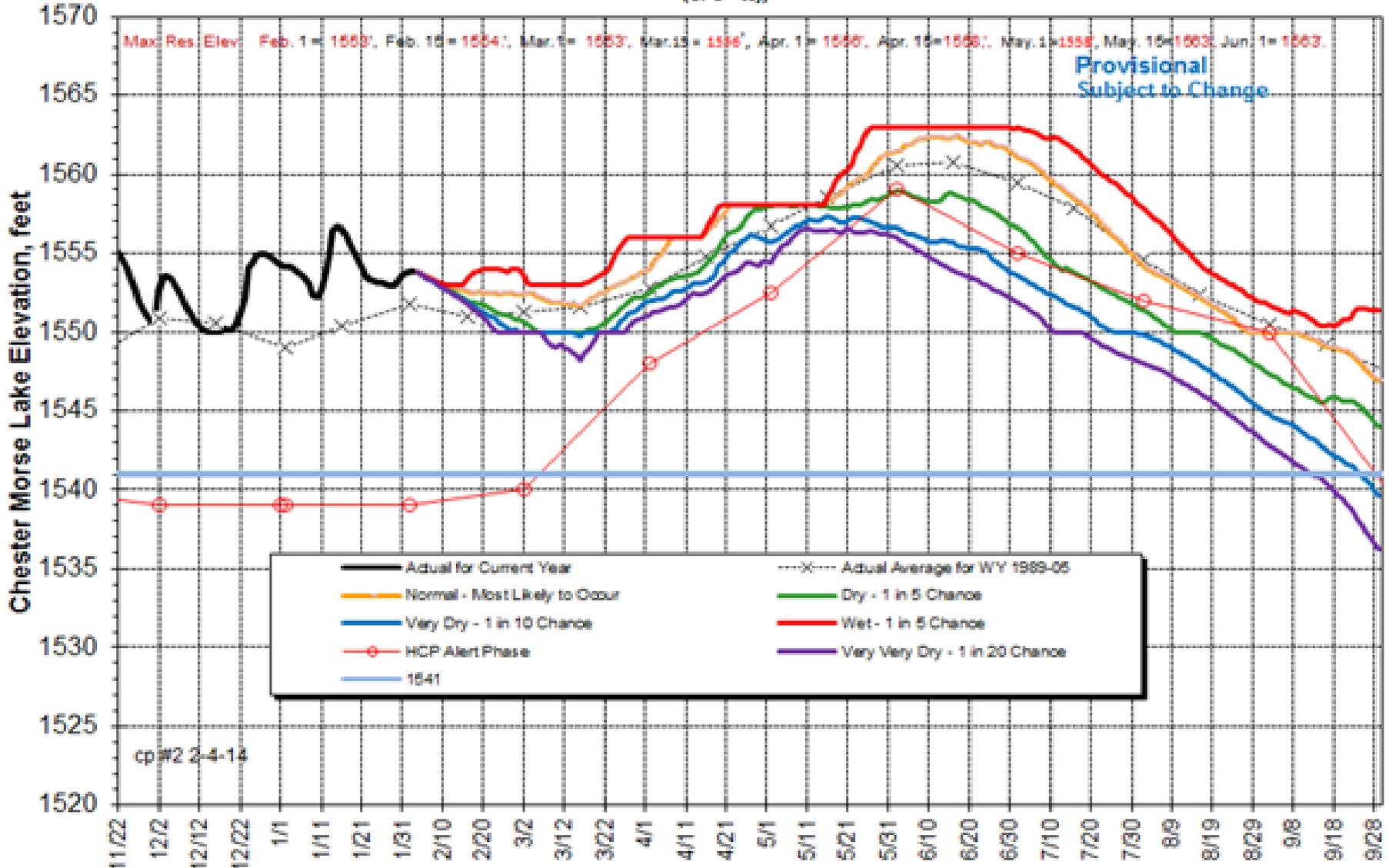


Almost 13 billion gallons are stored between elevations 1539.2 and 1562 feet
and more than 3.4 billion gallons between elevations 1532 and 1539.2 feet.

SCENARIO : Probabilistic Run Chester Morse Lk Elev

Actual Reservoir Elevation on 2/3/2014, Historic Data 2-4 thru 9-30-14

Flashboards 1550' , **Min. Pool 1515' & Landsburg Min. plus supplemental flows with 520cfs From: 2/4 To: 3/15 and 280cfs From: 3/16 To: 4/14**
 (SPU - tcj)



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.