

# Memo

To: Mitch Reister, PE, Newman Lake Flood Control Zone District Administrator

Via: Marianne Barrentine, PE, Environmental Programs Manager

From: Jane Clark, PE, Environmental Programs Engineer

Date: March 3, 2016

Subject: Newman Lake Snow Pack/Lake Level Update

---

The second snow course monitoring of the year took place on February 23<sup>rd</sup> in the Newman Lake watershed by Natural Resource Conservation Service (NRCS) Staff. The monitoring results indicate the lower level snow pack is 34.3% to 38.5% of average at the two lower snow course sites and 110.3% of average at the Round Top snow course and 116.3% of average at the Quartz Peak SNOTEL site. Below is the comparison of Snow Water Equivalent readings (in inches) with previous year's data as of March 1:

	<b>Thompson Creek</b>	<b>Ragged Ridge</b>	<b>Round Top</b>	<b>Quartz Peak</b>
Date	Elev. 2500'	Elev. 3250'	Elev. 4020'	Elev. 4700'
1997	10.0	13.5	18.5	30.6
1998	3.4	8.2	13.1	19.2
1999	6.1	15.6	18.8	30.5
2000	6.9	10.6	14.0	23.8
2001	5.6	7.9	9.2	10.9
2002	7.4	12.2	17.2	26.2
2003	0.0	2.8	6.3	13.4
2004	6.4	8.8	13.1	20.5
2005	0.0	0.0	0.0	4.7
2006	3.0	7.1	12.2	23.1
2007	4.2	8.6	14.0	20.4
2008	11.3	17.2	20.4	26.0
2009	7.3	-	12.8	16.4
2010	0.0	0.1	8.0	14.6
2011	6.0	4.8	12.2	19.9
2012	2.6	4.2	10.2	21.0
2013	5.2	7.8	12.3	17.6
2014	3.3	5.9	11.3	15.4
2015	0.0	0.0	0.8	8.6
<b>2016</b>	<b>1.8</b>	<b>2.5</b>	<b>12.7</b>	<b>21.2</b>
Average	4.7*	7.3	11.5*	18.2
<b>2016 % of Average</b>	<b>38.5</b>	<b>34.3</b>	<b>110.3</b>	<b>116.3</b>

\*Avg. of previous years since 1997 (only available data)

The winter season so far has been a mixture of cold weather with above average precipitation. Both outlet gates are currently open 2.5 feet each and the lake level as of March 2<sup>nd</sup> was 2124.10 feet. The

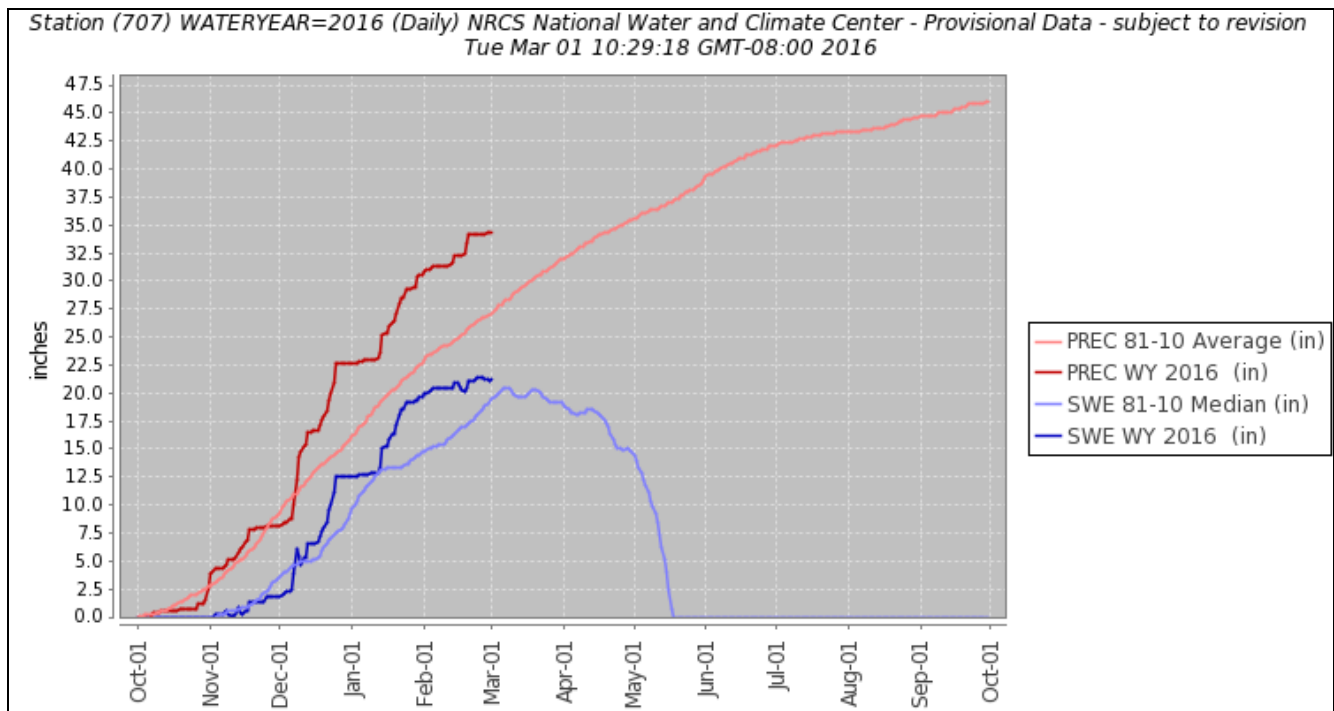
majority of the ice is off the lake with thin layer in just a few remaining areas and we are beginning to raise the lake level.

The National Weather Service three month outlook is forecasting above average temperatures and below average precipitation for our region.

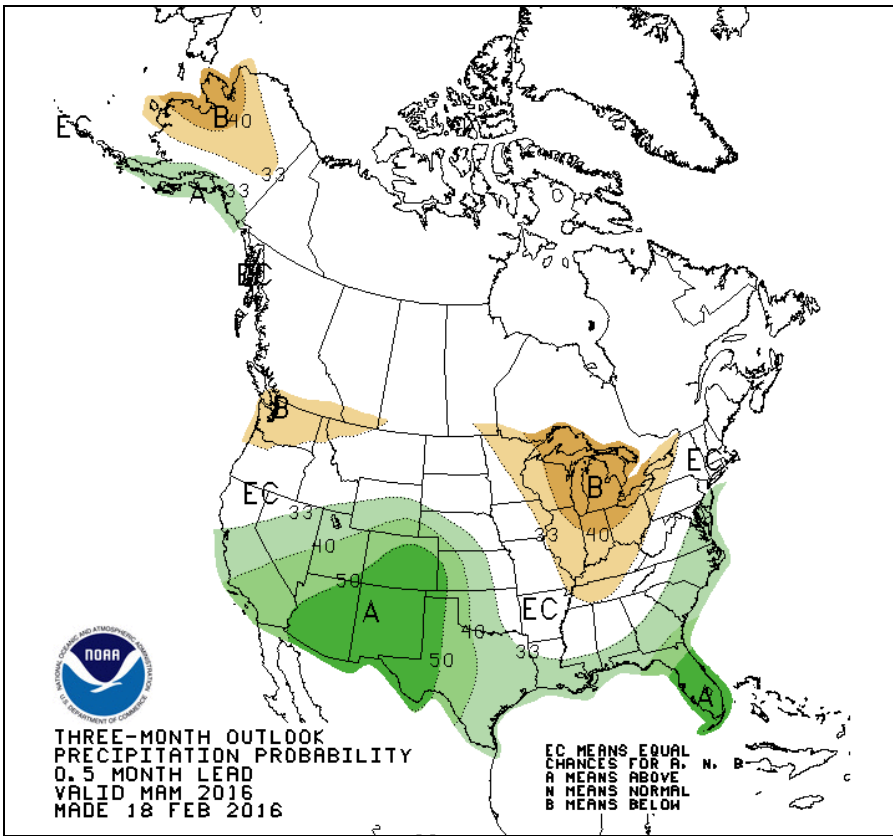
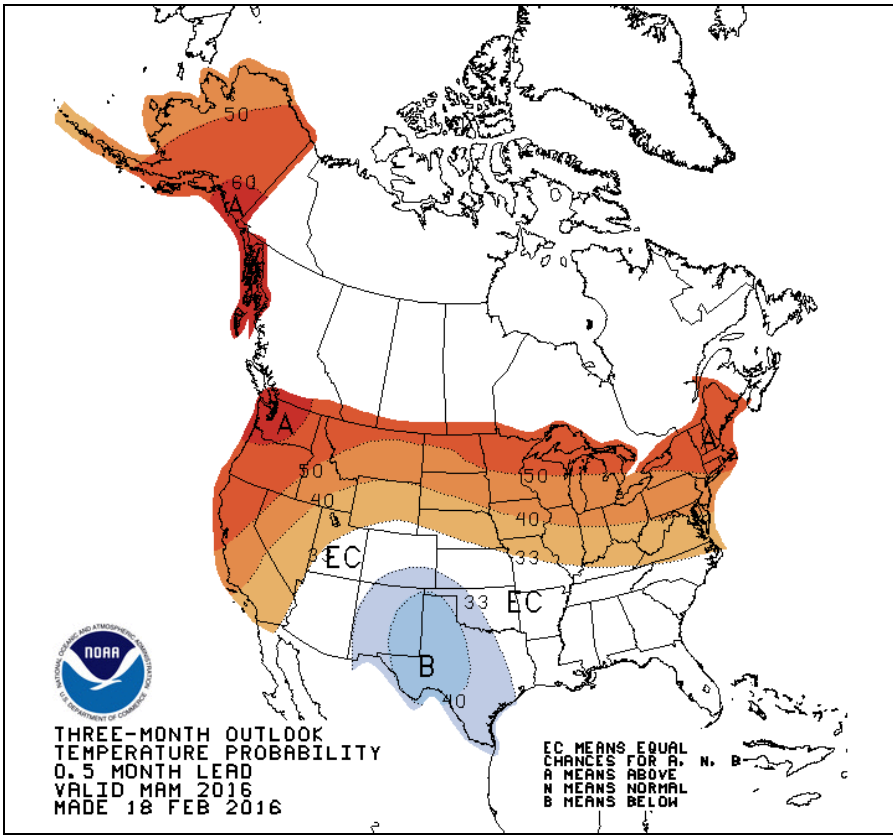
Per the HSPF model, assuming an average amount of precipitation (50 percentile) we estimate 6,000 acre-feet of runoff for the rest of the season. This 6,000 acre-feet of runoff equates to about five feet of water spread out over the lake surface. If assuming a below average amount of precipitation (10 percentile) we estimate 3,400 acre-feet of runoff for the rest of the season. This equates to 2.8 feet of water spread out over the lake surface. These values are based on the 21.2-inch snow water equivalent at the Quartz Peak SNOTEL on March 1<sup>st</sup>. These estimates are probably on the higher end as much of the lower elevation snowpack, which comprises most over the watershed, is below average.

**Operational Recommendations:**

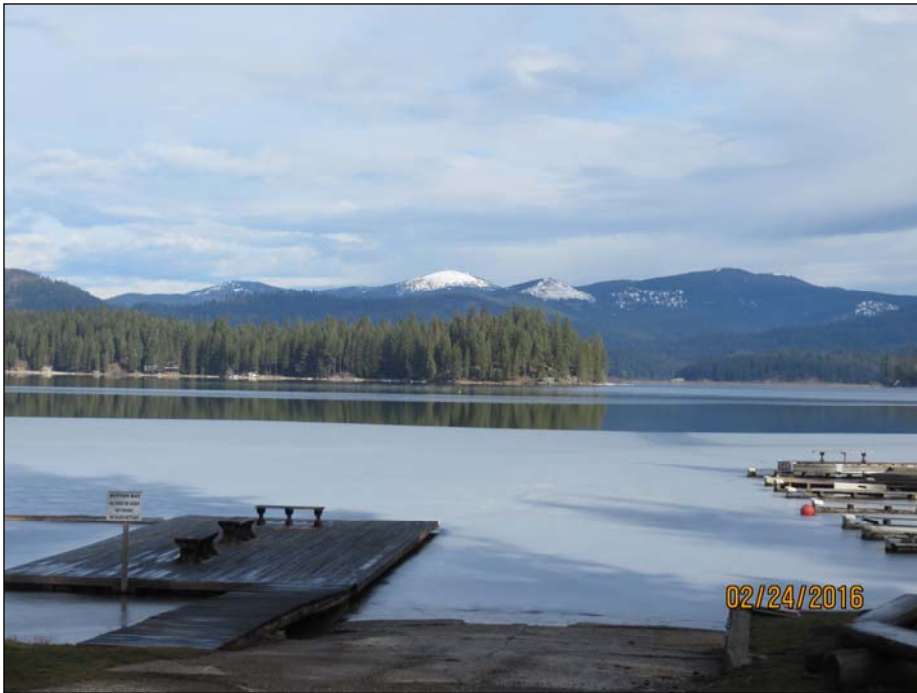
With the ice off of the majority of the lake, the above average snowpack and long range forecast predicting above average temperature and below average precipitation, we will continue to monitor the lake level closely and bring the lake level up slowly while watching the Quartz Peak SNOTEL snowpack and Thompson Creek flows.



SWE = Snow Water Equivalent, PREC = Precipitation



Obtained from the National Weather Service Climate Prediction Center  
[http://www.cpc.ncep.noaa.gov/products/predictions/long\\_range/seasonal.php?lead=01](http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=01)



**Left:** View from Sutton Bay Resort on February 24, 2016.

**Right and Below:** View of the west cell in the sump on February 24, 2016.

