


Memo



To: Bob Brueggeman, PE, Newman Lake Flood Control Zone District Administrator
Via: Marianne Barrentine, PE, Environmental Programs Manager 
From: Jane Anderson, Environmental Programs

Date: February 10, 2011

Subject: Newman Lake Snow Pack/Lake Level Update

We completed the first snow course monitoring of the year on January 26th in the Newman Lake watershed. Snow pack is very close to average this year with snow pack at Quartz Peak at about 109% of average. The 70.3% average measurement at Ragged Ridge may be due to recent timber harvest and increased exposure of the site. Below is the comparison of Snow Water Equivalent readings (in inches) with previous year's data as of February 1:

Date	Thompson Creek Elev. 2500'	Ragged Ridge Elev. 3250'	Round Top Elev. 4020'	Quartz Peak Elev. 4700'
1997	8.6	11.3	16.0	24.8
1998	4.7	7.7	11.7	14.7
1999	3.8	9.5	12.9	21.2
2000	6.6	10.6	14.7	19.7
2001	5.0	6.2	7.2	8.6
2002	5.8	9.5	13.1	22.8
2003	1.3	2.9	5.3	11.1
2004	6.3	7.6	11.0	17.4
2005	0.4	0.8	0.0	4.8
2006	2.2	5.6	10.9	20.1
2007	3.4	6.1	9.6	15.2
2008	8.4	13.2	-	21.5
2009	8.1	10.2	11.7	13.4
2010	0.0	0.2	5.8	11.3
2011	4.6	4.8	9.4	16.6
Average	4.6*	6.8	10.0*	15.2
2011 % of Average	99.7	70.3	94.1	109.0

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

The winter season so far has been a mixture of cold and warm weather with above average precipitation. The lake level in January raised to 2124.58 feet with a mix of rain and warmer temperatures at the peak on January 31st before it began to lower again with the gates fully open. Both gates are still currently fully open (three feet each) and the lake level as of today is 2124.19 feet. We are bringing the level back down closer to the winter goal elevation of 2123.9 feet.

January was an above average precipitation month with warm temperatures which caused above average streamflow measurements. The National Weather Service three month outlook is forecasting below average temperatures with above average precipitation for our region.

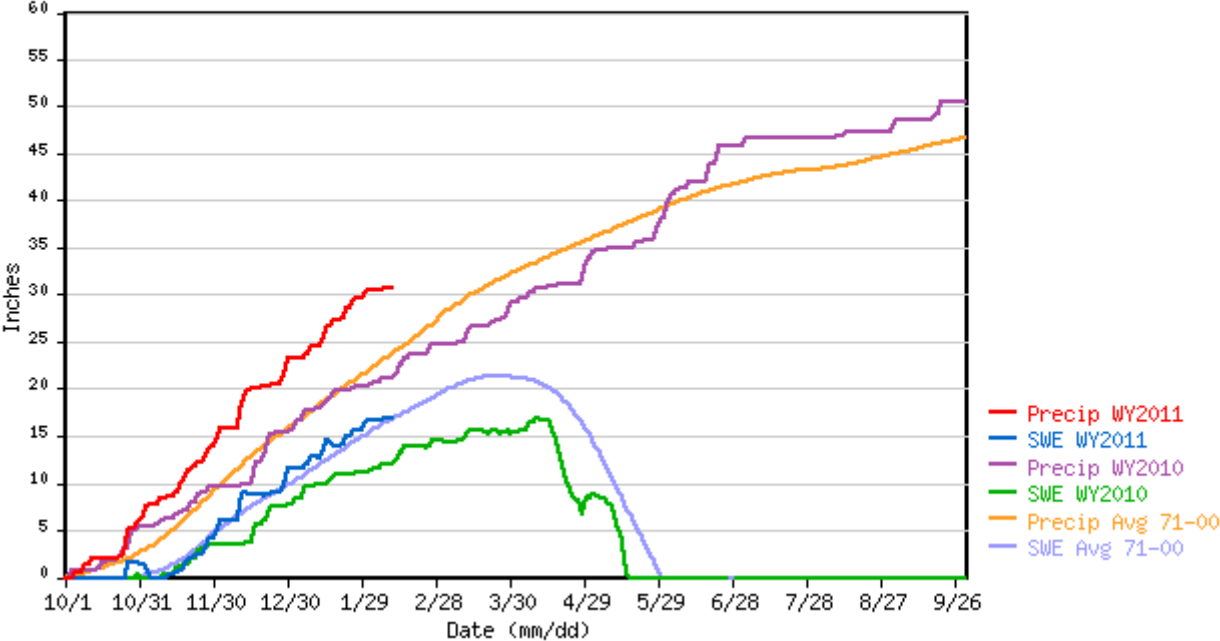
Per the HSPF model, assuming an average amount of precipitation (50 percentile) we estimate 8,600 acre-feet of runoff for the rest of the season. This 8,600 acre-feet of runoff equates to about 7.2 feet of water spread out over the lake surface. If assuming a very wet above average amount of precipitation (90 percentile) we estimate 15,000 acre-feet of runoff for the rest of the season. This equates to 12.5 feet of water spread out over the lake surface. These values are based on the 16.6-inch snow water equivalent at Quartz peak on February 1st.

Operational Recommendations:

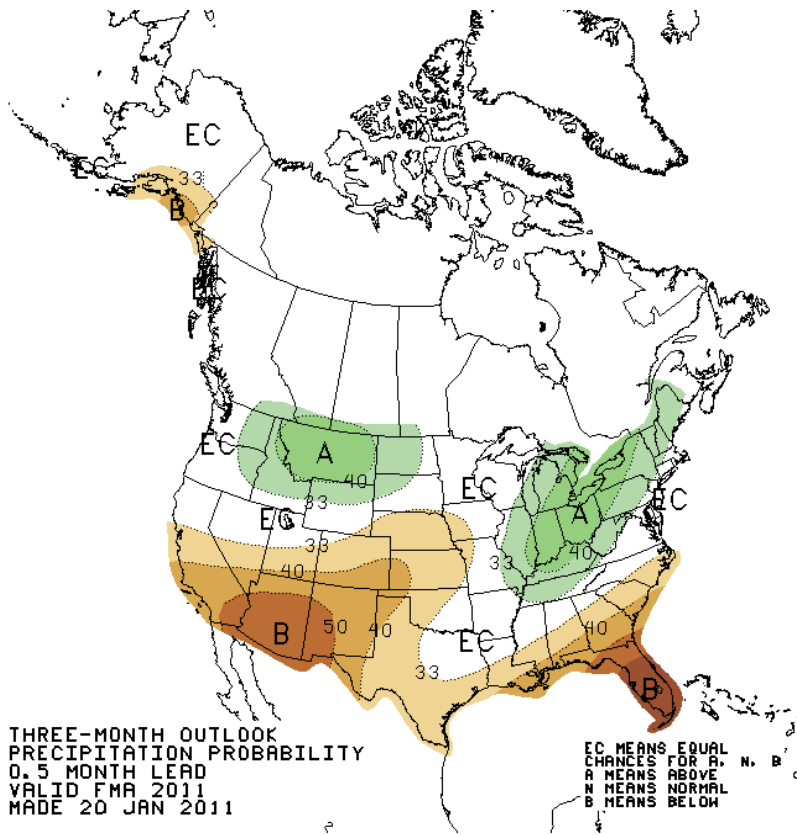
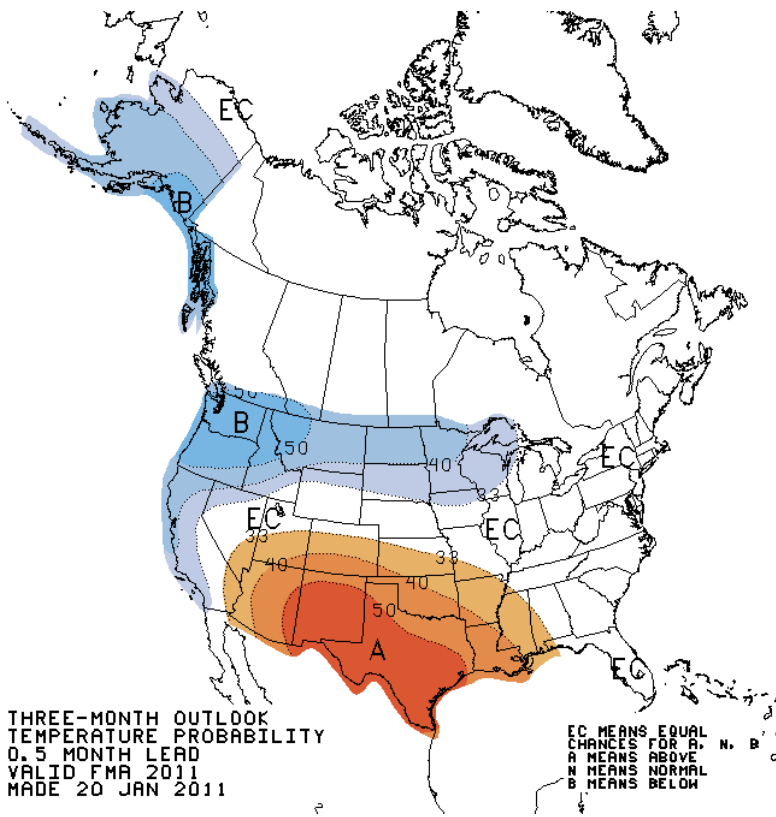
With the average snowpack and long range forecast predicting cooler temperatures and above average precipitation, we will continue to monitor the lake level closely and keep the lake level as near to normal winter elevation or slightly above as possible.

QUARTZ PEAK SNOTEL as of 02/10/2011

*** Provisional Data, Subject to Change ***



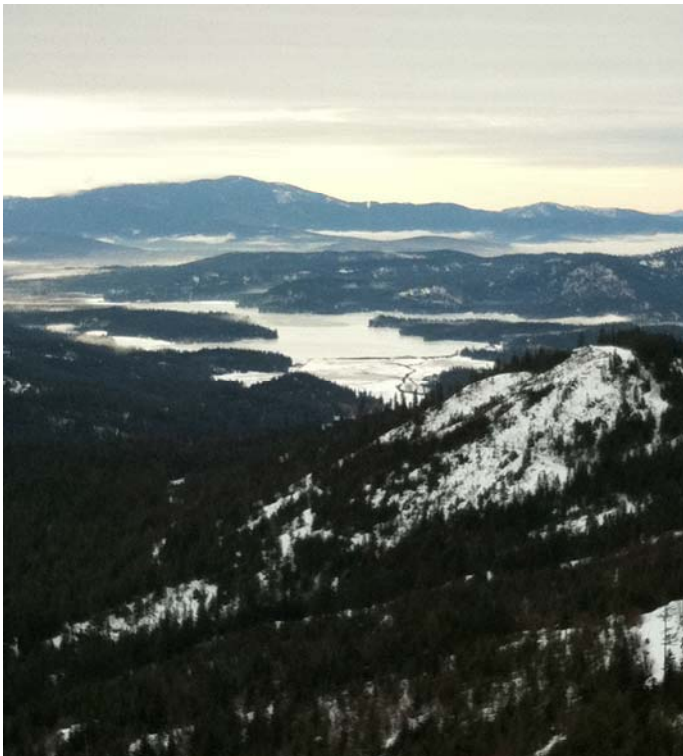
SWE = Snow Water Equivalent, Precip = Precipitation



Obtained from the National Weather Service Climate Prediction Center
http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=01



Newman Lake Outlet 1-26-2011.



Newman Lake from Round Top Mountain 1-26-2011.



Ragged Ridge Snow Course with Round Top Mountain in the distance 1-26-2011.



Ragged Ridge Snow Course to the right in the picture. A substantial amount of trees in the left of the picture were cut down since the last snow survey in May 2010.



Above and Below: A recent timber harvest across the road from the Ragged Ridge Snow Course. This allows much more light into the Ragged Ridge Snow Course which may have impacted the results.

