

WY2020 Water Resources Update – February 4, 2020

Summary:

- Dry January. February snow course measurements at about 74% of average (CA); around 90% in NV.
- Week 2 is looking dry and cold; chance for rain in southern CA and NV.
- Water Supply forecasts are still trending down; about 60-70% of average in much of CA.

Details:

February 1, 2020 - California Snow Course Summary

Region	No. Basins	No. Courses	Avg WC	% Average 1-Apr	% Average February
NORTH COAST	3	8	16.2"	50%	81%
SACRAMENTO RIVER	7	70	13.6"	48%	75%
SAN JOAQUIN RIVER	5	67	13.6"	45%	72%
TULARE LAKE	4	42	10.4"	47%	77%
NORTH LAHONTAN	3	11	9.4"	42%	67%
SOUTH LAHONTAN	2	17	8.7"	41%	66%
Statewide Average (weighted)				46%	74%

Source of table:

<http://cdec.water.ca.gov/reportapp/javareports?name=COURSES>

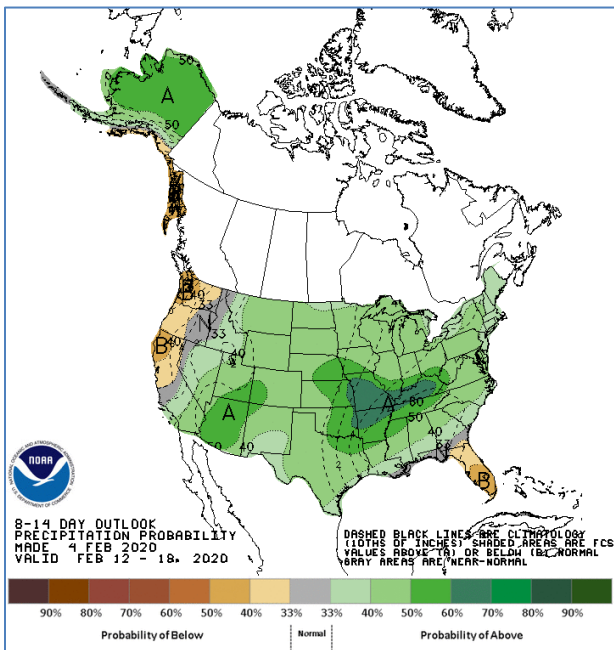
After the last water resources update (on January 22), the region had a couple warmer and wet systems flow through the northern tier of the region (near the Oregon border). The storms on Jan. 23-25 produced some of our largest flows of the year along the CA north coast, enhanced by the rain falling on low elevation snow. Still most of the rainfall was focused north of I-80, and for the month of January the majority of the region was well below normal for rainfall.

For the past week or so many of us have been busy analyzing the snow course data from around the state of CA. With over 200 measurements, these surveys provide a better picture of the statewide snowpack. As of Feb. 1, the snowpack is at about 74% of average, with the best conditions in the north. Interestingly, this is a slightly better picture than what the automated snow pillows indicated (69% of average statewide). In Nevada, the NRCS has data showing a snowpack closer to 90% of average in the Humboldt River basin.

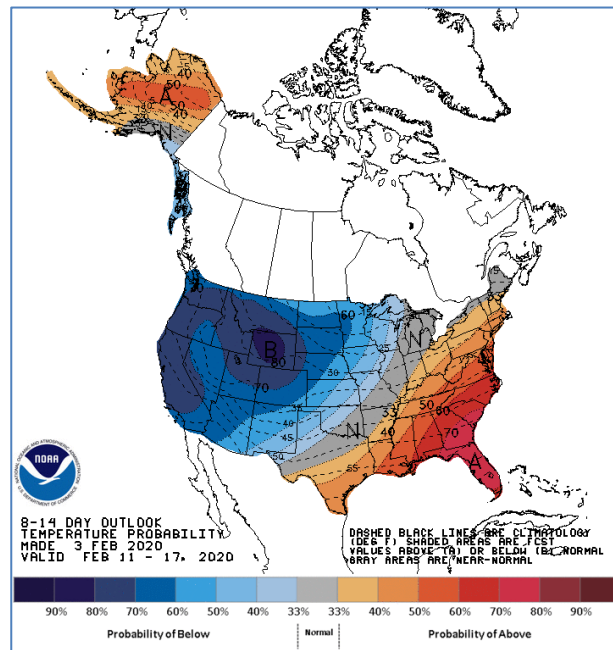
The CNRFC uses both sources of data to update the simulated snowpack in our models.

CPC Outlooks for Week 2

Precipitation Outlook (Feb 12-18)



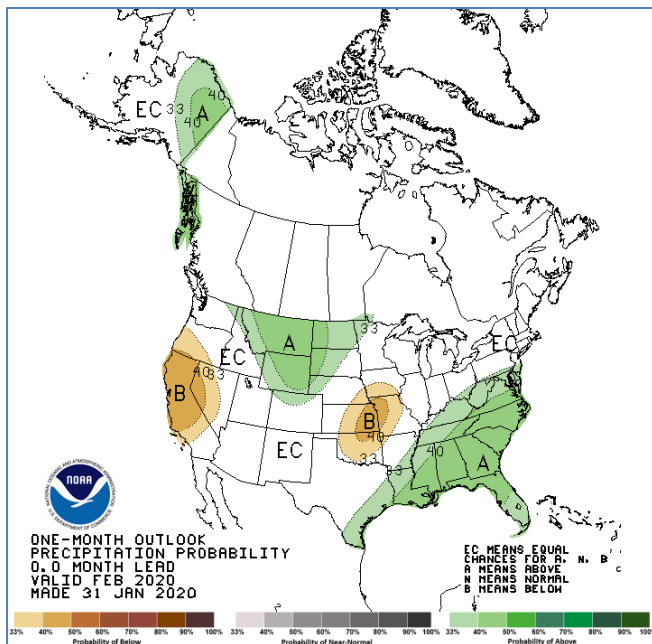
Temperature Outlook (Feb 12-18)



Sources:

<https://www.cpc.ncep.noaa.gov/products/predictions/814day/814prcp.new.gif>

<https://www.cpc.ncep.noaa.gov/products/predictions/814day/814temp.new.gif>



February is still not looking promising. While most models are pointing toward a pattern change beginning this Sunday, the storm track is projected to come in from the north. This pattern is typically dry, as any storm systems are usually lacking in moisture. The exact trajectory is still uncertain. The European model runs have had a westward shift, which could bring some rainfall to Southern CA and NV. The CPC forecasts for week 2 reflect this pattern.

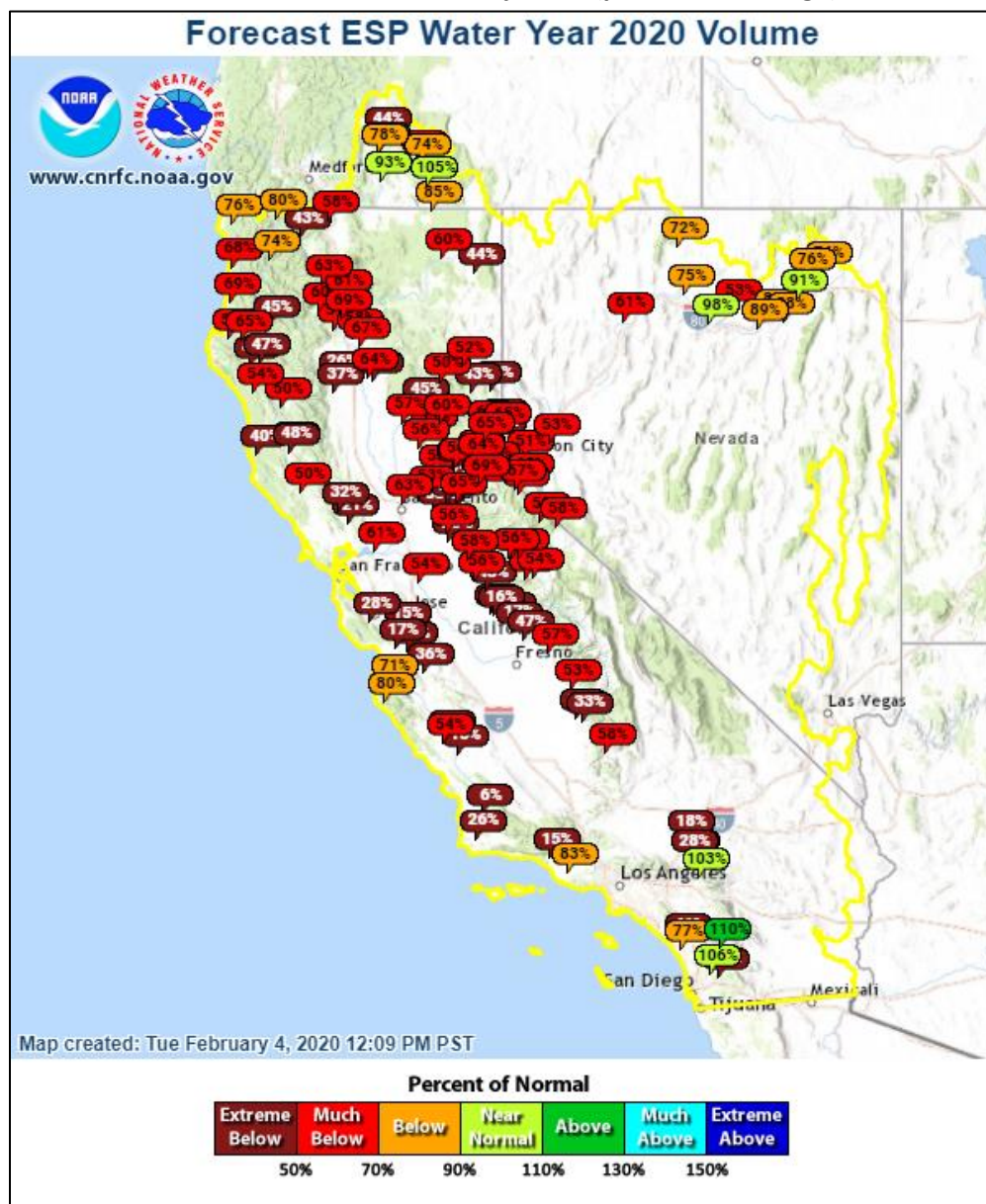
The updated CPC outlook for February is still dry. One ray of hope - the European ensembles and the CFSv2 are hinting that we may turn back toward a wetter pattern in late February – early March.

Source:

https://www.cpc.ncep.noaa.gov/products/predictions/30day/off15_prpc.gif

Water Supply Impacts (HEFS = Hydrologic Ensemble Forecast Service)

Water Year Runoff Projection (percent of average)



Source: <https://www.cnrfc.noaa.gov>

Water supply forecasts continue their downward trend, down another 3.1 MAF over the past two weeks for the 8 major basins in the Central Valley. That's 6 MAF in the past four weeks. Most of the major water supply basins are now under 70% of average. The majority of the CA water supply comes from the Sacramento River, which is projected to be only 60% of average. The few places that are doing better are along the CA north coast, southern Oregon and the northern portions of Nevada.

While we have had few "miracle March" events, the odds of reaching an average water year are well below 10% now.

Conclusion: 8 Station Index – 100th year

Since much of the runoff used in California's water supply system comes from watersheds in the northern Sierra, the 8 Station Index (8SI) was created to track rainfall in these basins. These 8 precipitation gages range from Mt. Shasta City in the north to Pacific House (American River basin) in the south. When you want to have a quick indicator of the status of California's water supply, the 8SI is often the first place to turn.

The index has been calculated using data starting in WY1921, so WY2020 will be the 100th year of the index. Looking at how the rain has been distributed over the past 99 years is an interesting lesson (see below). It's not exactly a normal distribution. The most likely 10-inch range is 30-40 inches, occurring 26 times in 99 years. One would think the most likely 10-inch bin would be closer to the 99-year average of 50.7 inches.

So looking at the dry trend of WY2020, it's not that unusually dry. With 17.8 inches in the 8SI today, and only about one third of the water year remaining, a dry year is almost certain. Everything considered, I'd say the 8 Station Index has a good chance of falling in the 30-40 inch range, once again, for its 100th year.

