WY2022 Water Resources Update – Nov. 23, 2021

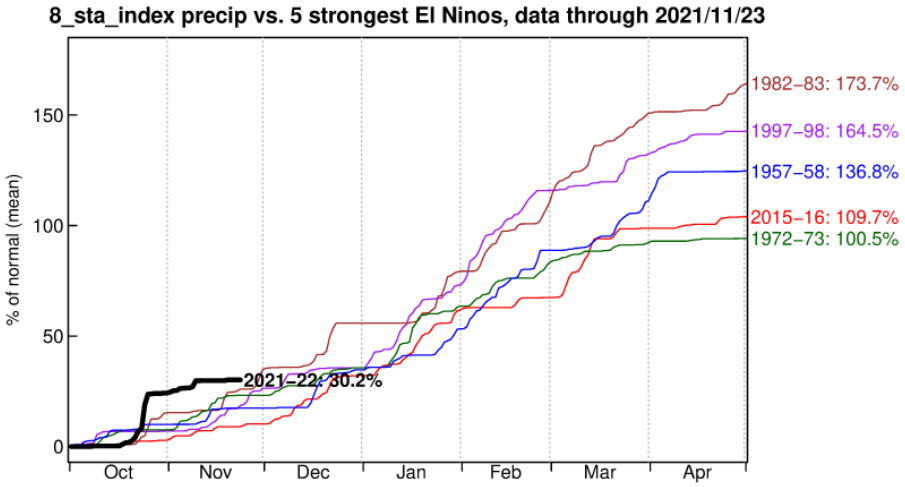
Summary:

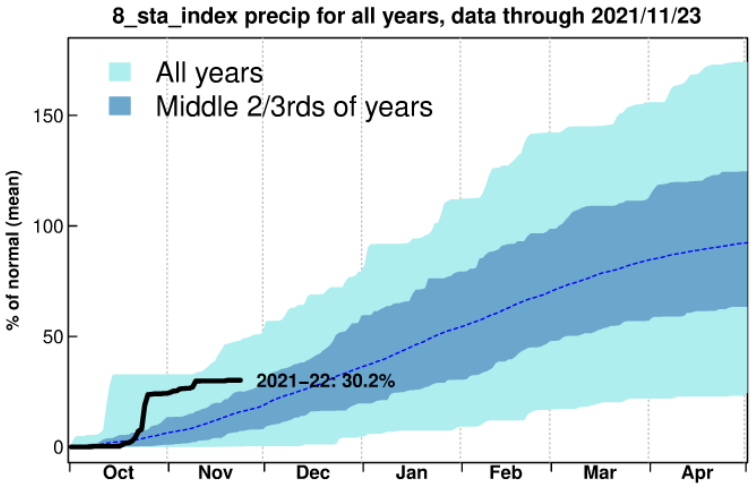
- Late October storms have been a great start to the Water Year;
- Wet soil conditions will provide more efficient runoff for any future precipitation;
- First two weeks of December are looking promising for more precipitation;
- Water Supply benefit from October rains about 2-3 MAF in California's Central Valley.

Details:

Oct 22-25 Rainfall

With the 8 Station Index (8SI) picking up over 10 inches in 4 days, the 8SI is still running wetter than even the strong El Nino years (WY2022 is looking to be a "second year La Nina").
Even with no rain through Dec 20th, the 8SI would remain above average.





Source of graphic:

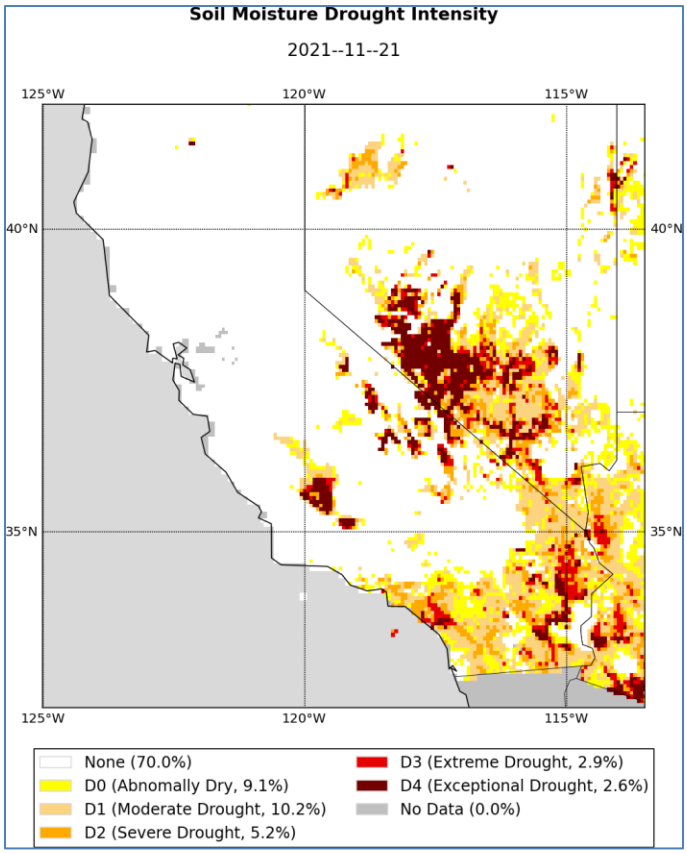
http://cirrus.ucsd.edu/~pierce/sdprecip/

Wet Soils bode well for future runoff

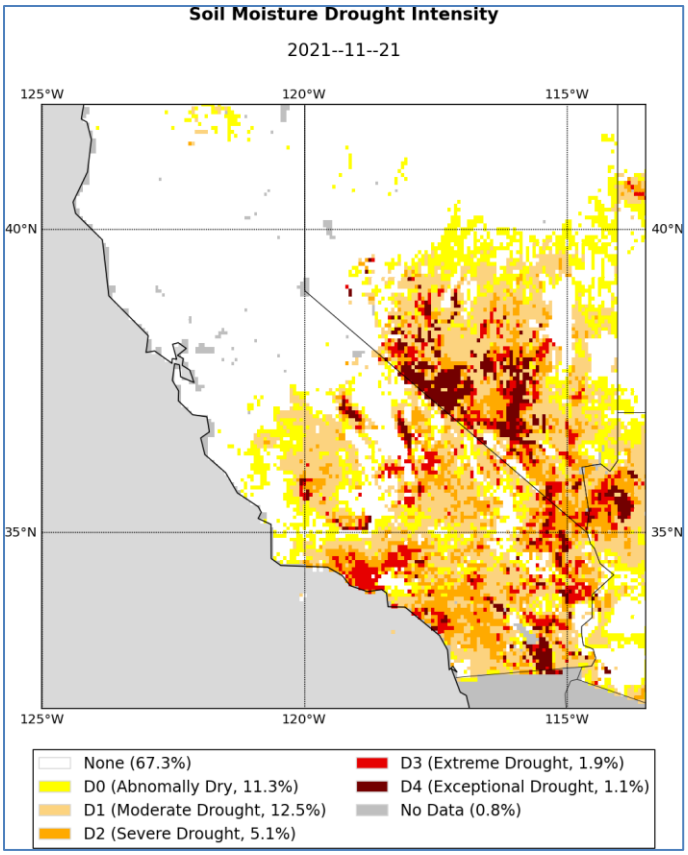
While runoff in early October did have some impact by raising reservoirs from very low levels, the biggest impact is likely to be in terms of future runoff. For the first time since 2018, we will have above average precipitation for Oct-Nov.

Two gridded soil models tracked by UCLA (the VIC and NOAH-MP models) both show the soils in Northern CA as having moved out of drought conditions – though other drought impacts still remain.

VIC



NOAH-MP

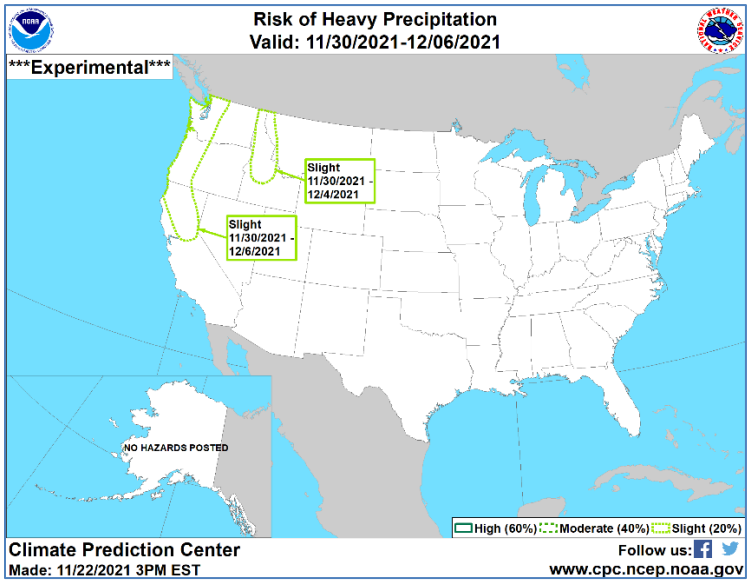


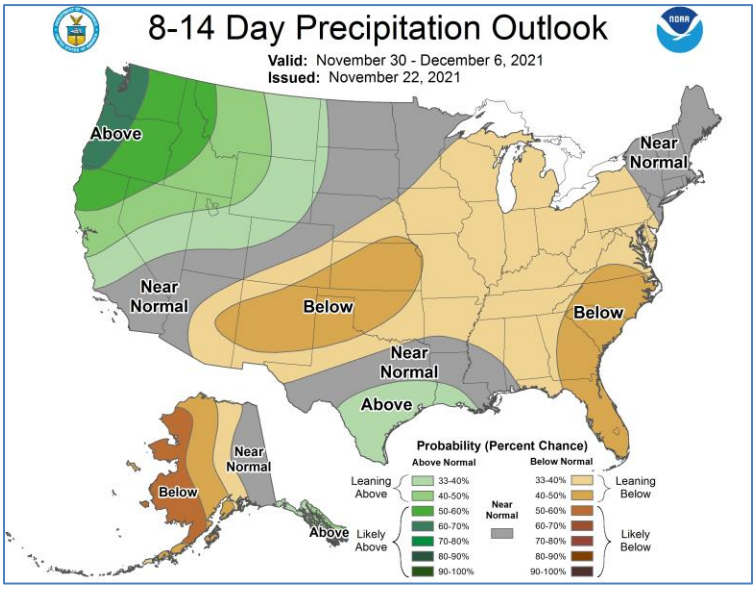
Source of graphic:

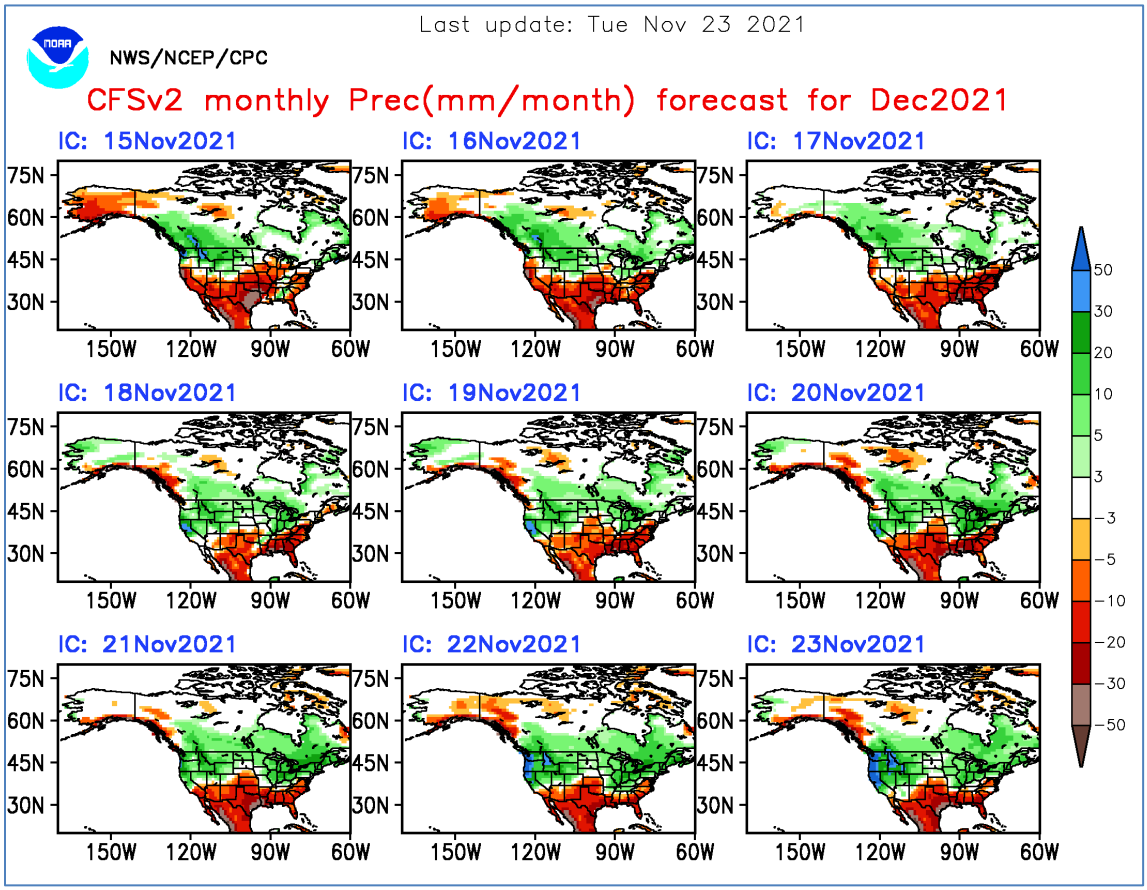
http://cirrus.ucsd.edu/~pierce/sdprecip/

Looking like a wet start to December

Several models are pointing to a wet start to December. CFSv2 (below), Canadian, GEFS (below) and European (next page) models all are pointing to some rain for the northern half of California, starting in the far north but spreading over the region. While these indicators are still too far out to be very confident, it's good to see signs of a pattern change.





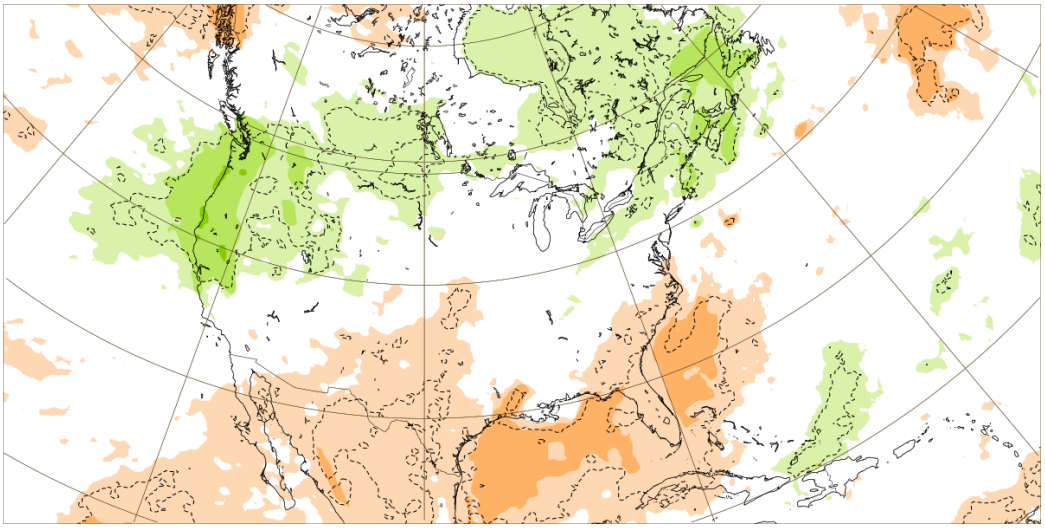


Sources:

https://www.cpc.ncep.noaa.gov/products/predictions/threats/threats.php#haz_discussion

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

https://www.cpc.ncep.noaa.gov/products/people/mchen/CFSv2FCST/monthly/images/summaryCFSv2.NaPrec.202112.gif



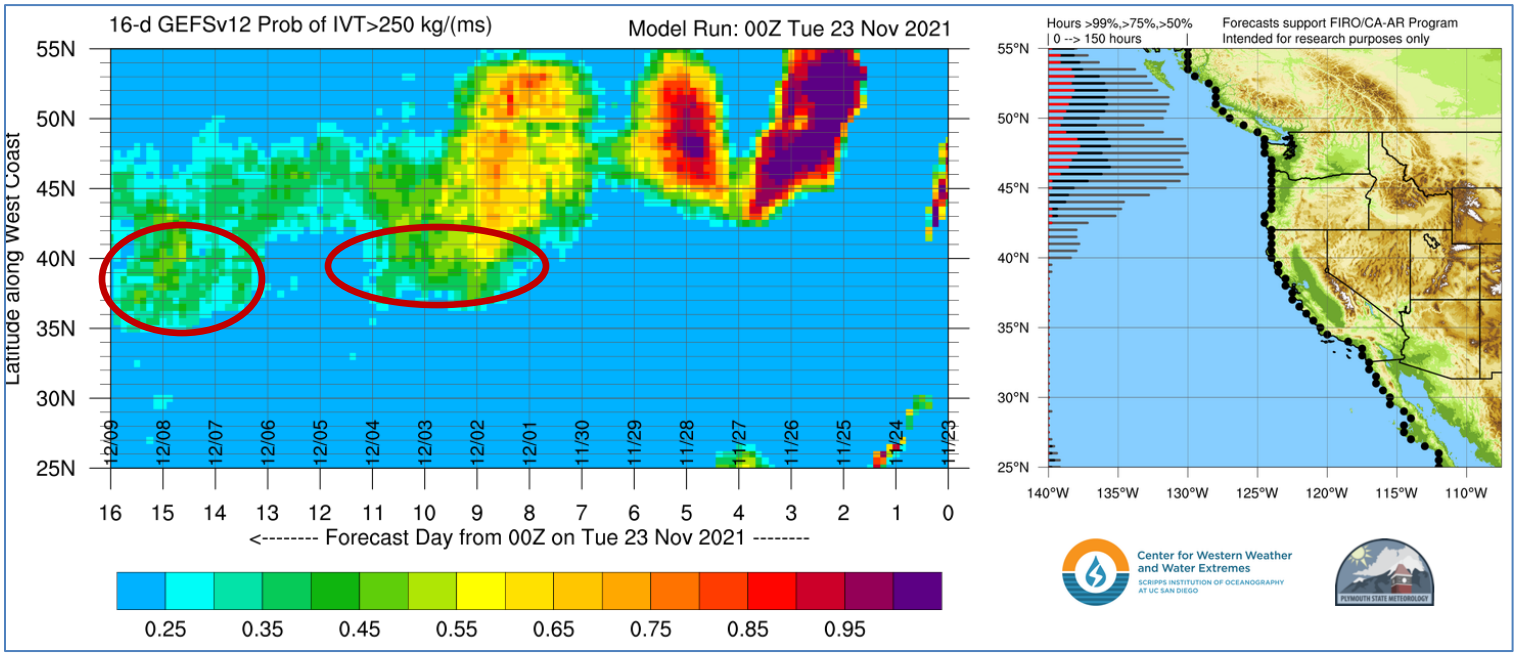
ECMWF

Weekly forecast for Dec 6-13, showing a chance for above normal precipitation in northern CA and NV.

Source: https://apps.ecmwf.int/webapps/opencharts/products/extended-anomaly-tp?base_time=202111220000&projection=opencharts_north_america&valid_time=202112130000

CW3E's Atmospheric River outlook

CW3E's AR Landfall Tool (using the GEFS) is showing two chances of wet weather in early December. Dec. 1-3 is showing a 40-60% chance, mostly in N. California, and a second chance further out, around Dec. 6-8.



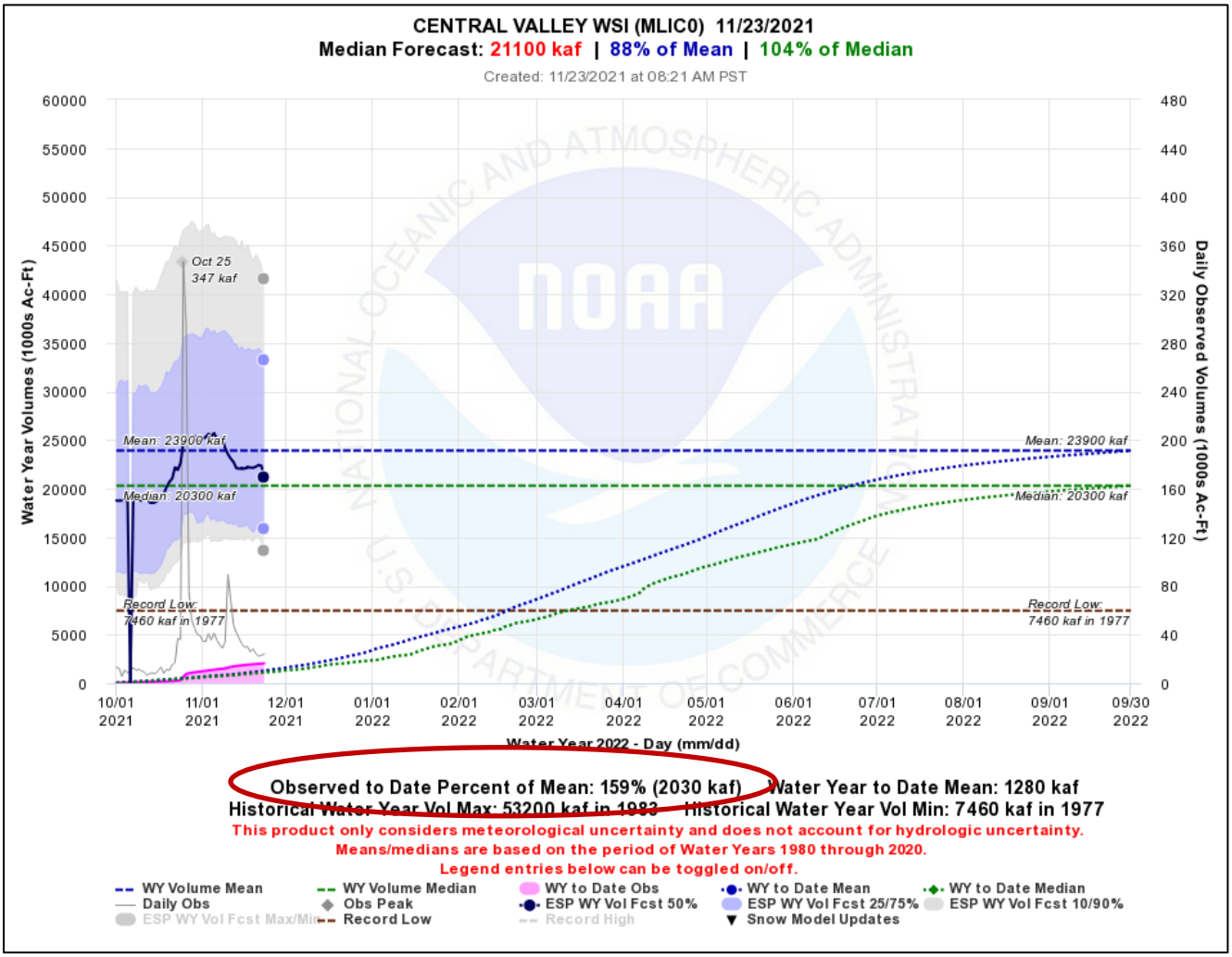
Source of graphic: http://cw3e.ucsd.edu/iwv-and-ivt-forecasts/

Runoff impacts already felt

Observed runoff for the start of the water year has been promising. Through Nov 23rd, the 8 major reservoirs in the Central Valley have received a little over 2.0 million acre-feet (MAF) while the median for this date is only 1.1 MAF (see next page).

What is encouraging is to see that baseflows have remained high, even with the dry weather in November.

Water Year Runoff Projection



Source: https://www.cnrfc.noaa.gov/ensembleProduct.php?id=MLIC0&prodID=9

The initial water year outlook for the CA Central Valley (18.8 MAF on Oct. 1), following the dry 2021 water year, was 1.5 MAF below the historical median. The October storms initially pushed the outlook to around 25 MAF, before November dryness dropped the forecast to 22 MAF. The forecast has been hovering near 22 MAF for the past week, until today which dropped to 21.1 MAF. That 21.1 MAF forecast is still 104% of median and over 2.3 MAF above the above where we started the year

Conclusion:

As is typical for this region, we have had a week or two of wet weather followed by a few very dry weeks, and at least one more to go. But the tea leaves seems to point to a return to wet weather in December. There's still plenty of uncertainty, and models can change, but confidence is growing that we won't stay totally dry for much longer.

In La Nina winters the northern tier often fairs much better than the southern tier. So far this is the case in WY2022. Maybe the next set of storms will make their way to Central and Southern California and Nevada.

CNRFC,
Nov 23, 2021