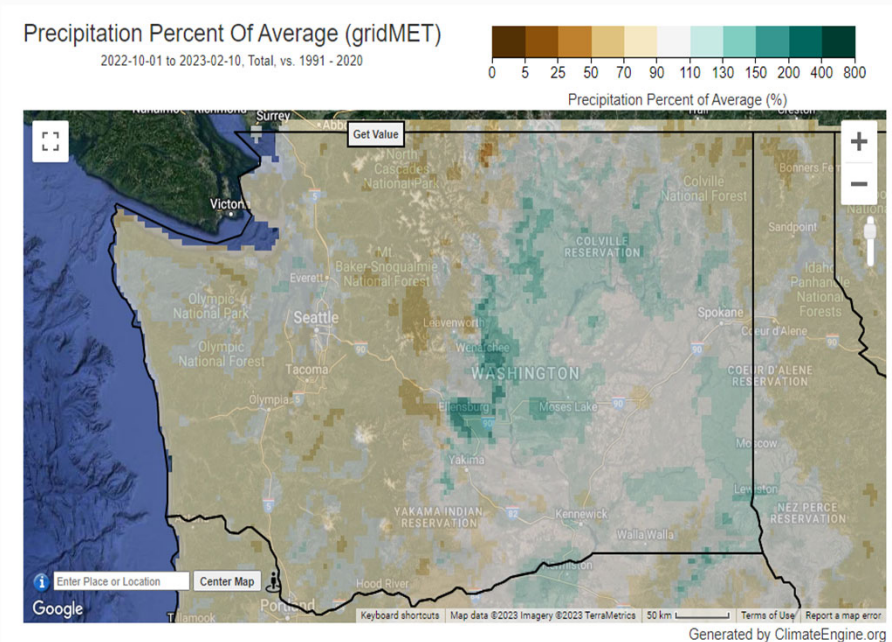
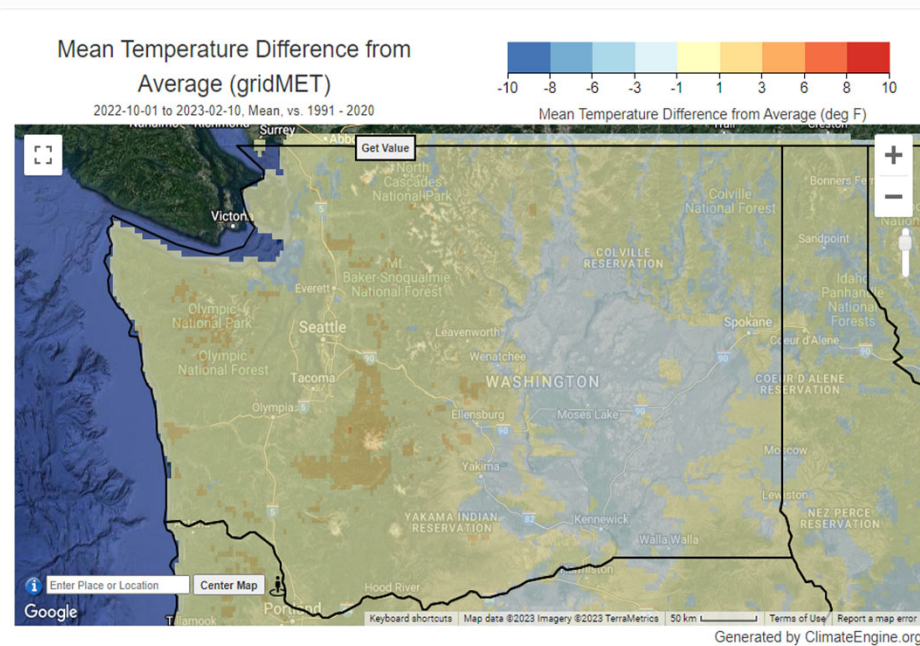


# Water Year Temperature and Precipitation

58<sup>th</sup> warmest; 0.6° F anomaly (Oct – Jan)

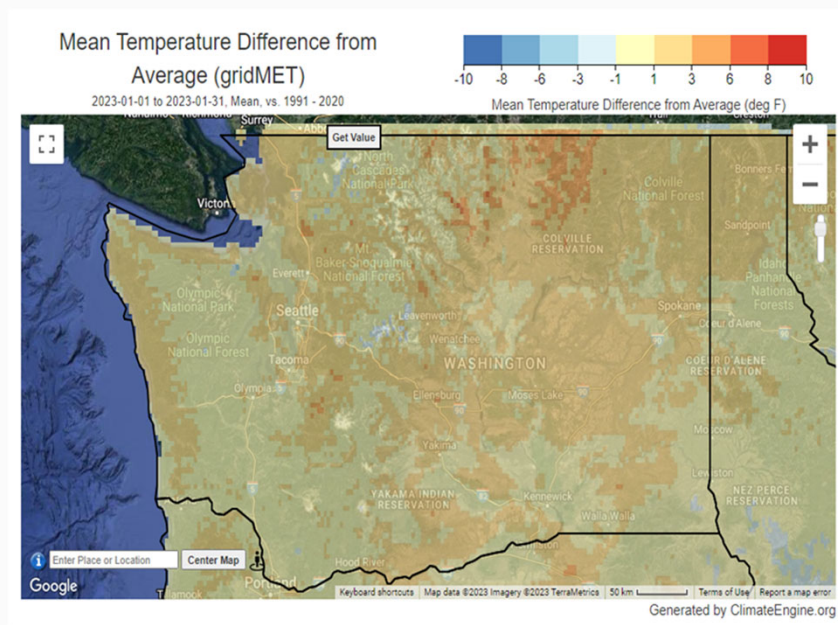
39<sup>th</sup> driest; -2.37" anomaly (Oct – January)



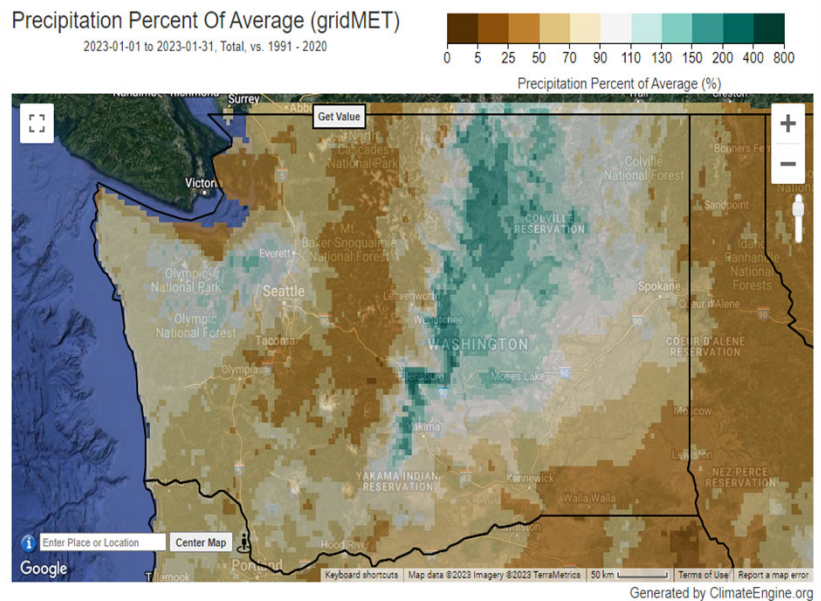
Ranks since 1895. Anomalies relative to 1901-2000. Relative to 1991 – 2020 normal, Oct – Jan precipitation was about 86 percent of normal (-3.26").

# January Temperature and Precipitation

23rd Warmest; 4.9 °F anomaly



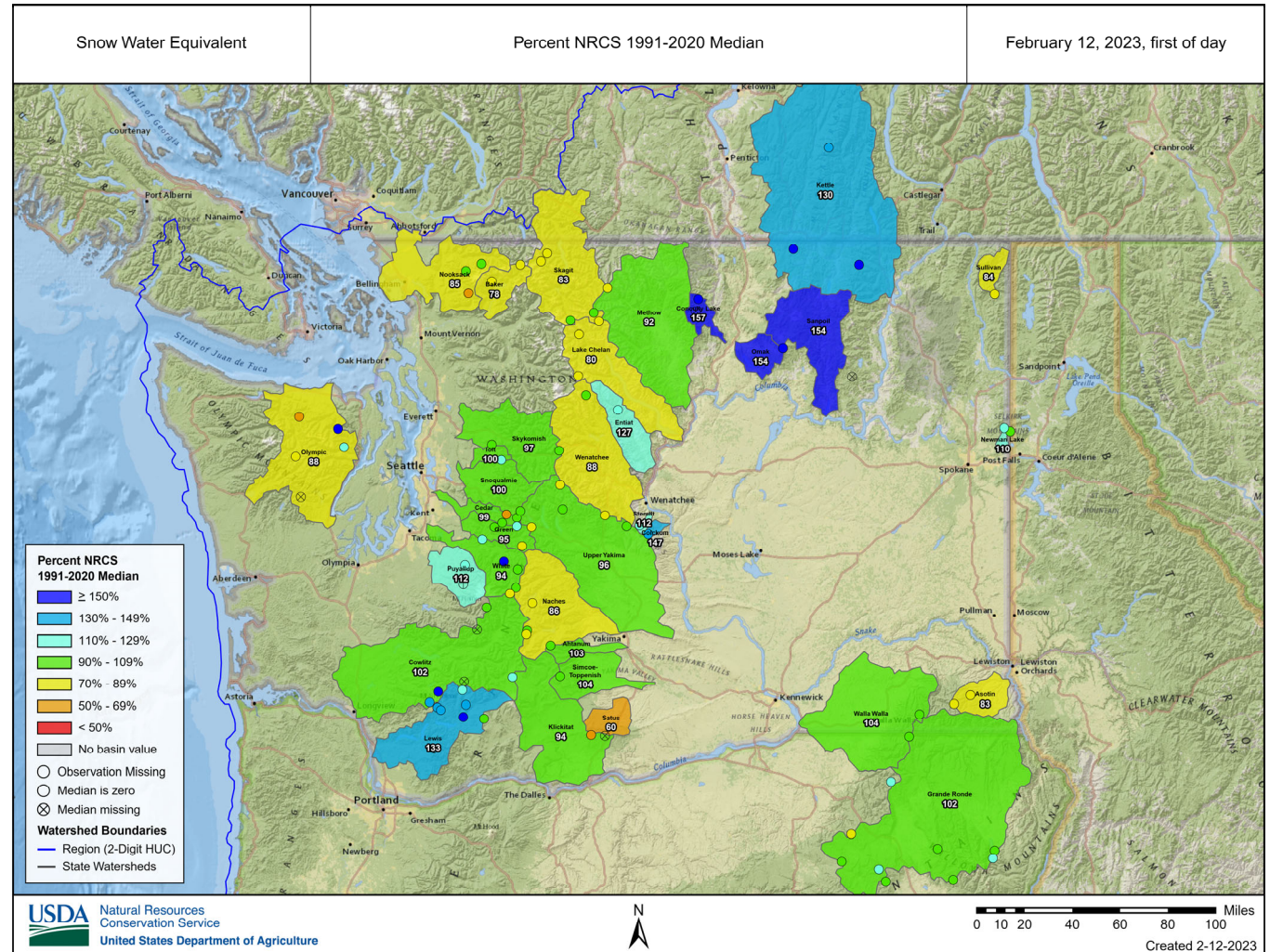
26th Driest; - 1.9" inches



Ranks since 1895. Anomalies relative to 1901-2000.

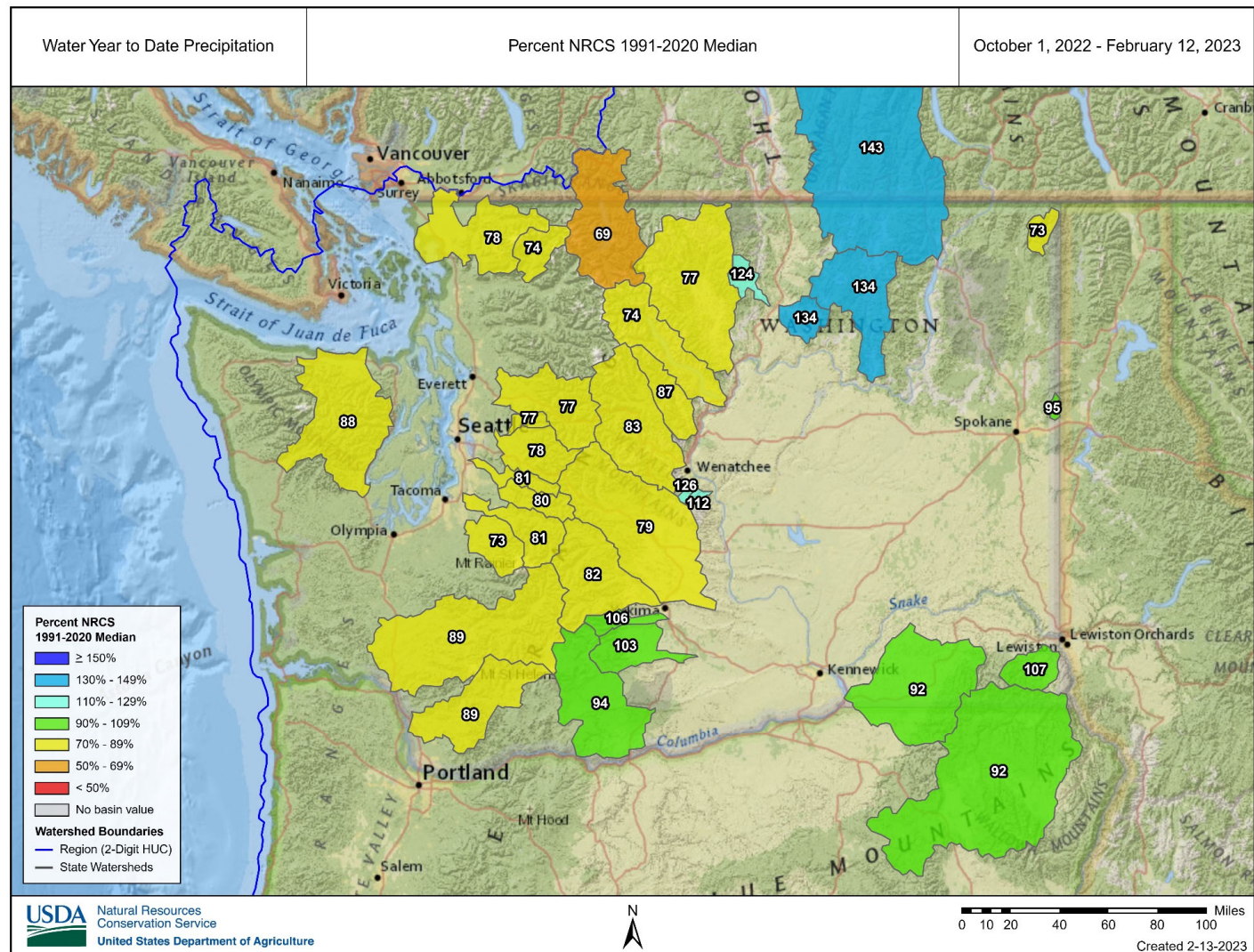


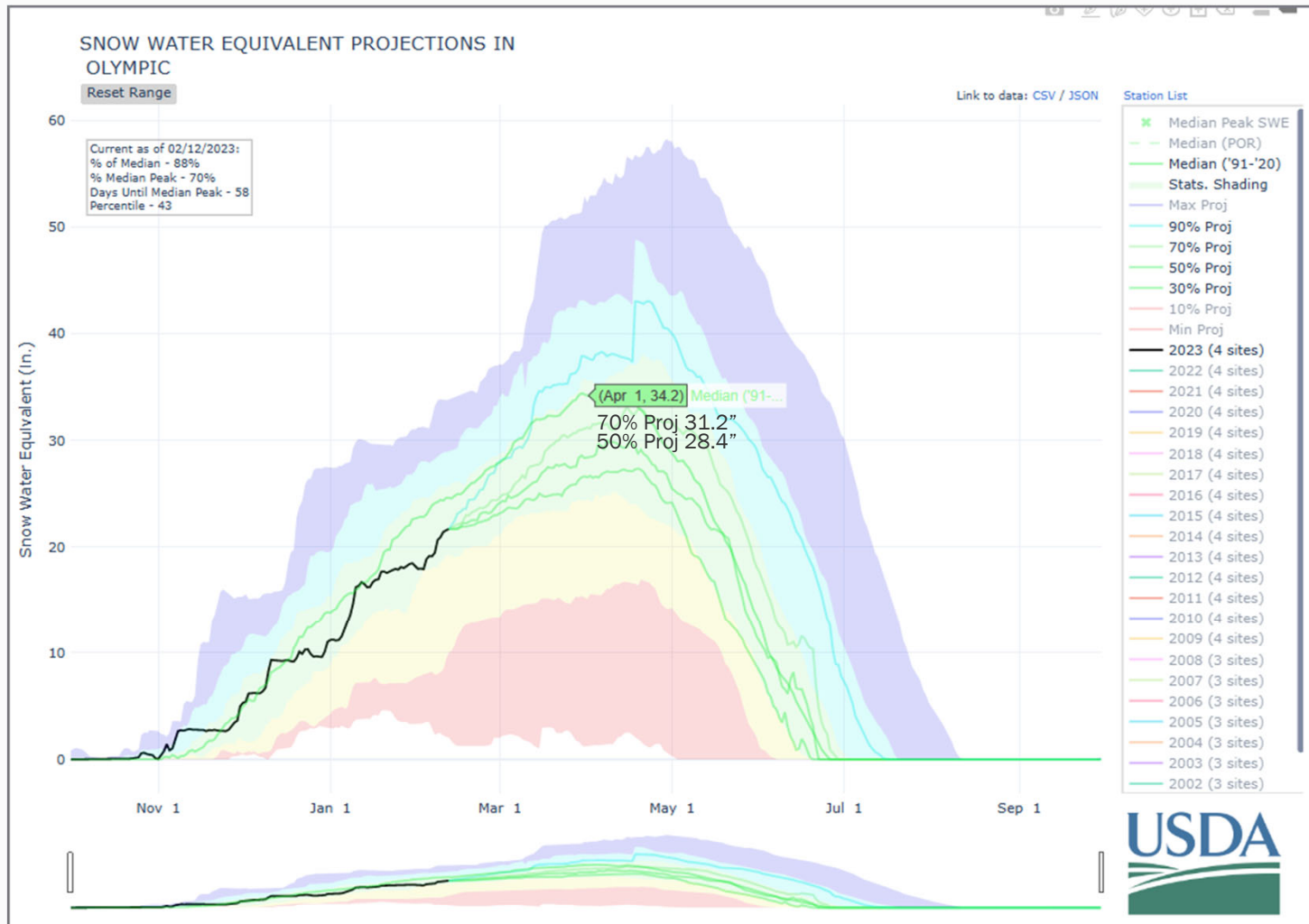
Statewide Average:  
96 percent of normal





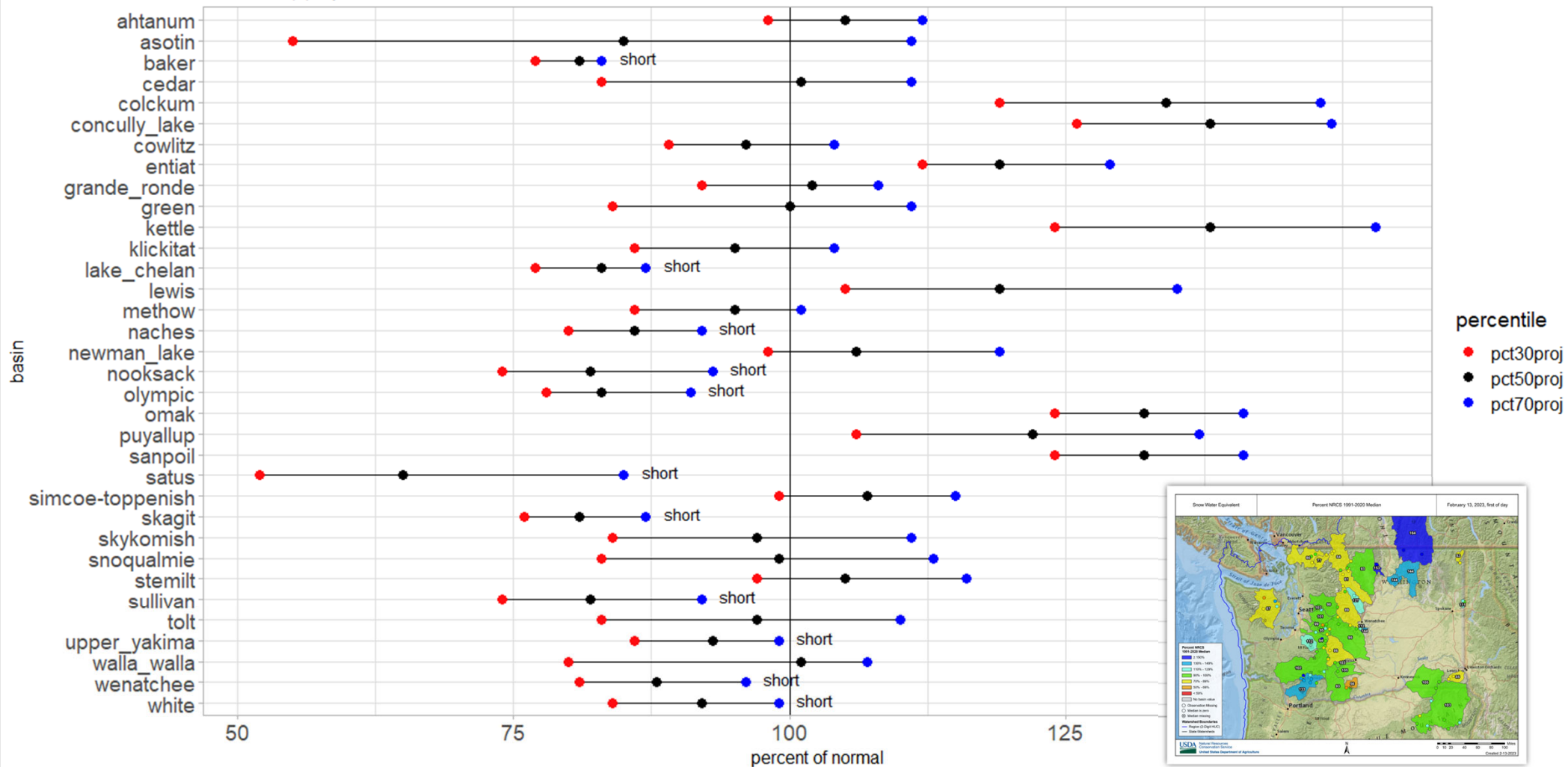
Statewide average:  
83 percent of normal  
(SNOTEL sites)





basin SWE projections to April 1 at low (30th percentile), medium (50th percentile), and high (70th percentile) levels of accumulation

NRCS Data | query date: 02-12



'short' means that even with much better than normal accumulation the basin SWE average will be below normal





# Northwest River Forecast Center ESP Natural Forecast



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

River and Hydrology Water Supply Observations Weather Forecasts Climate NWRFC

Home Zoom Out --- Quick Zooms --- ESP Issued: 2023-02-12 Ensemble Date: 2023-02-12 Permalink

Search  
Enter NWS ID:  
GO

## Map Overlays

- ☒ NWRFC Boundary
- ☐ NWRFC Basins
- ☐ NWS HSAs
- ☐ Counties
- ☒ States

## ESP Natural Forecast

- ☐ Natural Status
- ☒ Natural % of Normal
- ☐ Rank (ASC)
- ☐ Rank (DESC)
- ☐ Exceedance (%)
- ☐ Percentile (%)

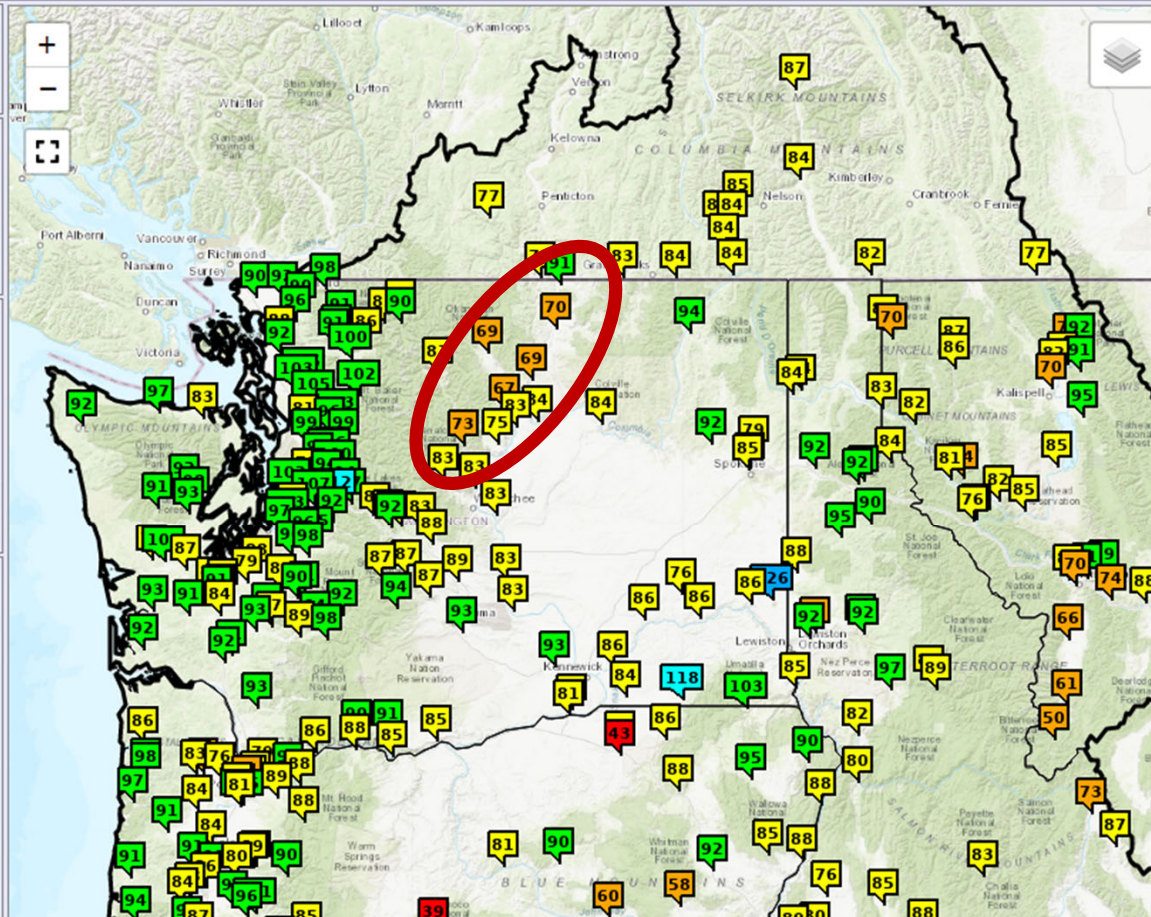
## Natural Runoff

- ☐ Runoff Status
- ☐ Runoff % of Normal

## ESP Natural Forecast

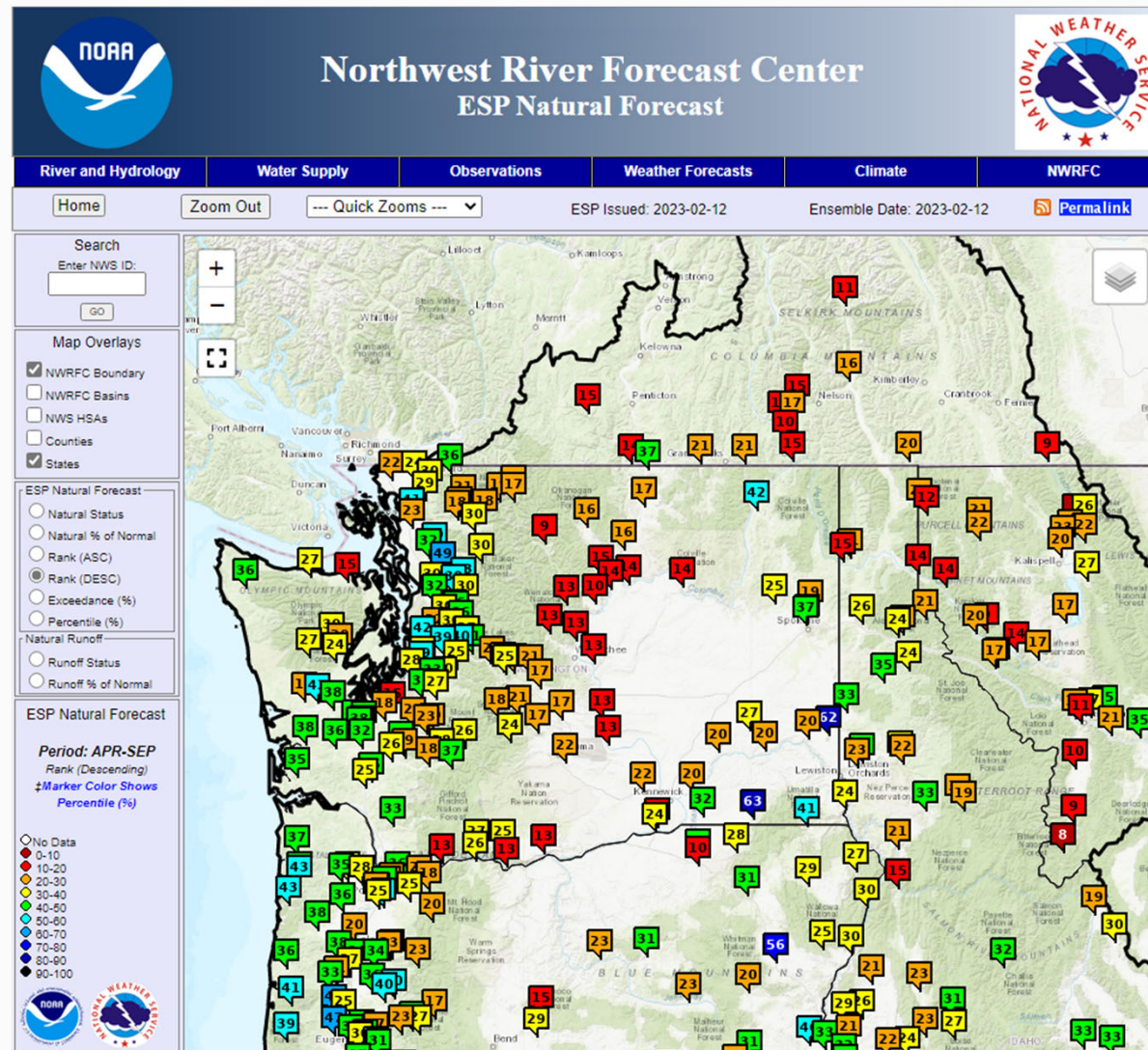
Period: APR-SEP  
Forecast (% Normal)

- ☐ No Normal, No Data
- ☐ < 25
- ☐ 25-50
- ☐ 50-75
- ☐ 75-90
- ☐ 90-110
- ☐ 110-125
- ☐ 125-150
- ☐ 150-175
- ☐ > 175



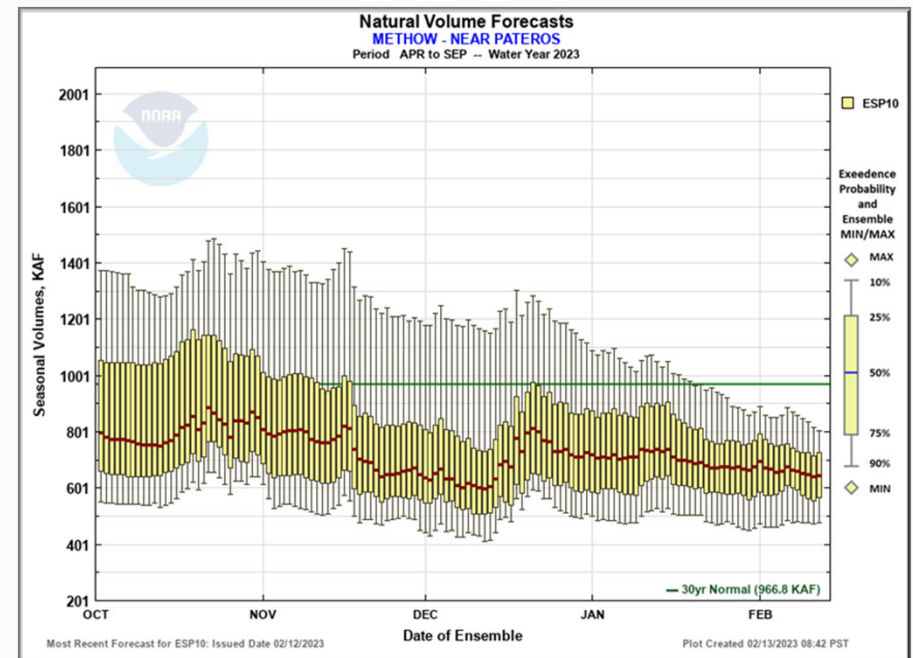
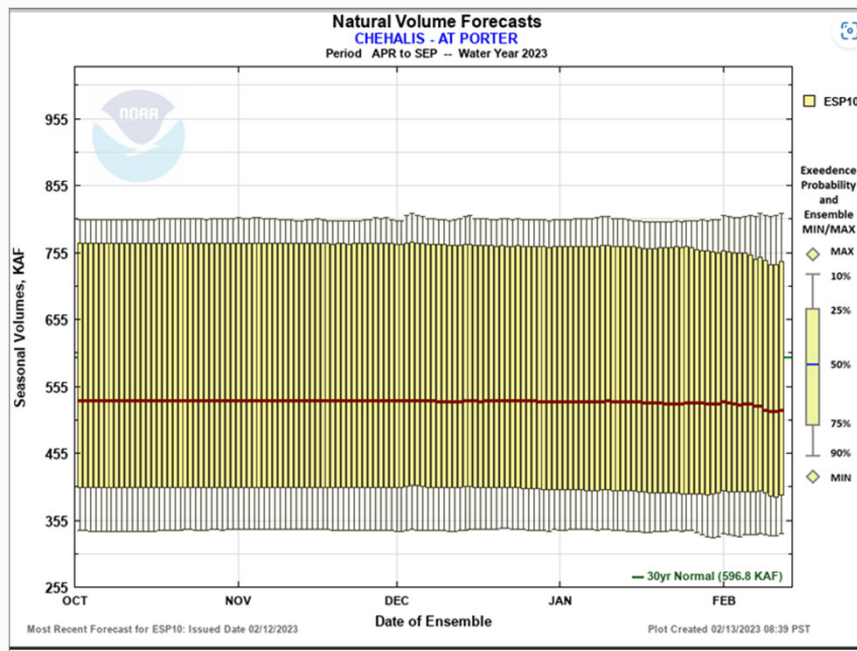
Statewide  
Median runoff  
forecast: 89  
percent of  
normal

Forecasted  
Rank (driest to  
wettest)  
compared to  
historical  
record of 74  
years.



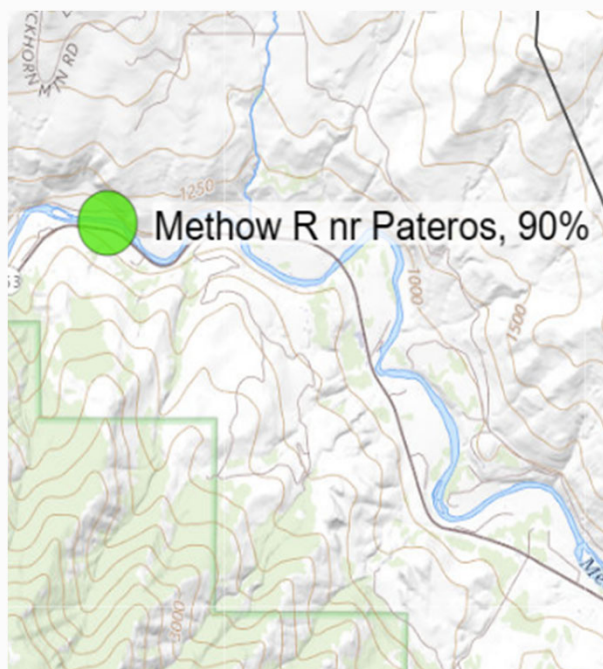


# Forecasting Uncertainty: Rain-dominant vs Snow Dominant



# Contrast between NRCS and NWS Runoff Forecast: Methow near Pateros

NRCS (Feb 01)



NWS-NWRFC (Feb 12)

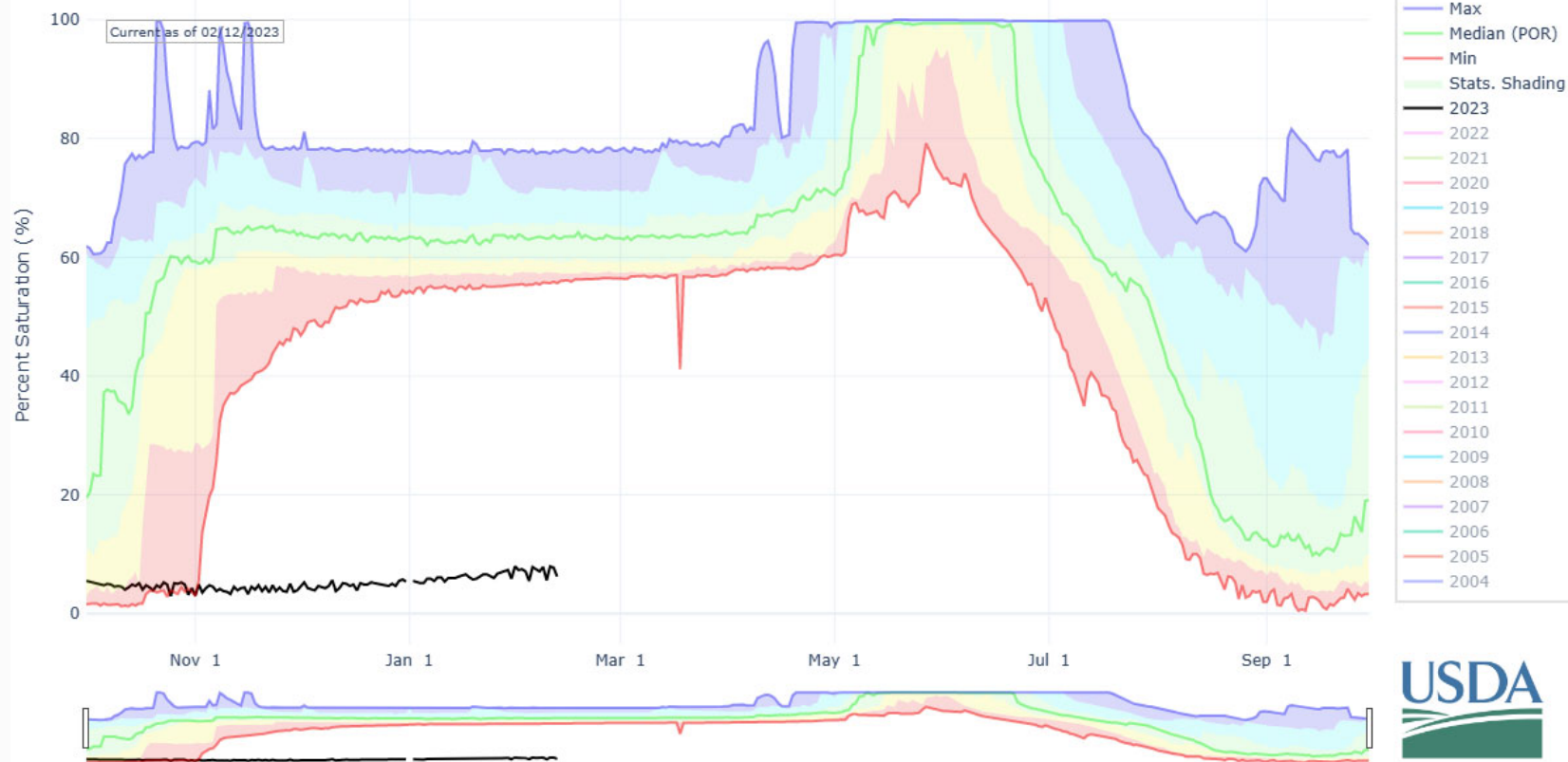




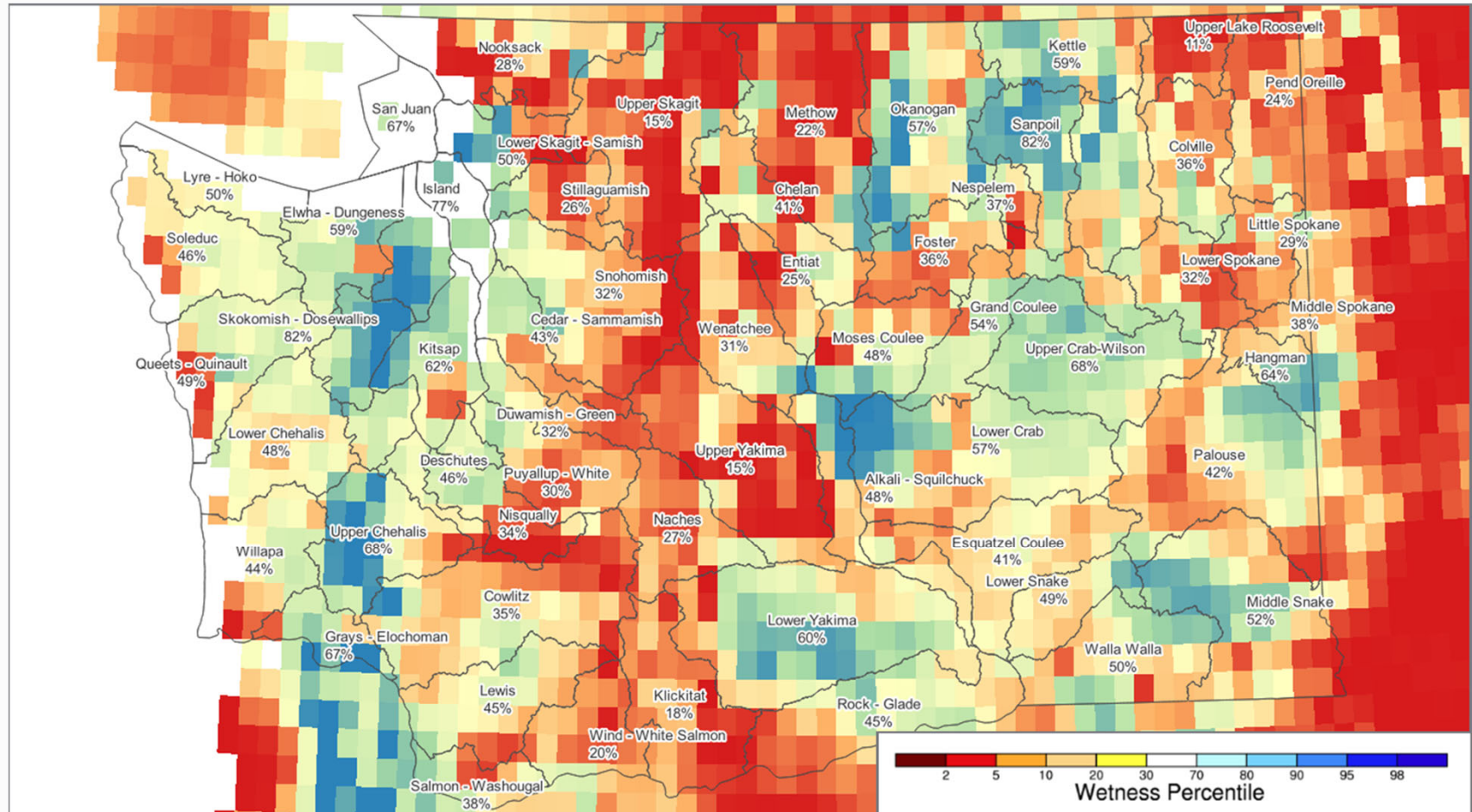
## DEPTH AVERAGED SOIL SATURATION AT HARTS PASS

Reset Range

[Link to data: CSV / JSON](#)



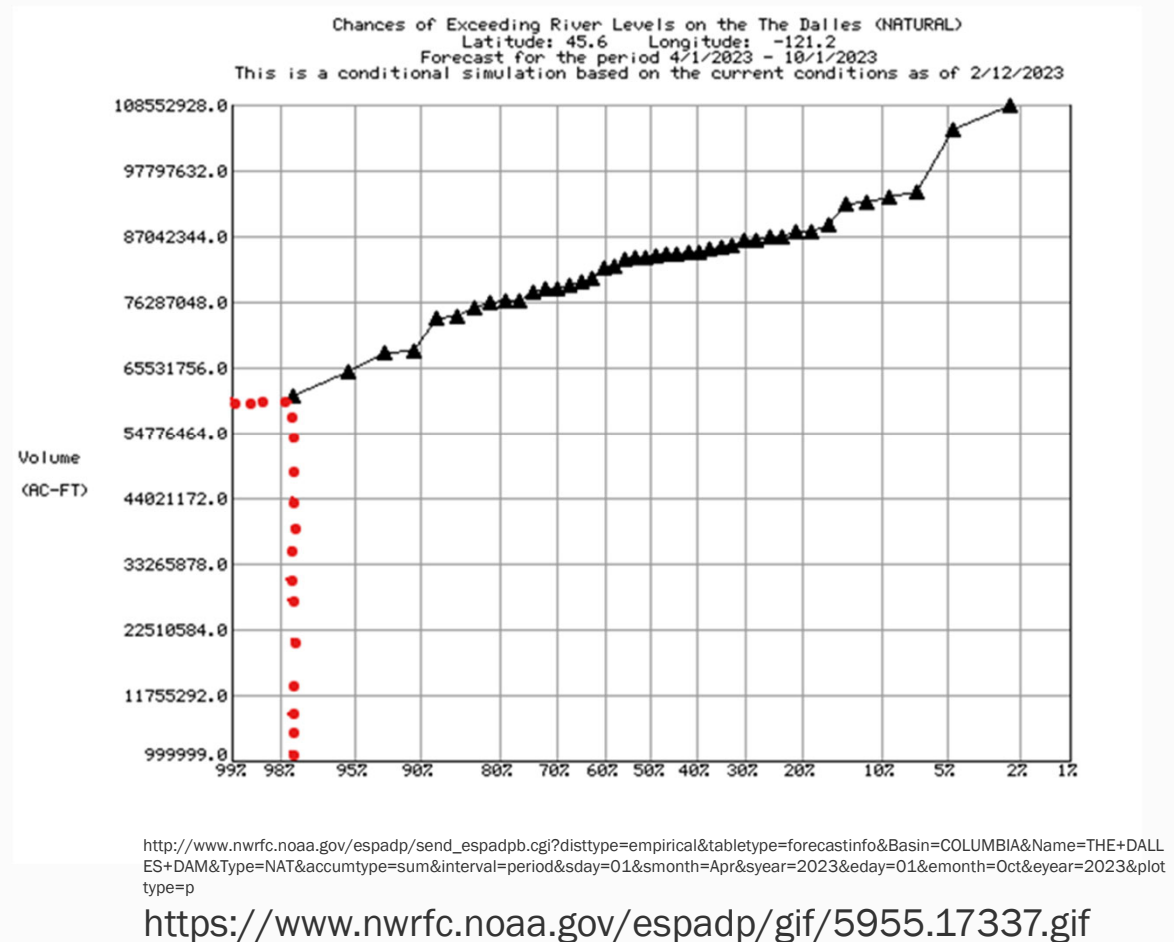
## NASA – GRACE Averaged by WRIA (02-06-2023)



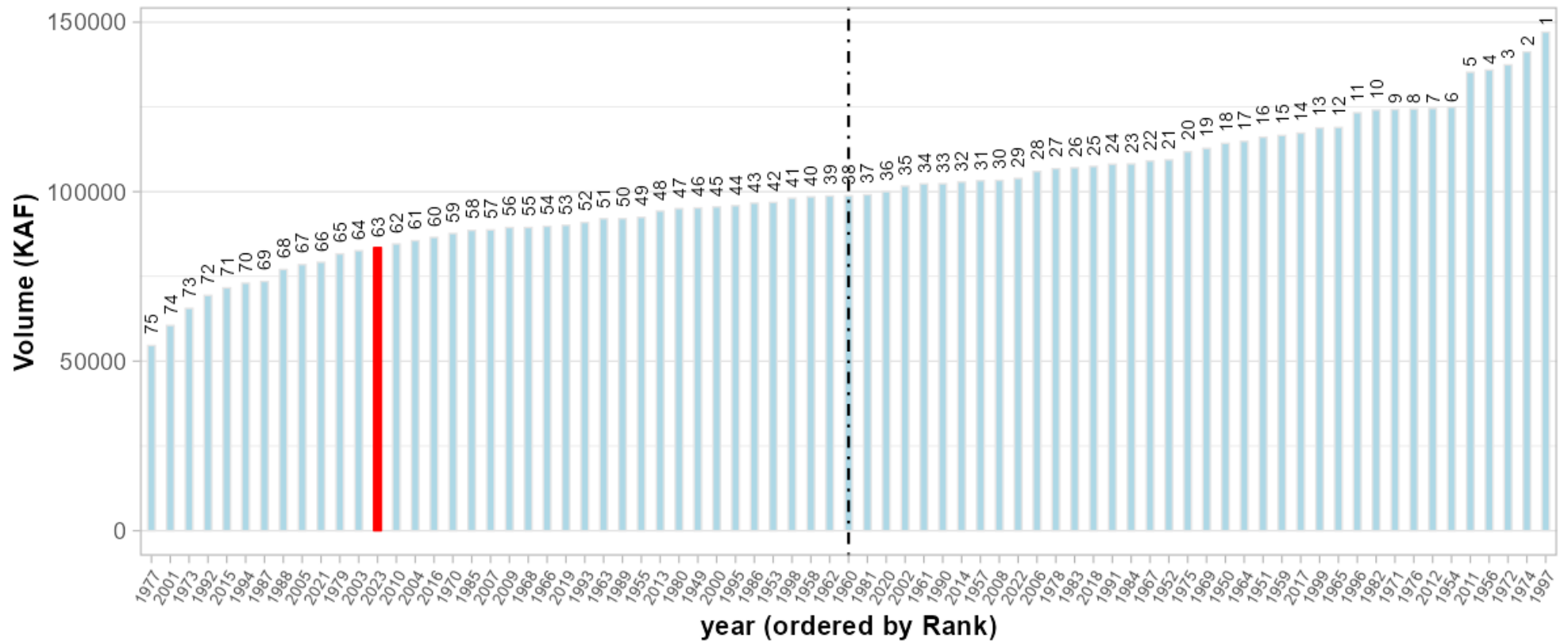


# Columbia River Instream Flow Rule

- WAC 173-563-056 establishes that rights junior to the rule be curtailed when the March 1<sup>st</sup> forecast for Apr-Sept runoff falls below 60 million acre feet (MAF).
- Currently, about a 95-98 pct chance of staying above that threshold.
- Median forecast is ~83.6 MAF



# COLUMBIA - THE DALLES DAM | 2023 FORECASTED RUNOFF (APR-SEPT) COMPARED TO HISTORIC RUNOFF (1949-2022)



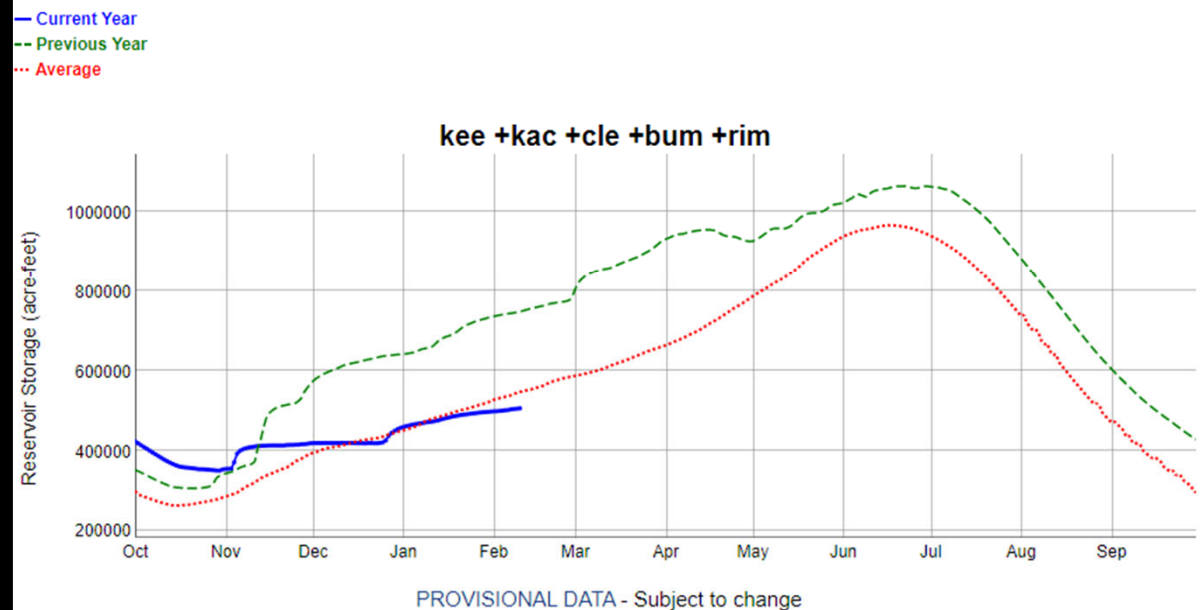
NWRFC DATA 2023-02-12



# Yakima Project

- Current total system storage is at ~84 percent of average.
- Current storage levels like years 1985 and 2017, in which there ultimately was 100 percent of total water supply available.
- However, 2017 and 1985 featured better snowpacks at this time of year.
- Current “natural” runoff forecasted at 93 percent of normal by the NWRFC.
- Additional snowpack and precipitation needed to bring ensure full water supply.
- First Official Forecast is March 09

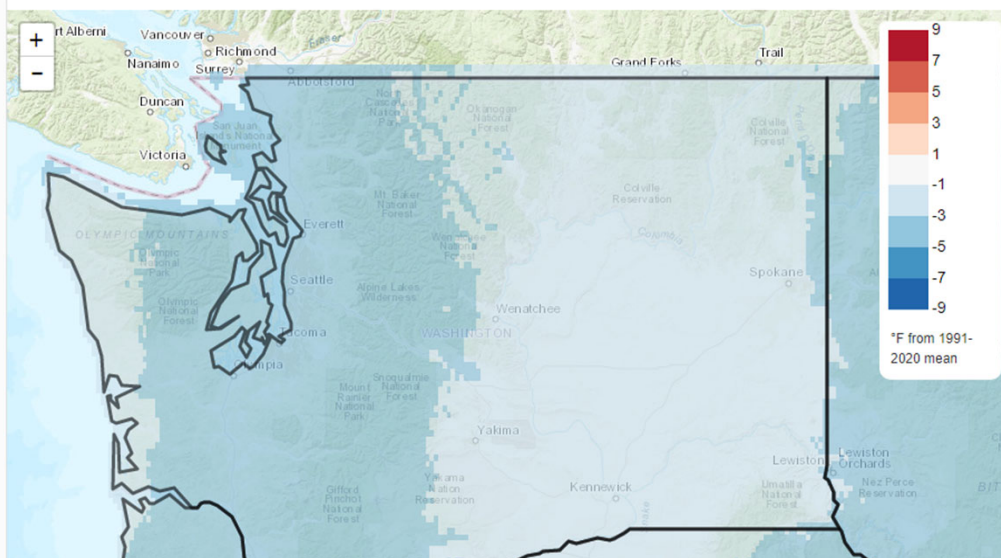
Water Year Graph



## Mean Temperature Anomaly, Week 1-2, Next 1-14 Days

2023/02/13 - 2023/02/26

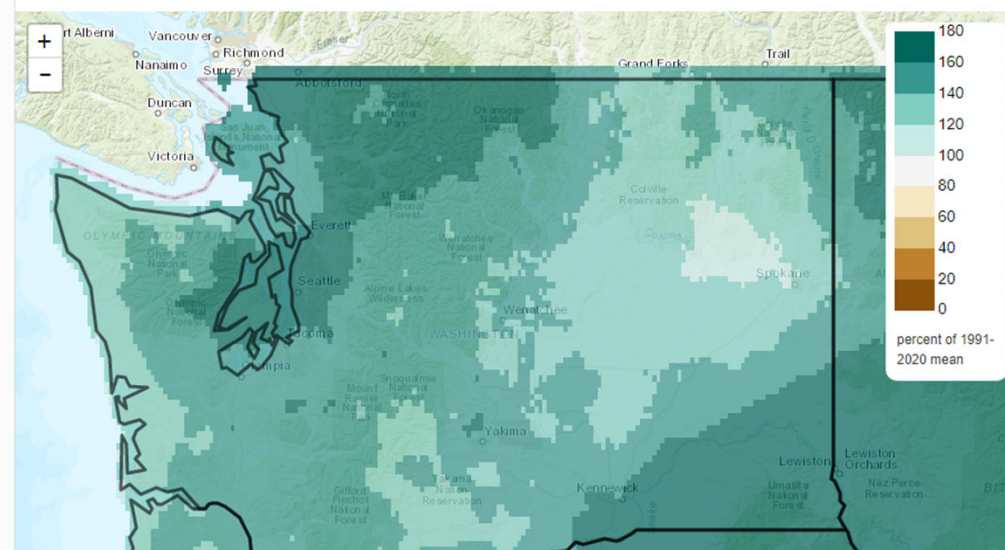
Multi-ensemble median from 48 downscaled CFSv2 ensemble forecasts - forecast made 12Z-09-Feb-2023 to 6Z-12-Feb-2023



## Precipitation Anomaly, Week 1-2, Next 1-14 Days

2023/02/13 - 2023/02/26

Multi-ensemble median from 48 downscaled CFSv2 ensemble forecasts - forecast made 12Z-09-Feb-2023 to 6Z-12-Feb-2023





# Summary

- Statewide snowpack ranges from above to below normal, with overall conditions averaging 96 percent.
- Statewide forecasted runoff is expected to be somewhat below normal, better on west slopes than east slopes.
- Soil moisture deficits, especially along the east slope of the Cascades, are affecting some river forecasts (e.g., Methow).
- The Yakima Project is running behind in terms of reservoir storage and snow storage and needs a strong February and March.
- Forecasts for the next several weeks look promising for building snowpack and soil moisture.
- La Nina is going away; El Nino conditions expected to develop by next fall.



# Thank you

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