



DEPARTMENT OF
ECOLOGY
State of Washington

Water Supply Update

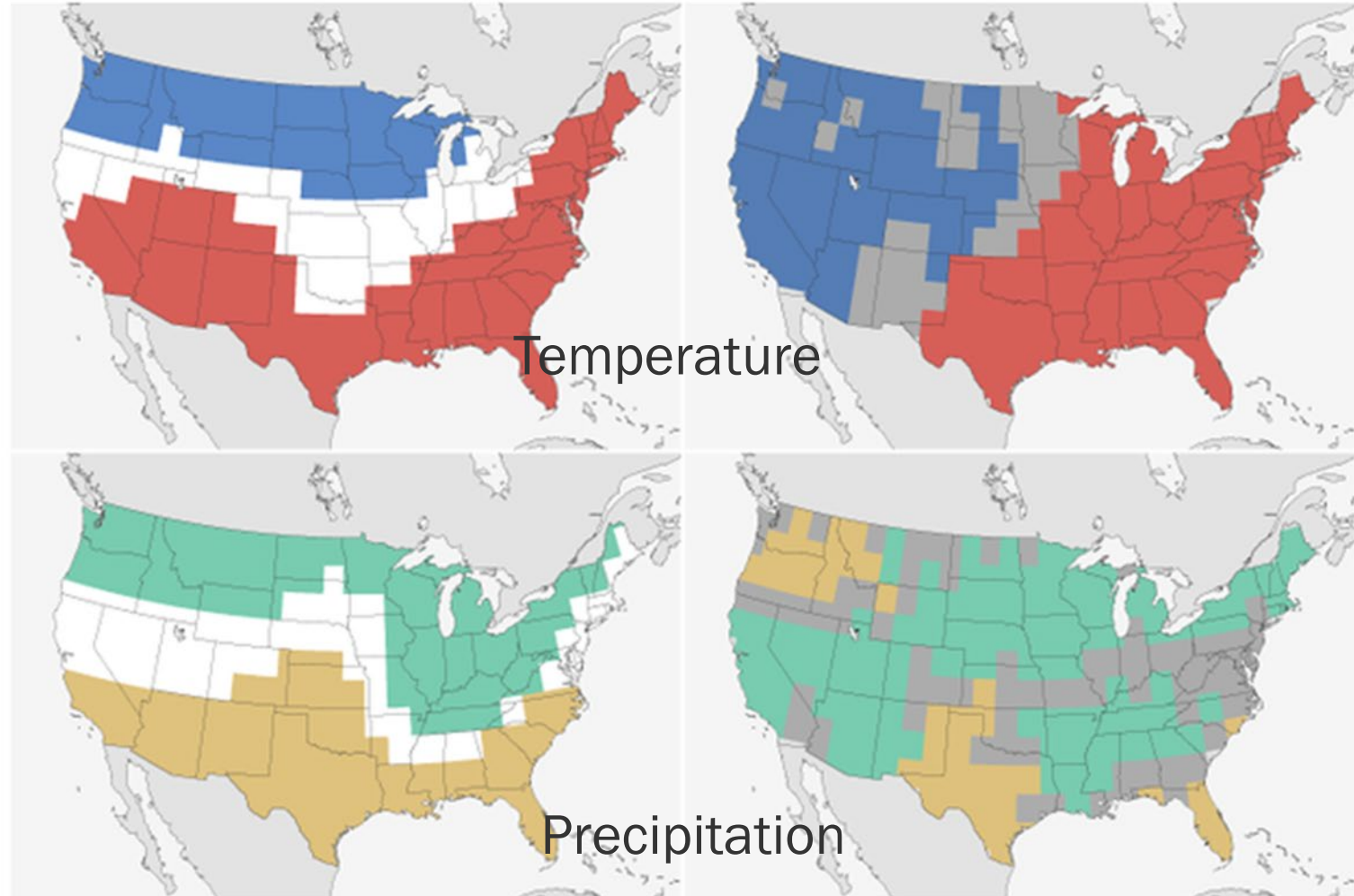
Columbia River Policy Advisory Group

Jeff Marti

April 6, 2023

DJF Forecast

DJF Observed

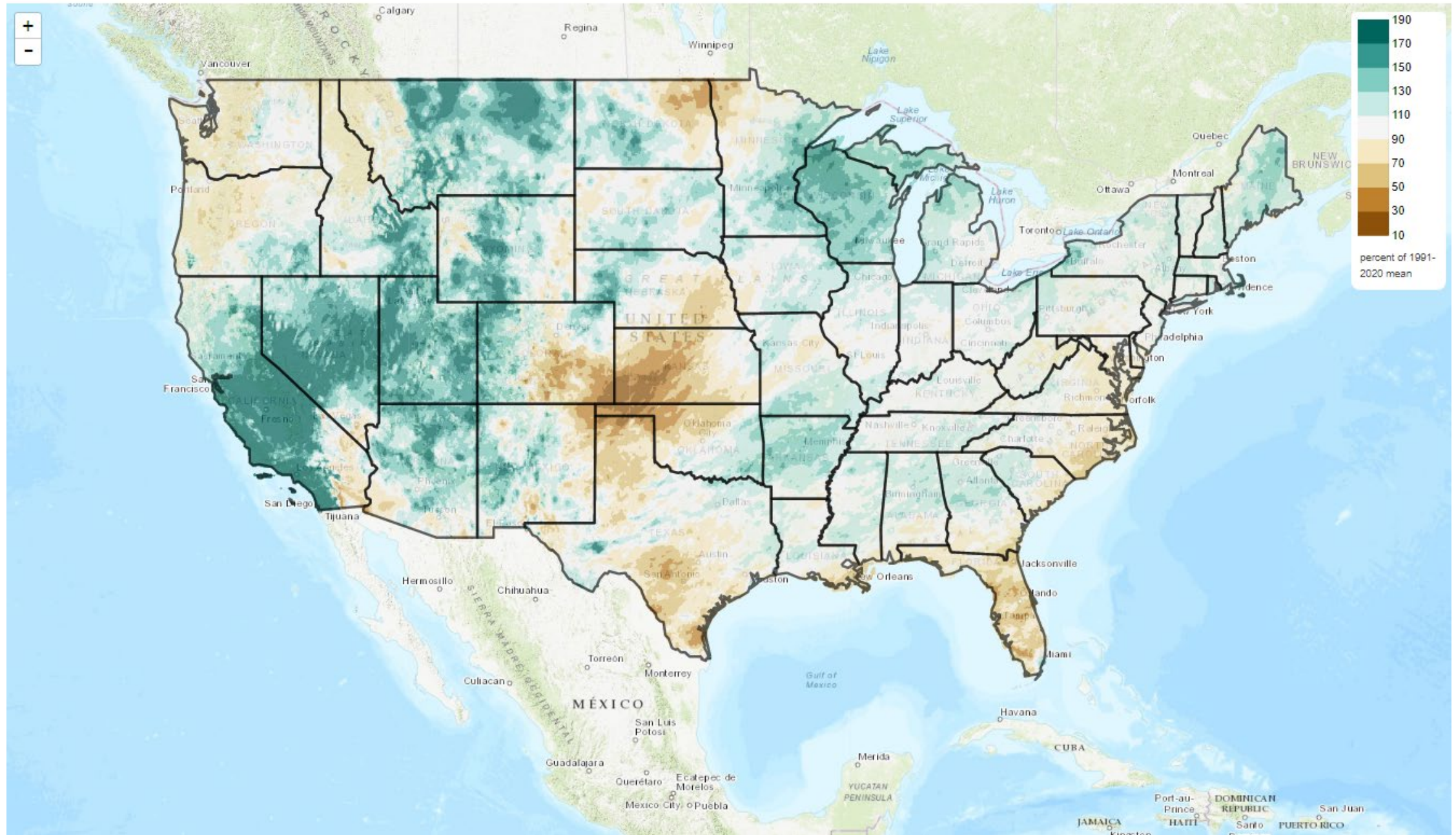


La Nina 2022-23

What we wanted
vs
What we got

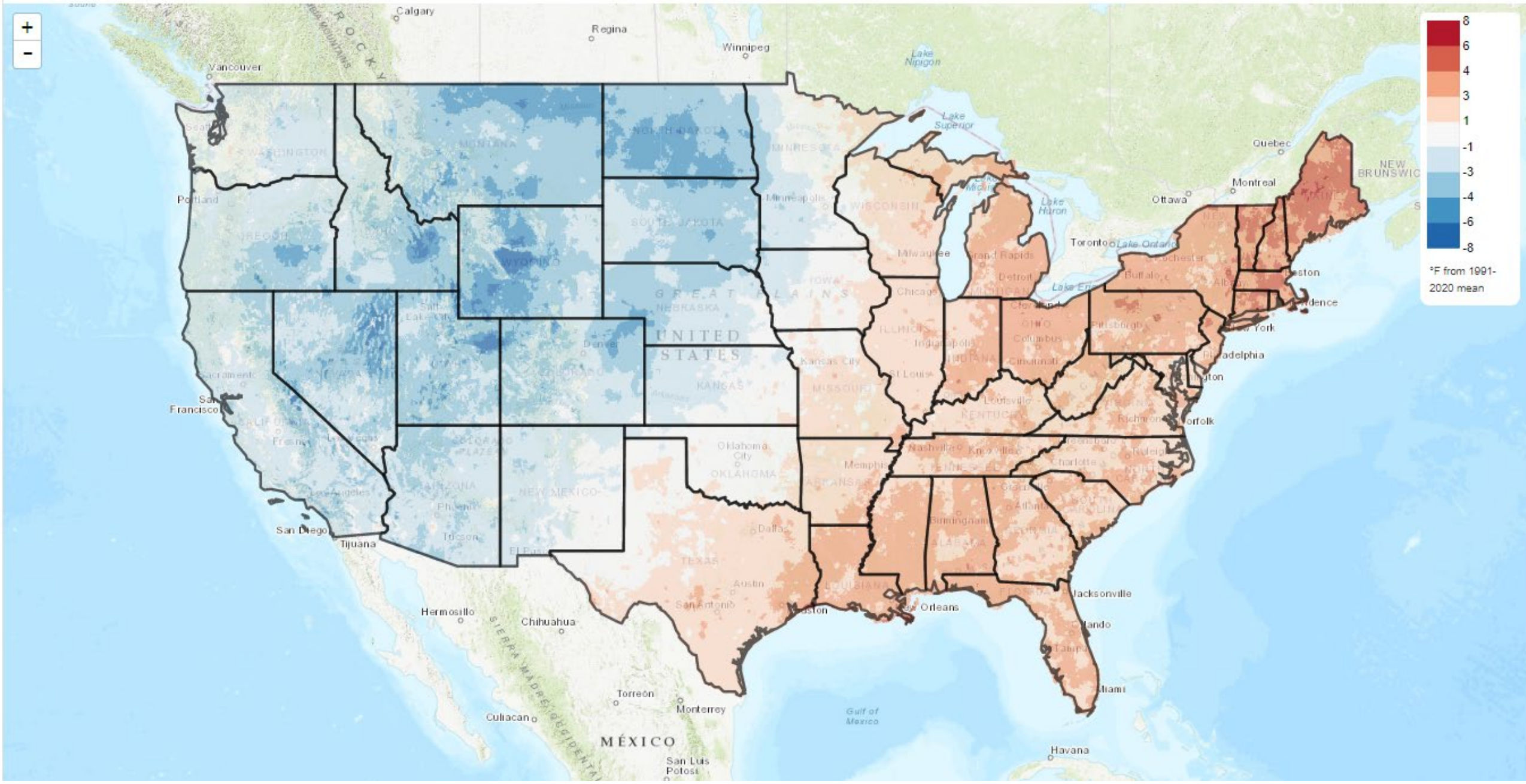
Total Precipitation Anomaly, Last Oct to Last Full Month

2022/10/01 - 2023/03/31



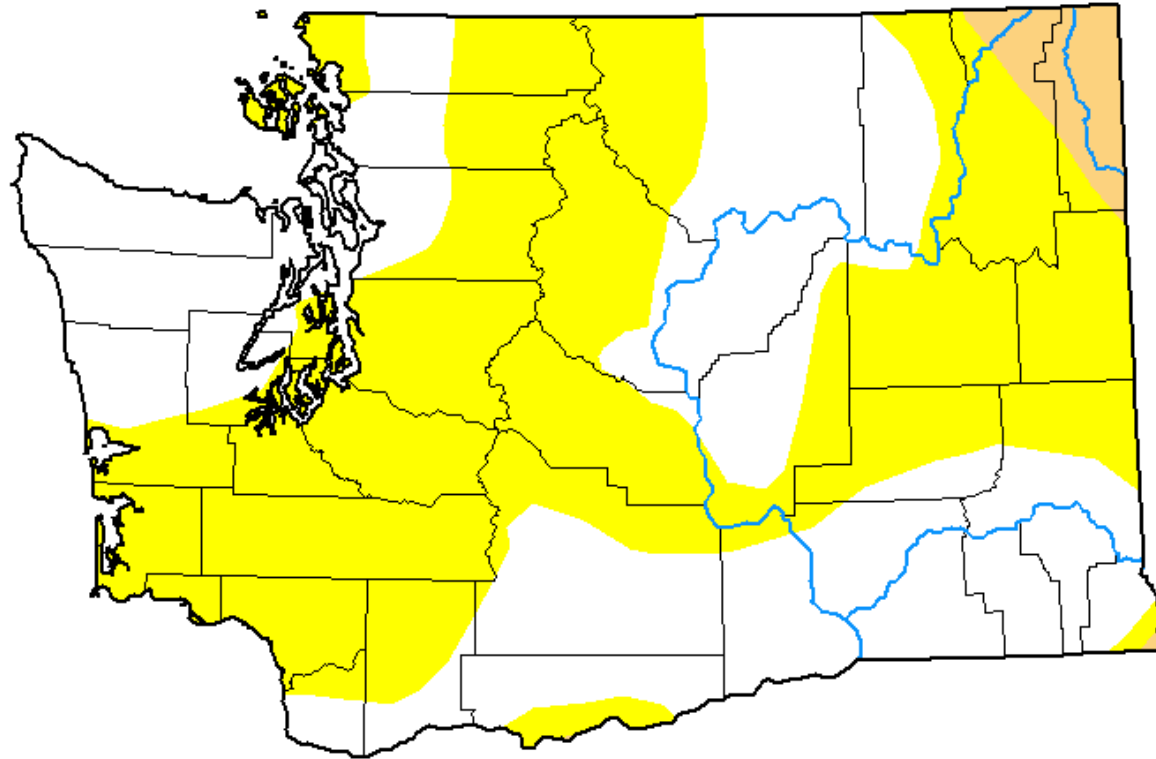
Mean Daily Temperature Anomaly, Last Oct to Last Full Month

2022/10/01 - 2023/03/31









U.S. Drought Monitor Washington

April 4, 2023
(Released Thursday, Apr. 6, 2023)
Valid 8 a.m. EDT



Intensity:

-  None
-  D0 Abnormally Dry
-  D1 Moderate Drought
-  D2 Severe Drought
-  D3 Extreme Drought
-  D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

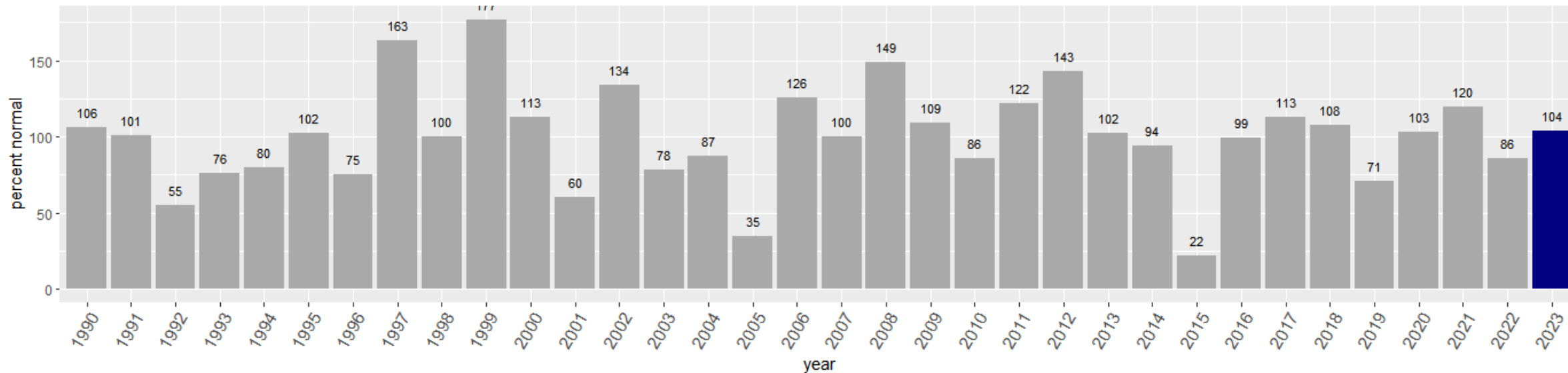
Author:

David Simeral
Western Regional Climate Center



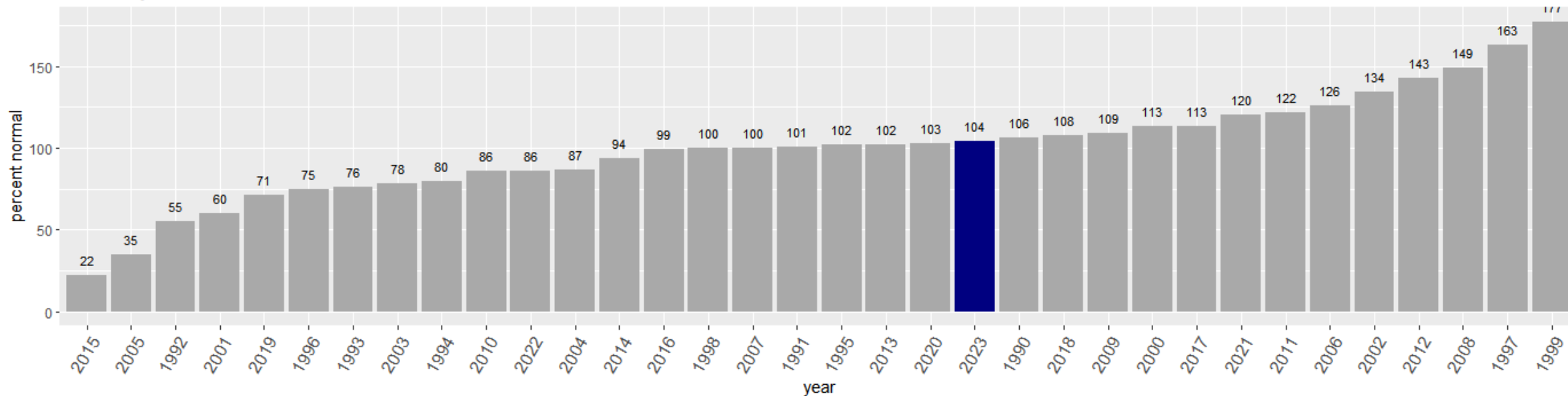
droughtmonitor.unl.edu

Washington statewide average Snow Water Equivalent on April 05 compared to previous years sorted by year



NRCS data

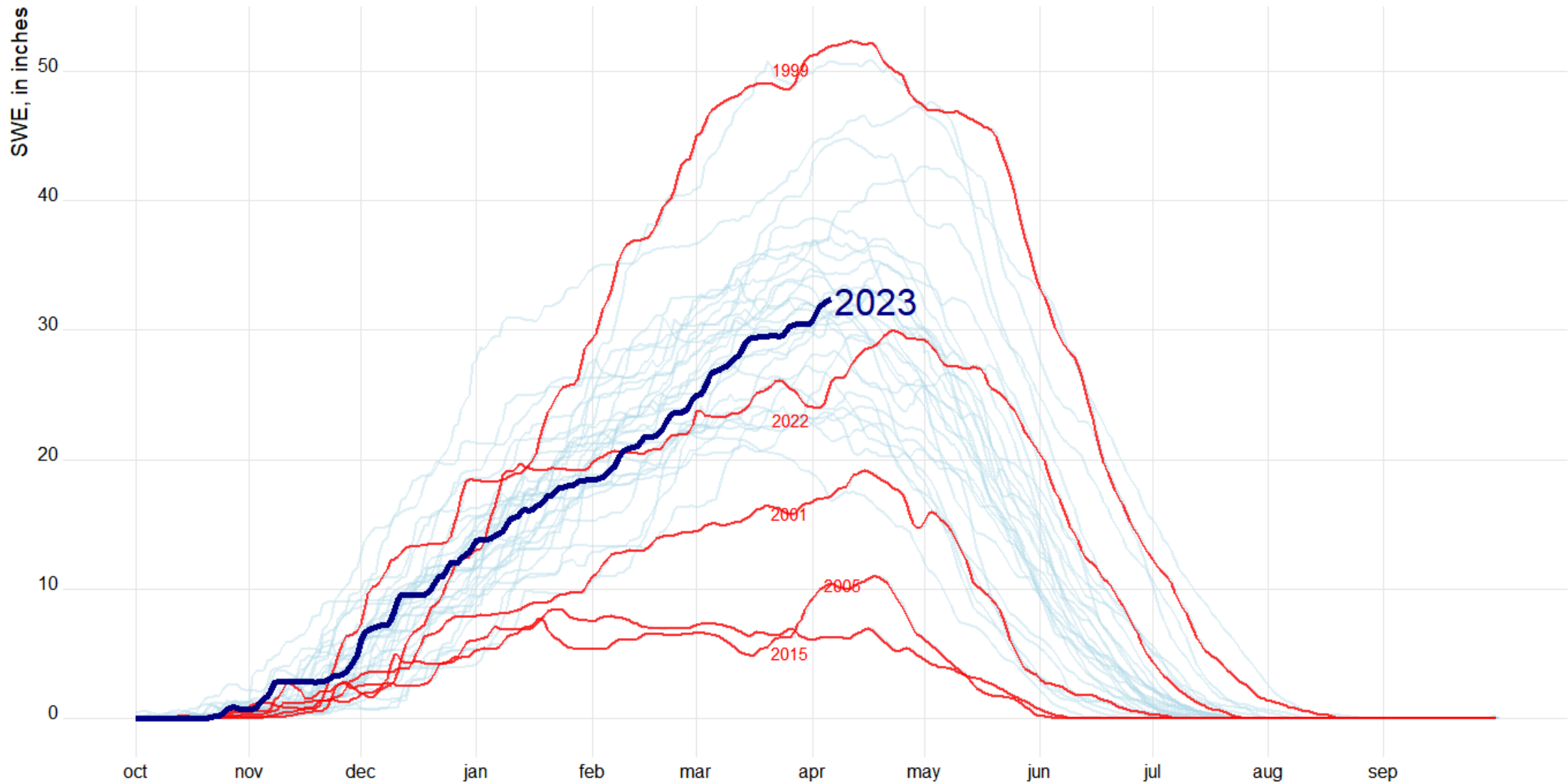
ranked by SWE



NRCS data

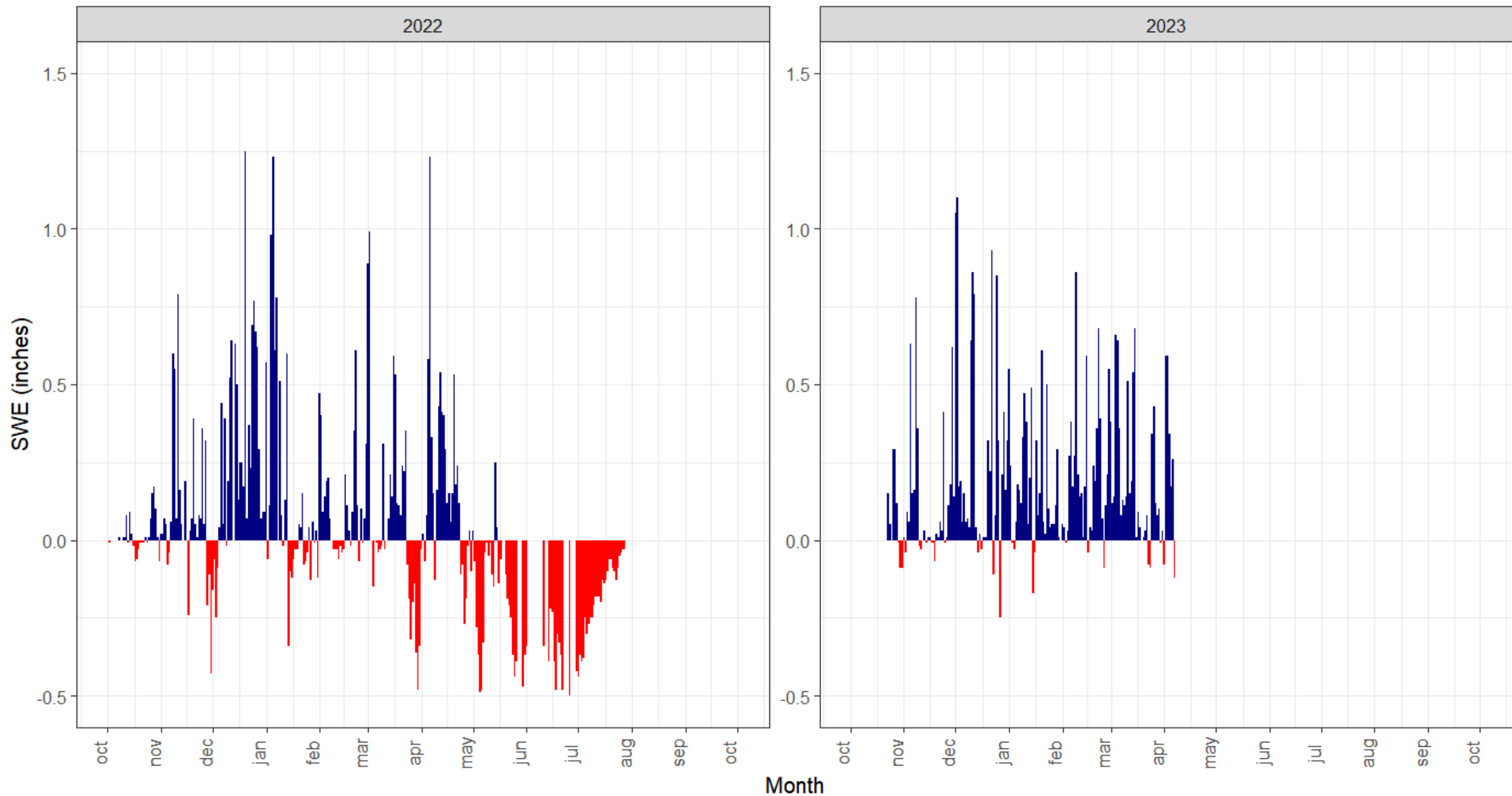
Average Washington State SWE (SNOTEL)

Water Years: 1990 - 2023 Created on: 2023-04-06



month
Data: NRCS

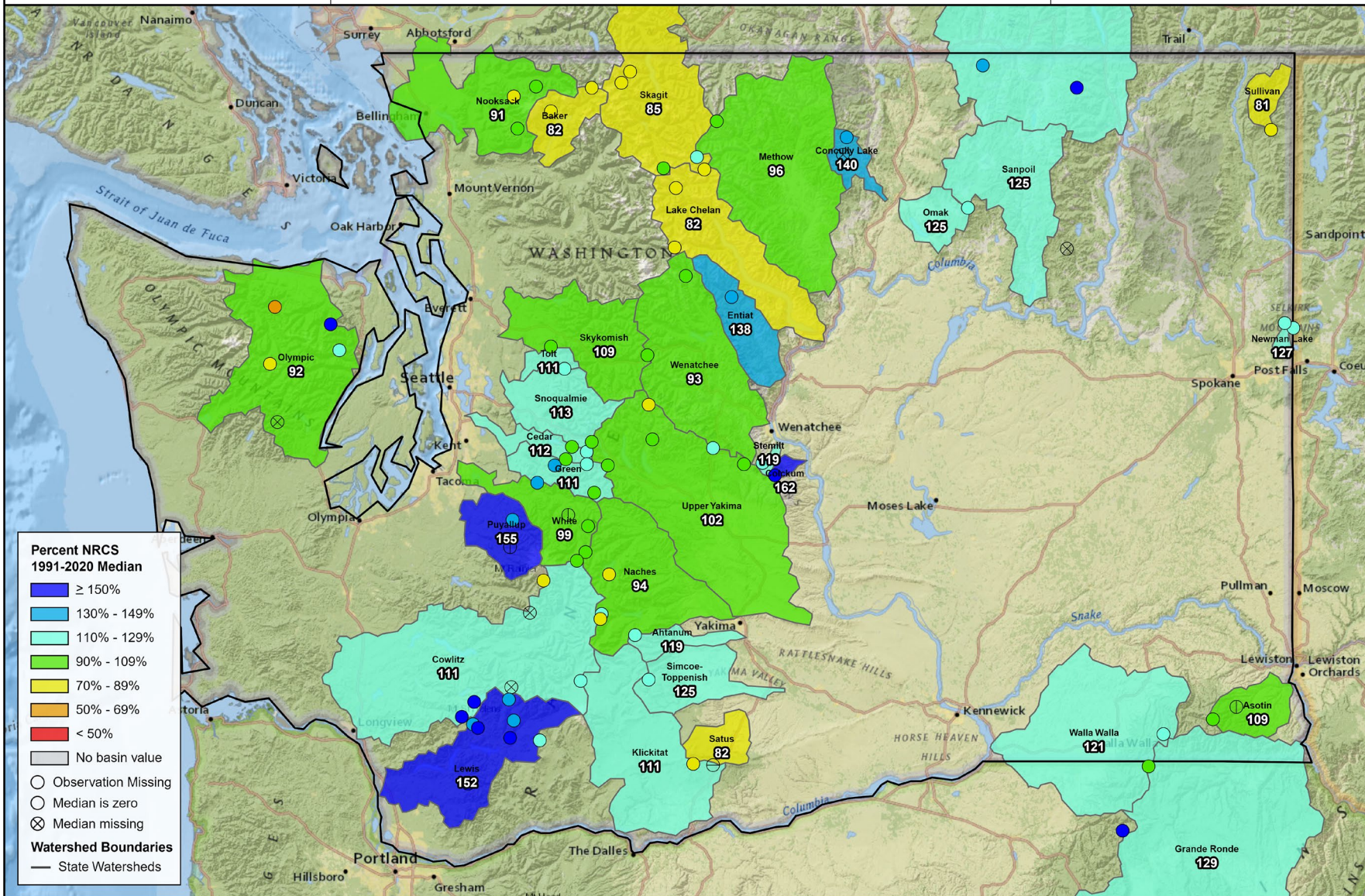
Daily changes in Washington State SWE



Snow Water Equivalent

Percent NRCS 1991-2020 Median

April 5, 2023, first of day



**Statewide Average:
104% of Normal**



Search by NWS ID:

GO

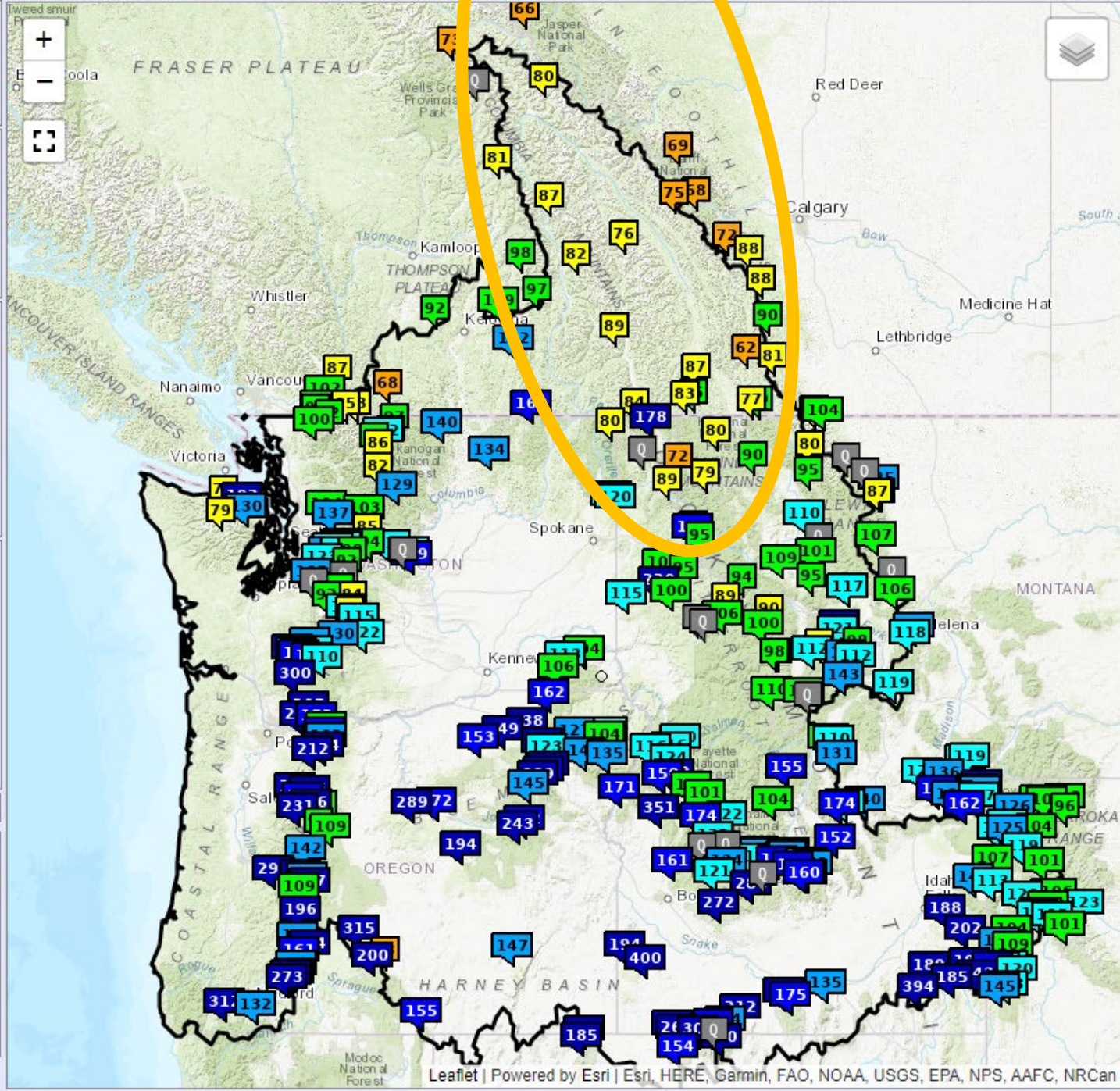
- Map Overlays
- NWRFC Boundary
 - NWRFC Basins
 - NWS HSAs
 - Counties
 - States

- Map Type
- SWE
 - Snow Status
 - Snow % of Avg
 - Seasonal Peak Status
 - Snow Density
 - Basin Obs Status
 - Basin Sim Status
 - Diff

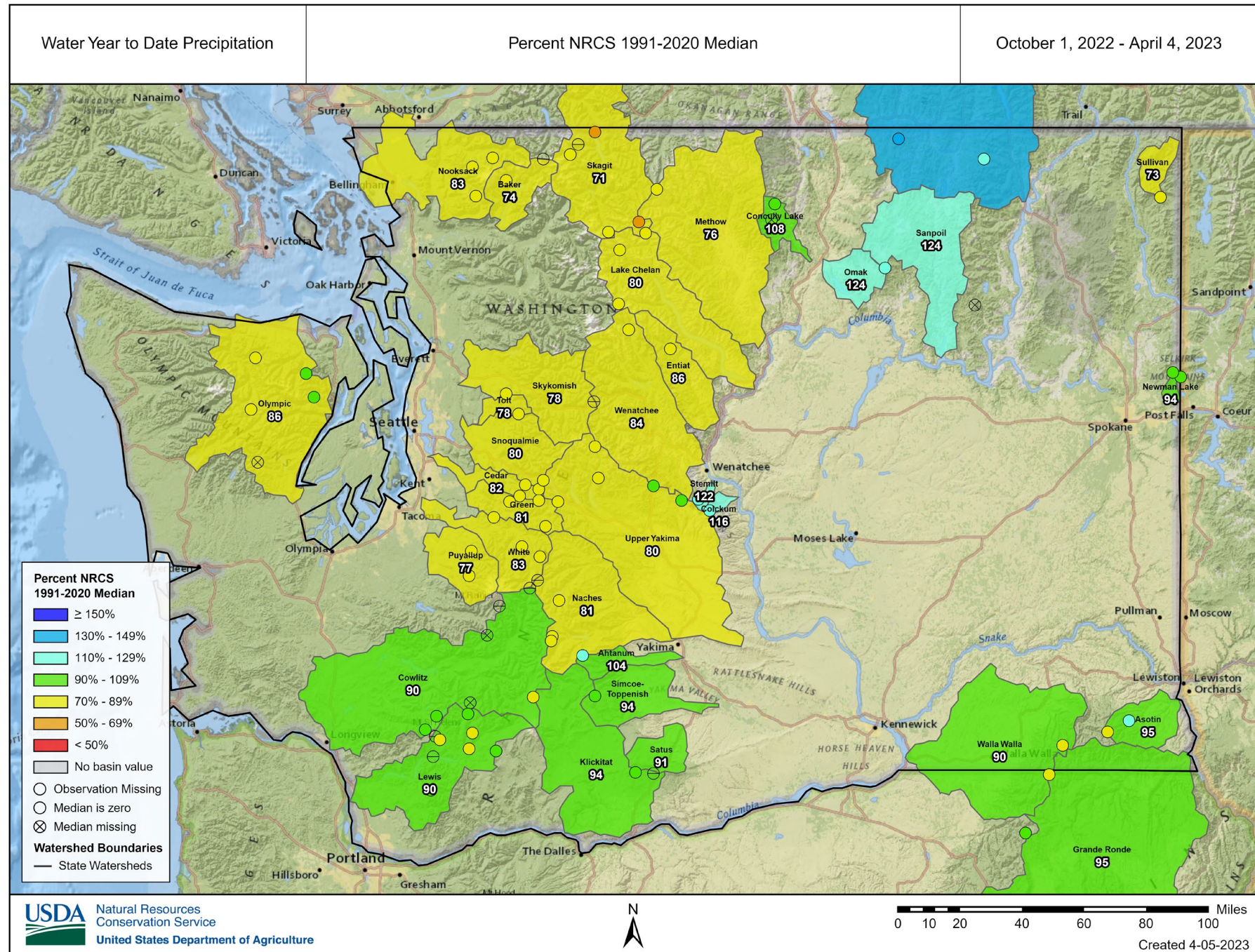
- Legend
- SWE (% Avg)
- Questionable
 - Not Available
 - Zero
 - < 25
 - 25-50
 - 50-75
 - 75-90
 - 90-110
 - 110-125
 - 125-150
 - 150-175
 - > 175

Stations Displayed: 319

- Related Links
- [Station Summary List](#)
 - [Basin Summary List](#)

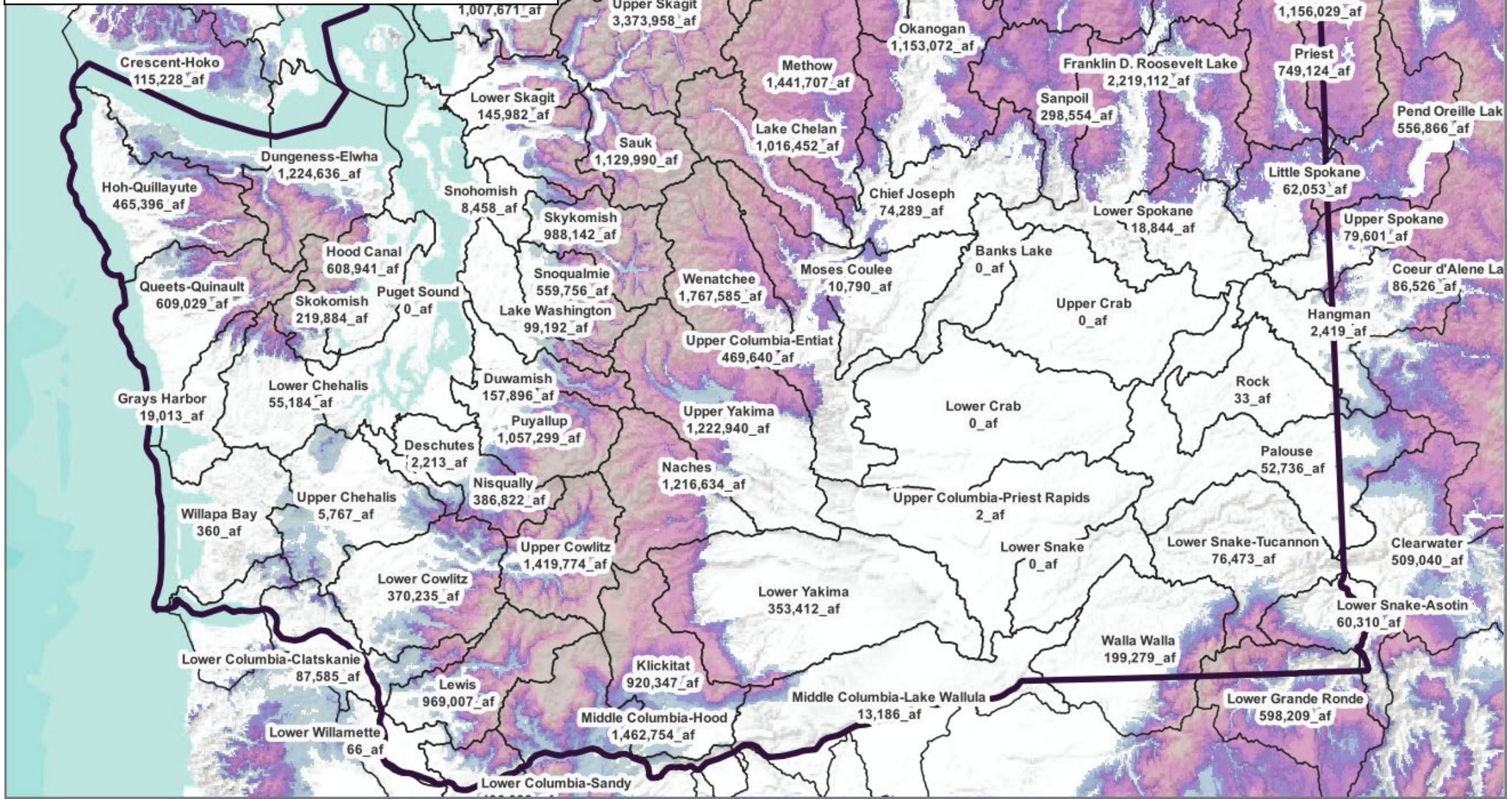


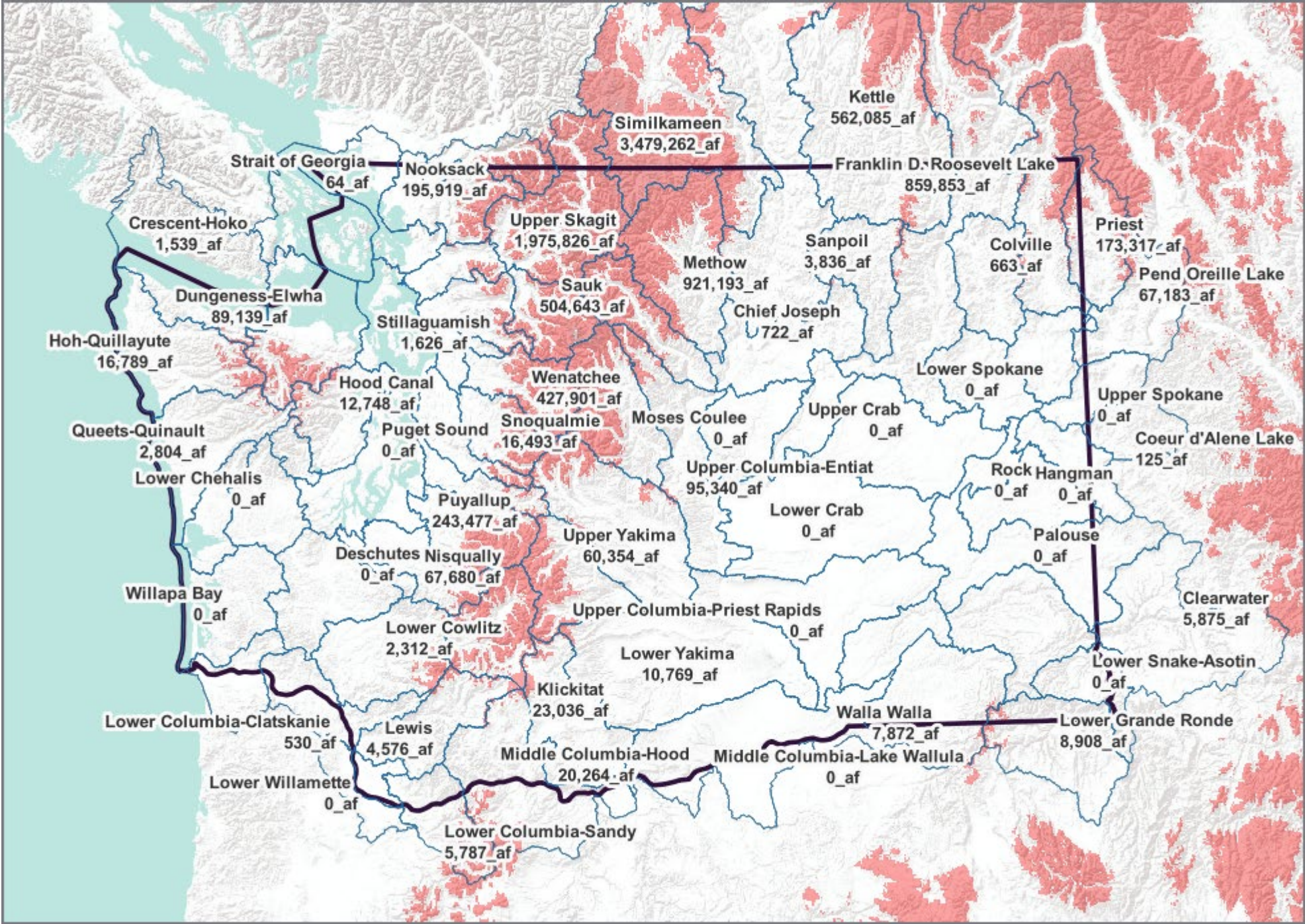
Statewide Average Precipitation: 84 Percent of Average



April 1, 2023 Snow Storage all HUC8 Units

40,004,240 af







**April 01, 2015:
12,001,617 af**

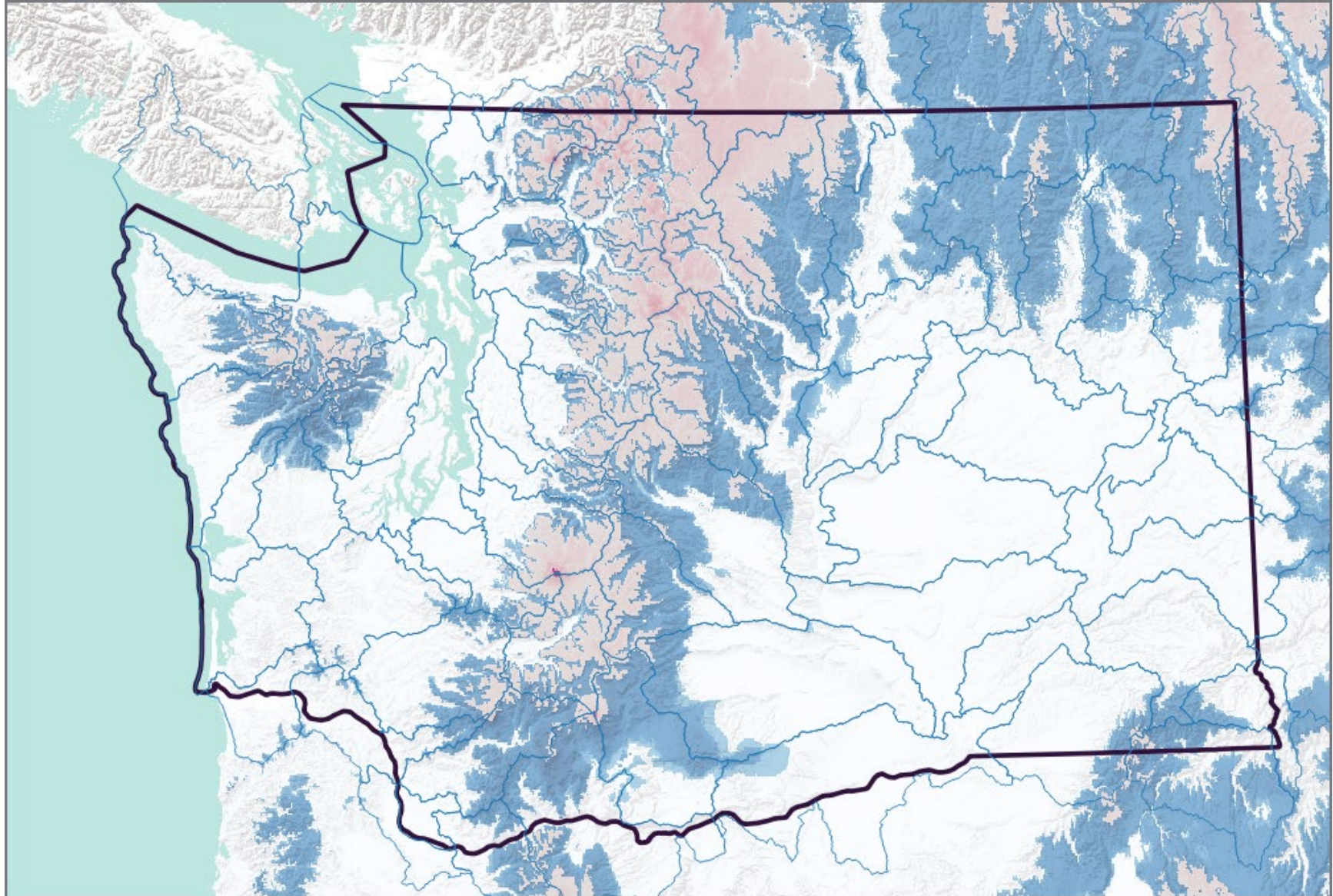
Yakima total (Upper
Yakima, Naches,
Lower Yakima):
200,640 af.

Compare Yakima
Snow storage to
this year: **~2.7
million af.**

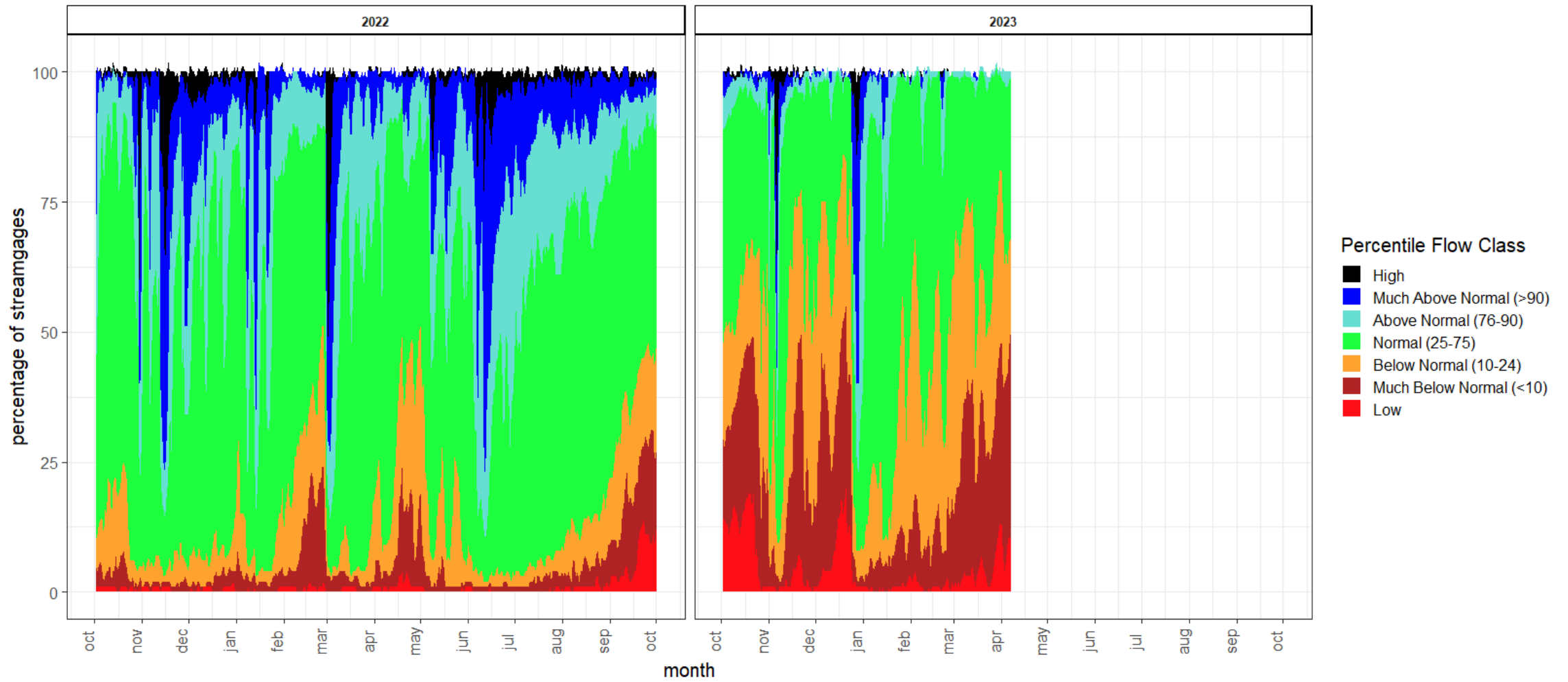
2015	
2023	

Difference
Between 2015
and 2023

28,002,623 af



Time series plot of daily streamflow compared to historical streamflow for the day of the water year (Washington)



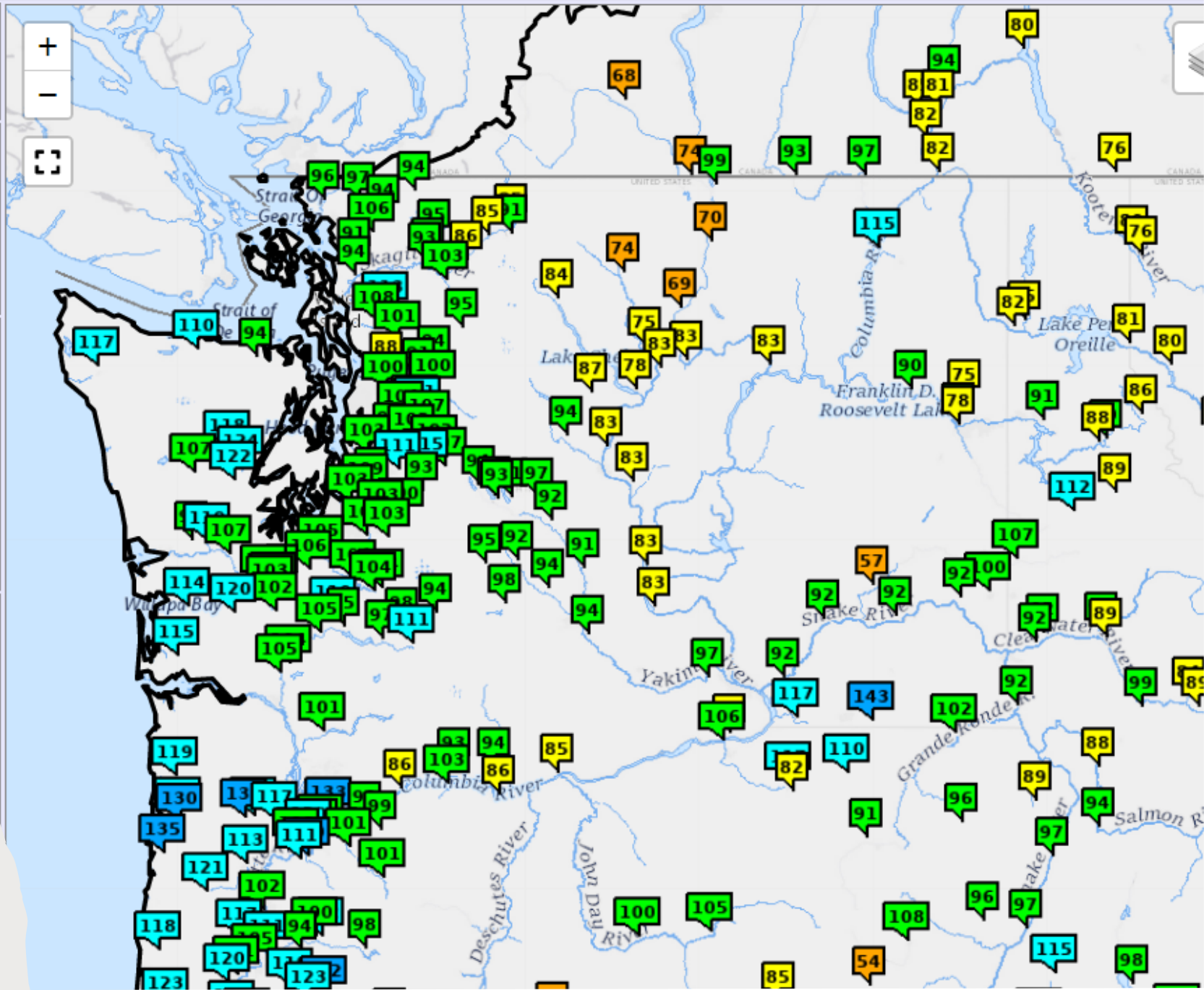
data: USGS WaterWatch

Search
Enter NWS ID:

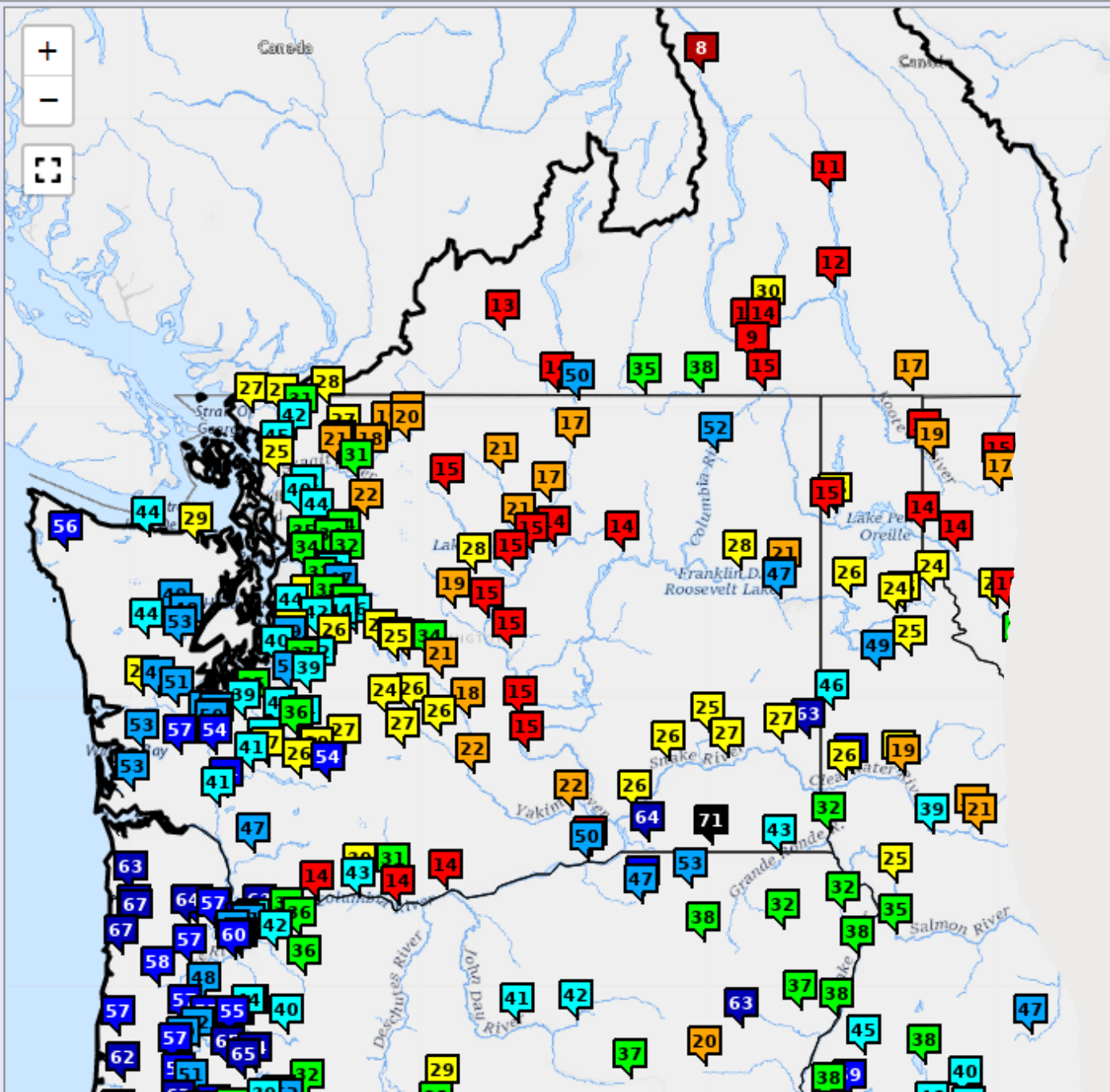
GO

- Map Overlays
- RFC Boundary
 - IFC Basins
 - HSAs

- Forecast
- Normal

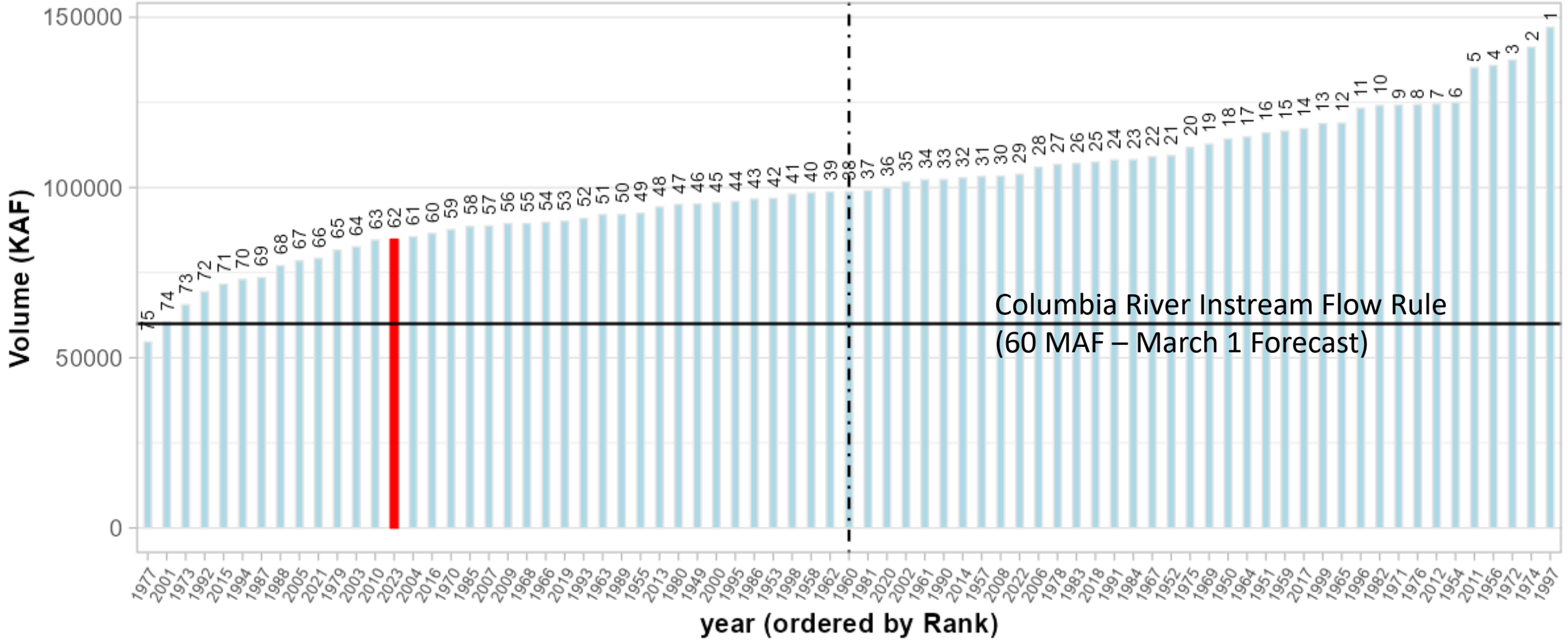


Median
Forecast for
Washington:
97 percent of
normal



Forecast Ranks for past 74 years:
Driest to Wettest

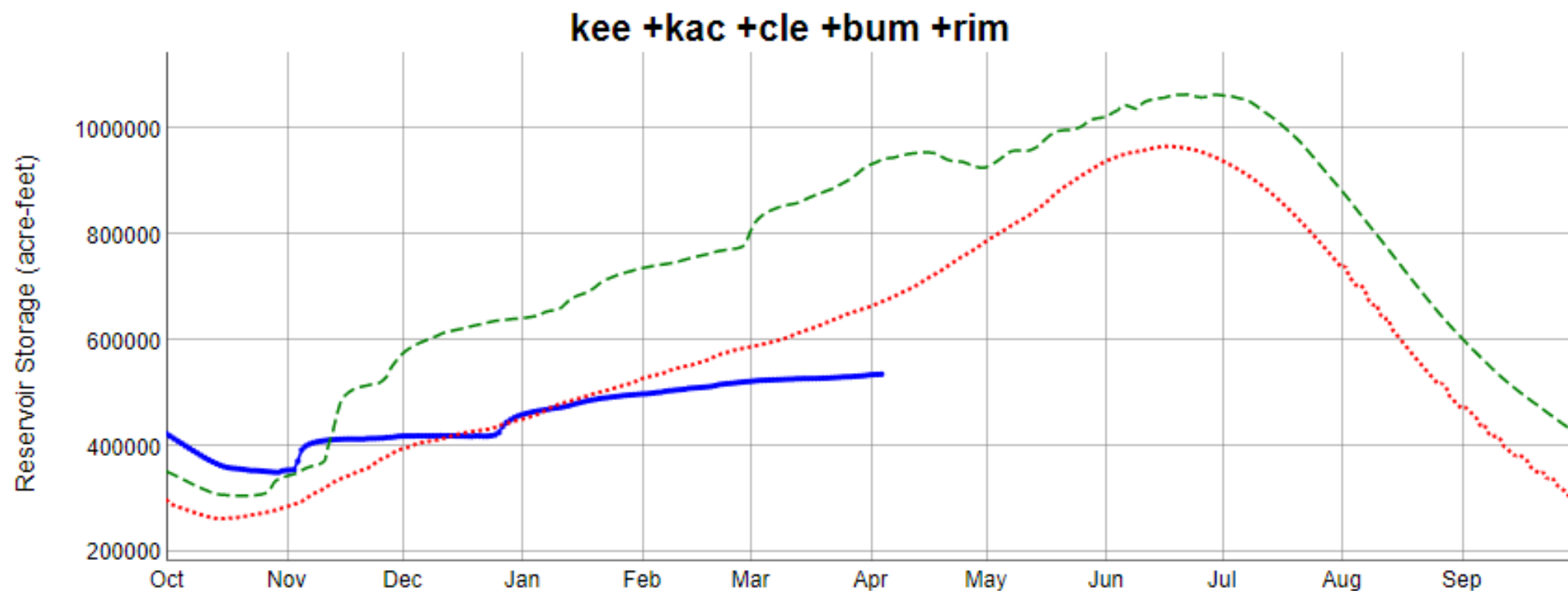
COLUMBIA - THE DALLES DAM | 2023 FORECASTED RUNOFF (APR-SEPT) COMPARED TO HISTORIC RUNOFF (1949-2022)



This year's forecasted runoff is exceeded about 82 percent of the time.

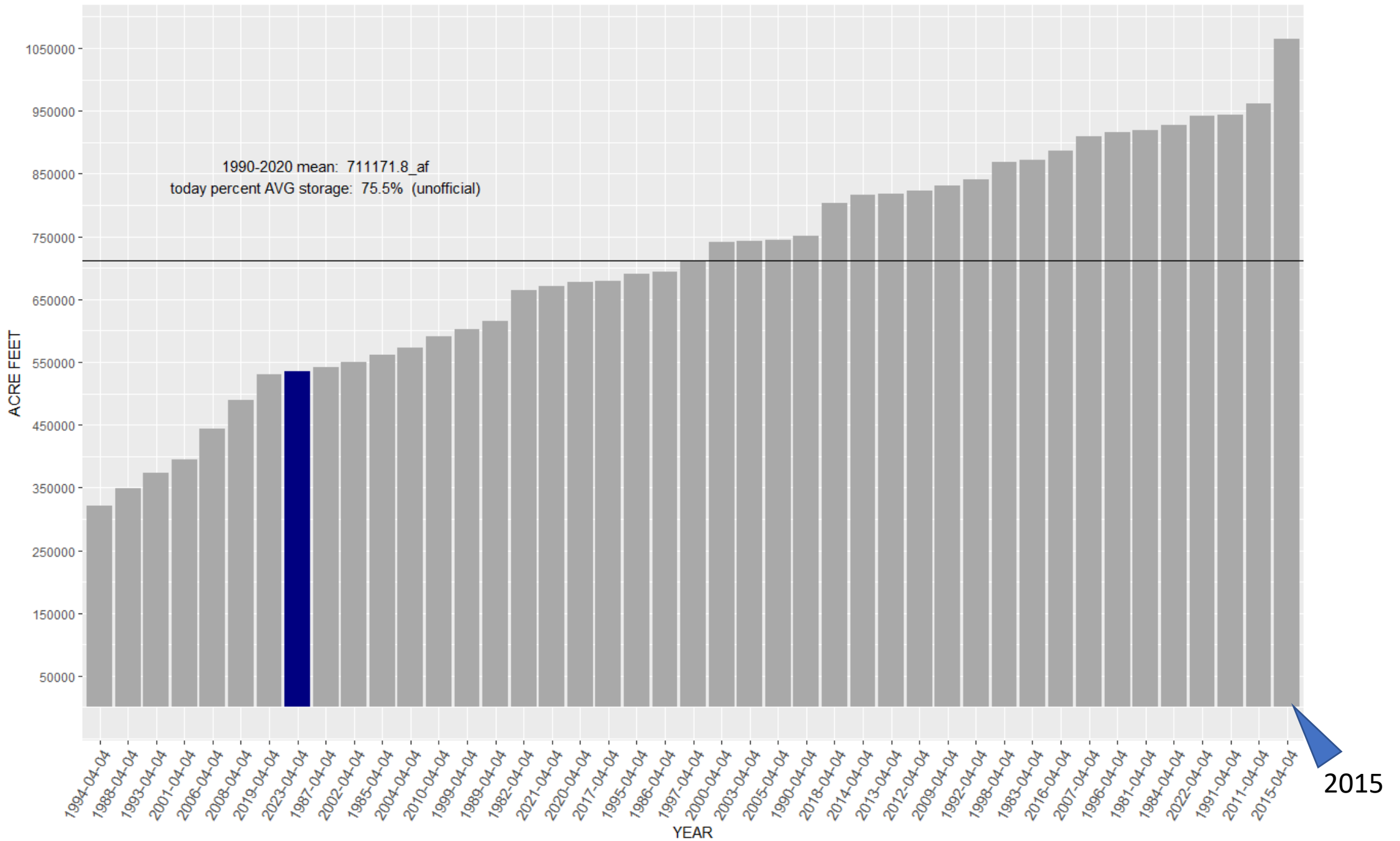
Water Year Graph

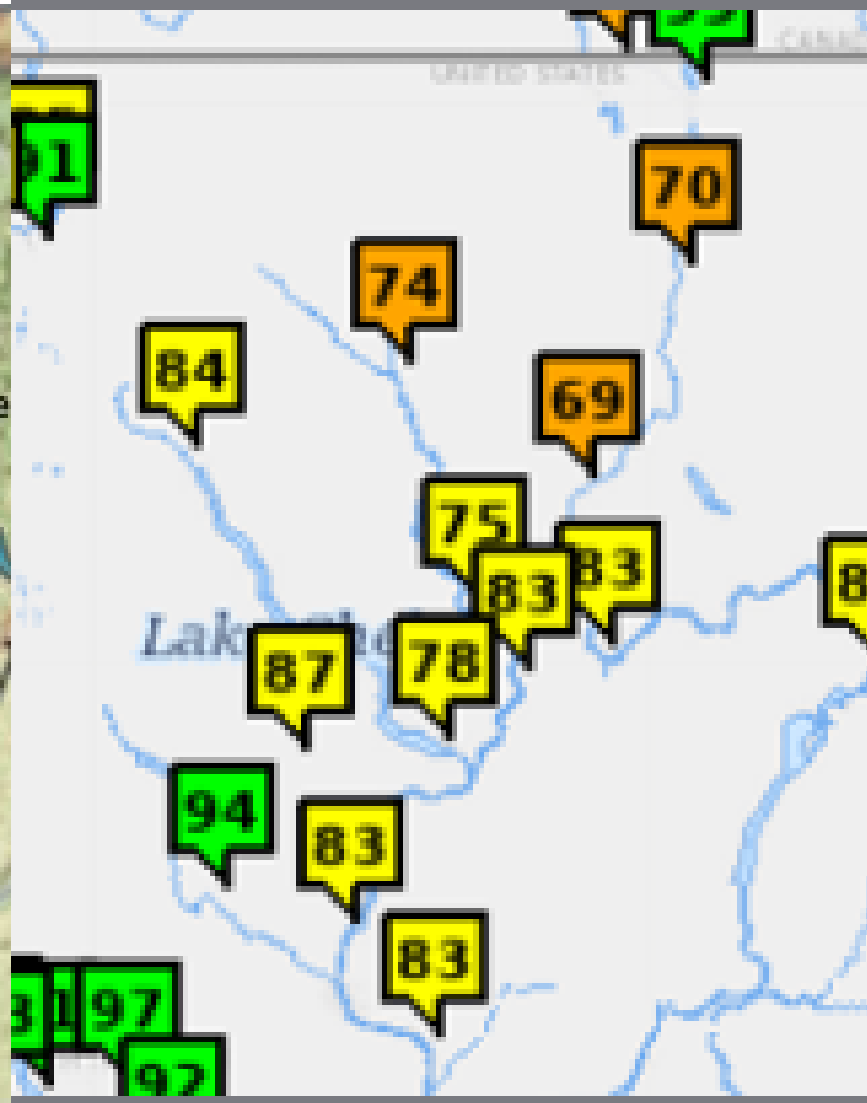
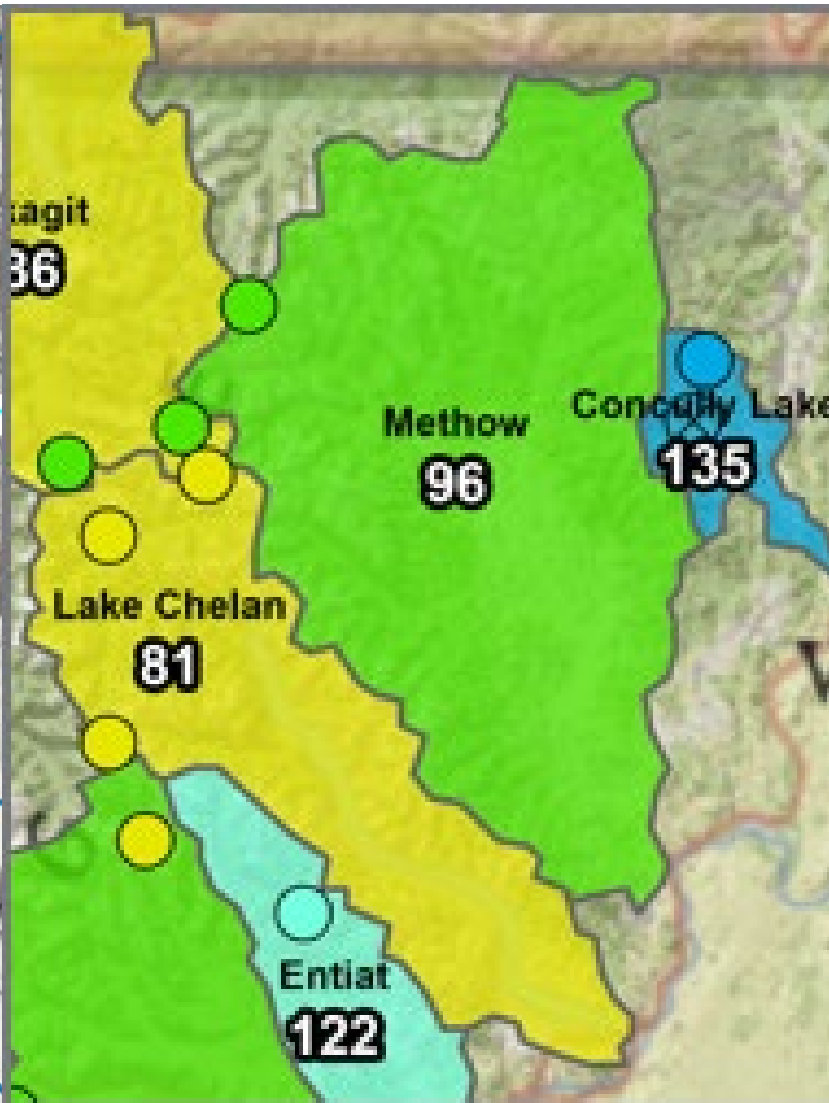
- Current Year
- - Previous Year
- ... Average



PROVISIONAL DATA - Subject to change

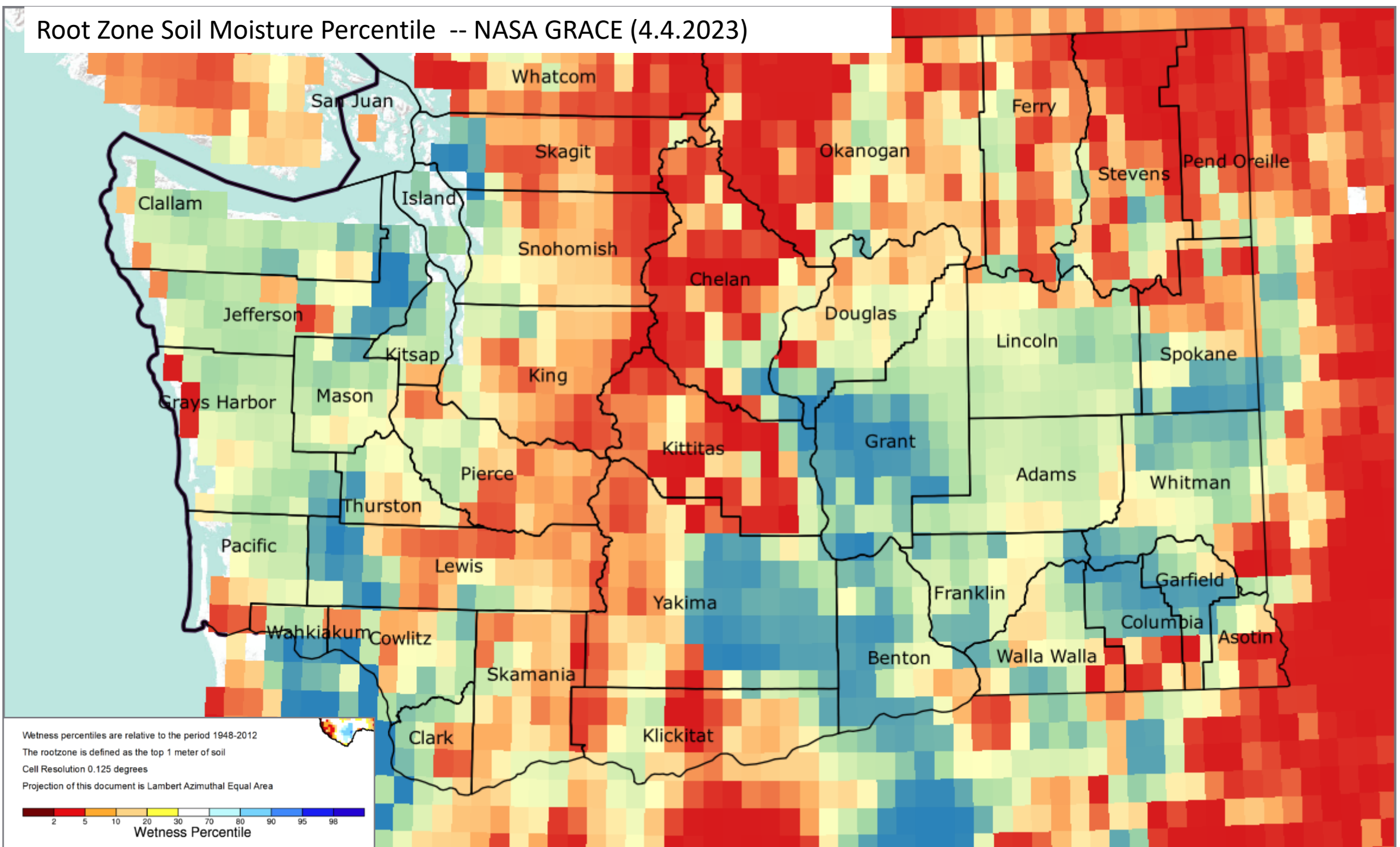
2023-04-04 YAKIMA TOTAL SYSTEM STORAGE (Oct 1980-current)



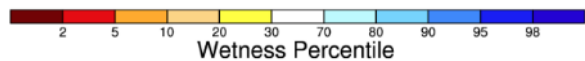


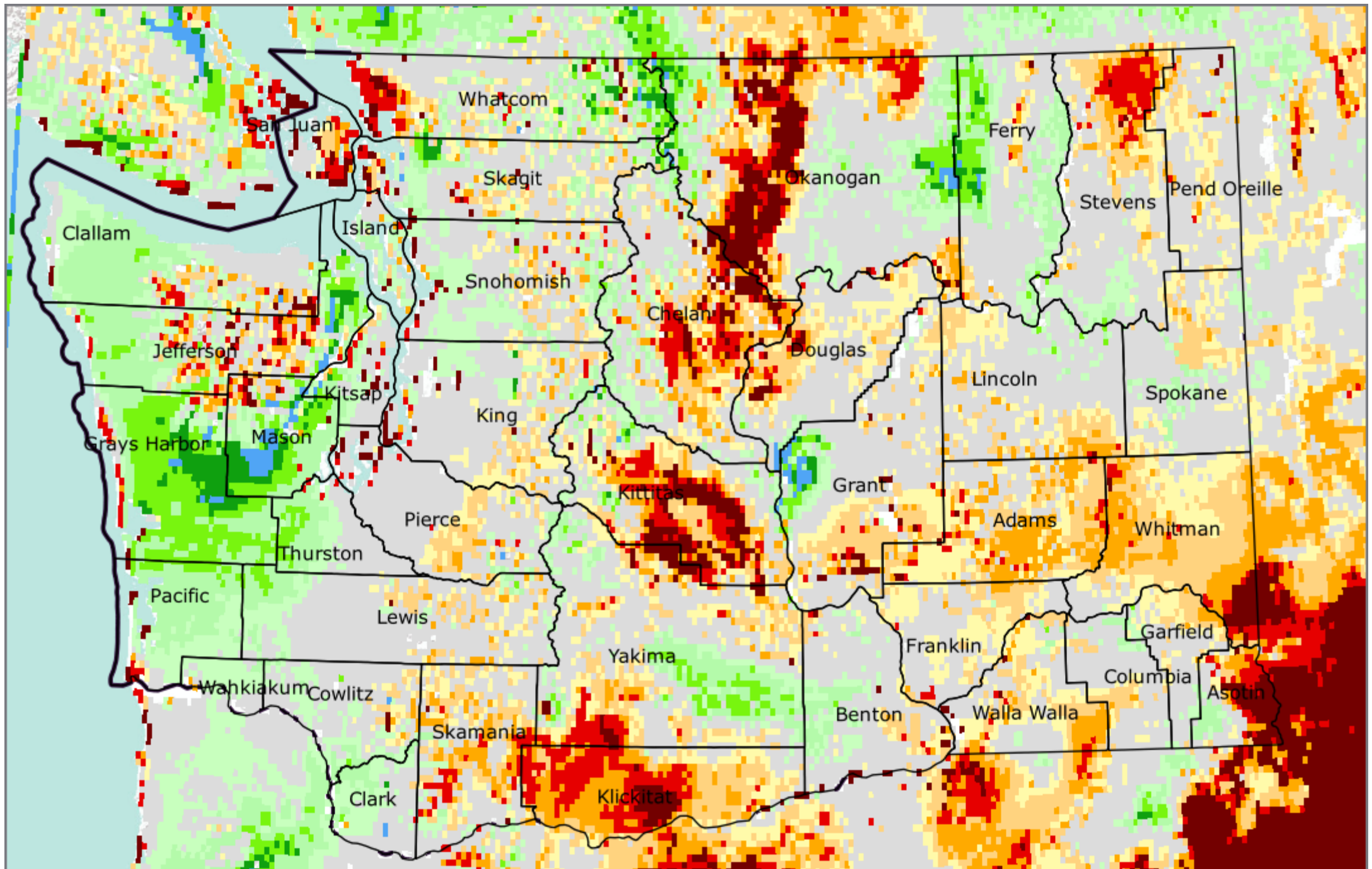
Methow Mystery

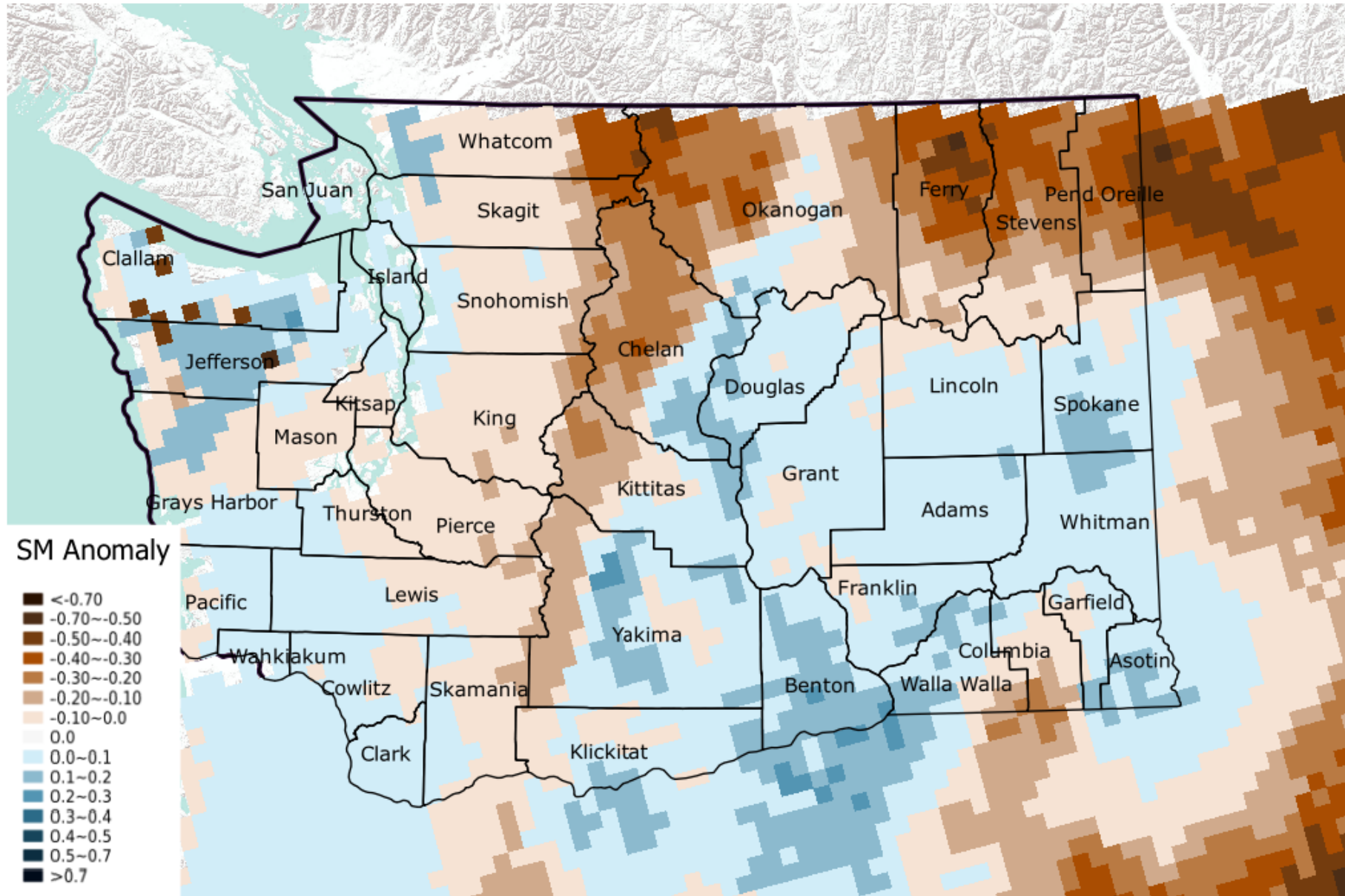
Root Zone Soil Moisture Percentile -- NASA GRACE (4.4.2023)



Wetness percentiles are relative to the period 1948-2012
The rootzone is defined as the top 1 meter of soil
Cell Resolution 0.125 degrees
Projection of this document is Lambert Azimuthal Equal Area







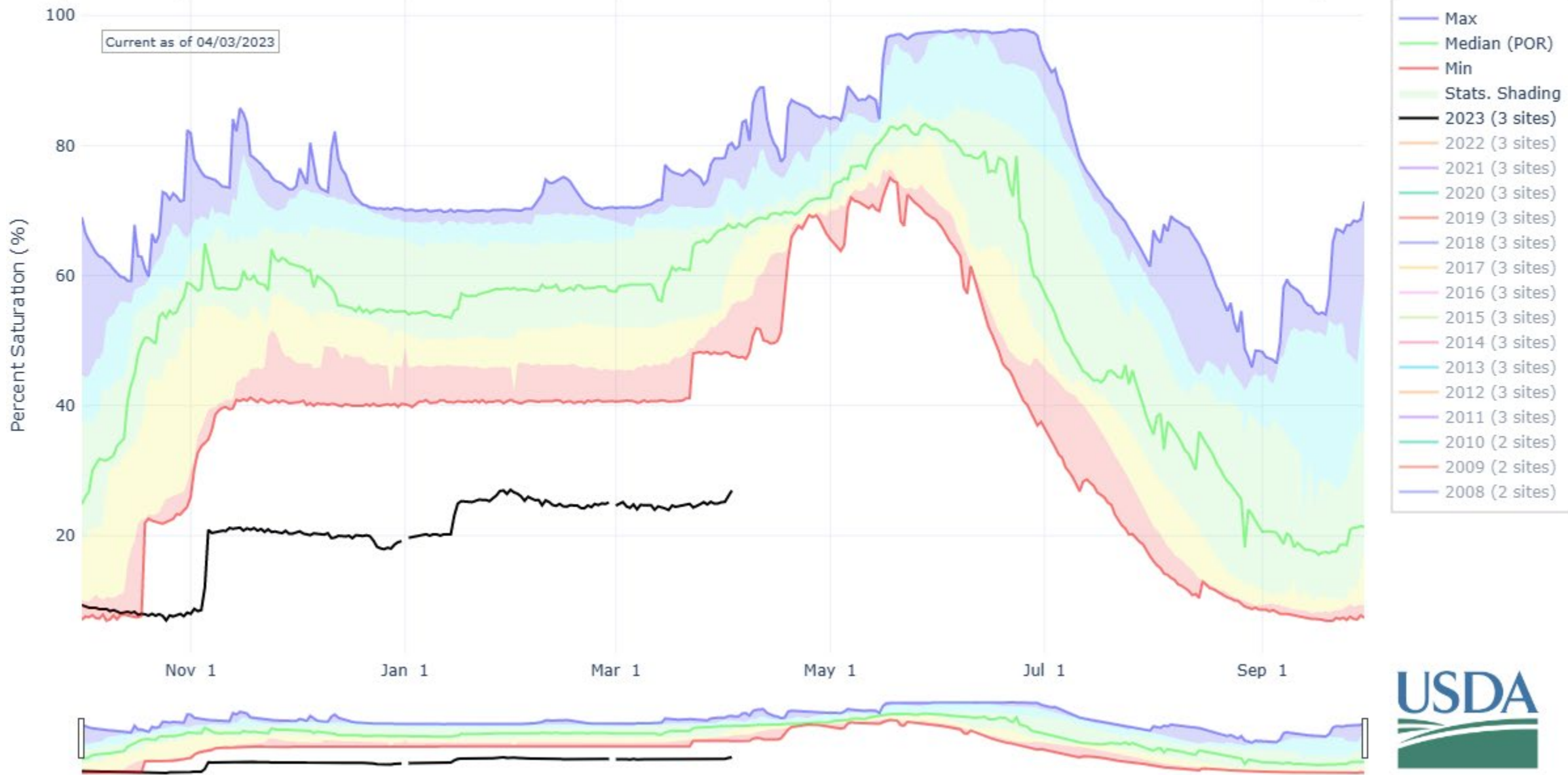
DEPTH AVERAGED SOIL SATURATION IN METHOW

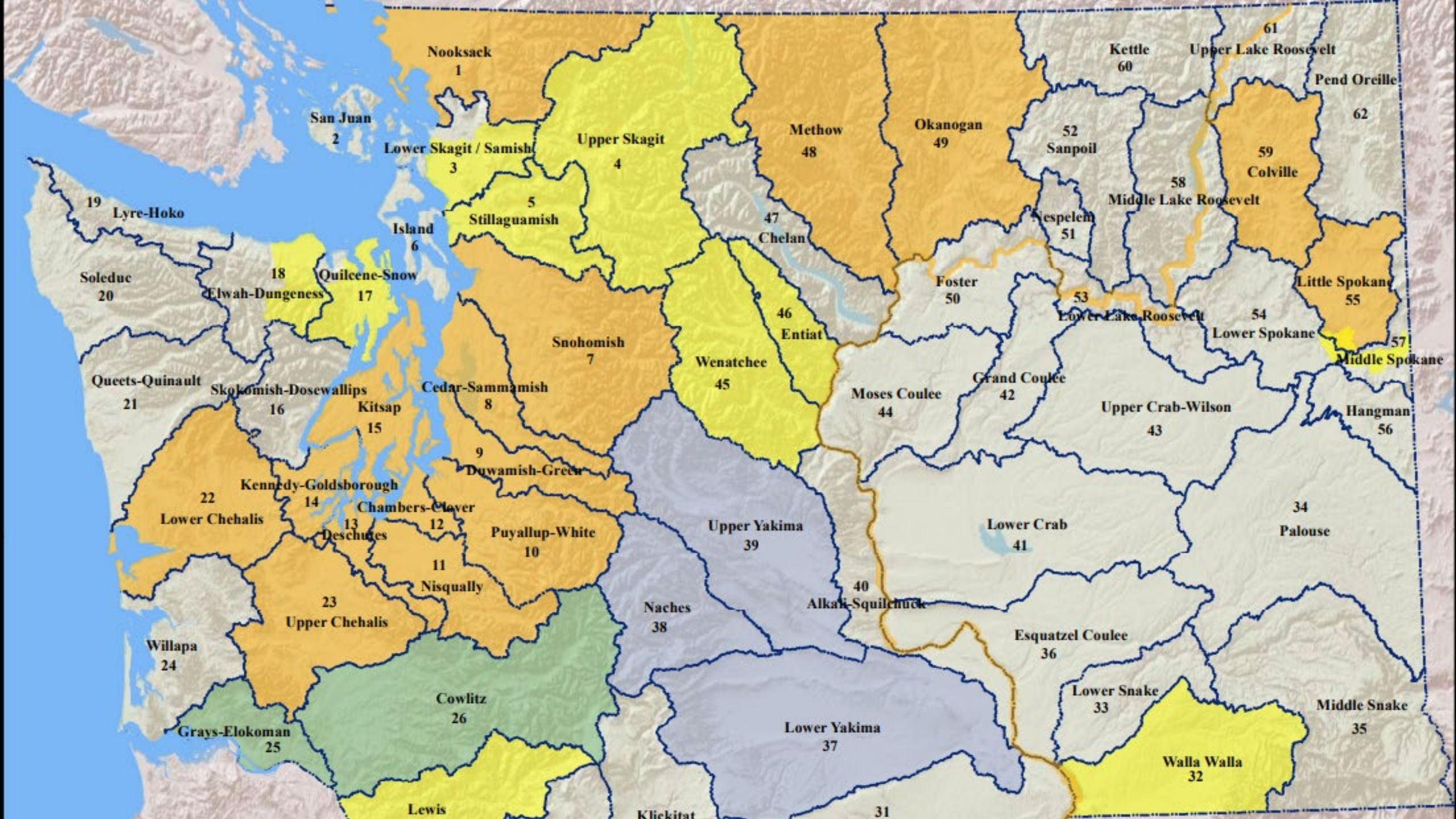
Reset Range

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

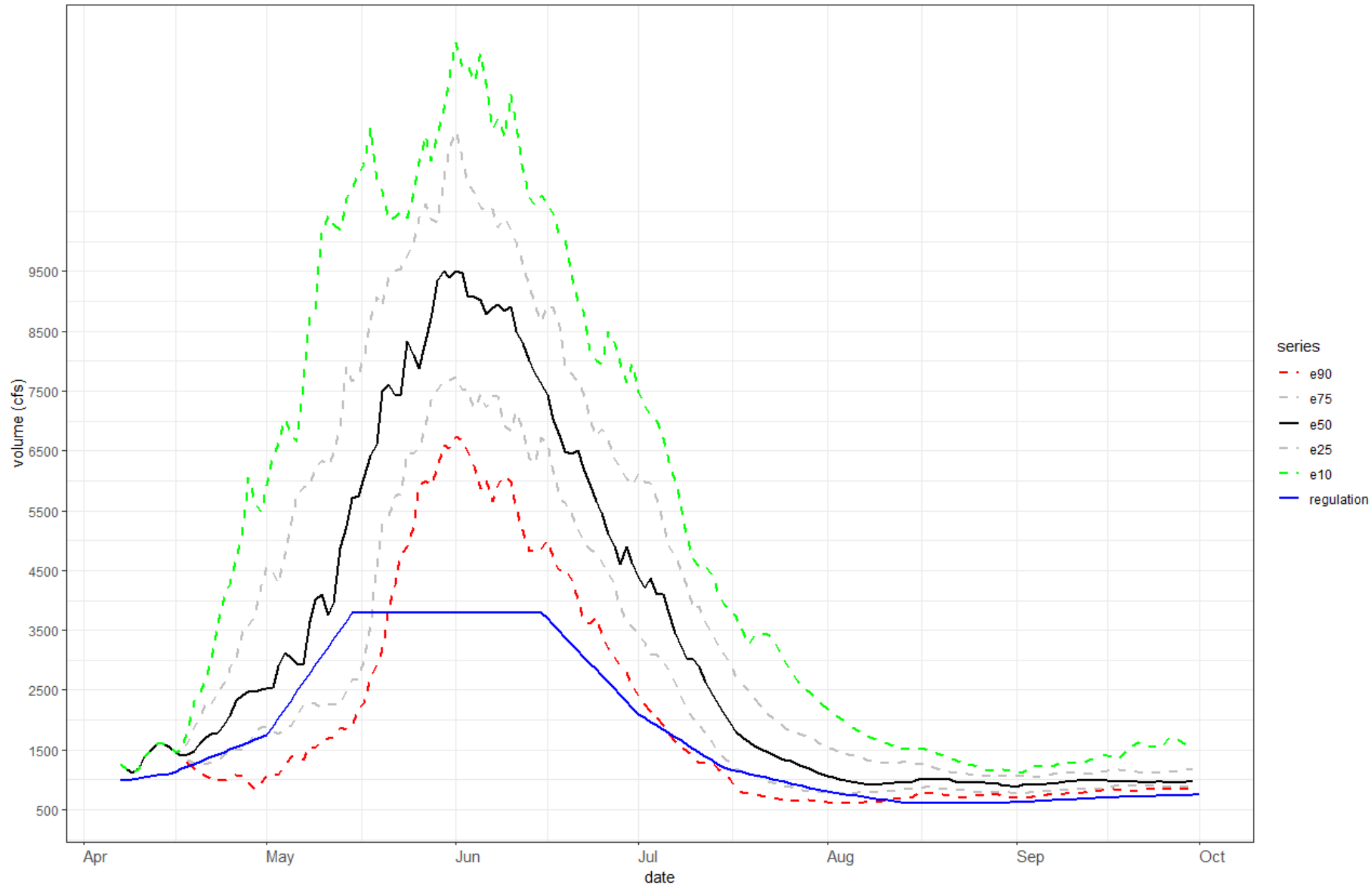
Station List

Current as of 04/03/2023

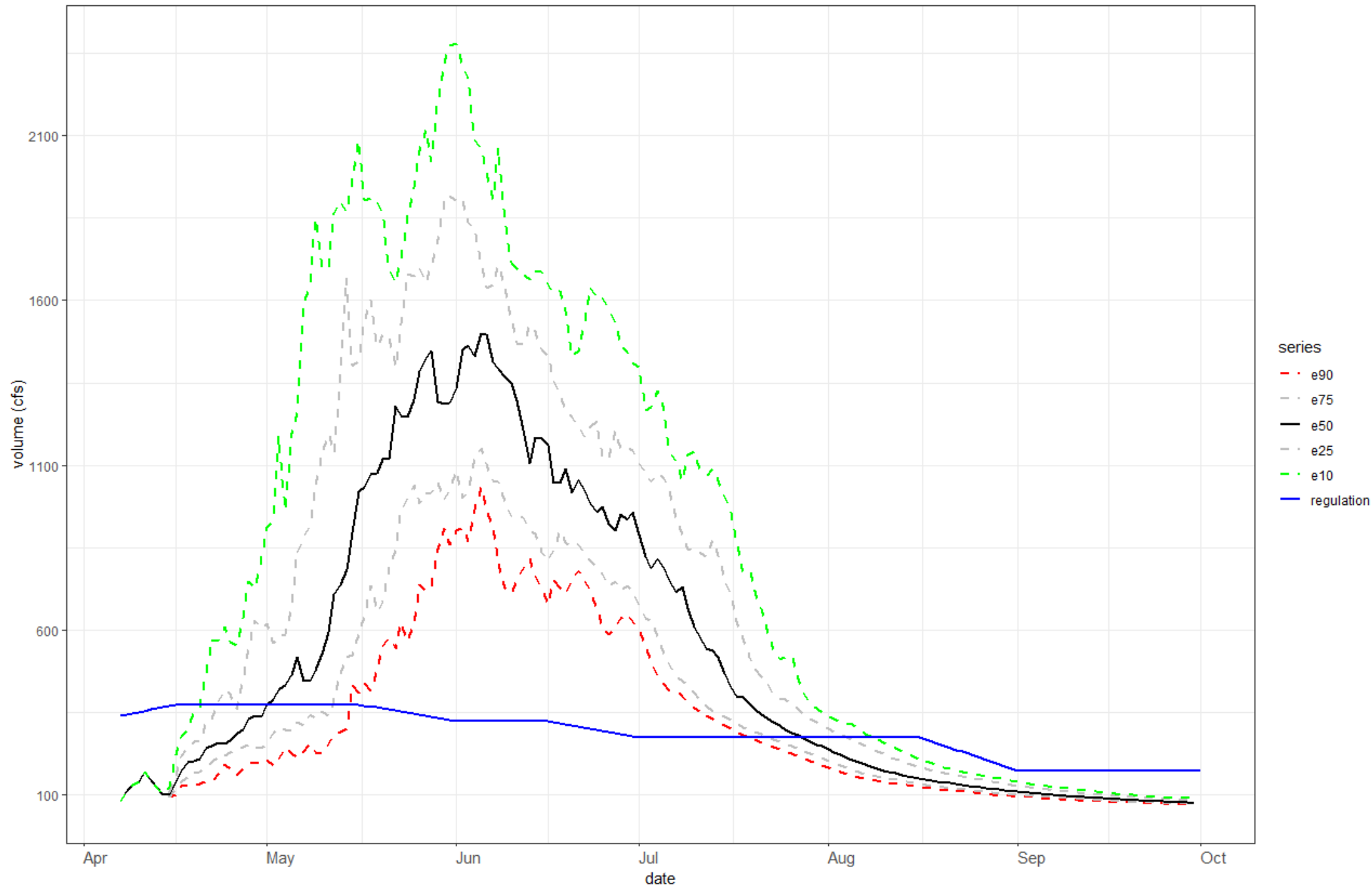




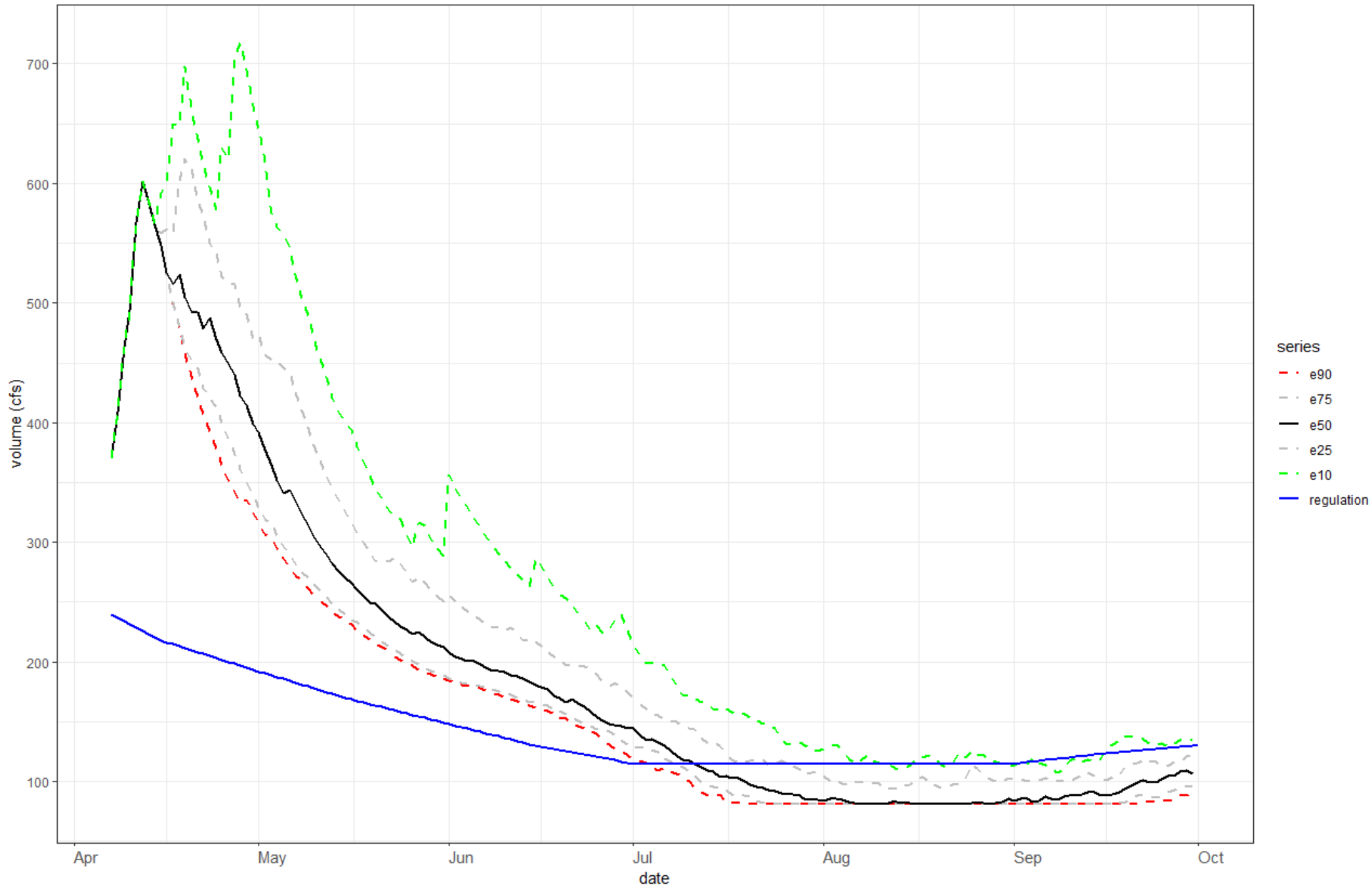
2023-04-05| forecast vs Okanogan at Malott reg flow



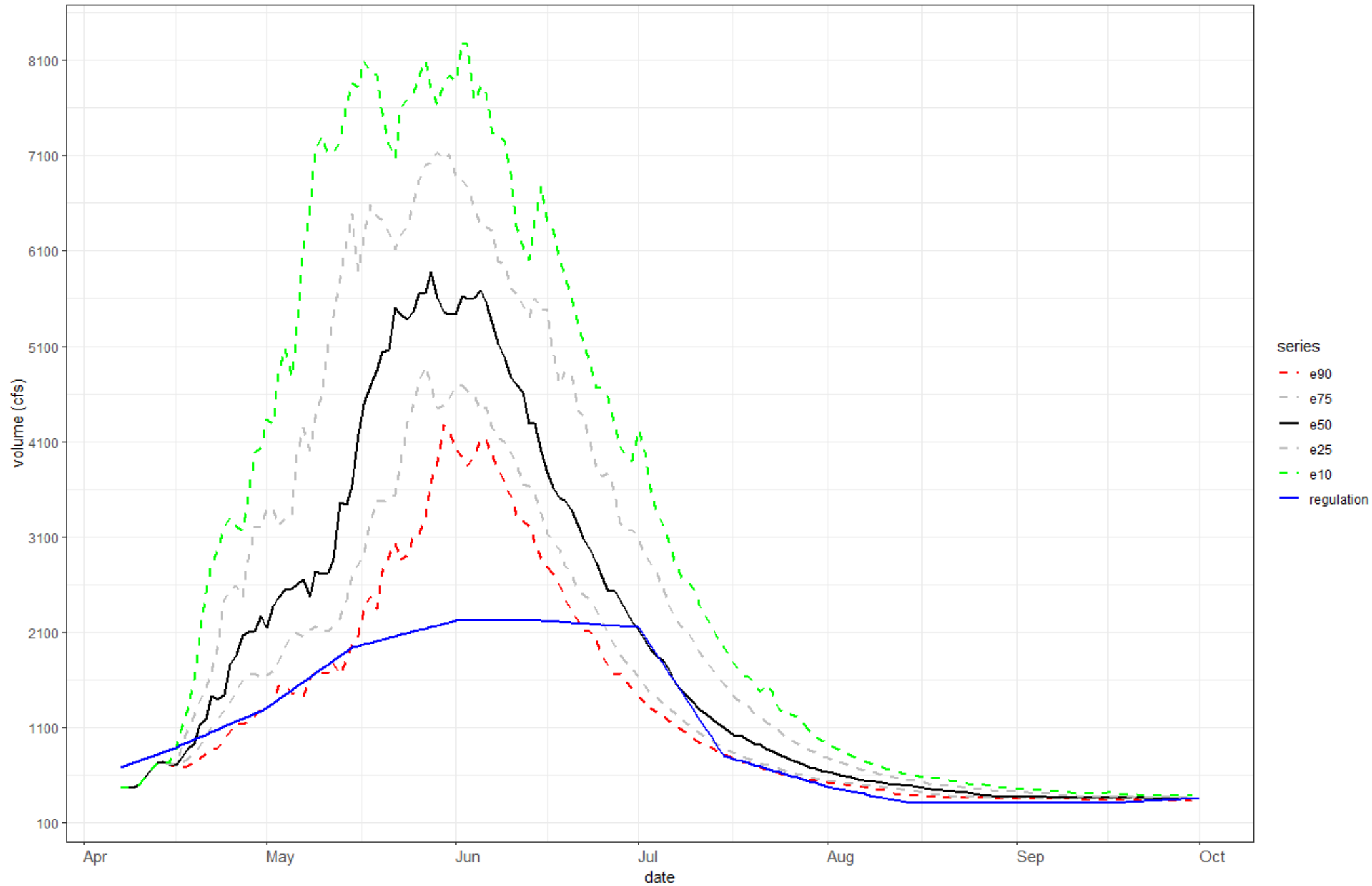
2023-04-05|forecast vs Entiat nr Ardenvoir reg flow



2023-04-05| forecast vs Little Spokane at Dartford reg flow



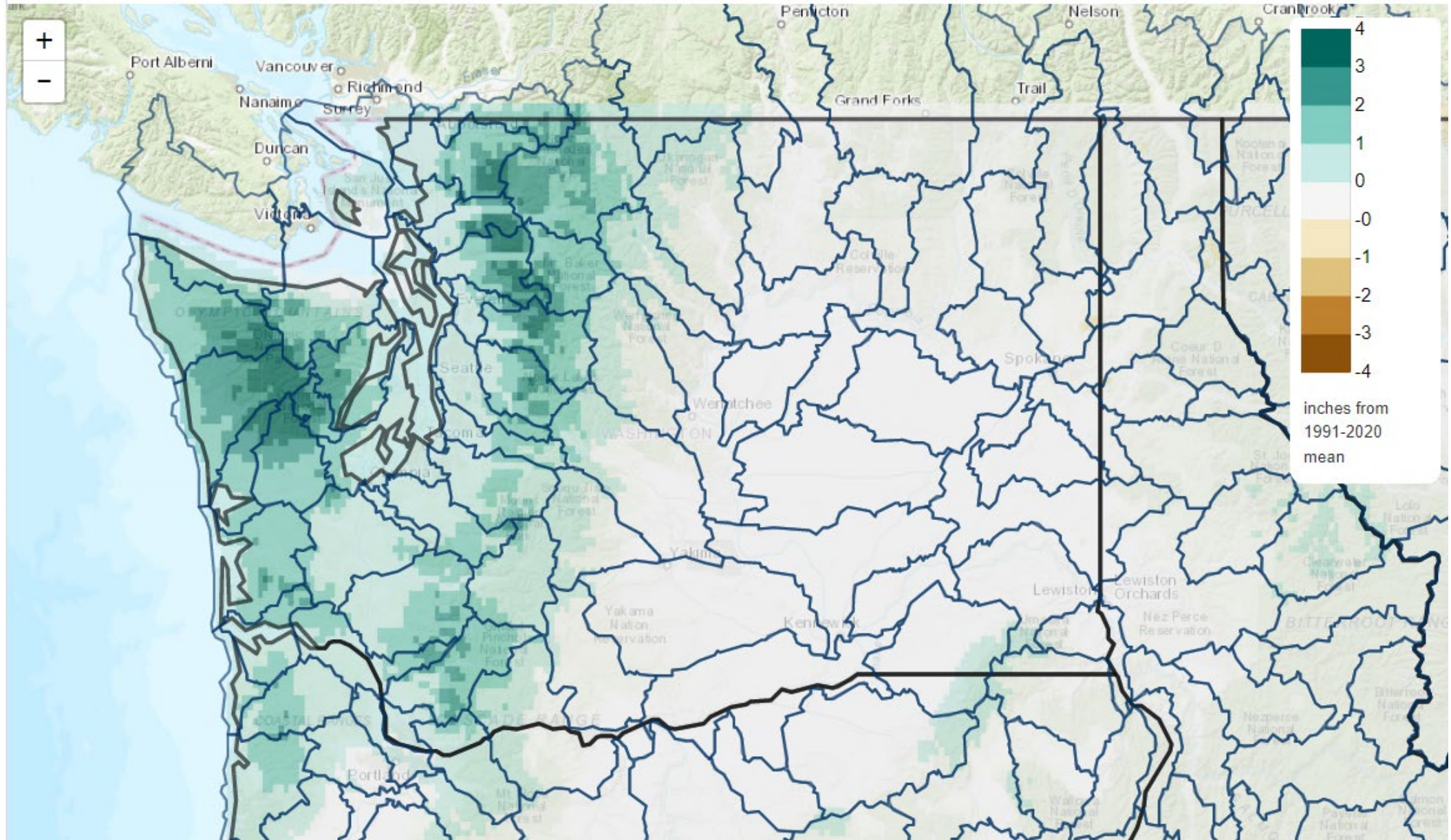
2023-04-05| forecast vs Methow River nr Pateros reg flow



Precipitation Anomaly, Week 1-3, Next 1-21 Days

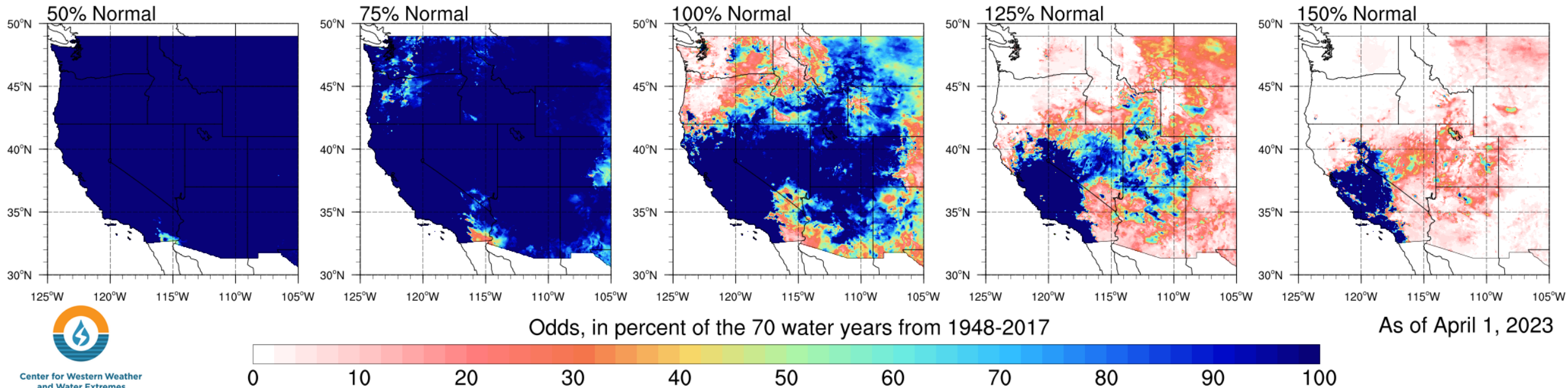
2023/04/06 - 2023/04/26

Multi-ensemble median from 48 downscaled CFSv2 ensemble forecasts - forecast made 12Z-02-Apr-2023 to 6Z-05-Apr-2023



Is it likely that we'll enter an El Nino while already being dry?

Odds of Water Year 2023 Reaching Various Fractions of Water Year Normal Precipitation Totals



Center for Western Weather
and Water Extremes

CW3E, Scripps, UC San Diego; Contact B. Kawzenuk/M. Dettinger/M. Ralph

Data courtesy: PRISM Climate Group, Oregon State University, <http://prism.oregonstate.edu>

Normal Precipitation = 1981-2010

Summing Up

Snowpack is decent, but we're below normal for precipitation.

Beneath the snowpack, we're missing soil moisture.

Forecasted runoff is near-normal, but a few watersheds fall below the statutory drought threshold (75 percent of normal).

Yakima basin reservoir refill is below average; junior entitlements to be pro-rated.

Curtailement of junior water users in some watersheds likely.

What don't I know?



Thank you

Jeff Marti

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Washington Department of Ecology

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