



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PO Box 47600, Olympia, WA 98504-7600 • 360-407-6000

Water Supply Availability Committee (WSAC)

Wednesday, June 26, 2024, 10 a.m. – 11:30 a.m.

Zoom: [Click to join](#). (Call-in: 253.205.0468; Meeting ID: 879 2468 3050; Passcode: 313197)

Meeting Objectives – June:

- Share pertinent info and assess water supply conditions in Washington.

Agenda

Time	Agenda item	Responsible
10:00 a.m.	Welcome and agenda review Recap: April 2024 Drought Declaration	Caroline Mellor, Ecology
10:10 a.m.	Regional Climate Setting/ ENSO	Karin Bumbaco, OWSC
10:25 a.m.	Water Supply Forecasts	Amy Burke, NWRFC
10:40 a.m.	Mountain Conditions	Matt Warbritton, NRCS
10:50 a.m.	Streamflow and Groundwater	Nick Sutfin, USGS
11:05 a.m.	Yakima Project	Chris Lynch, BOR
11:15 a.m.	Discussion: What conditions and concerns are folks seeing on the ground?	All participants Ecology facilitates
11:25 a.m.	Wrap-up and next steps	Caroline Mellor, Ecology

Committee Purpose

WSAC provides an important consultative and advisory role to Ecology related to current and forecasted water supply conditions and whether the hydrologic drought threshold has been met or is forecasted to be met: seventy-five percent of normal water supply within a geographic area ([RCW 43.83B.405](#) and [WAC 173-166-050](#)).

Resources

WSAC Website: [Water Supply Availability Committee - WA State Department of Ecology](#)

Ecology Drought homepage: [Drought response - WA State Department of Ecology](#)

Contact

Committee Chair: Caroline Mellor, Statewide Drought Lead, WA Department of Ecology
Caroline.Mellor@ecy.wa.gov | (c) 360.628.4666



Office of the Washington State Climatologist



Current Conditions and Seasonal Outlook

Karin Bumbaco

Office of the Washington State Climatologist

Climate Impacts Group

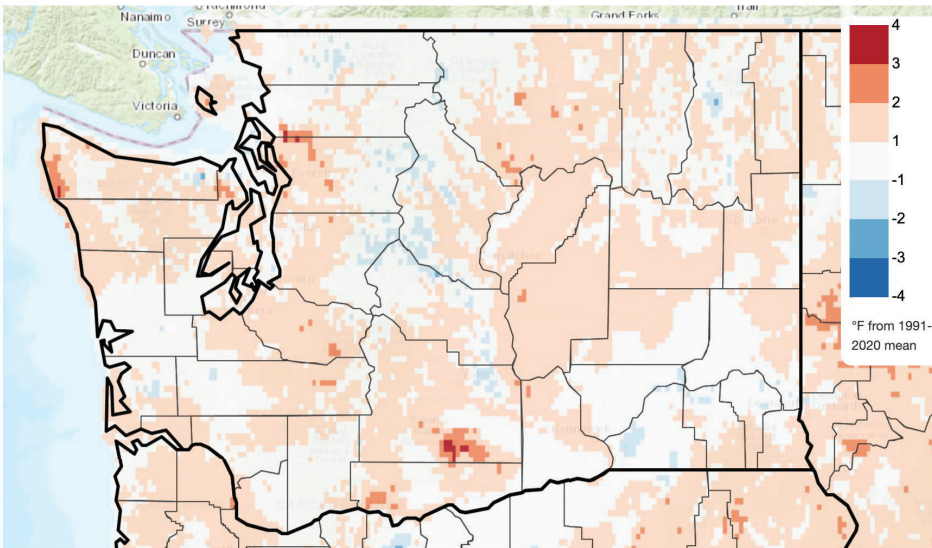
University of Washington

June 26, 2024

Water Year to Date

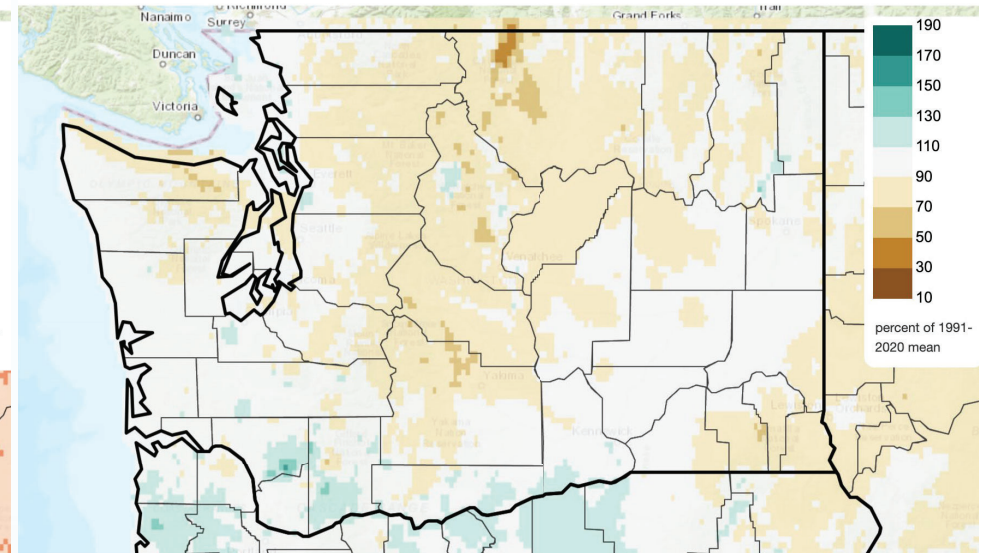
Temperature

Mean Daily Temperature Anomaly, Since Oct 1st
2023/10/01 - 2024/06/23



Precipitation

Total Precipitation Anomaly, Since Oct 1st
2023/10/01 - 2024/06/23



[Climate Toolbox](#)

- Averaged statewide, Oct-May has tied as the 13th warmest on record (+1.0°F above normal)*
- Averaged statewide, Oct-May is the 43rd driest (90% of normal; -3.98")

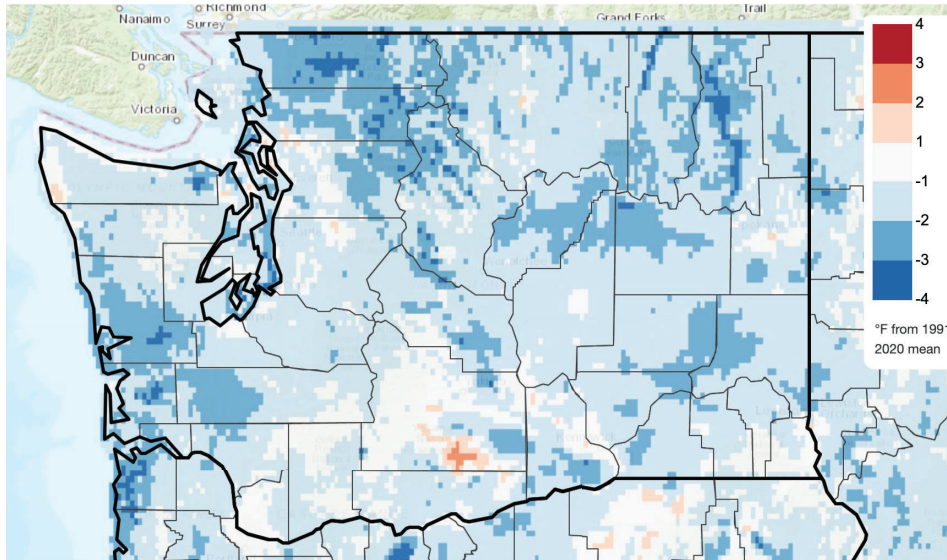
*Records since 1895; Normal is 1991-2020

Last 60 Days

Temperature

Mean Daily Temperature Anomaly, Last 60 Days

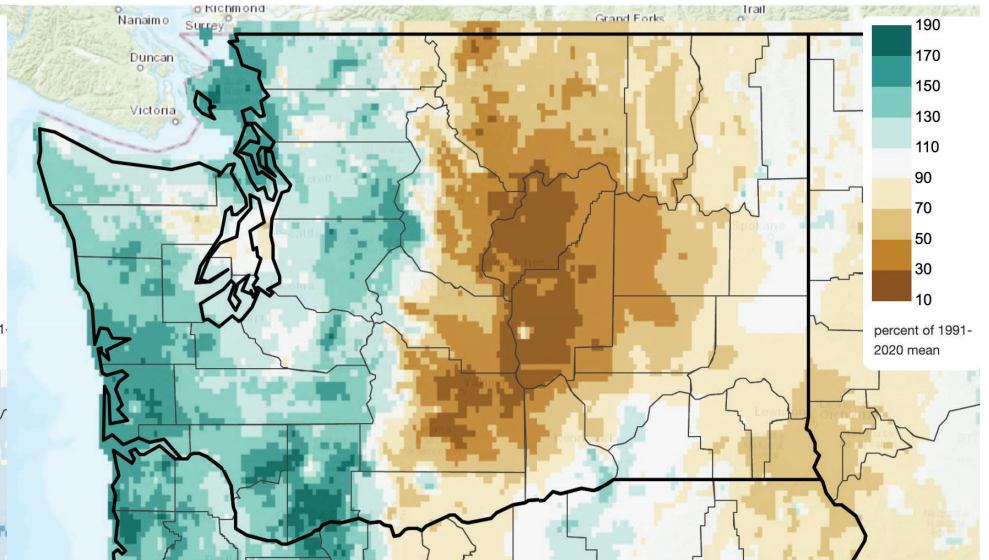
2024/04/25 - 2024/06/23



Precipitation

Total Precipitation Anomaly, Last 60 Days

2024/04/25 - 2024/06/23

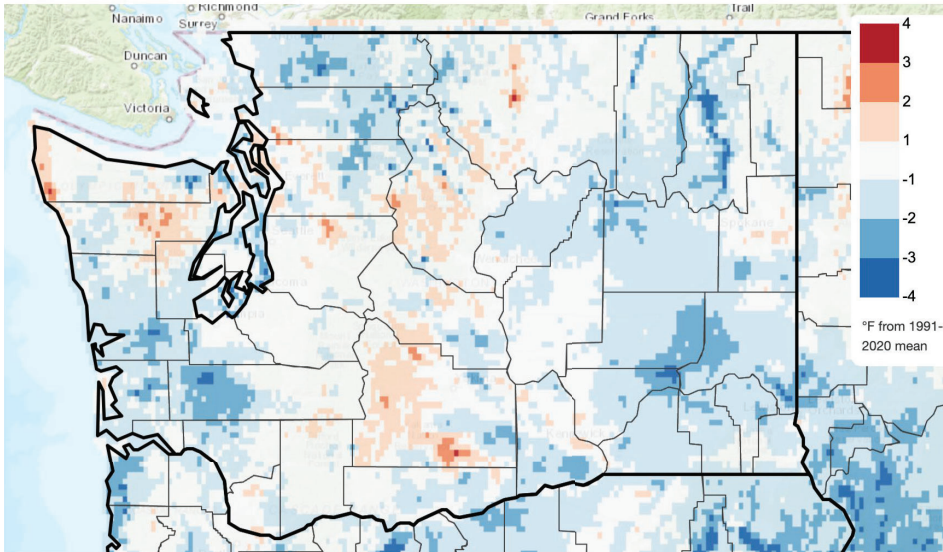


Climate Toolbox

May 2024

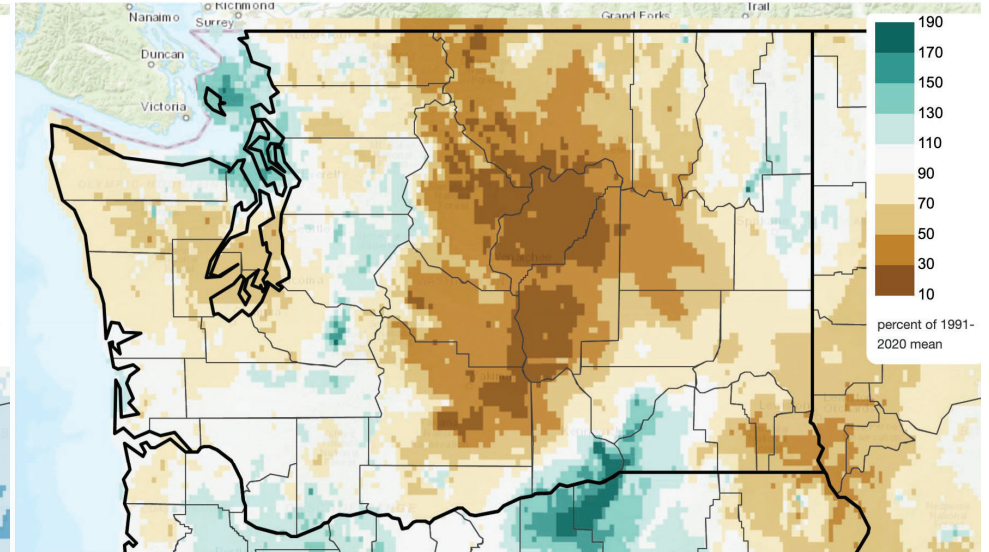
Temperature

Mean Daily Temperature Anomaly, Last Full Month
2024/05/01 - 2024/05/31



Precipitation

Total Precipitation Anomaly, Last Full Month
2024/05/01 - 2024/05/31



Climate Toolbox

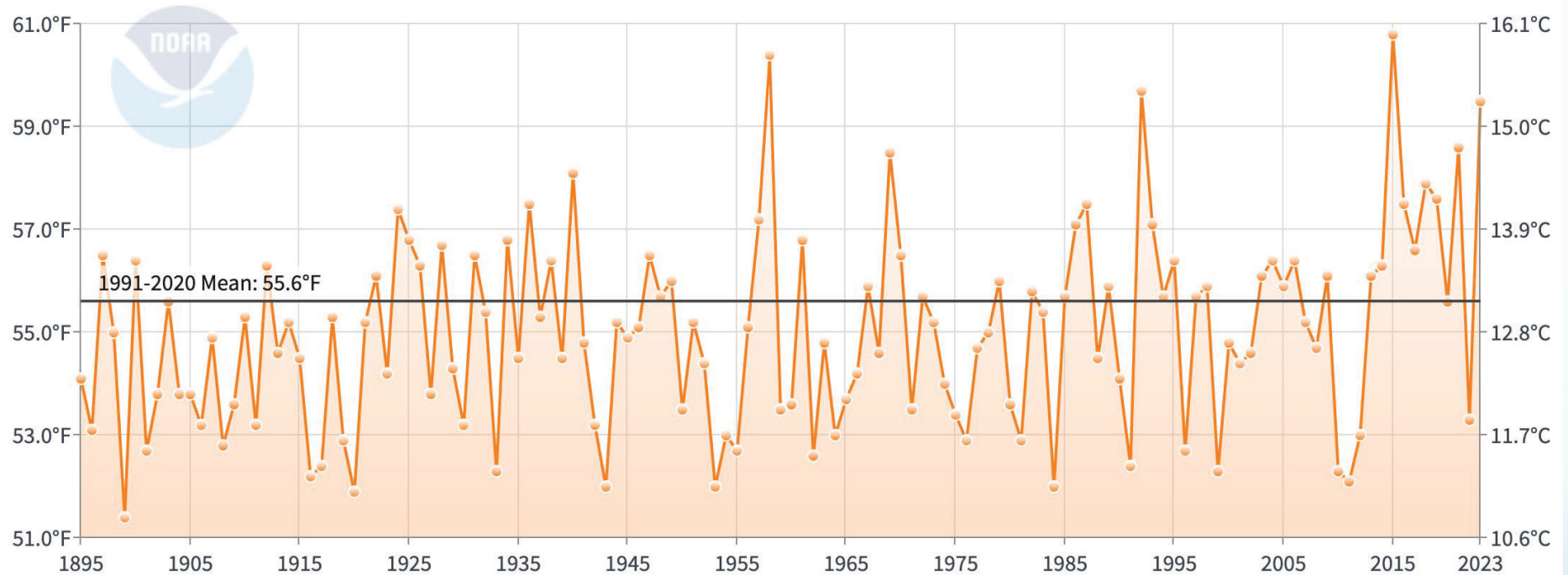
- Averaged statewide, May was the 54th coldest (out of 130) with temperatures -1.5°F below normal
- Averaged statewide, May was 68th driest on record (86% of normal)

*Records since 1895; Normal is 1991-2020

May-June Temperatures

Washington Average Temperature

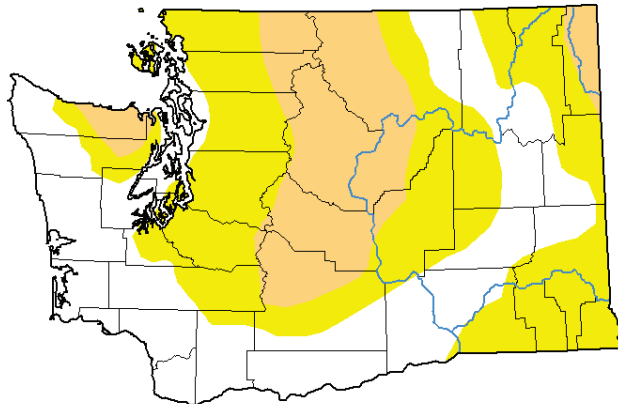
May-June



U.S. Drought Monitor

U.S. Drought Monitor Washington

June 18, 2024
(Released Thursday, Jun. 20, 2024)
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>

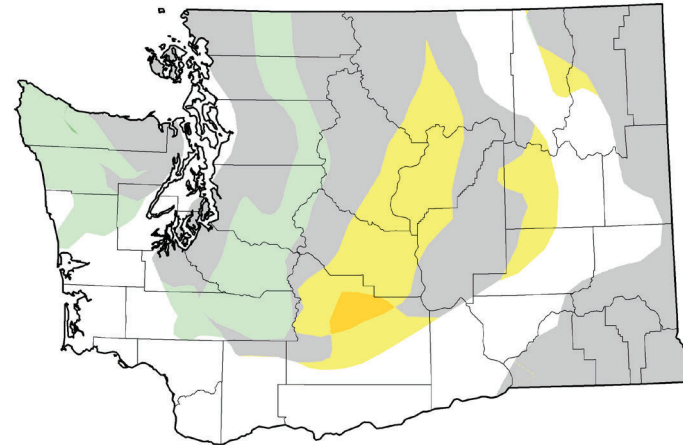
Author:

Richard Tinker
CPC/NOAA/NWS/NCEP



droughtmonitor.unl.edu

U.S. Drought Monitor Class Change - Washington 4 Week



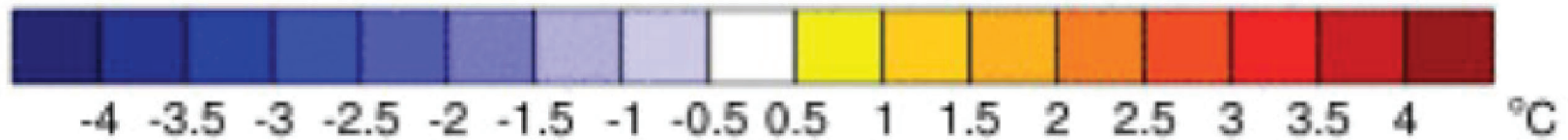
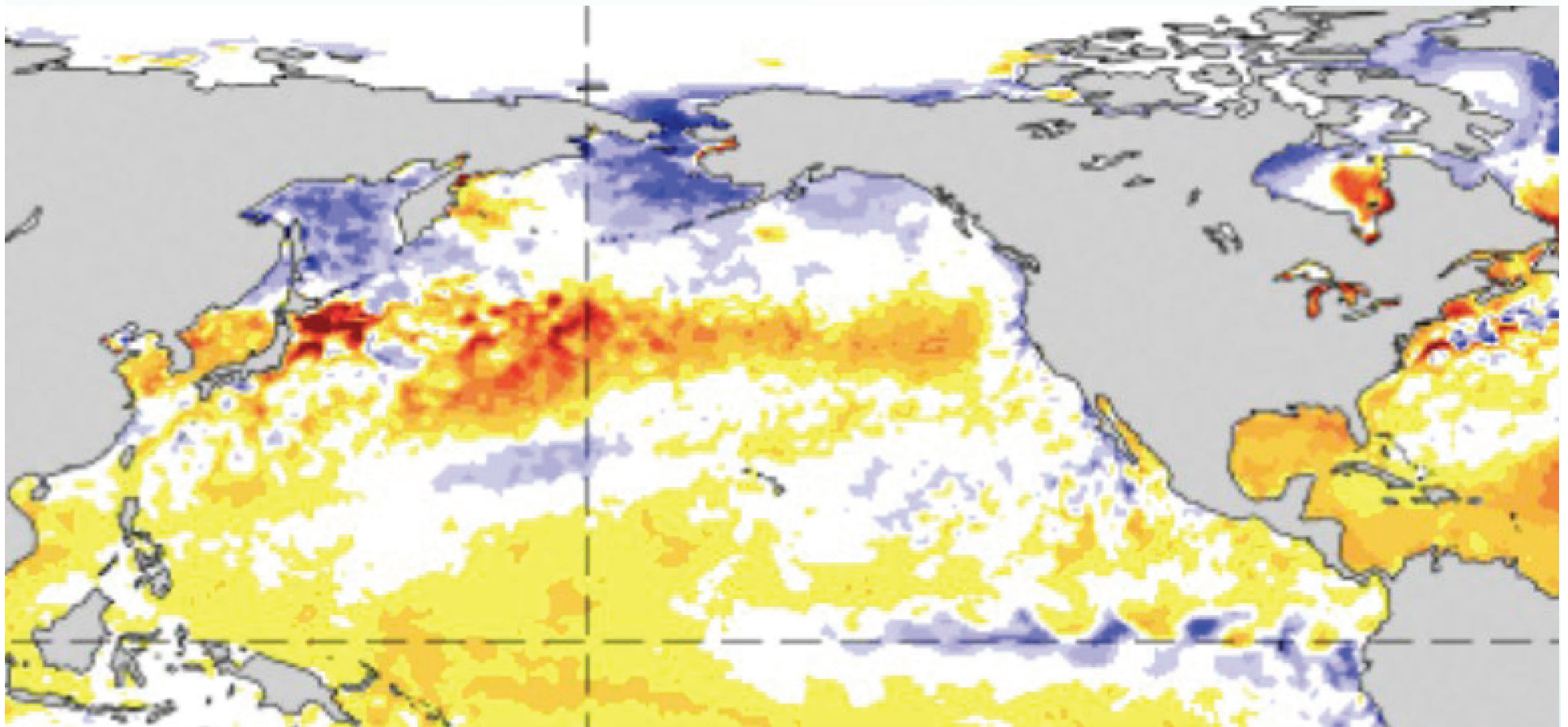
June 18, 2024
compared to
May 21, 2024

droughtmonitor.unl.edu



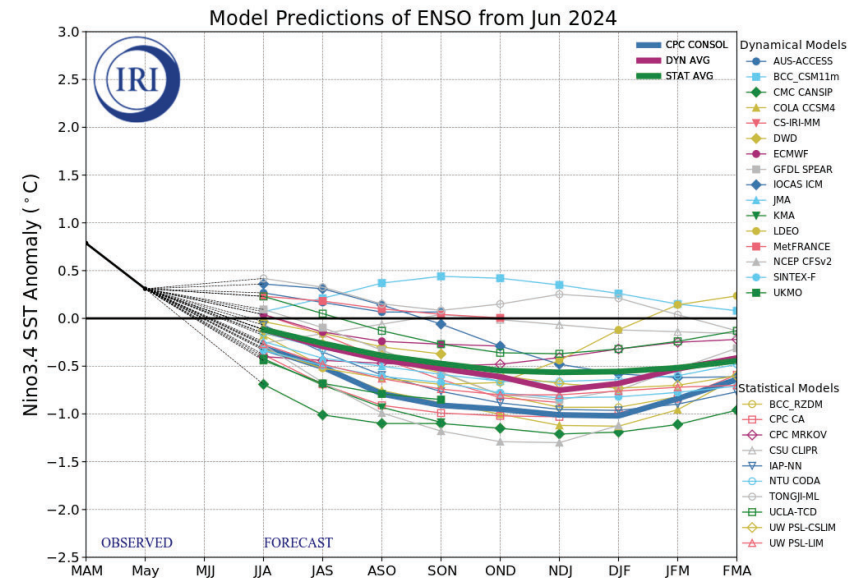
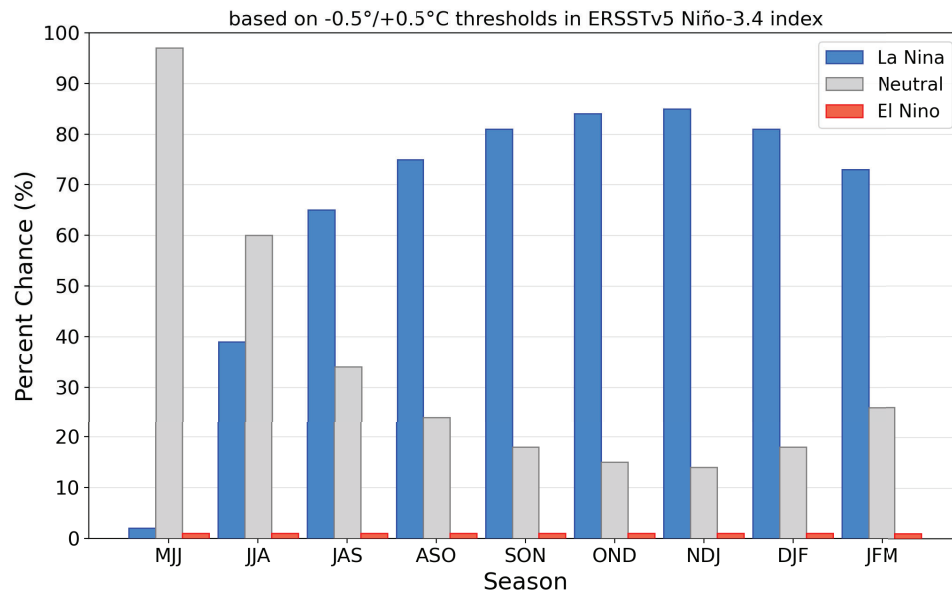
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

Sea Surface Temperature Anomalies: June 9-15, 2024



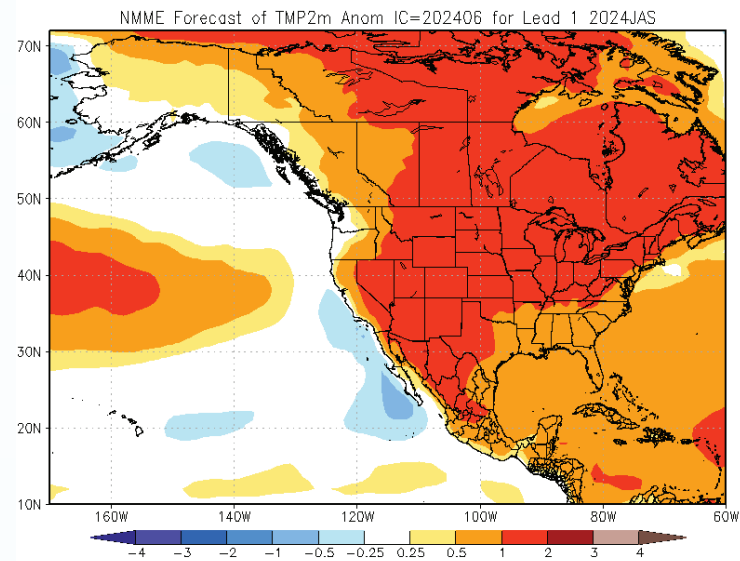
El Niño has ended

Official NOAA CPC ENSO Probabilities (issued June 2024)

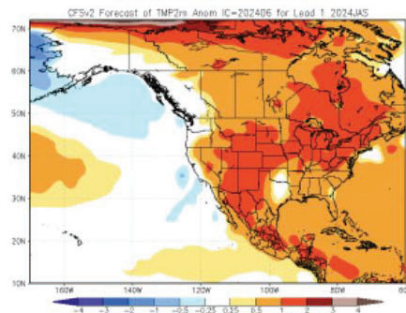


- La Niña is probable during the upcoming fall and winter, but not quite as likely, nor as strong, as indicated by previous forecasts/model runs

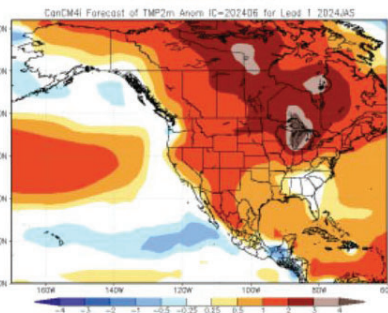
North American Multi-Model Ensemble Temperature: Jul-Sept



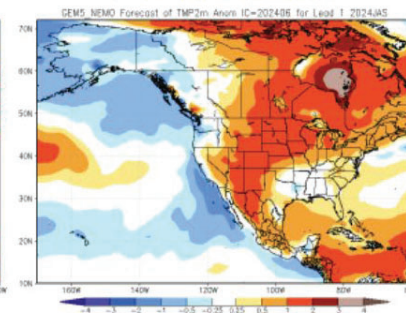
NCEP CFSv2



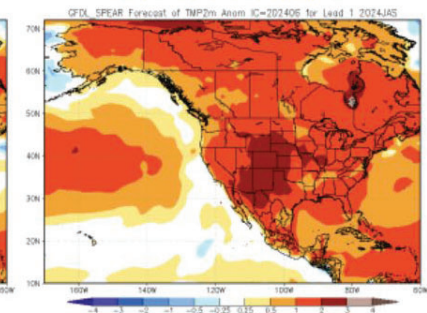
CanCM4i



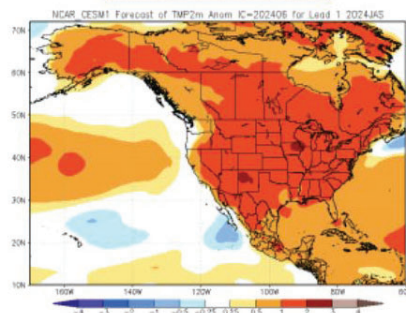
GEM5 NEMO



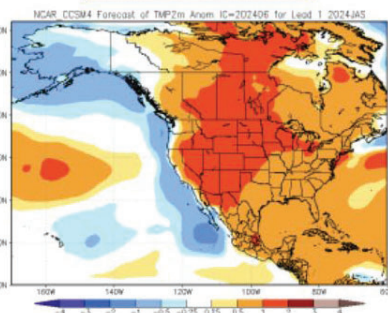
GFDL SPEAR



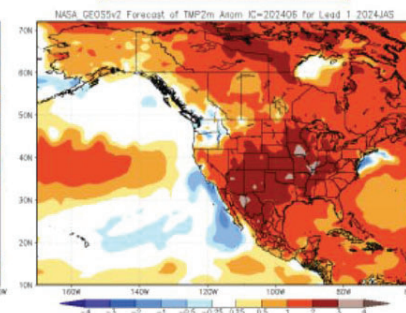
NCAR CESM1



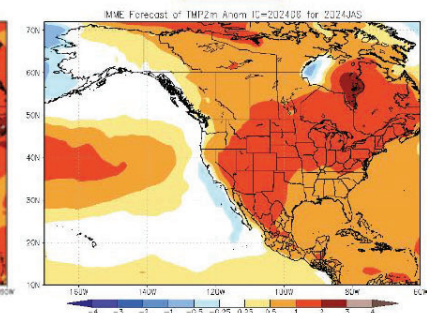
NCAR CCSM4



NASA GEOS5v2

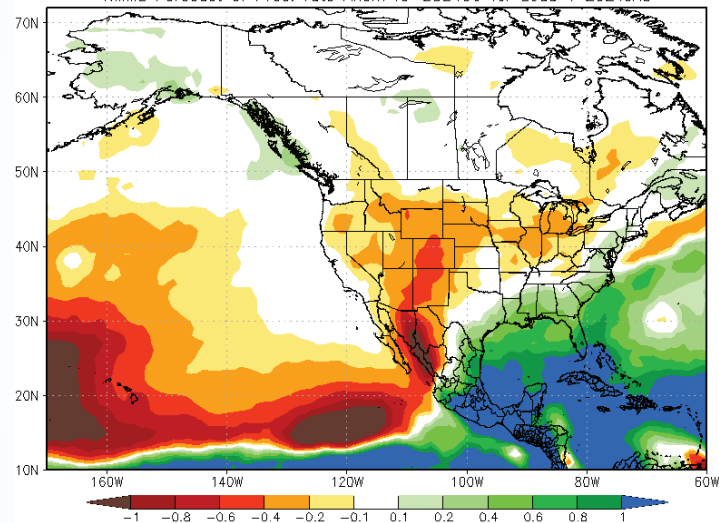


IMME



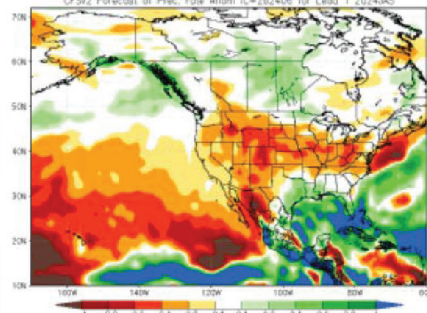
North American Multi-Model Ensemble Precipitation: Jul-Sept

NMME Forecast of Prec. rate Anom IC=202406 for Lead 1 2024JAS



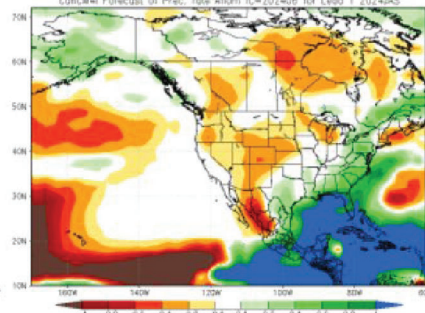
NCEP_CFSv2

CFSv2 Forecast of Prec. rate Anom IC=202406 for Lead 1 2024JAS



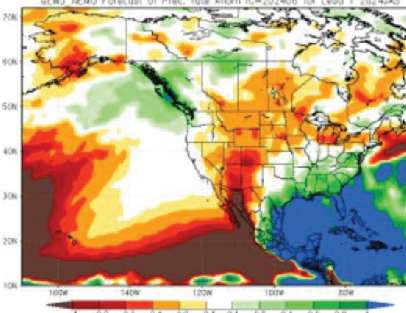
CanCM4i

CanCM4i Forecast of Prec. rate Anom IC=202406 for Lead 1 2024JAS



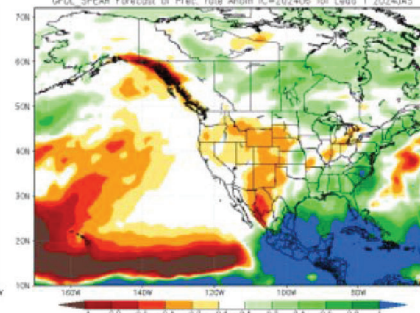
GEM5_NEMO

GEM5_NEMO Forecast of Prec. rate Anom IC=202406 for Lead 1 2024JAS



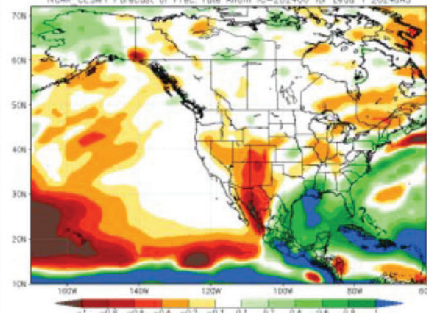
GFDL_SPEAR

GFDL_SPEAR Forecast of Prec. rate Anom IC=202406 for Lead 1 2024JAS



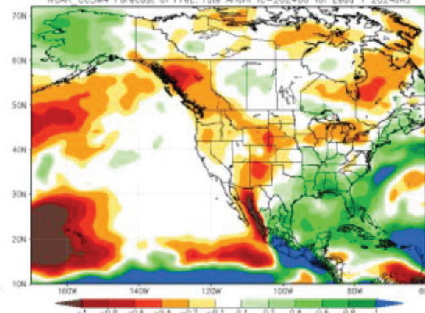
NCAR_CESM1

NCAR_CESM1 Forecast of Prec. rate Anom IC=202406 for Lead 1 2024JAS



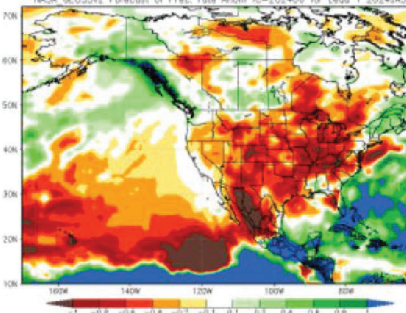
NCAR_CCISM4

NCAR_CCISM4 Forecast of Prec. rate Anom IC=202406 for Lead 1 2024JAS



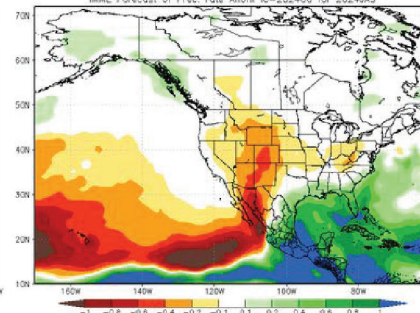
NASA_GEOS5v2

NASA_GEOS5v2 Forecast of Prec. rate Anom IC=202406 for Lead 1 2024JAS



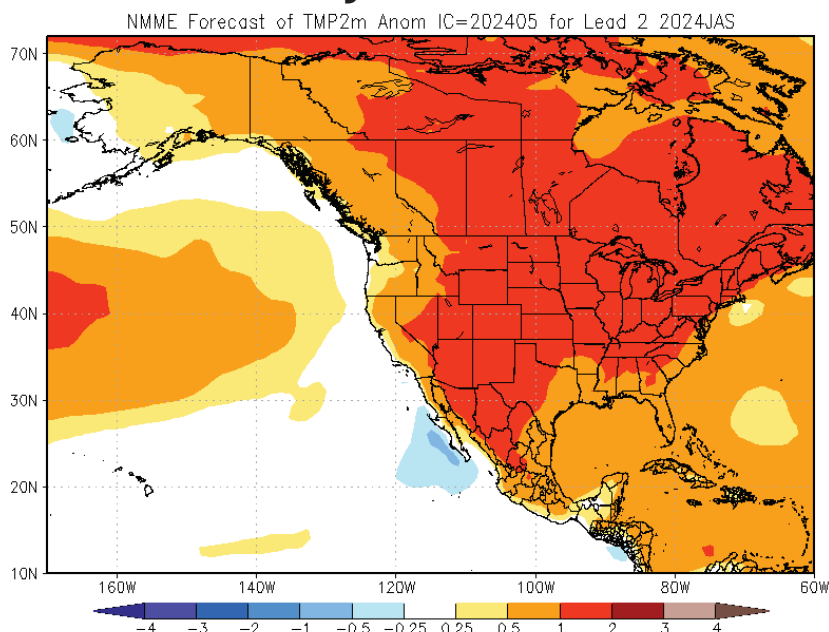
IMME

IMME Forecast of Prec. rate Anom IC=202406 for Lead 1 2024JAS



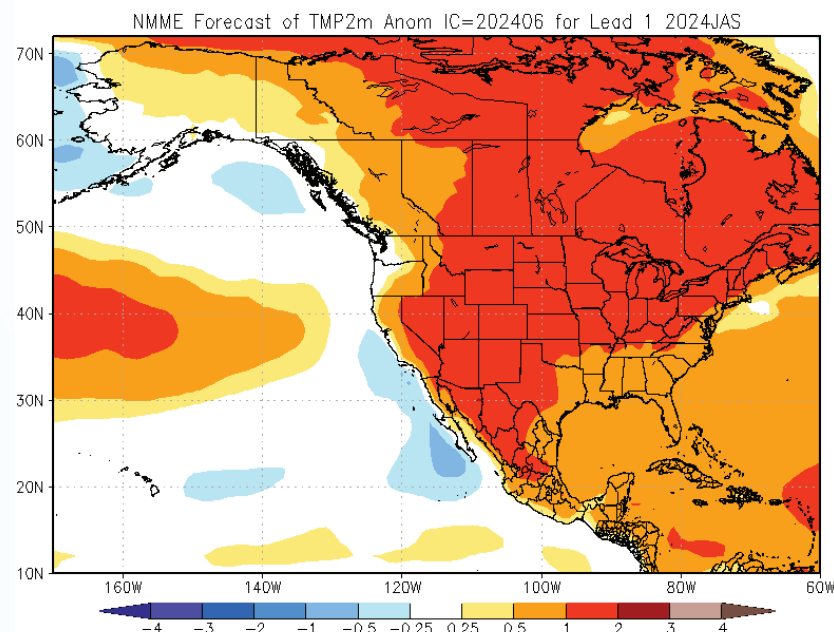
Temperature Anomaly Projections for Summer (Jul-Sept)

May Forecast



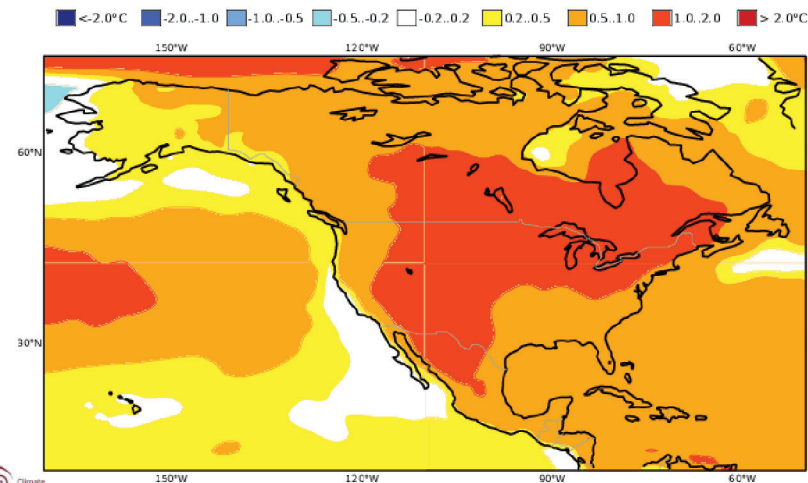
NMME

June Forecast



C3S multi-system seasonal forecast
Mean 2m temperature anomaly
Nominal forecast start: 01/05/24
Variance-standardized mean

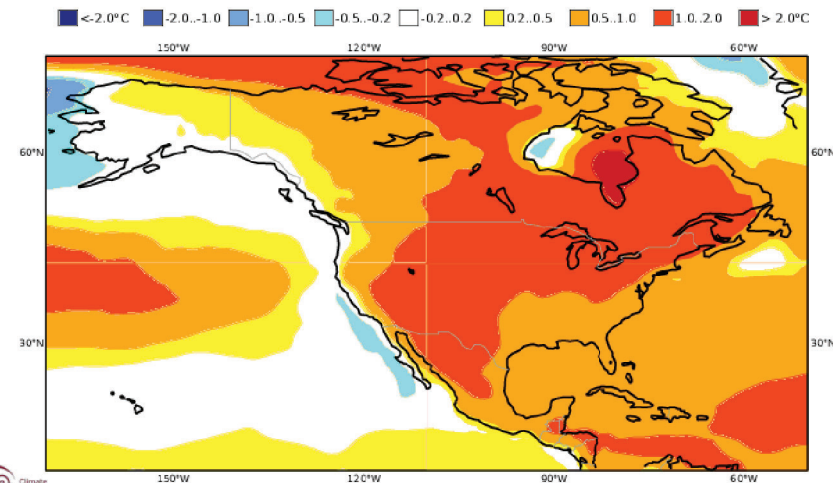
ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC
JAS 2024



IMME

C3S multi-system seasonal forecast
Mean 2m temperature anomaly
Nominal forecast start: 01/06/24
Variance-standardized mean

ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC
JAS 2024

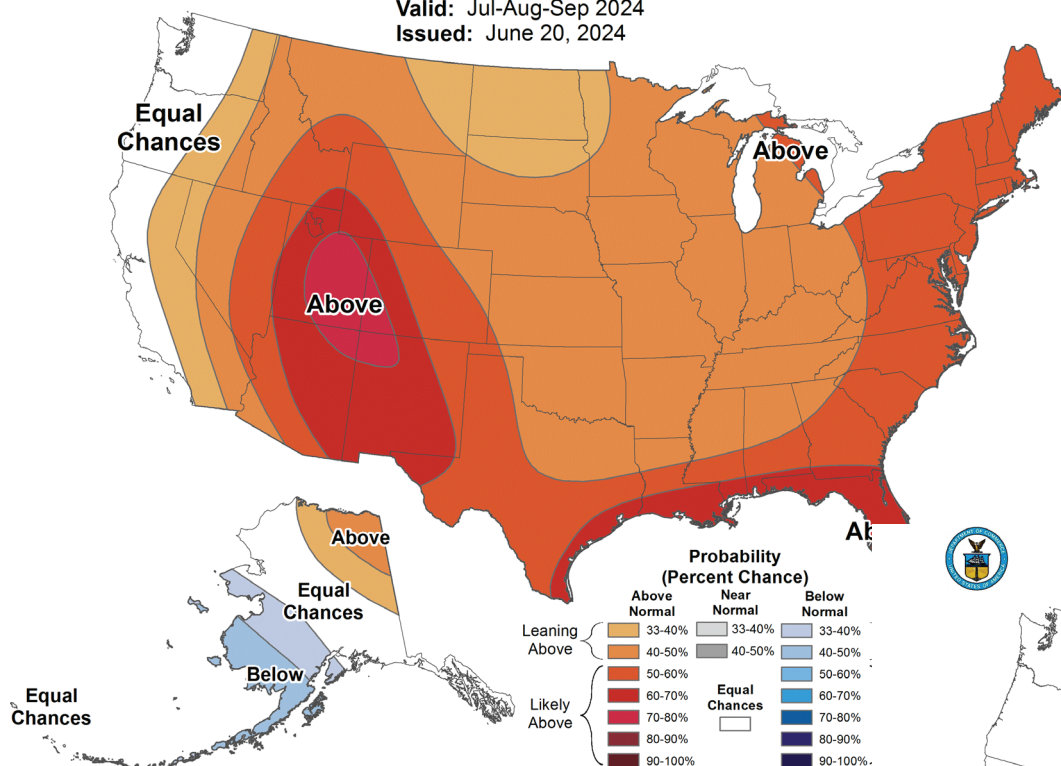




Seasonal Temperature Outlook

Valid: Jul-Aug-Sep 2024

Issued: June 20, 2024

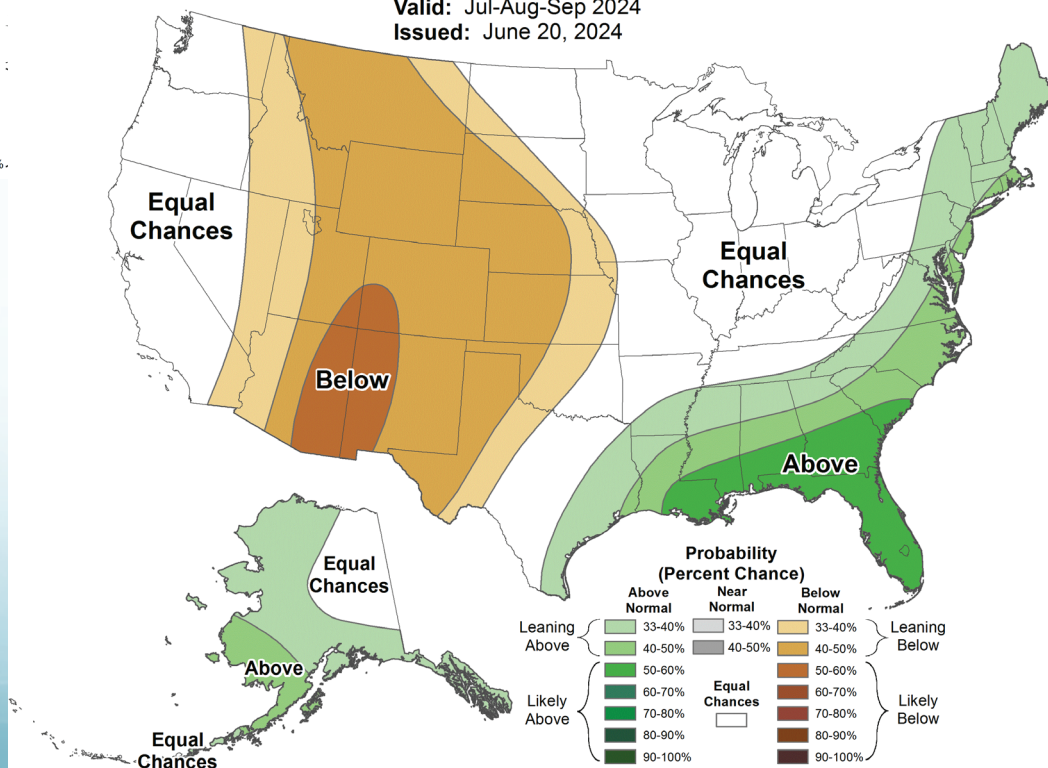


NOAA/CPC Outlooks for JAS

Seasonal Precipitation Outlook

Valid: Jul-Aug-Sep 2024

Issued: June 20, 2024



Temperature Anomaly Forecasts from NOAA/CPC

Climate Division	Jul-Sep	Sep-Nov
Coastal WA	0.0 °F	0.0 °F
Puget Sound	0.0	0.0
Central WA	0.1	0.1
NE WA	0.2	0.1

Unimpressive, to say the least!

Summary

- The water year through May has tied as the 23rd warmest and ranked as the 43rd driest on record (90% of normal)
- Over the last 60 days, below normal temperatures and drier than normal precipitation has been the norm
 - Exception: western WA (wetter)
- The cooler temperatures were overall beneficial in slowing snowmelt and delaying the onset of more widespread drought impacts
- The overall weather of summer 2024 looks like it will resemble 1991-2020 norms
- La Niña still likely and we'll be watching the timing of the onset of the wet season this fall



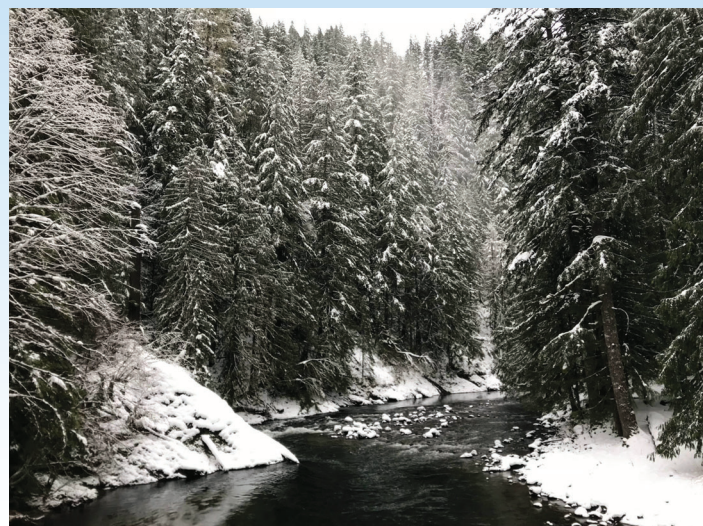
NWS

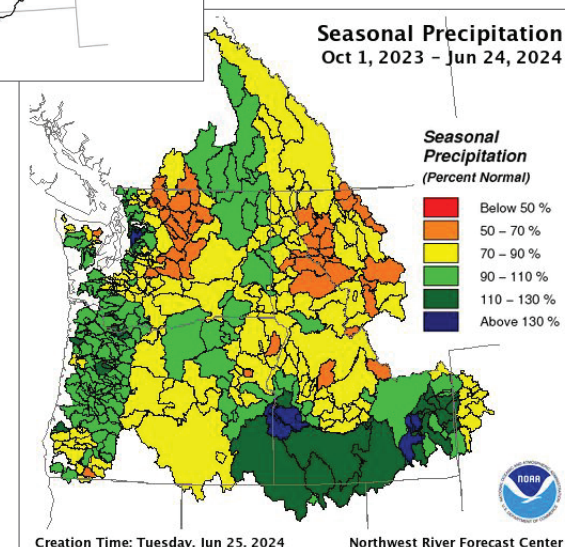
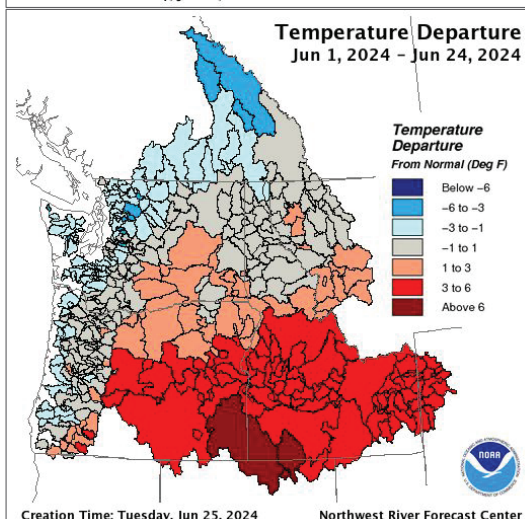
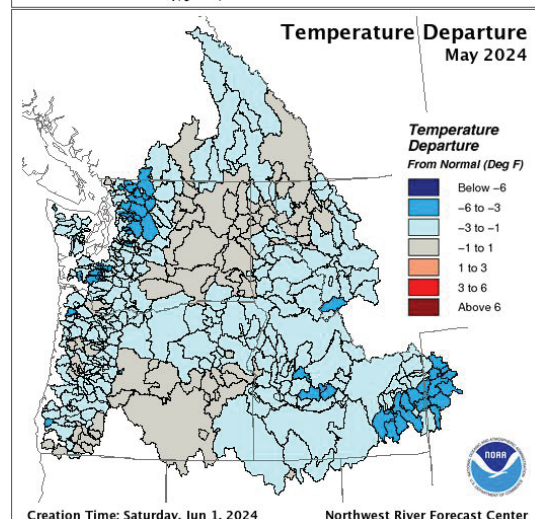
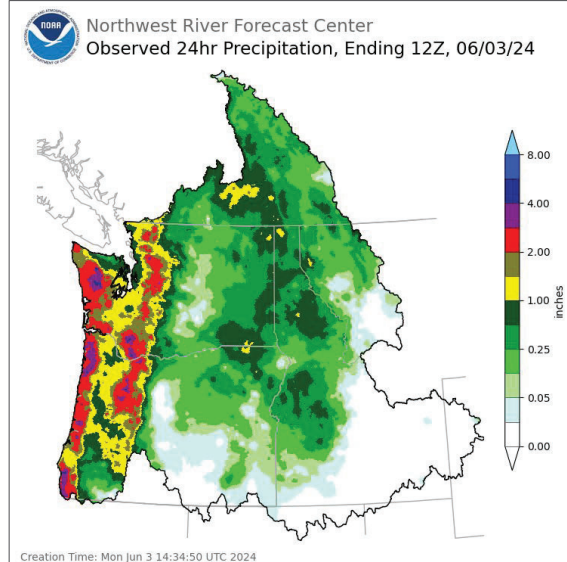
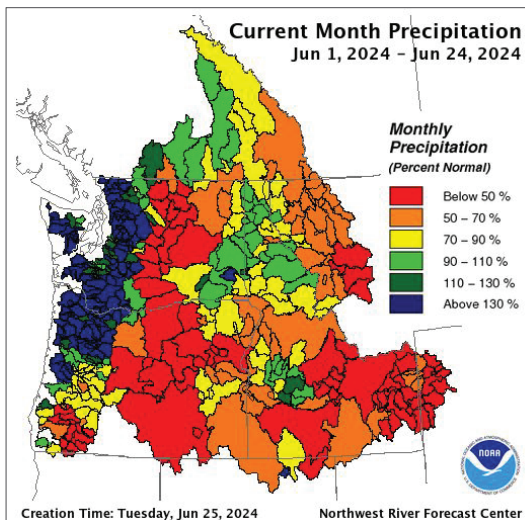
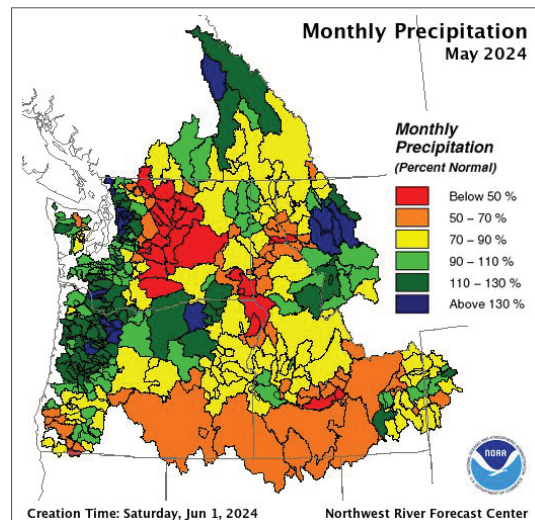
May 2024 Washington Water Supply

Amy Burke, Senior Hydrologist - NWRFC - NWRFC.watersupply@noaa.gov

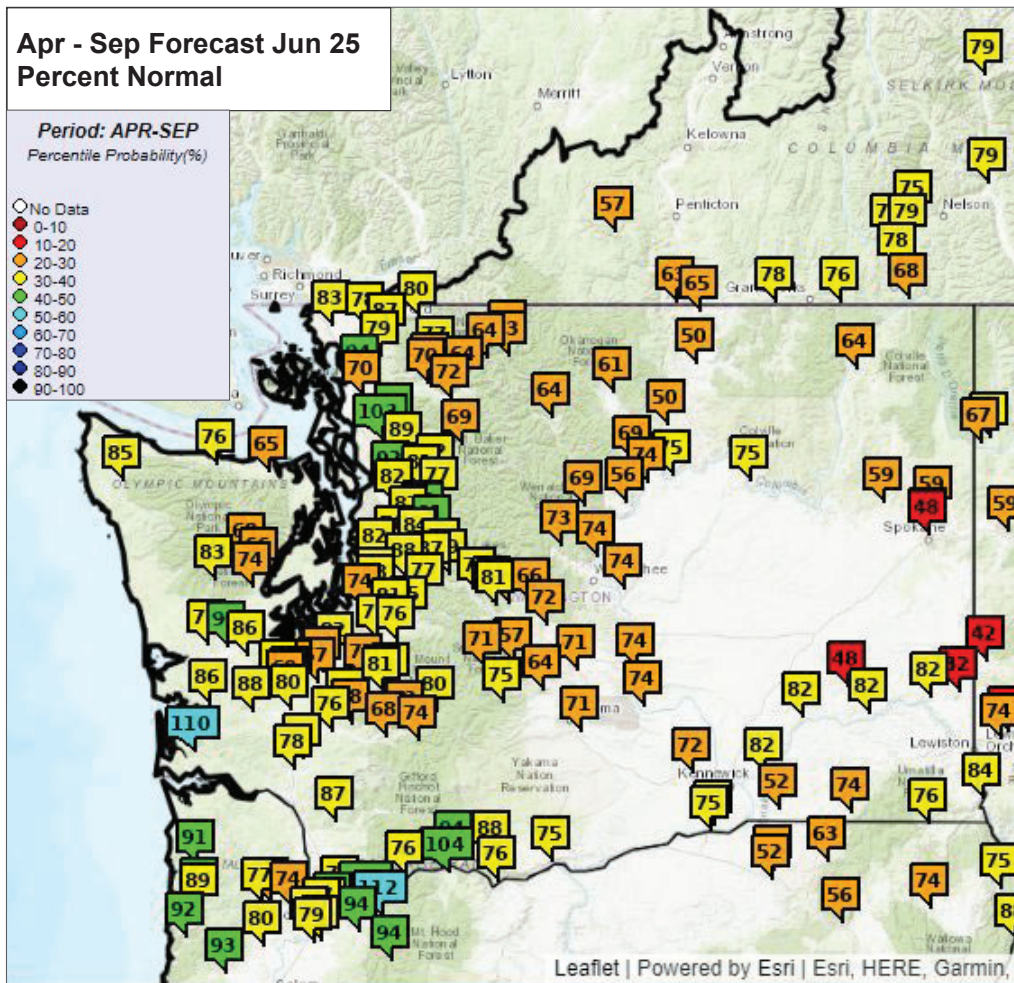
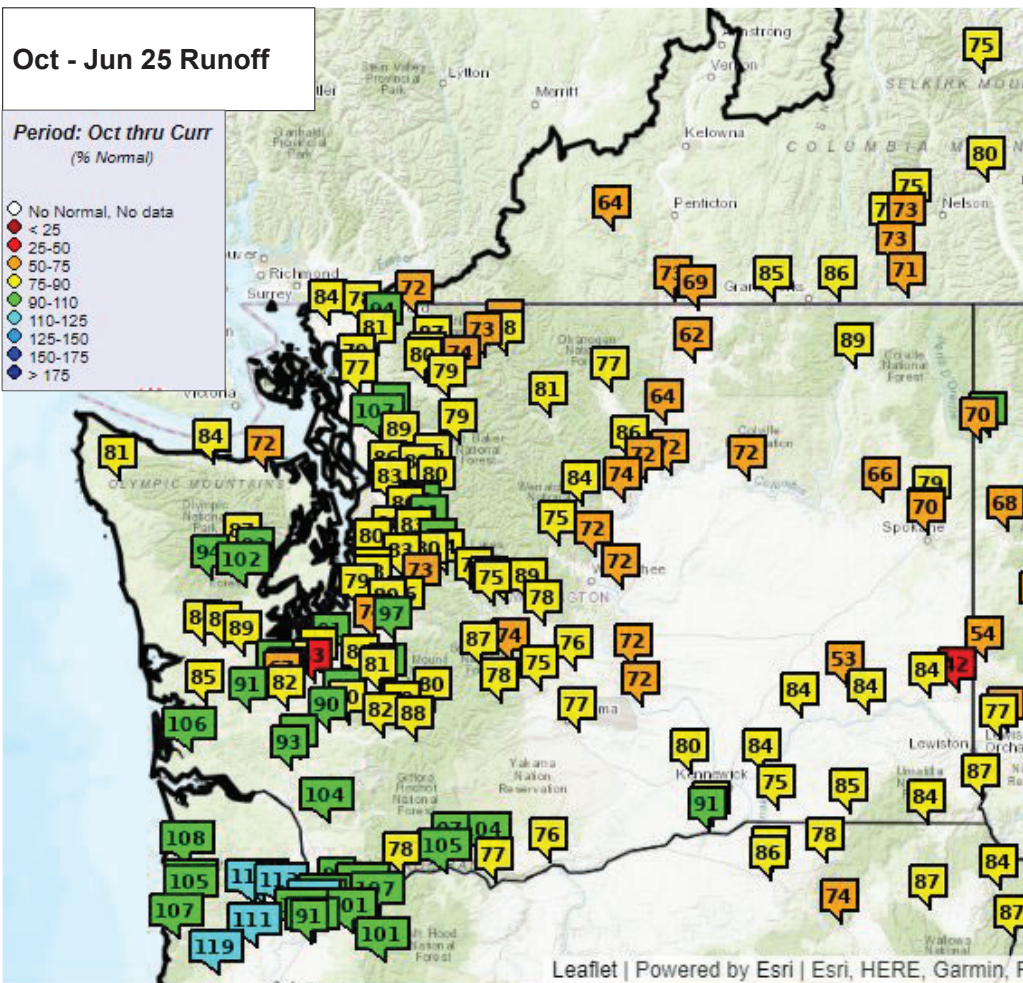
Brent Bower, Service Hydrologist - NWS Seattle

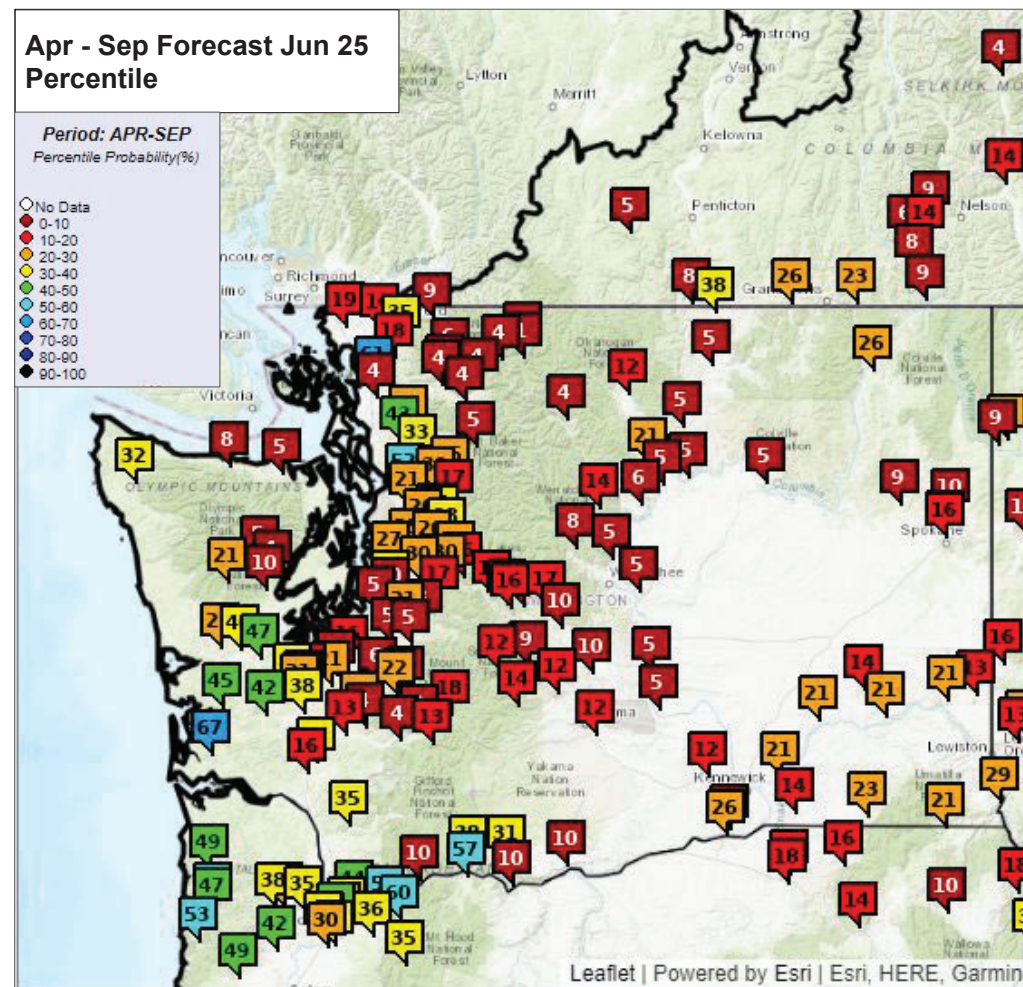
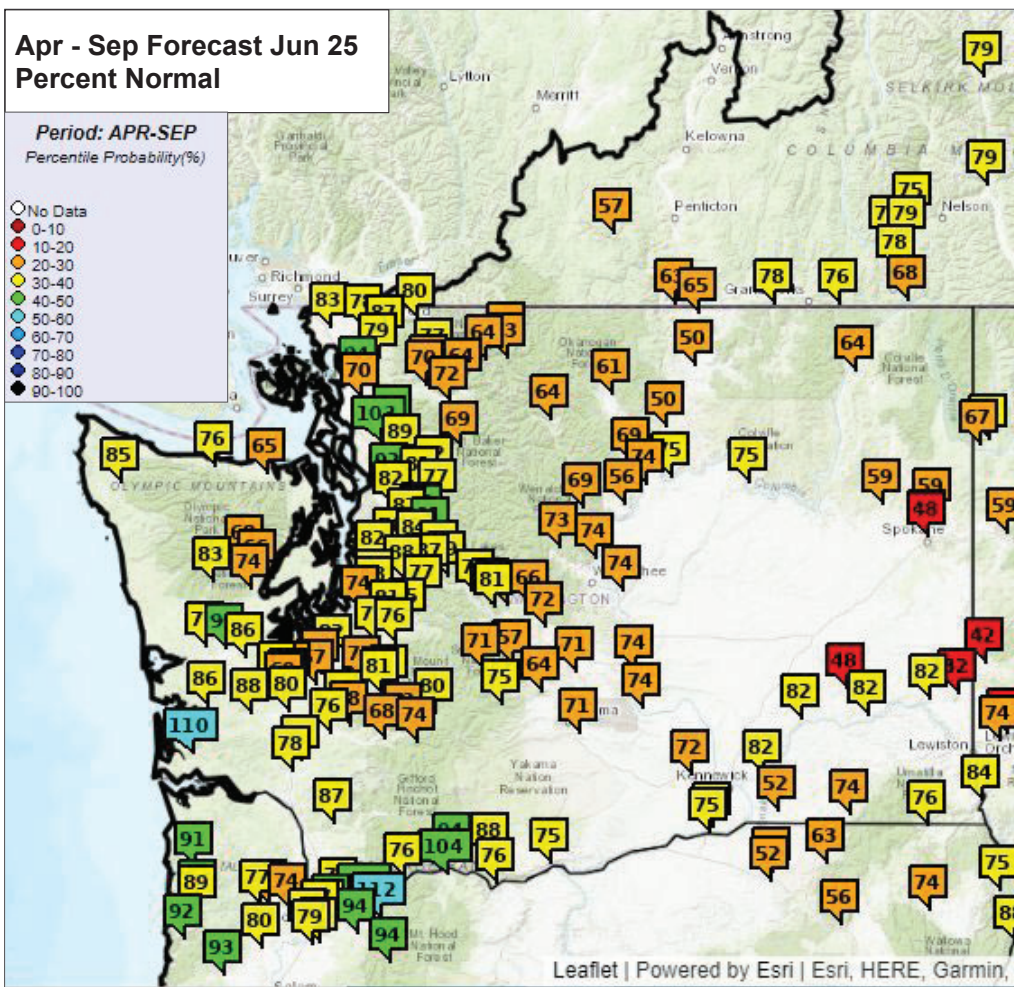
Robin Fox, Service Hydrologist - NWS Spokane





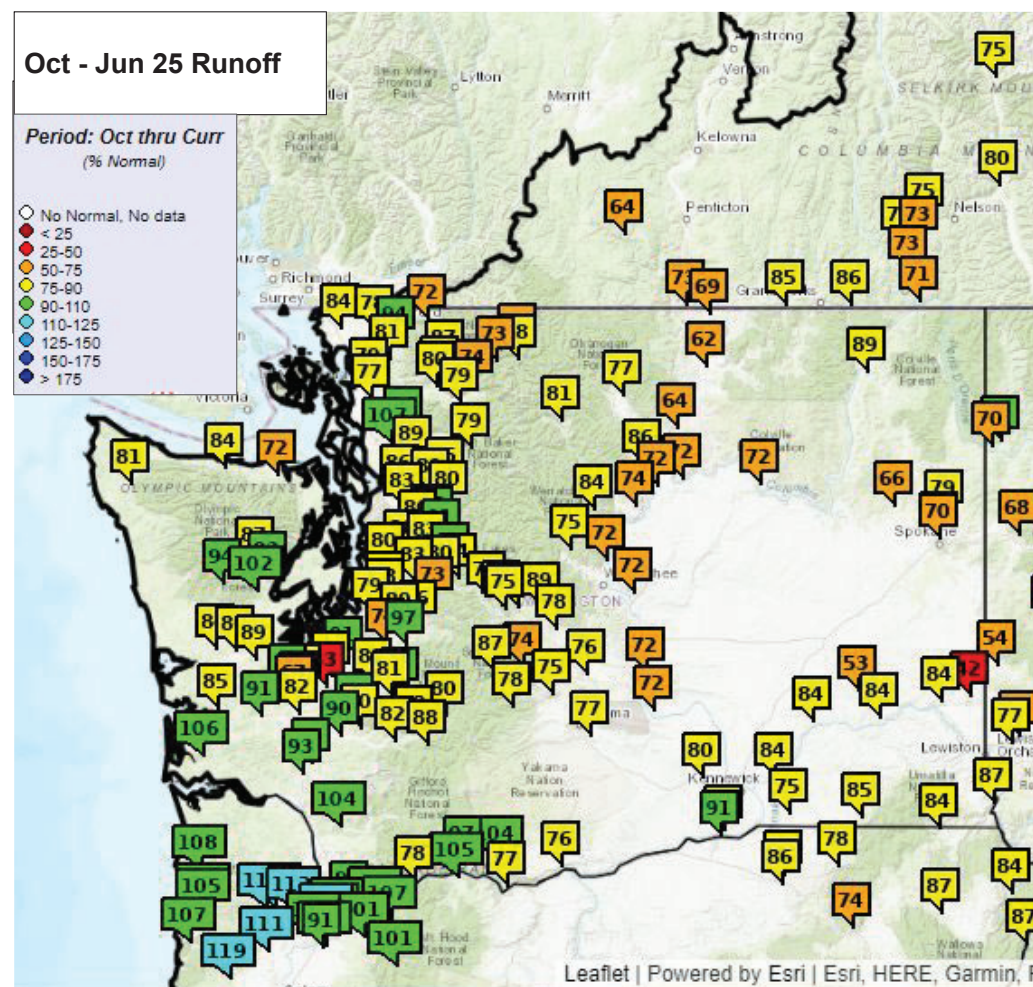
Runoff vs. Forecast

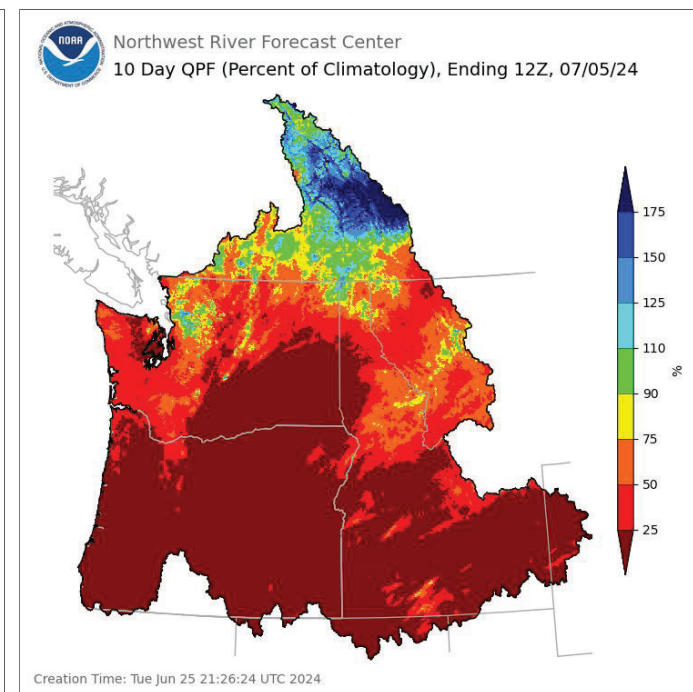
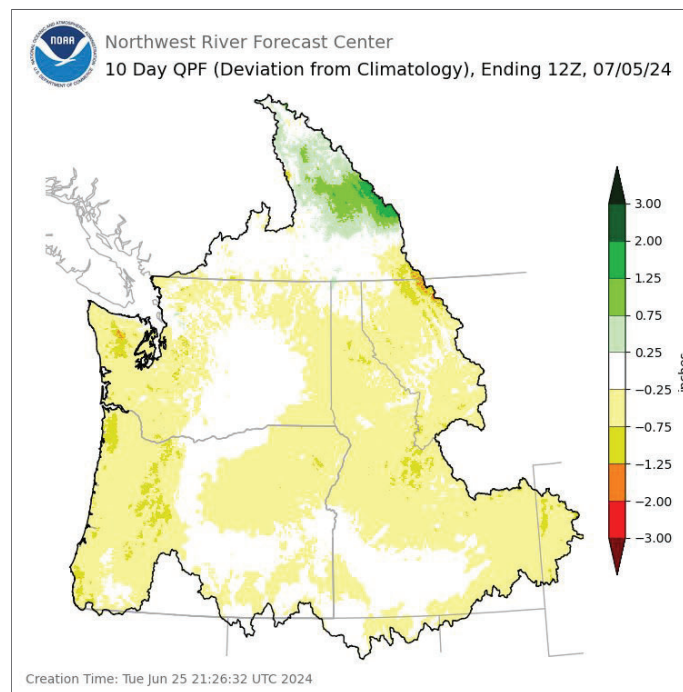
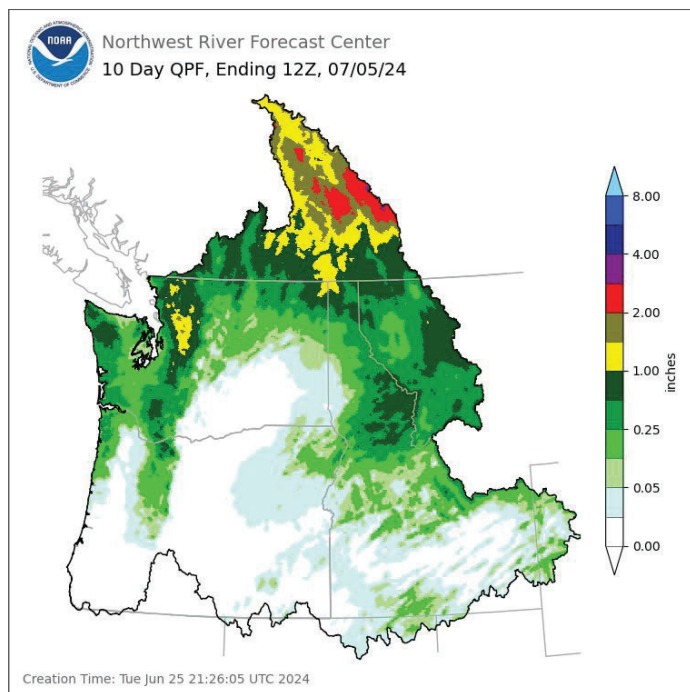




Water Year to Date Natural Runoff

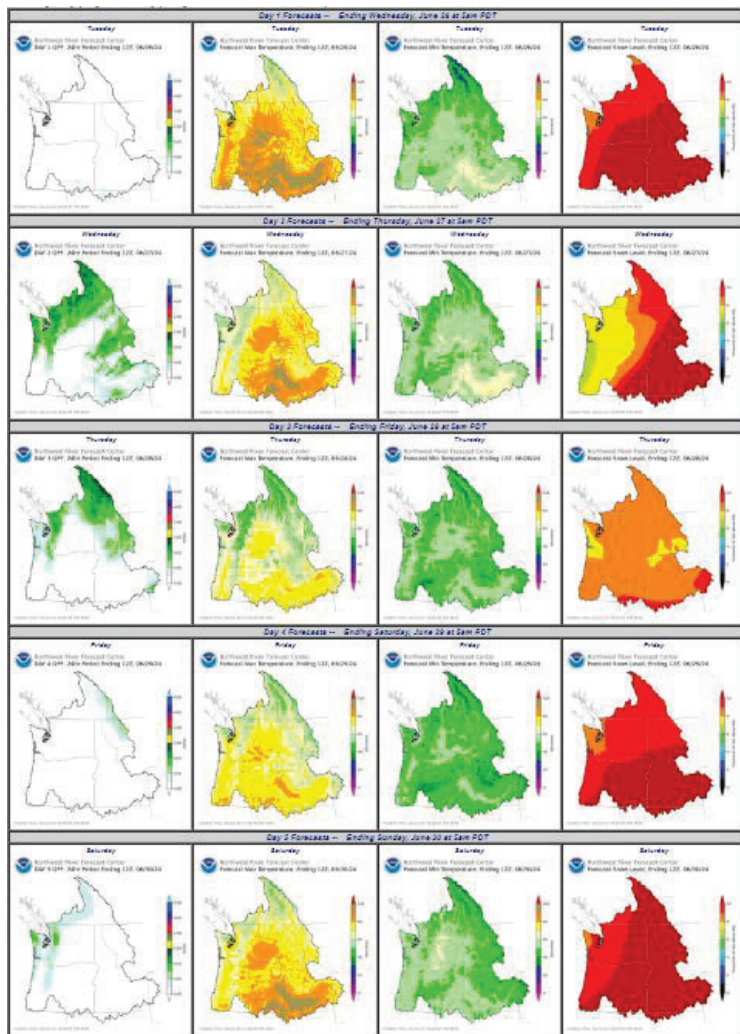
Forecast Point	% Normal Runoff Oct 1 - May 21	<u>Δ Since May 21</u>
Skagit nr Mt Vernon	77	0
Dungeness nr Sequim	72	-3
Chehalis at Porter	89	0
Okanogan at Malott	64	-5
Methow nr Pateros	86	-14
Yakima at Parker	77	-3
Walla Walla nr Touchet	75	-1





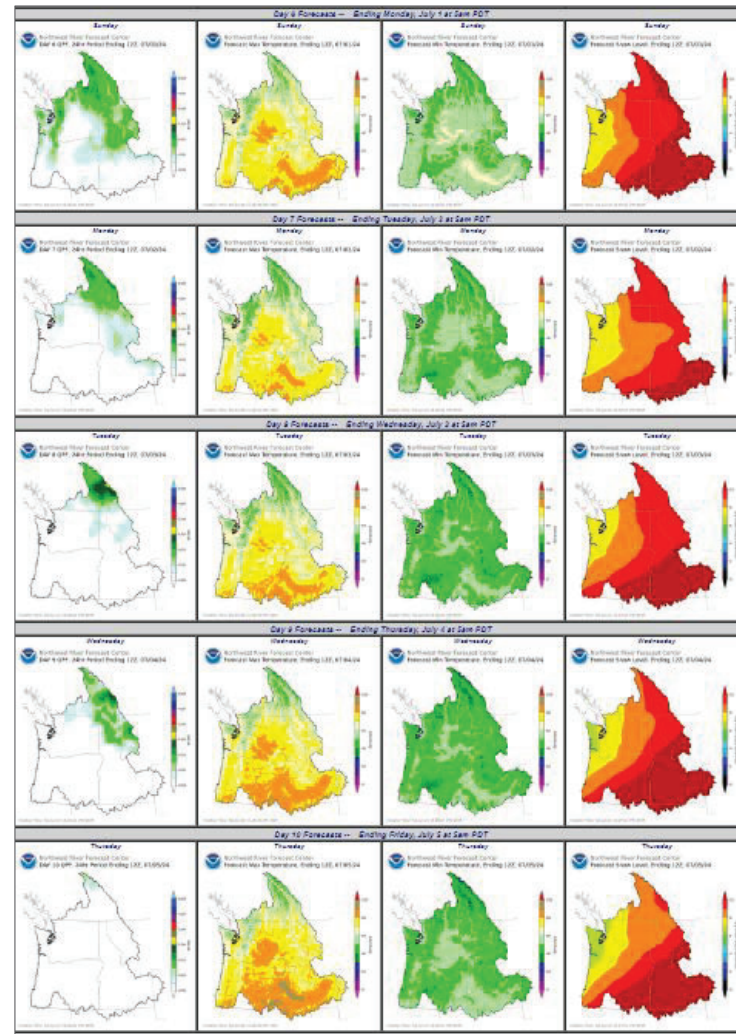
Quantitative Precipitation Forecast (QPF) Sources
 Days 1 - 2 NWS Weather Forecast Offices (WFO) in the US, WPC in BC
 Days 3 - 7 NWS Weather Prediction Center (WPC)
 Days 8 - 10 NWS National Blend of Models (NBM)

10 Day Precipitation and Temperature Forecast



Days 1-5

Days 6-10



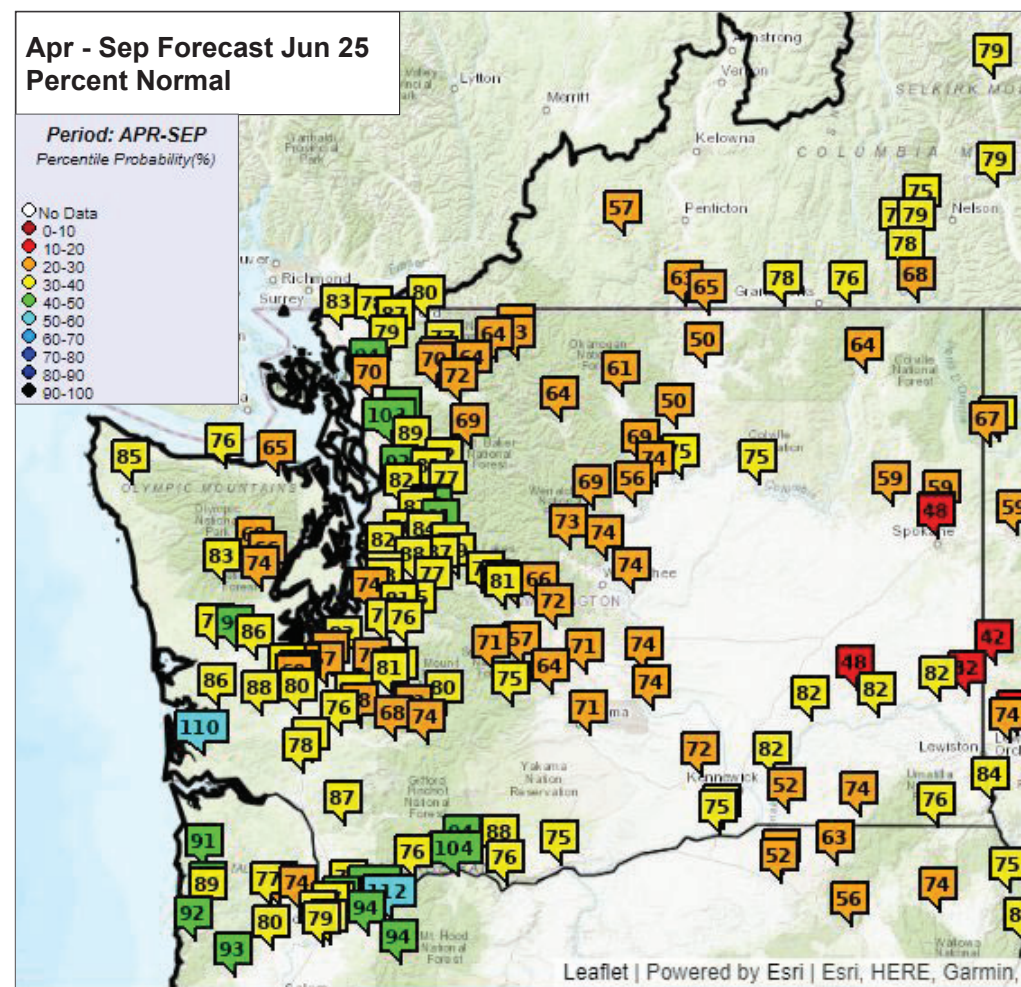


Natural Water Supply Forecasts

NWRFC

June, 2024

Forecast Point	% Normal Apr - Sep Vol	<u>Δ Since May 21</u>
Skagit nr Mt Vernon	70	-2
Dungeness nr Sequim	65	-2
Chehalis at Porter	86	7
Okanogan at Malott	50	-1
Methow nr Pateros	69	-6
Yakima at Parker	71	-7
Walla Walla nr Touchet	52	-6

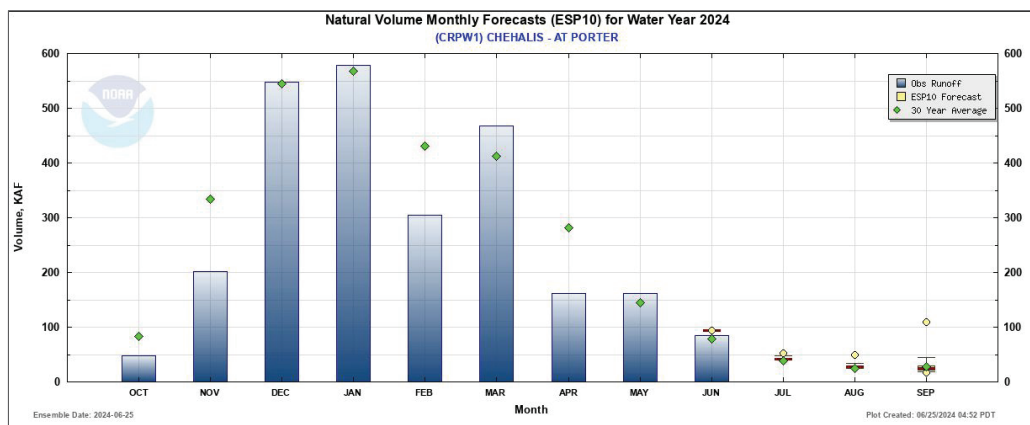
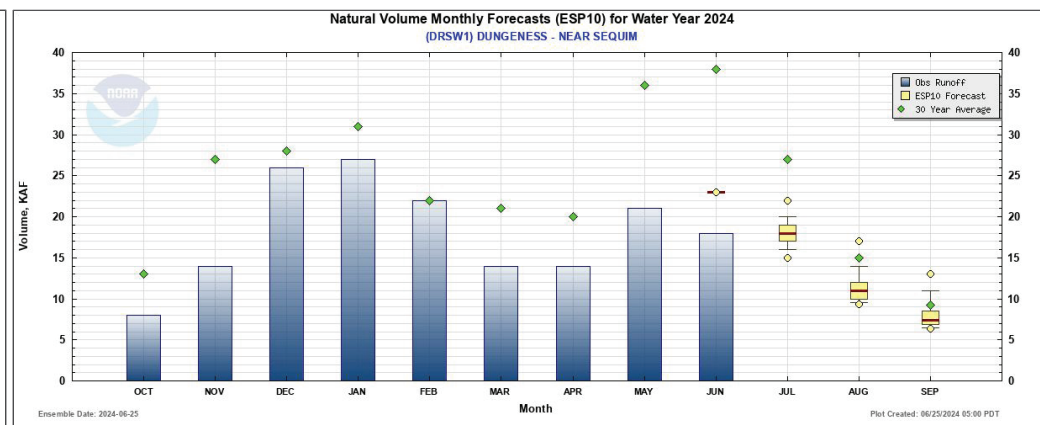
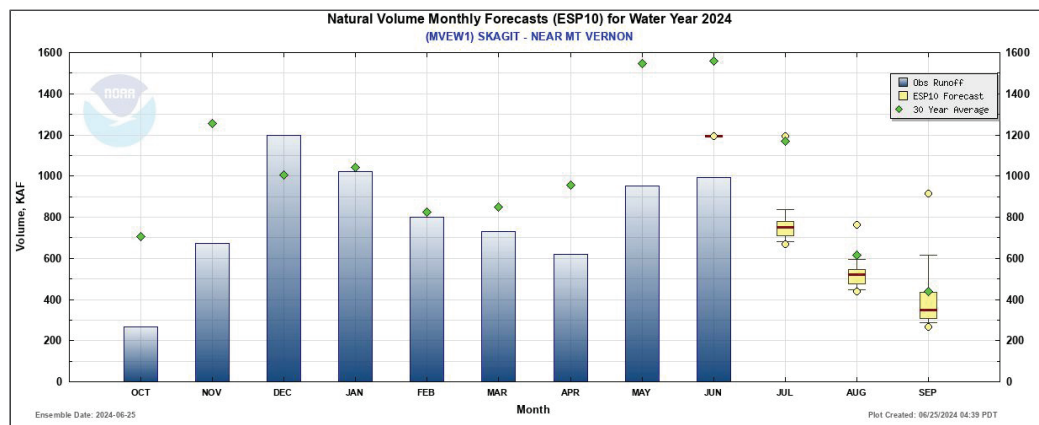




Natural Water Supply Forecasts

NWRF

June, 2024

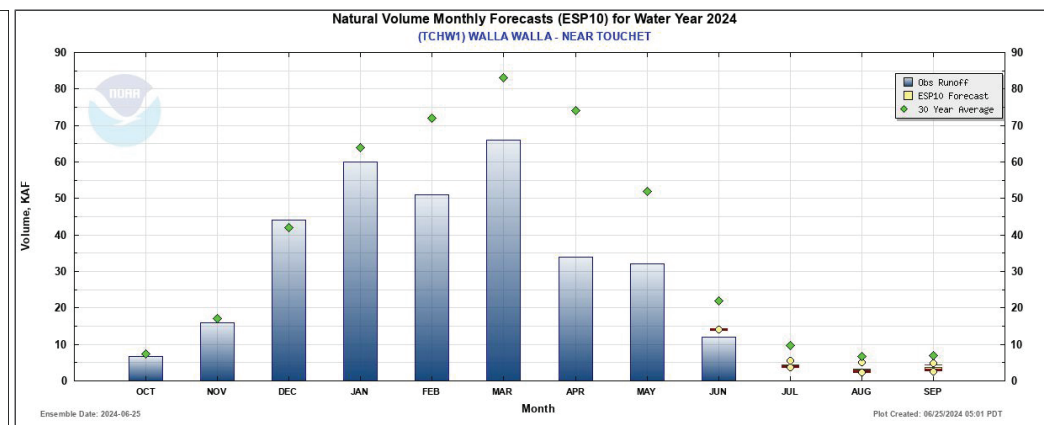
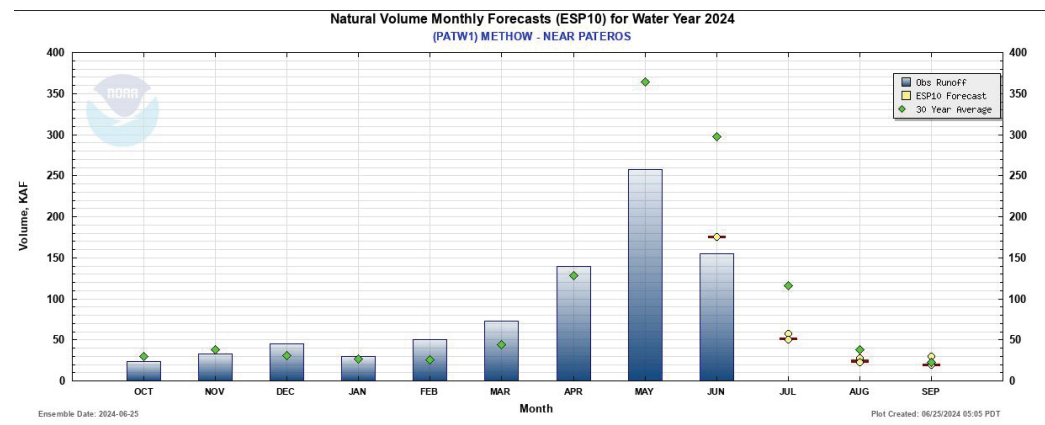
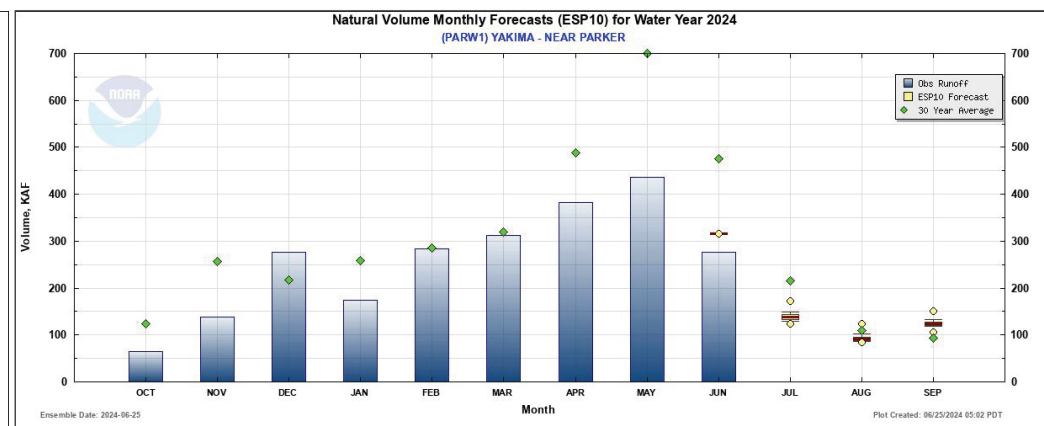
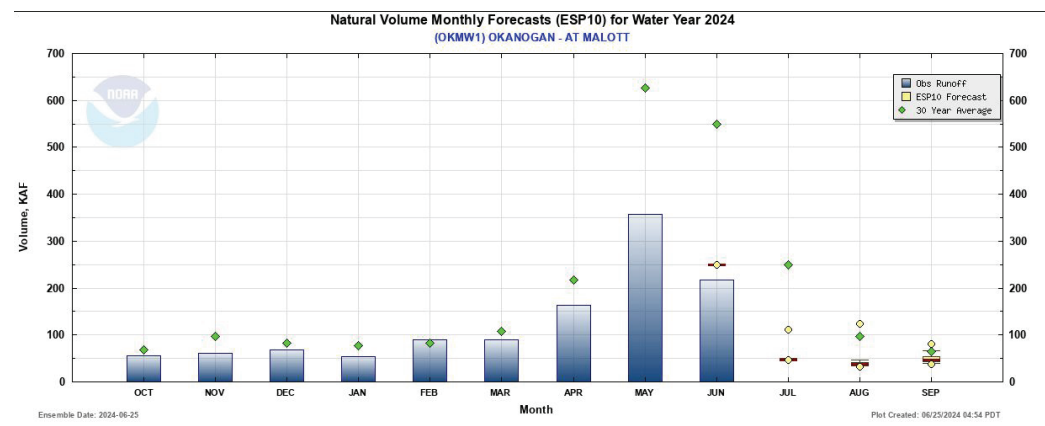




Natural Water Supply Forecasts

NWRF

June, 2024





Takeaways

NWRFC

June, 2024

- Snowpack peaked well below normal in many areas of Washington
- Precipitation has been below normal this spring
- Higher than normal early June precipitation did not change the low runoff and low seasonal volume forecasts
- Next 10 days expected to bring small amounts of precipitation to Washington
- Runoff and water supply forecasts remain lower than normal
- Water Supply Forecasts are near record low in many places



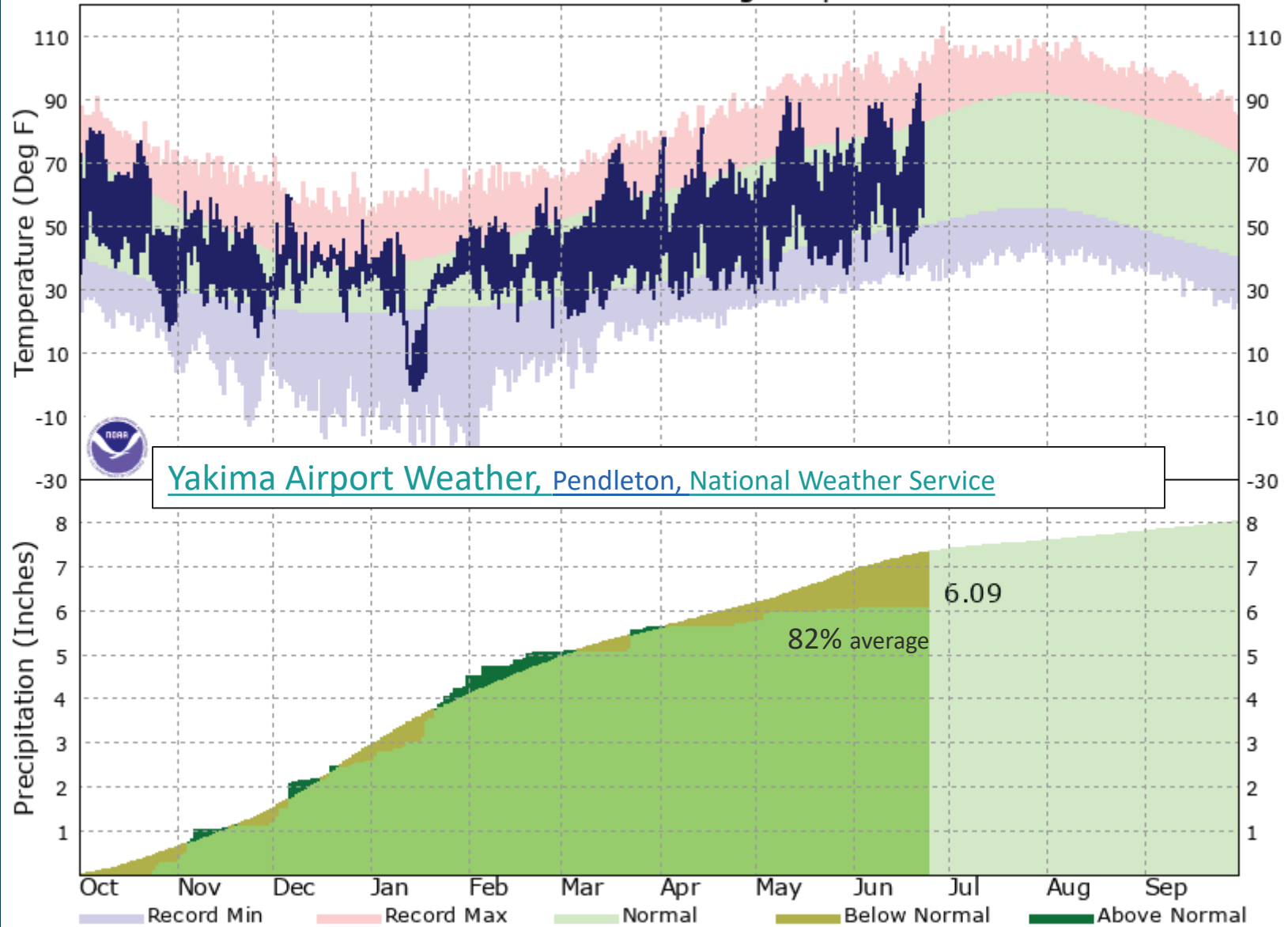
— BUREAU OF —
RECLAMATION

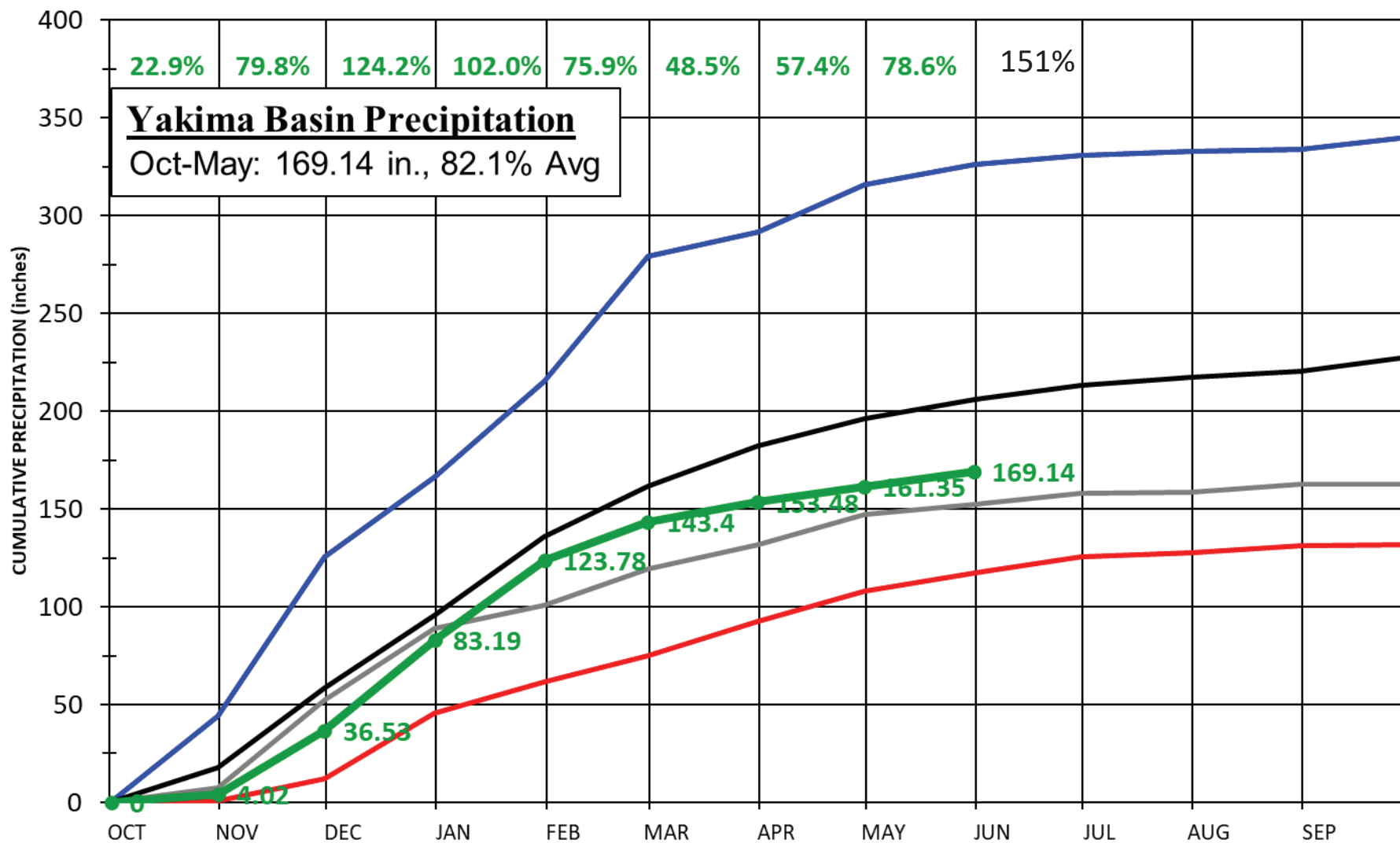
Yakima Project Operations Water Supply Update



For WaWSAC, June 26, 2024

KYKM - Oct 2023 Through Sep 2024



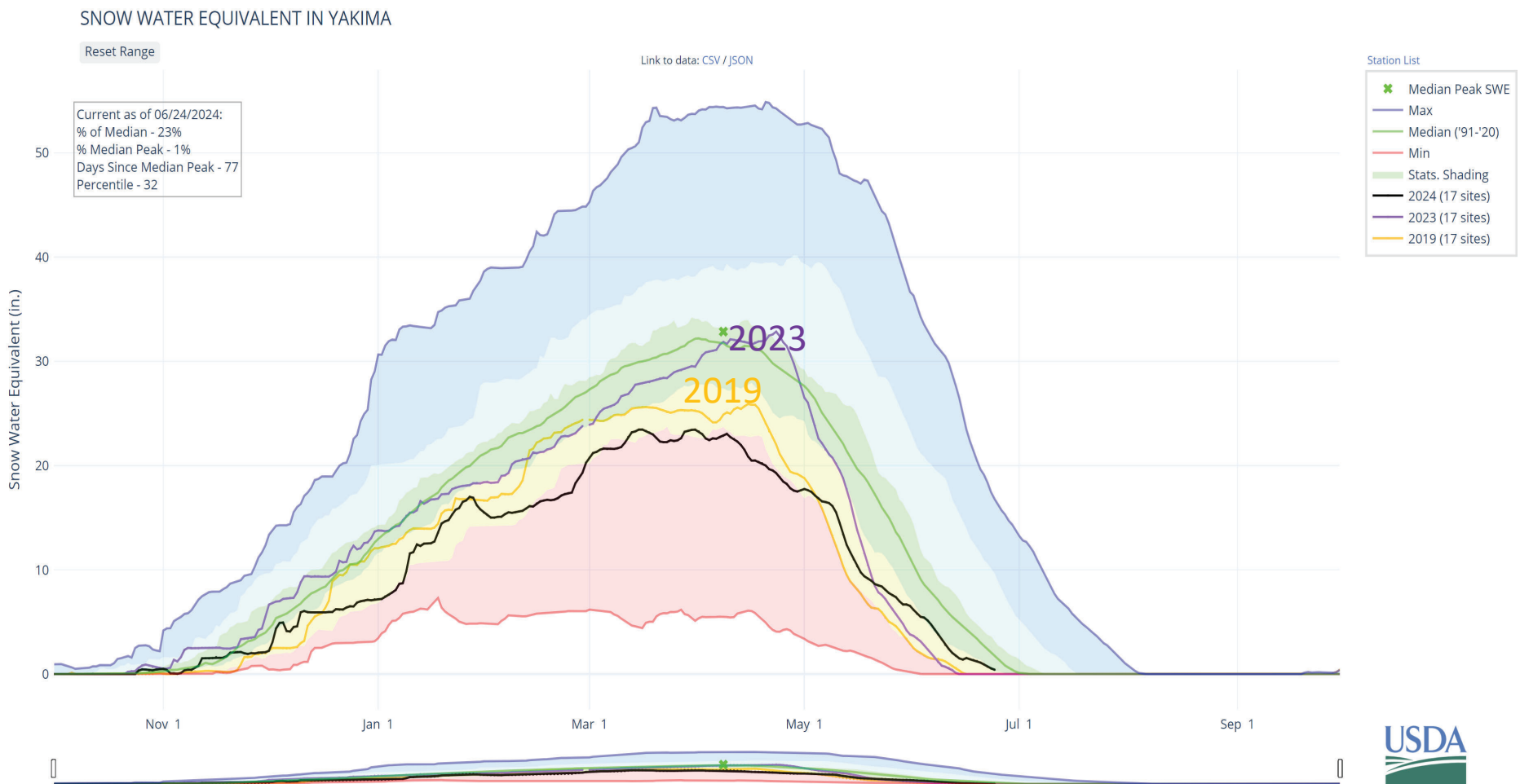


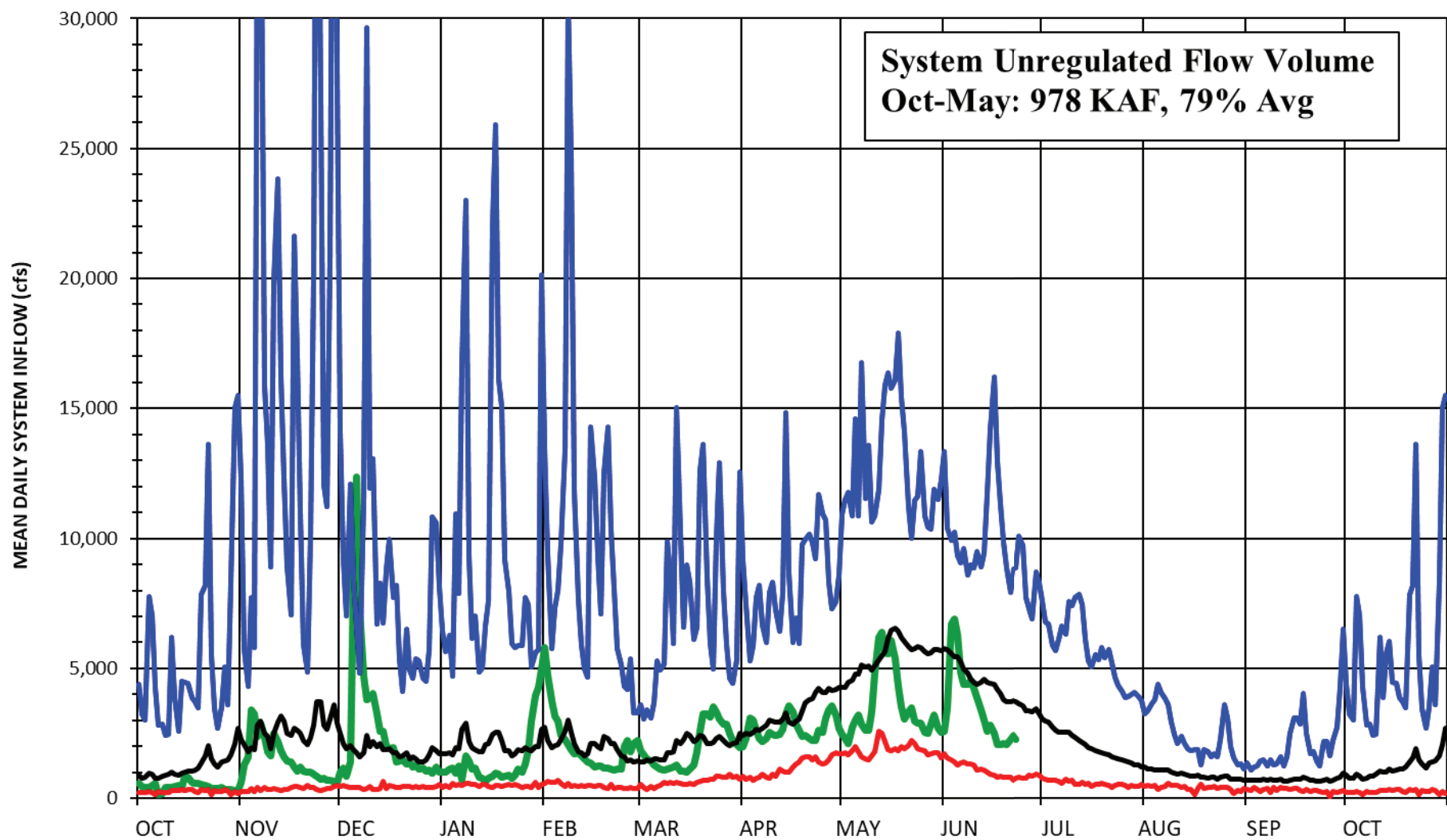
— Maximum — Average
 — Minimum — WY2023
 ● WY 2024

YAKIMA BASIN
 Combined Cumulative Precipitation
 5 Reservoir Sites
 WATER YEARS 1981-2010

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 BUREAU OF RECLAMATION
 YAKIMA FIELD OFFICE
 1917 MARSH ROAD
 YAKIMA, WA 98901

Yakima Basin SNOTEL, Comparison Years



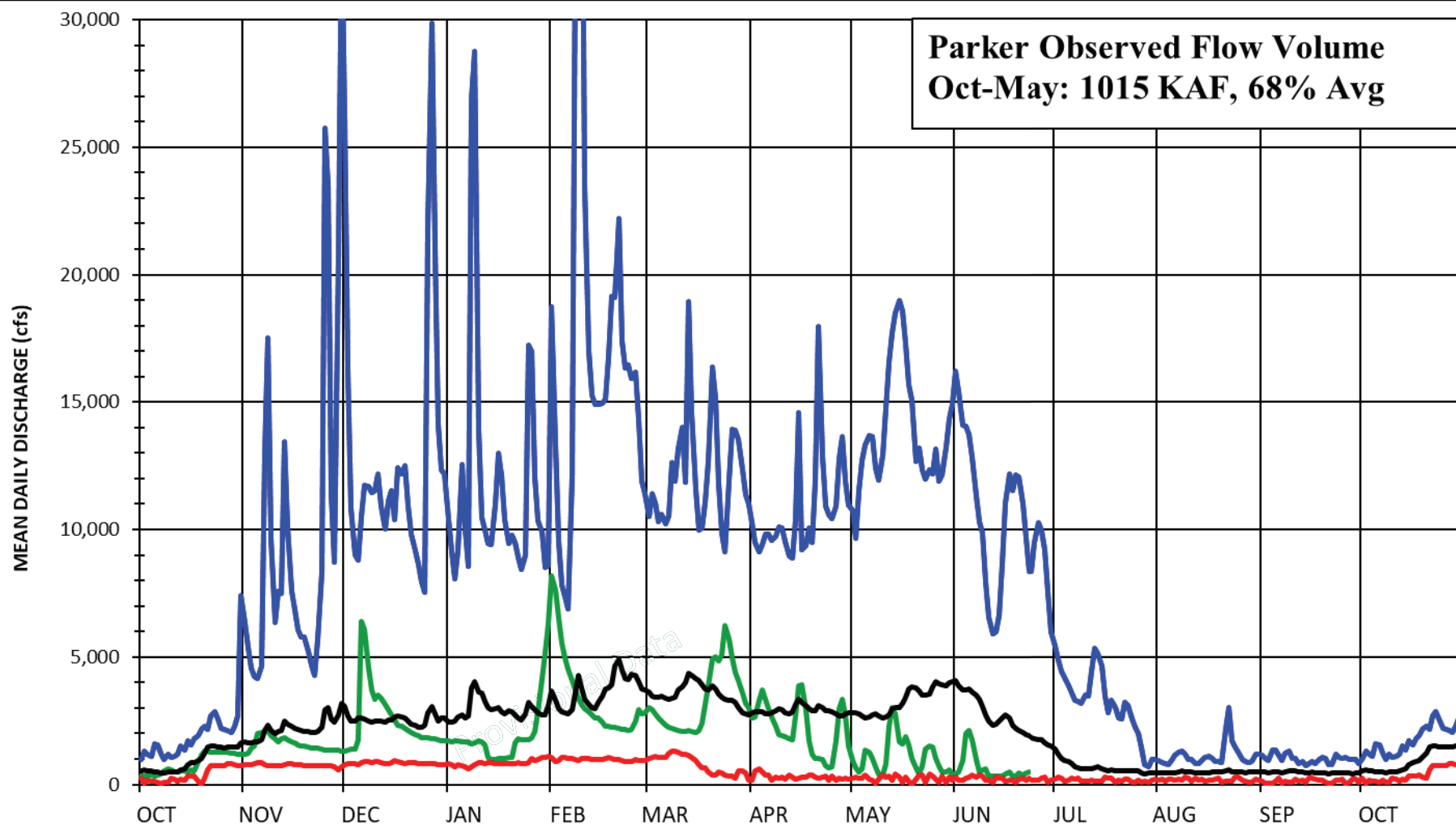


— Water Year 2024
— Min
— Avg
— max

YAKIMA PROJECT
 SYSTEM RESERVOIRS
 SUM OF INFLOWS
 SUMMARY HYDROGRAPH
 WATER YEARS 1991-2020

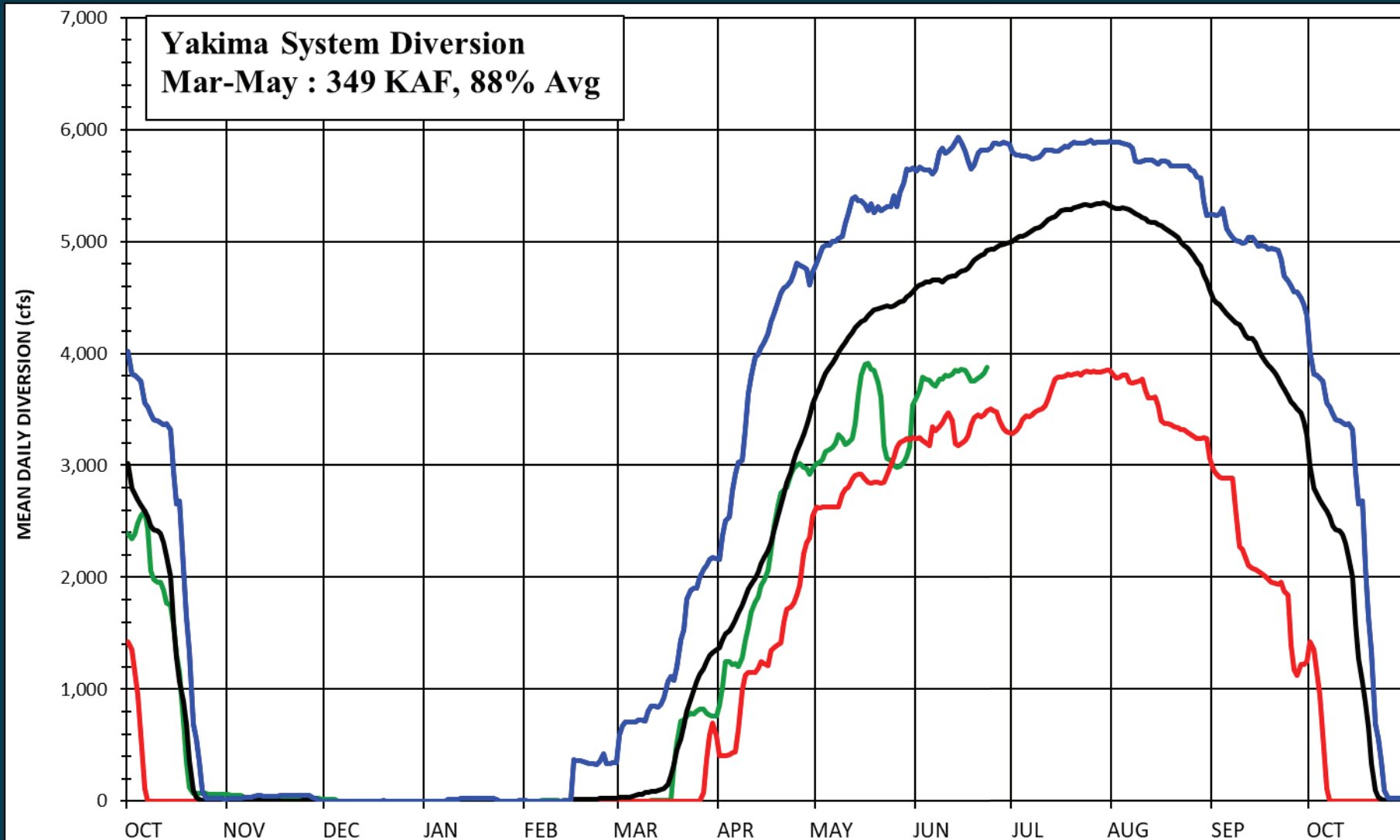
UNITED STATES
 DEPARTMENT OF THE INTERIOR
 BUREAU OF RECLAMATION
 YAKIMA FIELD OFFICE
 1917 MARSH ROAD
 YAKIMA, WA 98901

**Parker Observed Flow Volume
Oct-May: 1015 KAF, 68% Avg**



**YAKIMA RIVER NEAR PARKER
MEAN DAILY REGULATED DISCHARGE
SUMMARY HYDROGRAPH
WATER YEARS 1991-2020**

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA FIELD OFFICE
1917 MARSH ROAD
YAKIMA, WA 98901

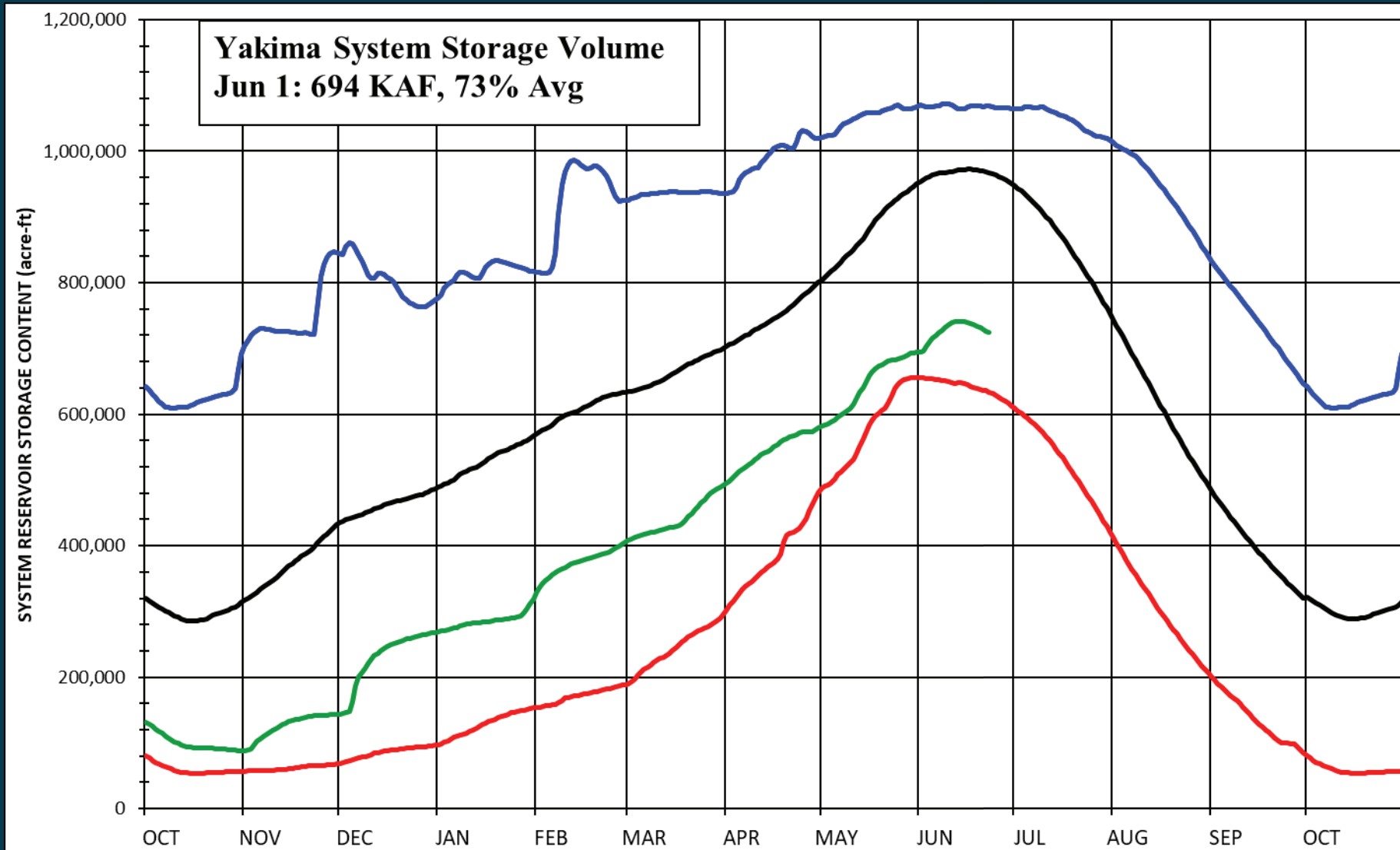


— Water Year 2024 — Minimum

— Average — Maximum

**5 MAJOR IRRIGATION DIVERSIONS
 YAKIMA R. ABOVE PARKER
 SUMMARY HYDROGRAPH
 WATER YEARS 1991-2020**

UNITED STATES
 DEPARTMENT OF THE INTERIOR
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 YAKIMA FIELD OFFICE
 1917 MARSH ROAD
 YAKIMA, WA 98901



— Minimum
— Maximum
— Water Year 2024
— Avg_91-20

**YAKIMA PROJECT STORAGE
MEAN DAILY RESERVOIR VOLUME
SUMMARY HYDROGRAPH
WATER YEARS 1981-2010**

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA FIELD OFFICE
1917 MARSH ROAD
YAKIMA, WA 98901

Proration Rates										
Year	Start of Proration	Storage Control Date	Mar	Apr.	May	Jun	mid-Jun	Jul	Aug	Sep
2023	1-Jun	1-Jun	86%	82%	86%	77%	73%	72%	72%	73%
2024	21-May	14-Jun	72%	63%	54%	47%	48%			



Hydrologic Summary

- Yakima Reservoir Storage peaked on June 13
- Max fill was 740.7 KAF, 70% full, 76% avg.
- 3rd lowest Yakima storage refill (1971-2024)
- Feb-May precip was 65% average.
- June precip is 151% of the months average.
- Prorationing is 48%* (*to be updated July 2)
- Title XII flow is 300 cfs plus 30 cfs, very low.
- Pulse flows released from storage used remaining 2023 conservation water and movable 2024 water.
- Cle Elum Reservoir Fish Passage construction complete and partially commissioned.



Natural Resources Conservation Service



USDA Natural Resources Conservation Service Snow Survey and Water Supply Forecasting Program

Washington Water Supply Availability Committee June 26, 2024

Matt Warbritton
Supervisory Hydrologist
USDA NRCS SSWSF
Portland Data Collection Office
matt.warbritton@usda.gov
503-307-2829



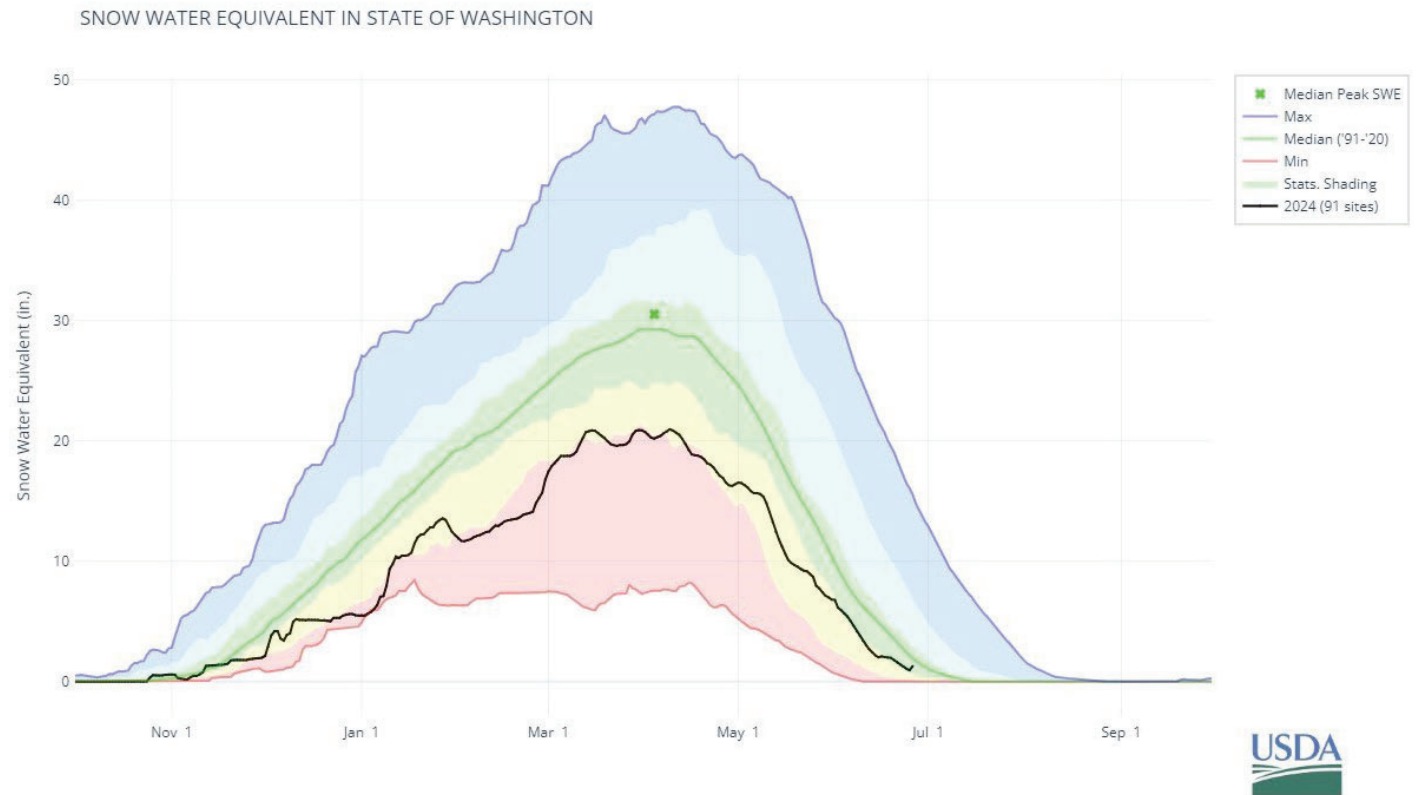
Snowpack Conditions

Statewide Snowpack

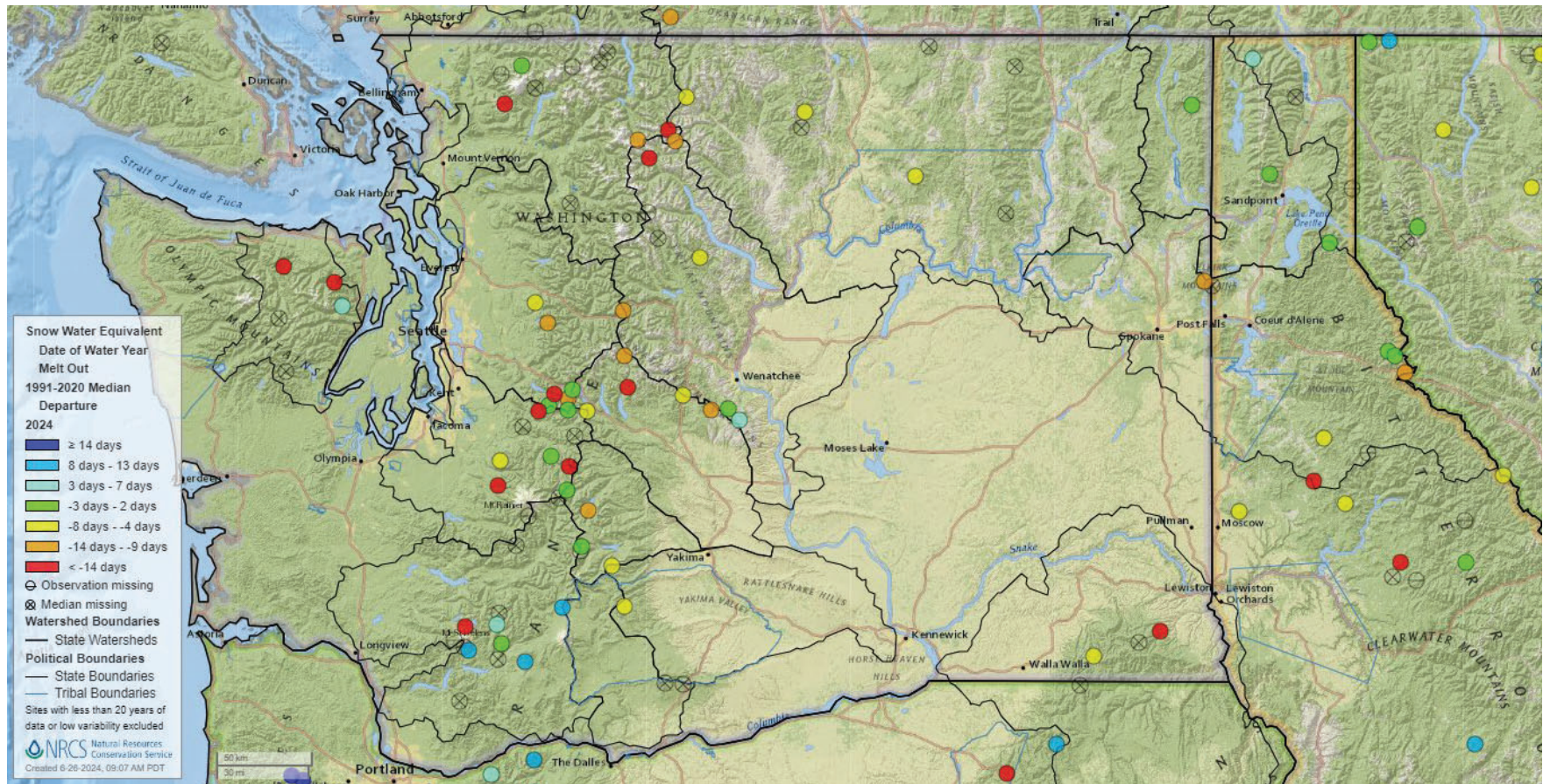
Profile for Snow Water Equivalent

Statewide Snowpack:
67% of normal

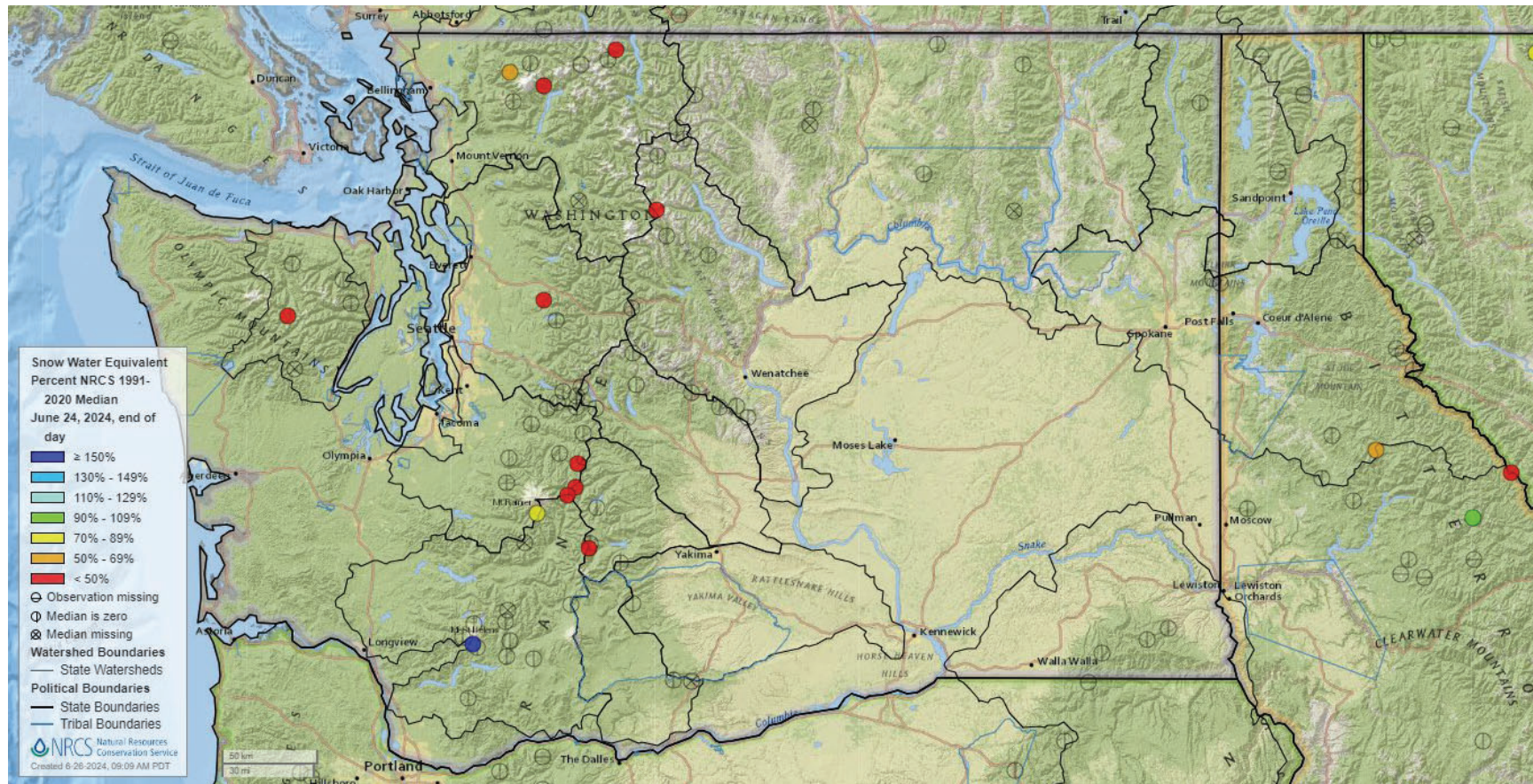
Snowpack Percentile: 49



Date of Water-Year Melt Out



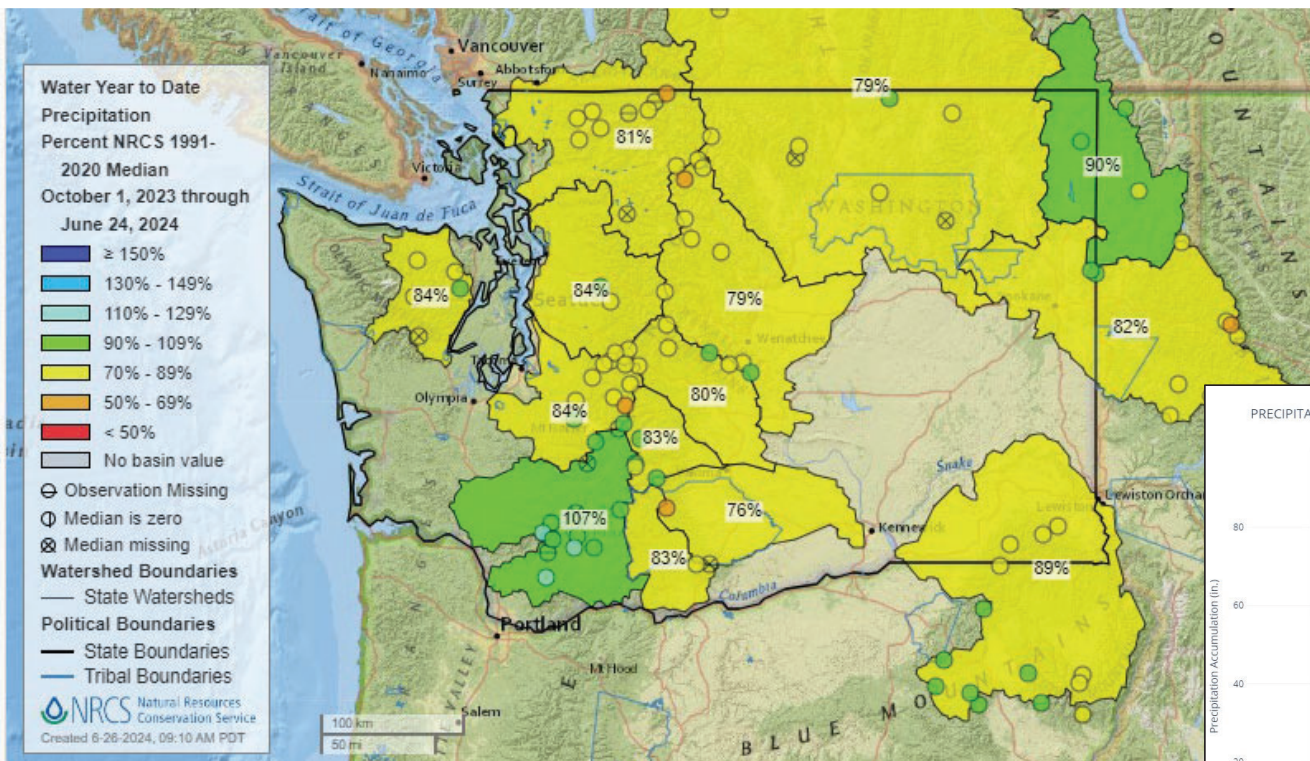
Remaining Snowpack





Precipitation Conditions

WYTD Precipitation – Basin Map

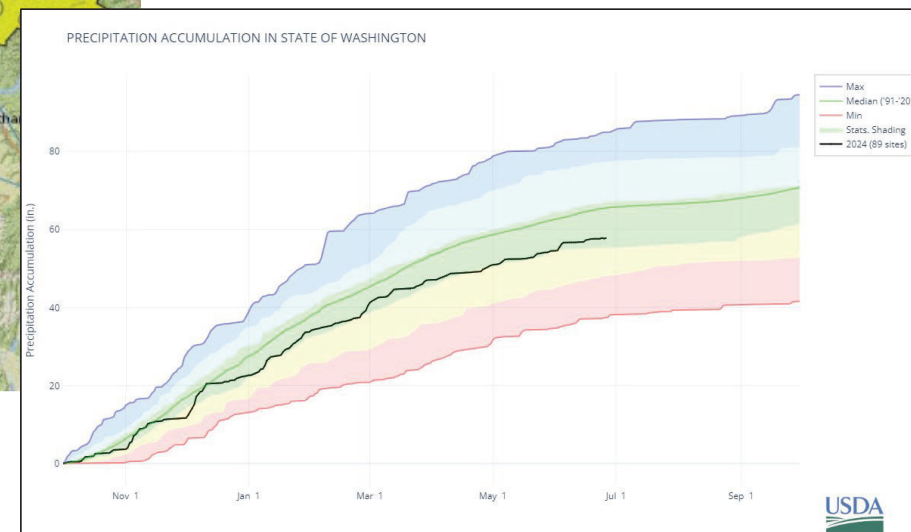


Statewide WYTD Precipitation:

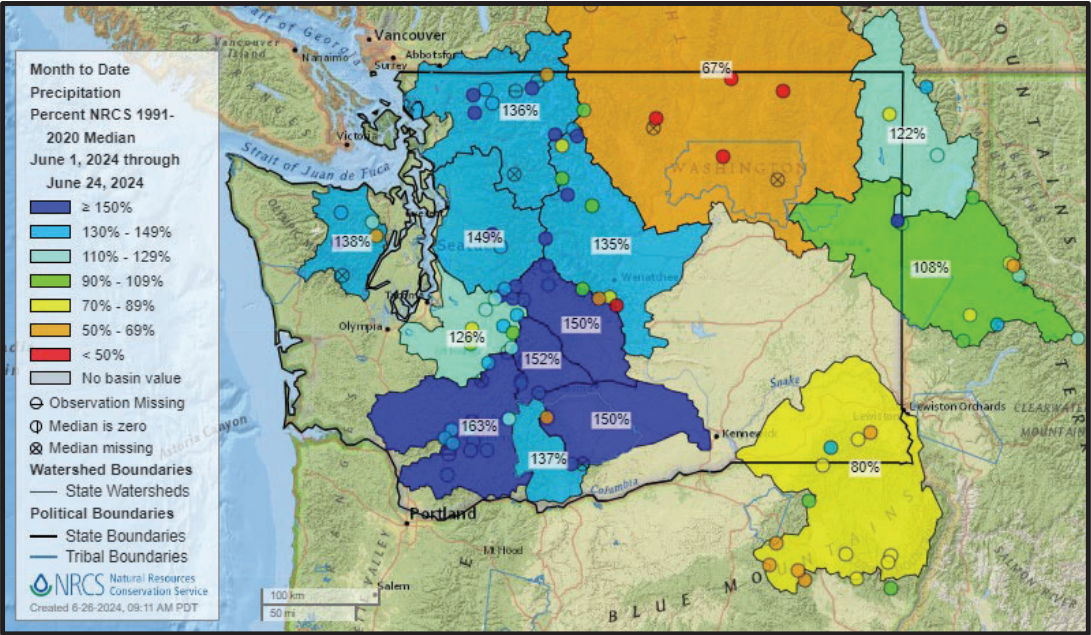
88% of normal

90% of normal last meeting

35 – percentile (normal period)

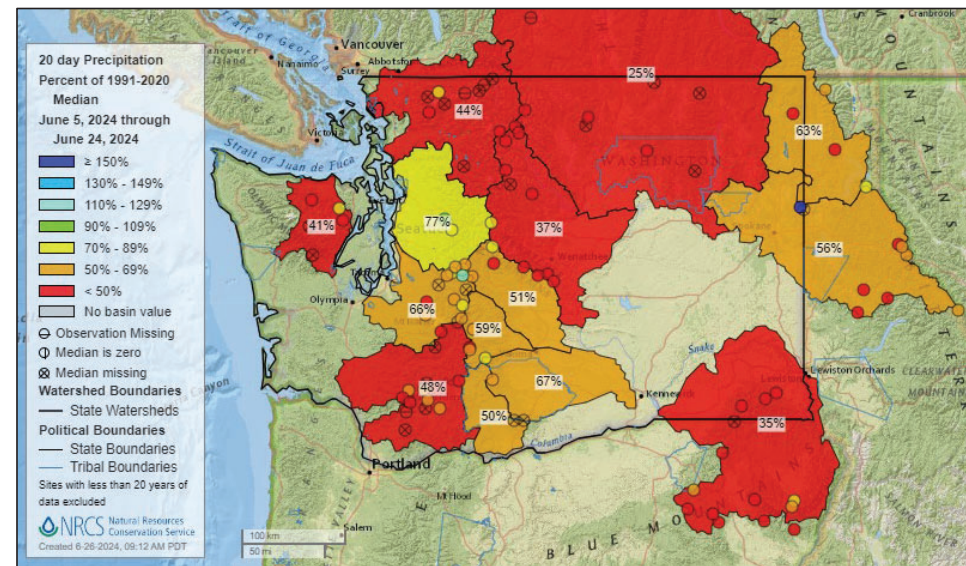


Month-to-Date Precipitation



Month-to-date

Last 20 days



Precipitation: Compounding Deficits

24-month Precipitation – Records



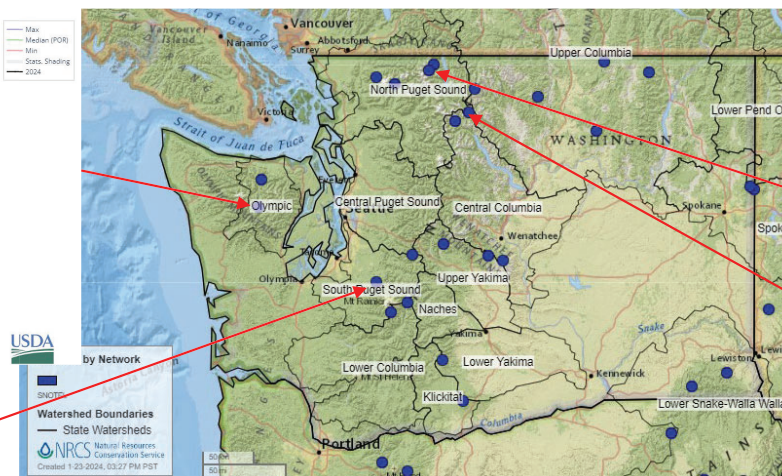
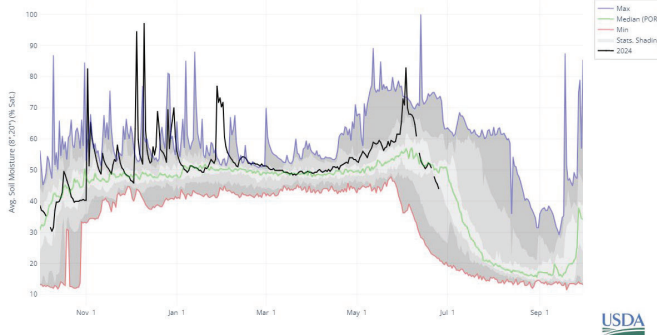


Soil Moisture

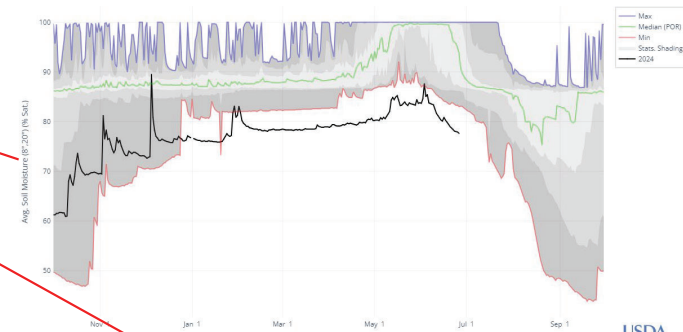
Soil Moisture

WY 2024 – Select Site Charts

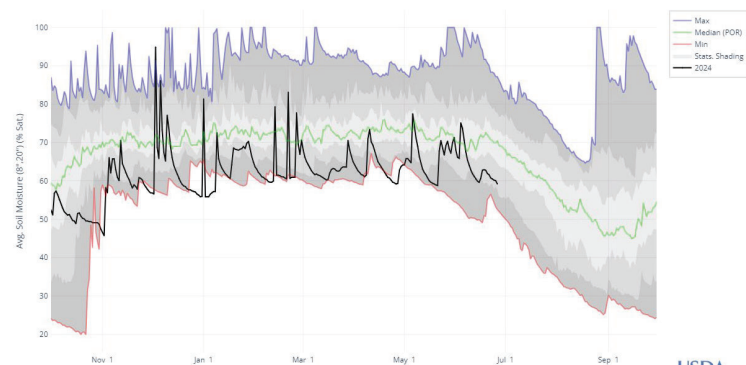
BUCKINGHORSE, WA (1107) AVG. SOIL MOISTURE (8",20")



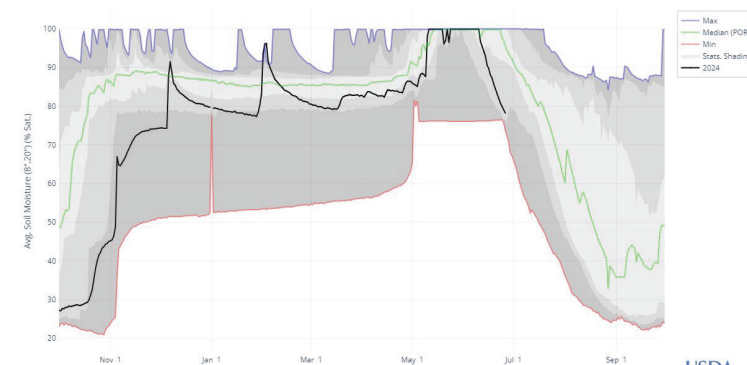
BEAVER PASS, WA (990) AVG. SOIL MOISTURE (8",20")



BURNT MOUNTAIN, WA (942) AVG. SOIL MOISTURE (8",20")



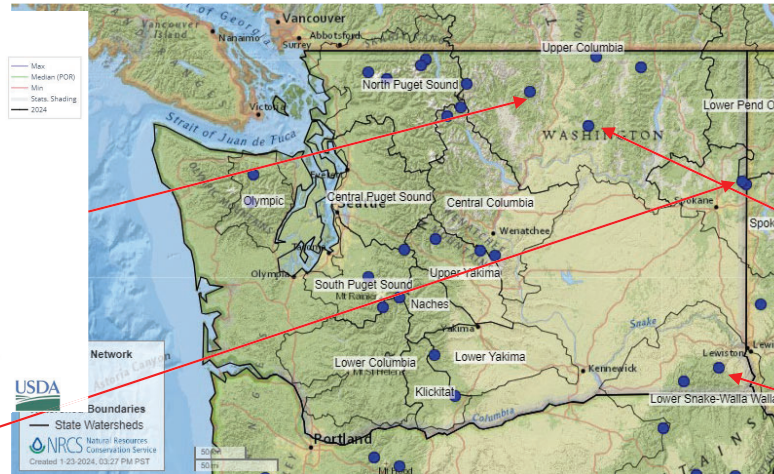
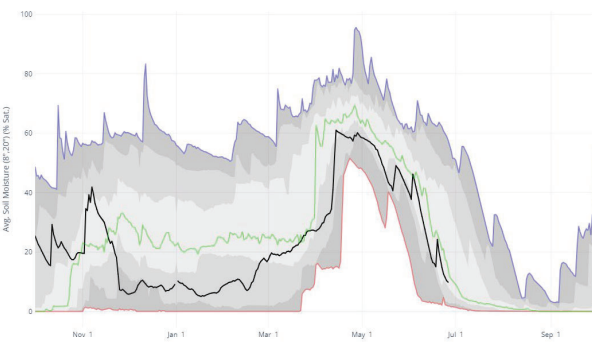
RAINY PASS, WA (711) AVG. SOIL MOISTURE (8",20")



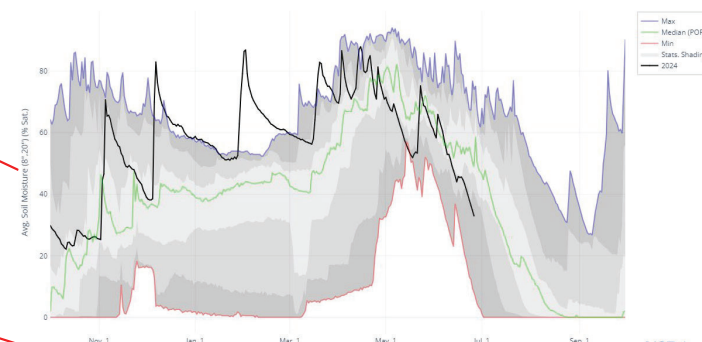
Soil Moisture

WY 2024 – Select Site Charts

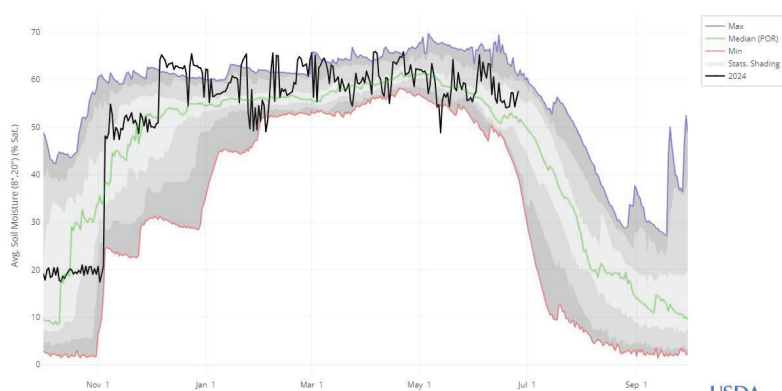
SALMON MEADOWS, WA (728) AVG. SOIL MOISTURE (8",20")



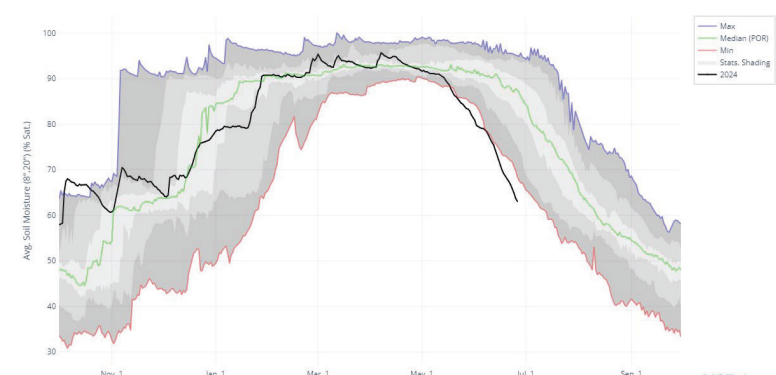
MOSES MTN, WA (644) AVG. SOIL MOISTURE (8",20")



RAGGED MOUNTAIN, ID (1081) AVG. SOIL MOISTURE (8",20")

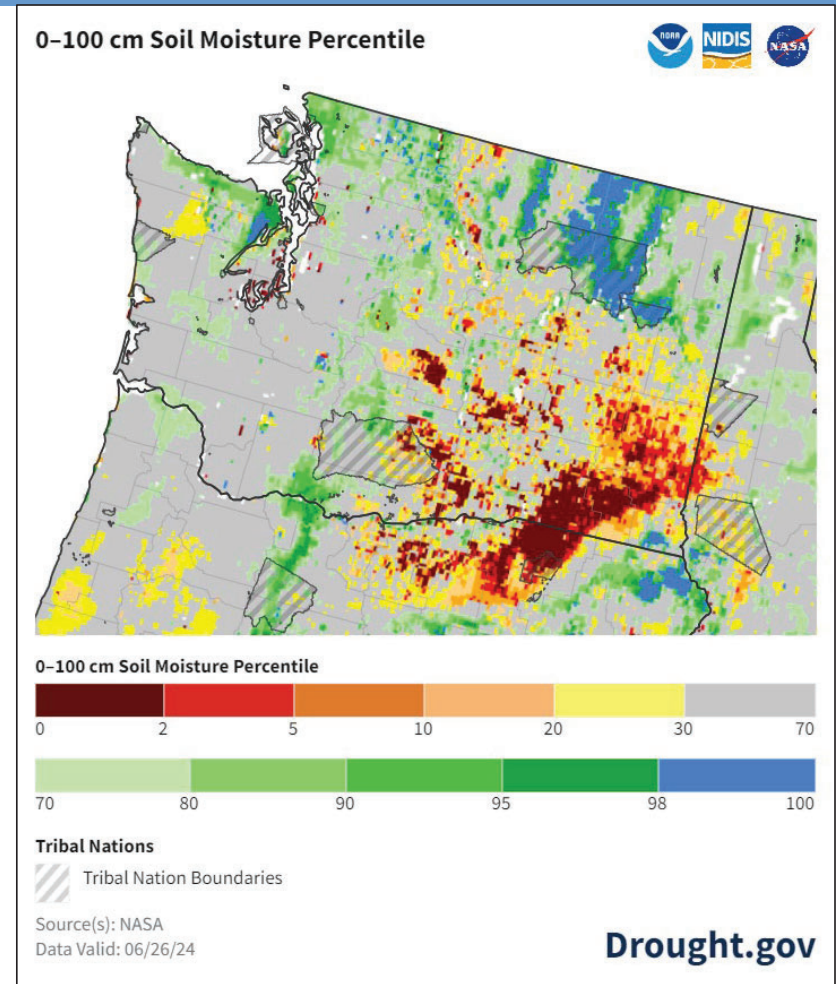
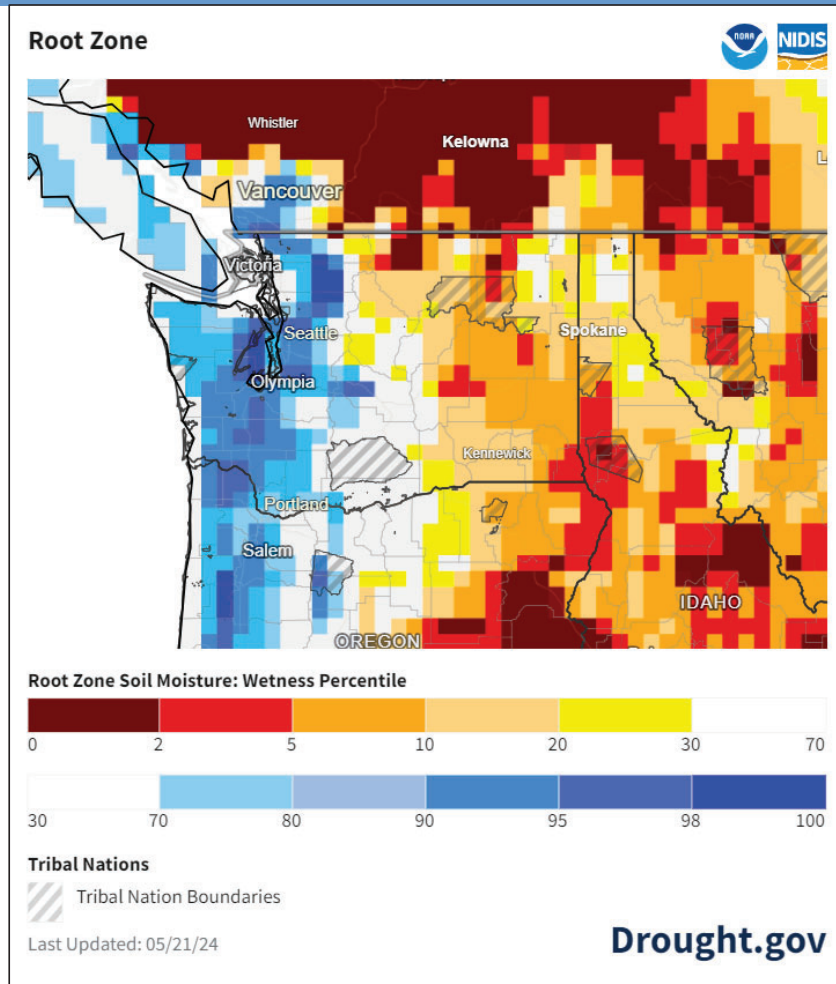


SOURDOUGH GULCH, WA (985) AVG. SOIL MOISTURE (8",20")



Soil Moisture

NASA GRACE and SPoRT-LiS





Water Supply Outlook

June 1: Water Supply Forecasts

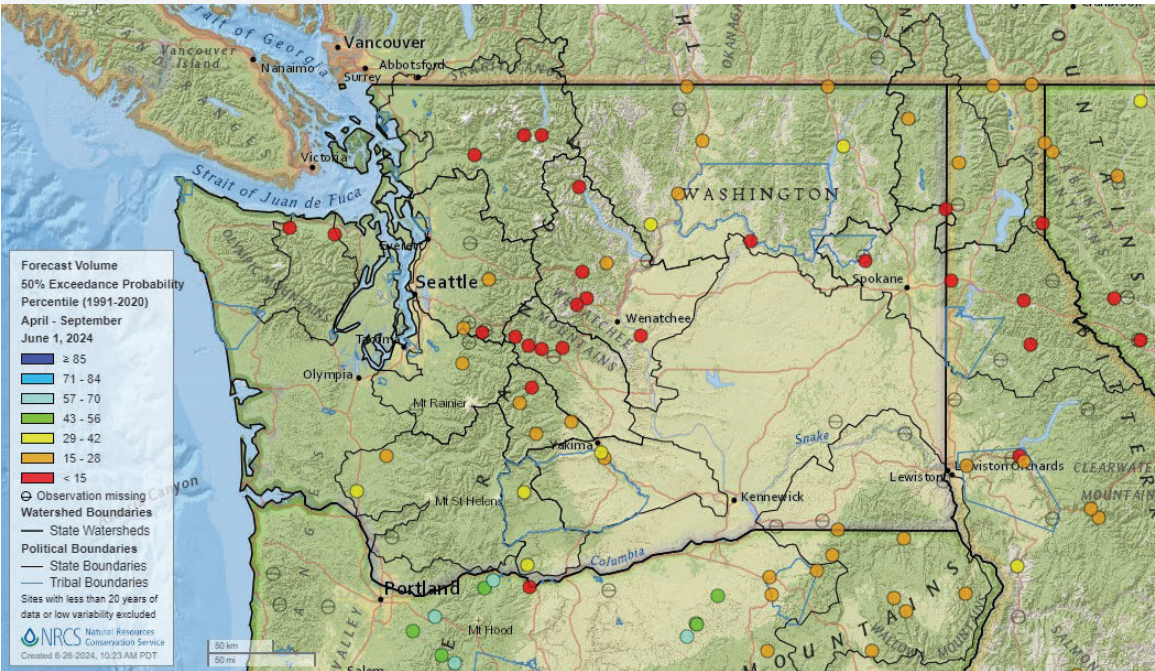
June-July (mostly) Volumetric Streamflow



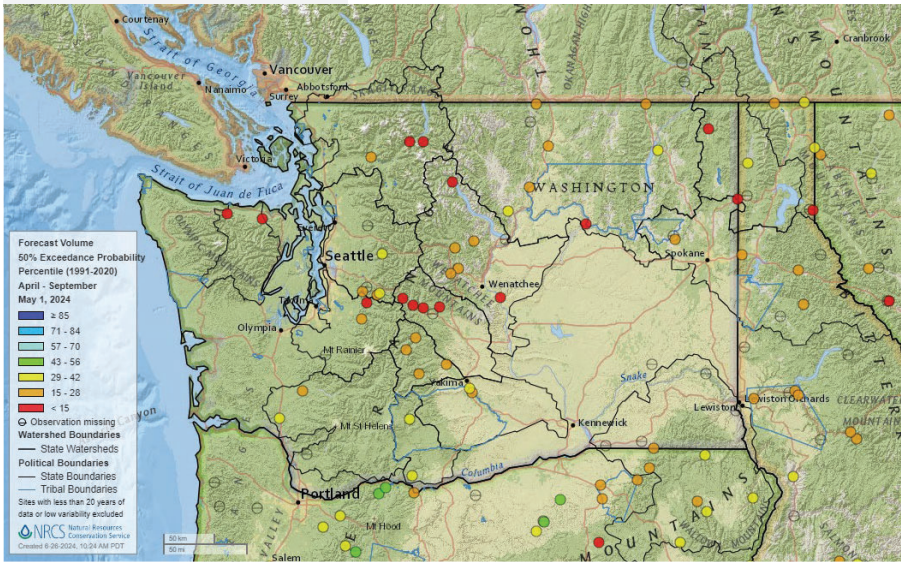
June 1: Water Supply Forecasts

June-July (mostly) Volumetric Streamflow

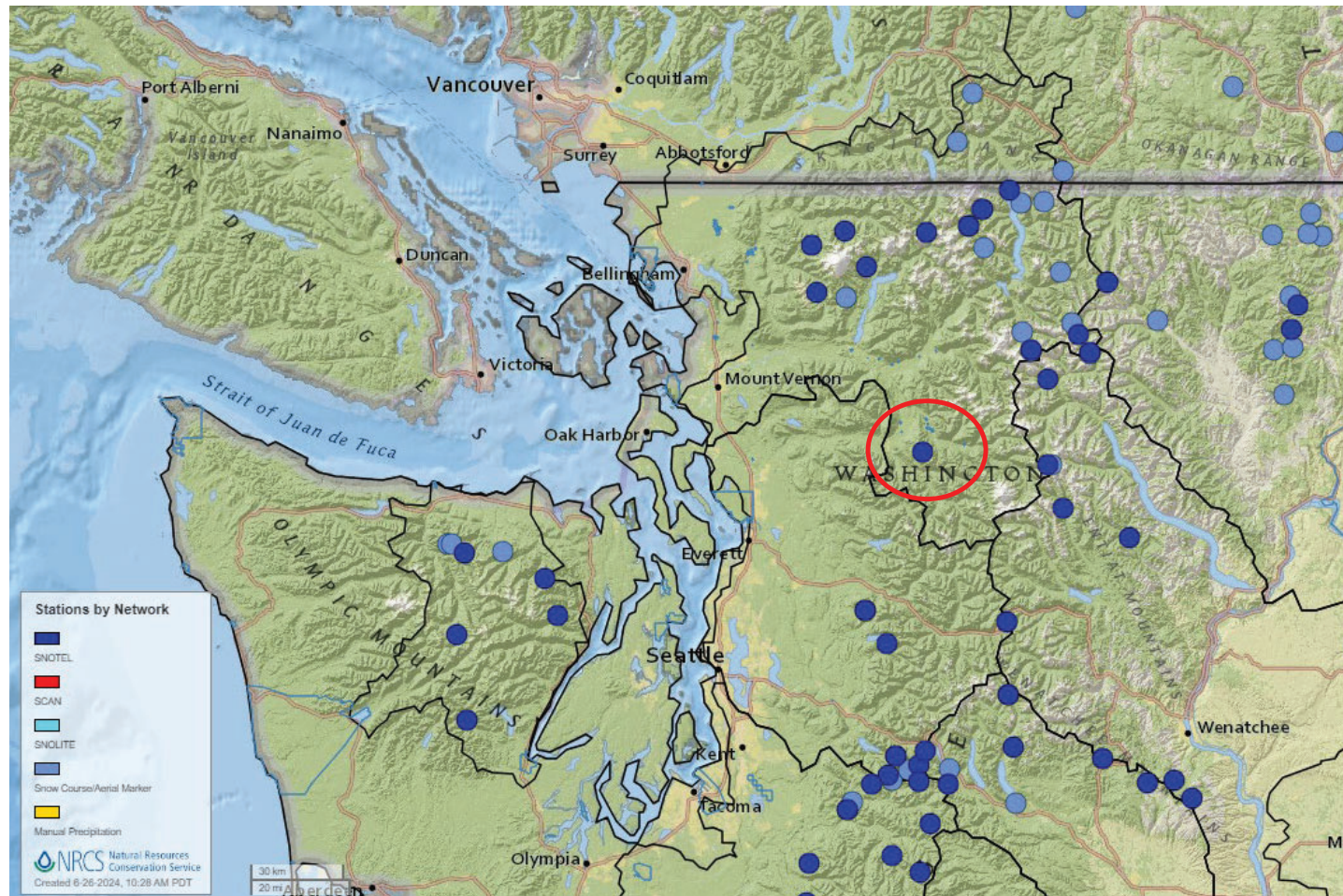
Percentile – June 1



Percentile – May 1



NEW SITE – Decline Creek SNOTEL





Natural Resources Conservation Service

Thank you!

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USDA NRCS SSWSF
Portland Data Collection Office
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503-307-2829

[Washington Snow Survey and Water Supply Program Website](#)

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