DEPARTMENT OF ECOLOGY
State of Washington

Water Supply Update

Water Resources Advisory Committee Meeting

Jeff Marti

June 12, 2023

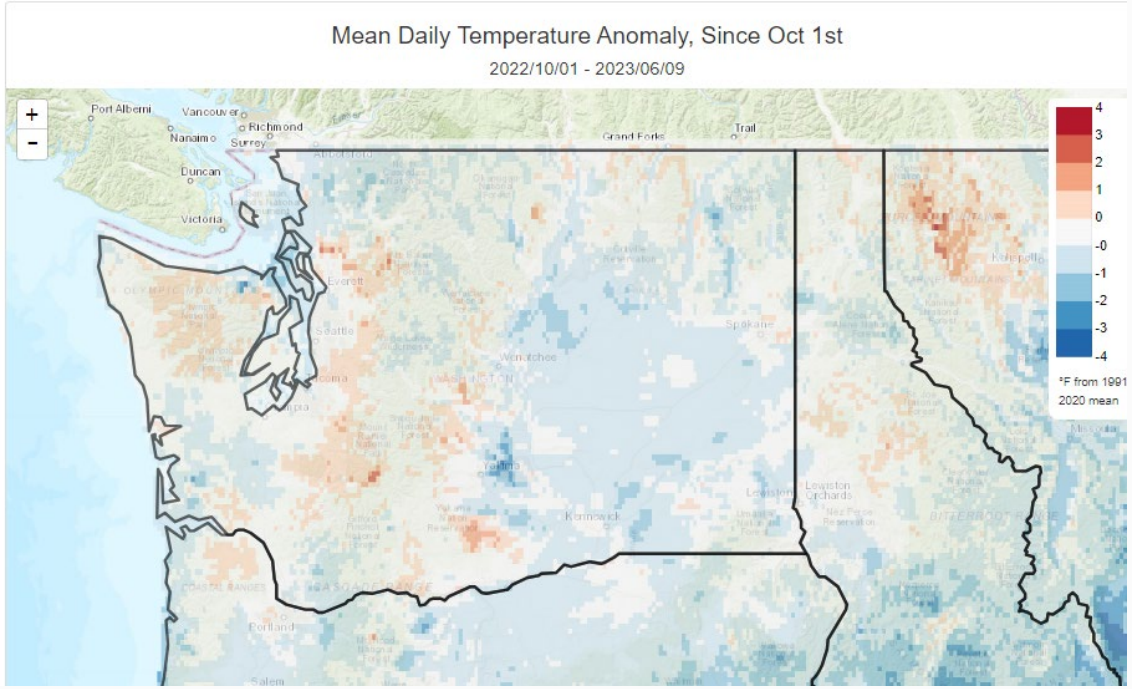
Water Year to Date Temperature and Precip

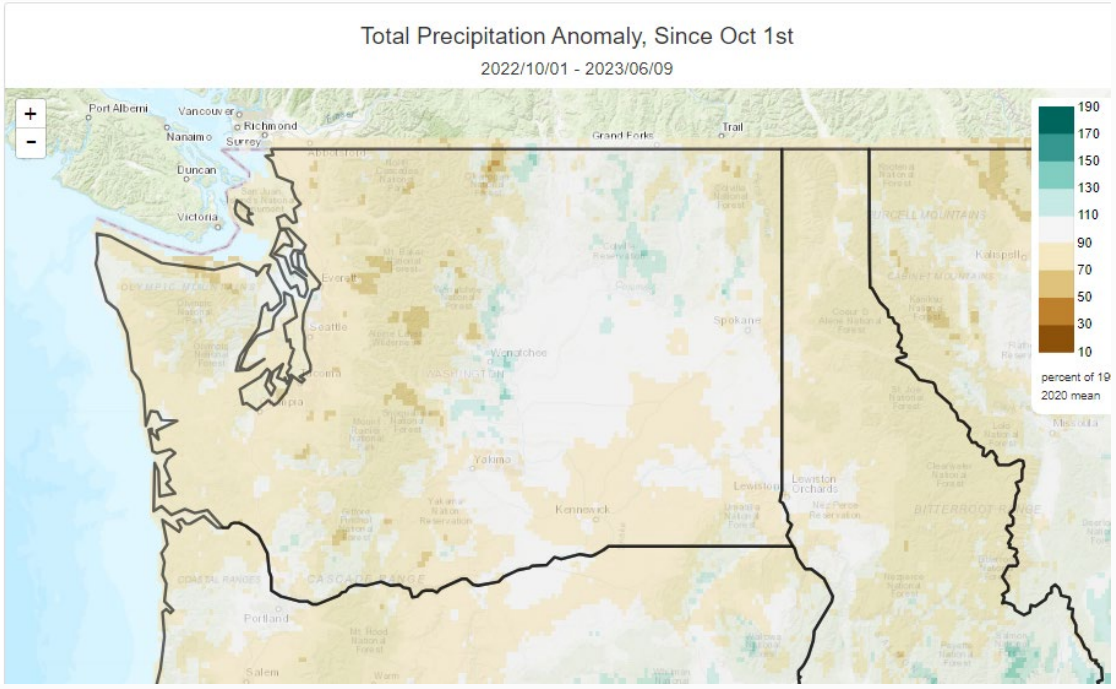
October – May

45th warmest since 1895 (-0.4°F)

October - May: 31st Driest since 1895

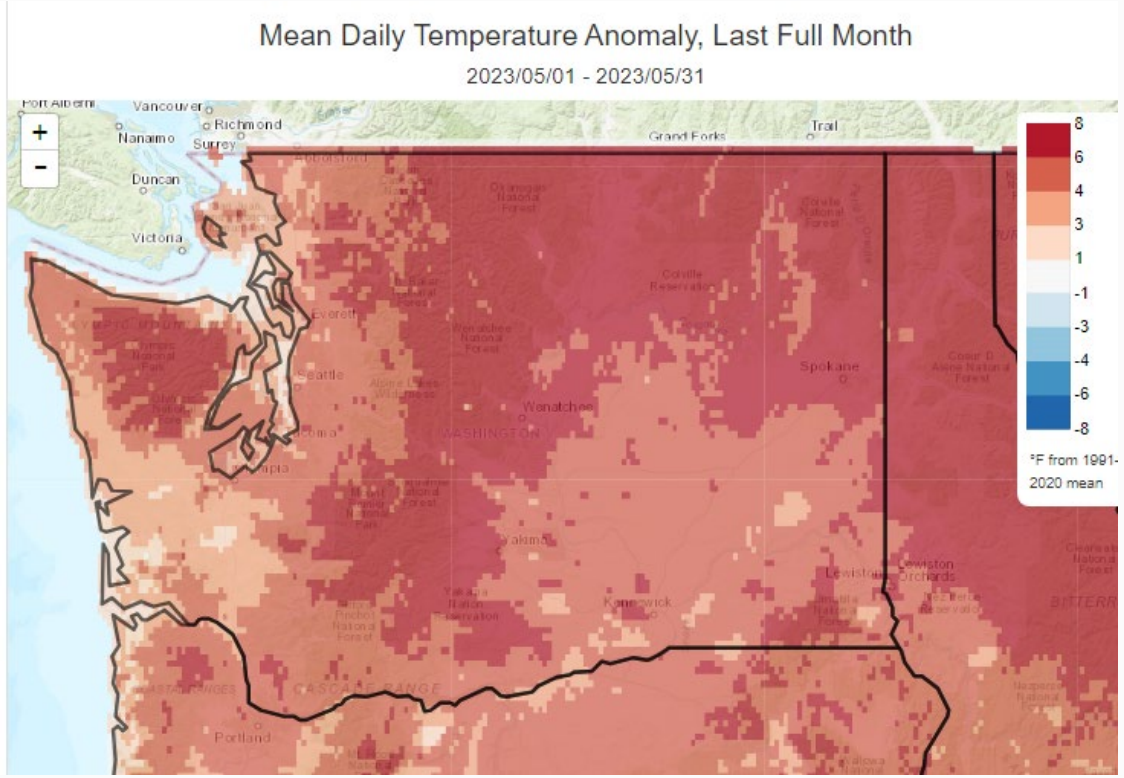
85 percent of normal (-5.78”)



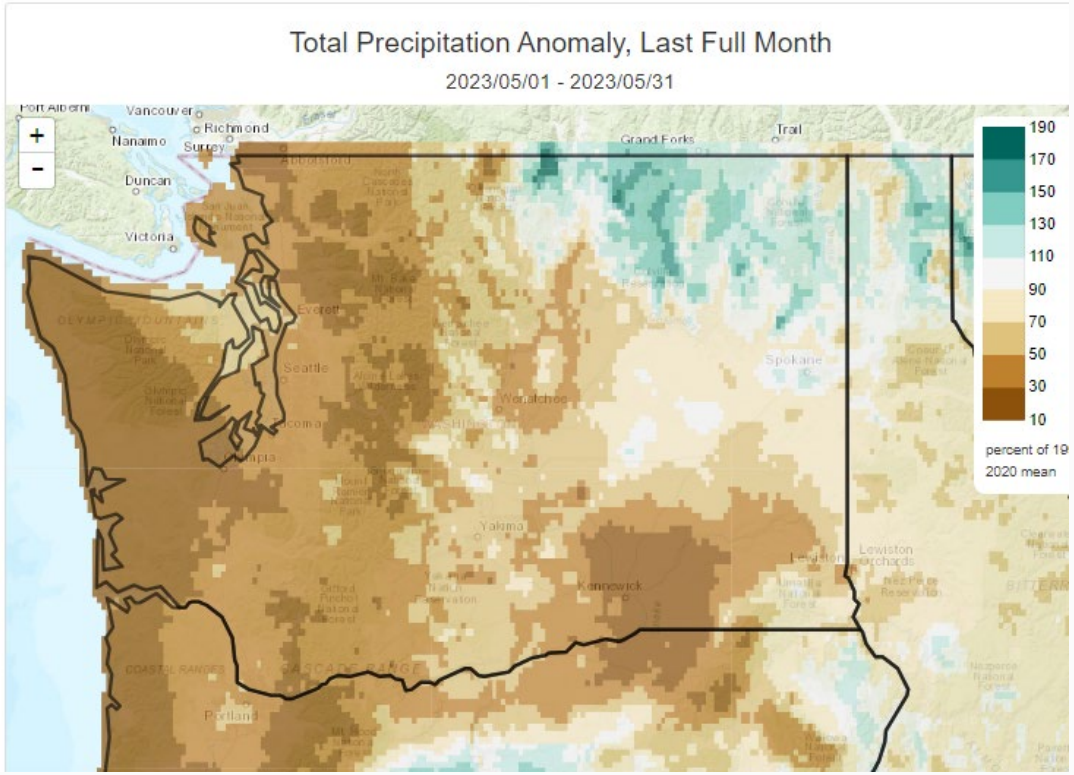


May 2023

Tied May 1958 for Warmest May since 1895 (58.2°F; 5.3°F above 1991-2020 Normal)



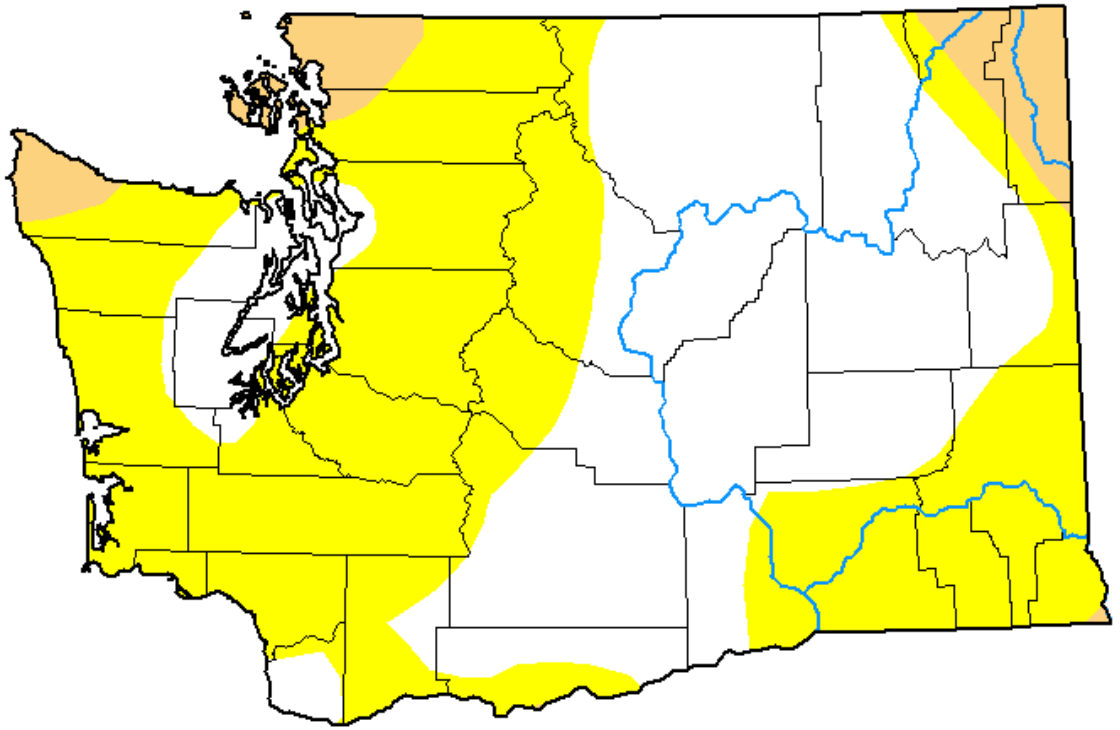
15th Driest May since 1895 (-1.22”; 50% of 1991-2020 Normal)



DEPARTMENT OF ECOLOGY
State of Washington

U.S. Drought Monitor
Washington

June 6, 2023
(Released Thursday, Jun. 8, 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:

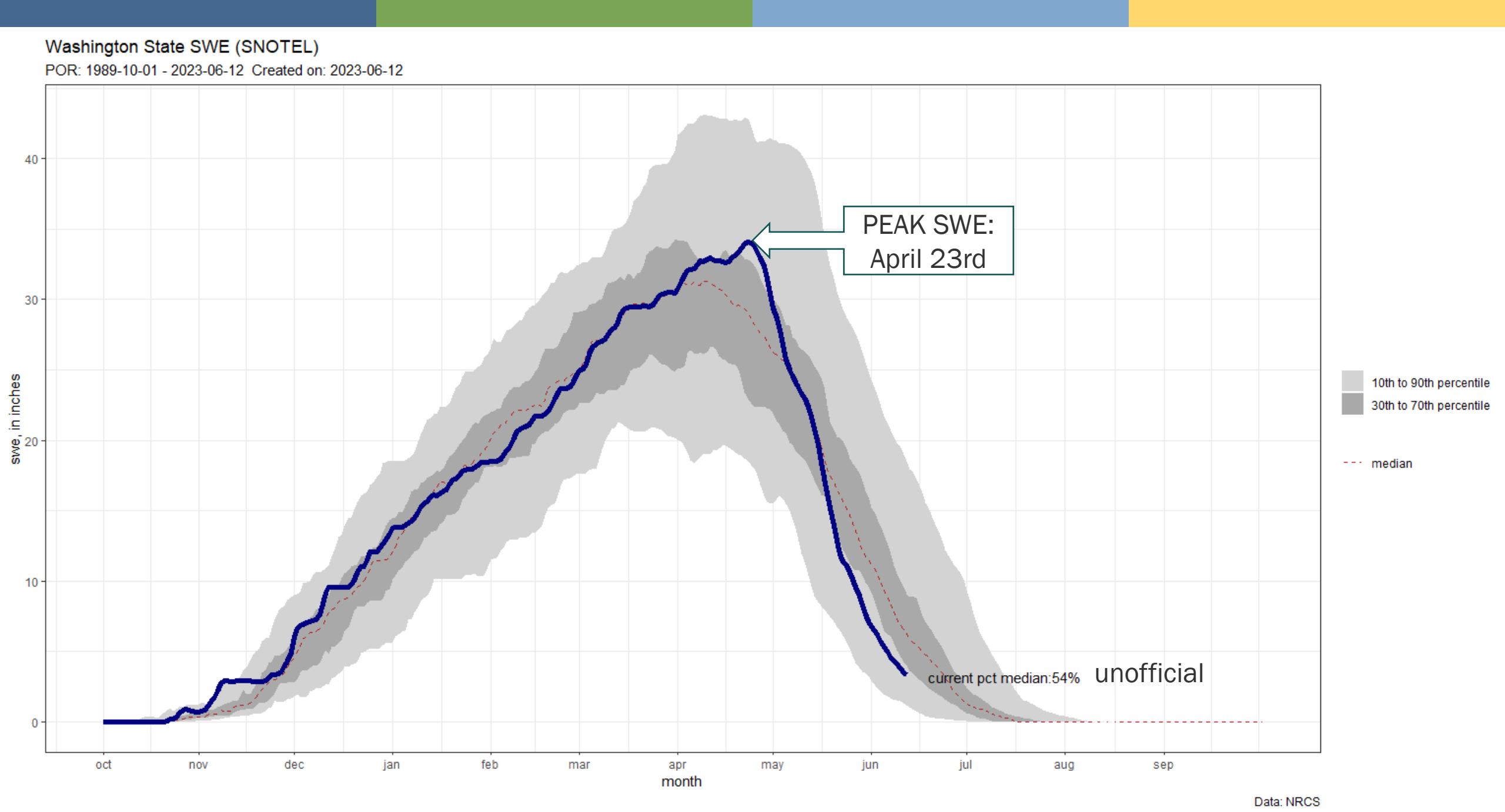
Lindsay Johnson
National Drought Mitigation Center

droughtmonitor.unl.edu

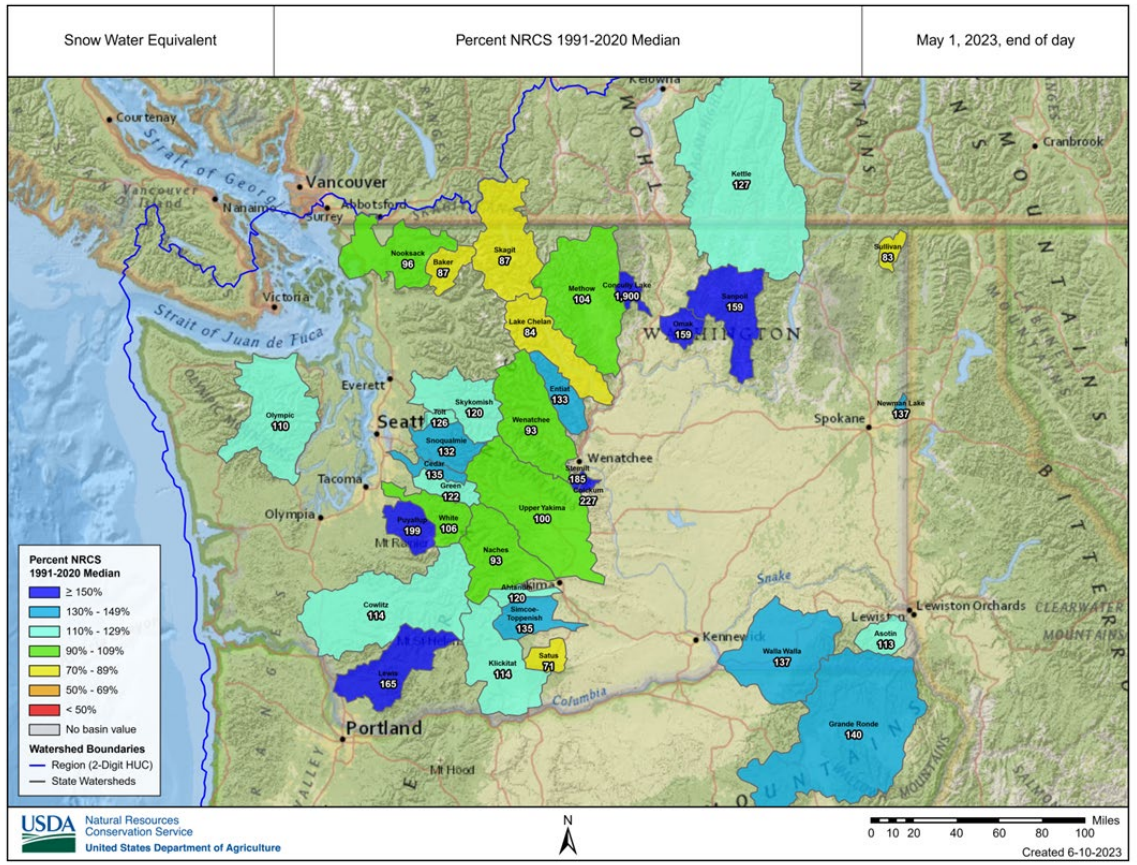
Abnormally Dry: 21 to 30 percentile. Conditions expected to occur once every 3 to 5 years.

Moderate Drought: 11 to 20 percentile. Conditions expected to occur once every 5 to 10 years.

Drought monitor is hindsight!

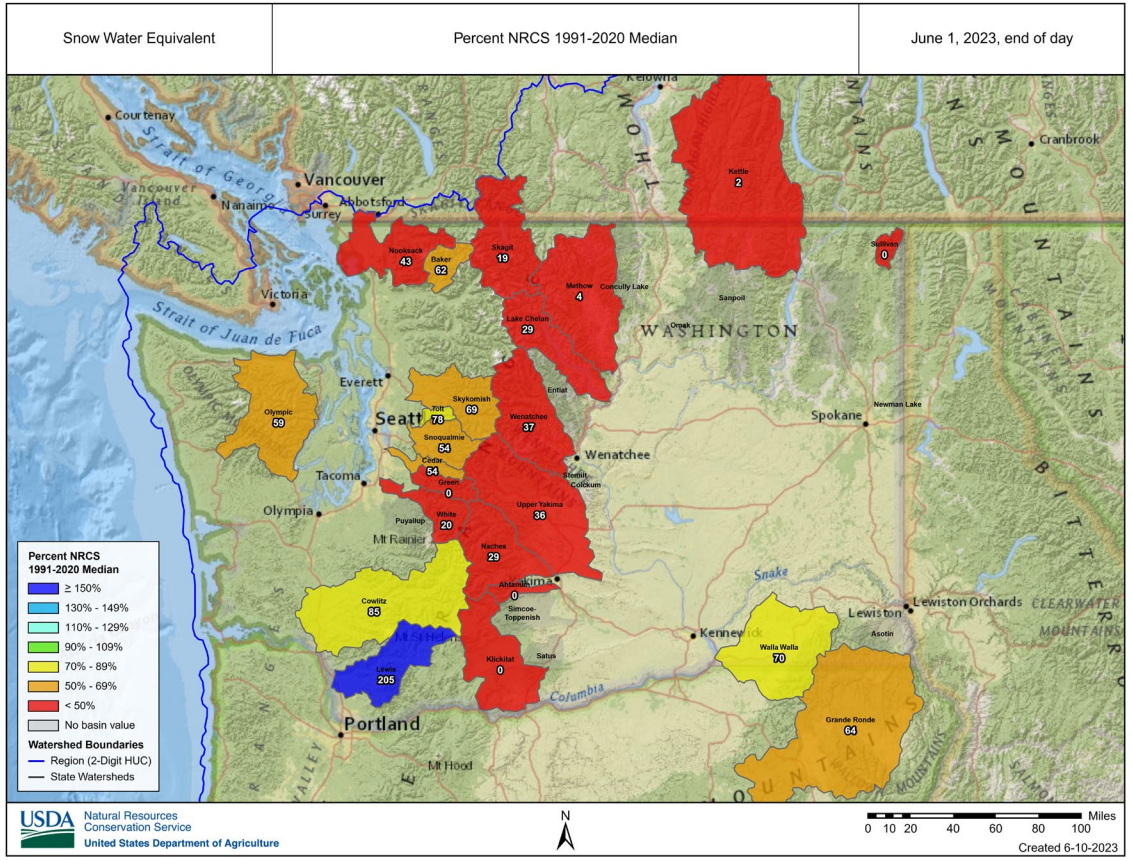

Washington State SWE (SNOTEL)
POR: 1989-10-01 - 2023-06-12 Created on: 2023-06-12
PEAK SWE:
April 23rd
current pct median:54%
unofficial
swe, in inches
40
30
20
10
0
oct
nov
dec
jan
feb
mar
apr
may
jun
jul
aug
sep
month
10th to 90th percentile
30th to 70th percentile
median
Data: NRCS

May 1 Statewide Average 111 Percent of Normal



DEPARTMENT OF ECOLOGY
State of Washington

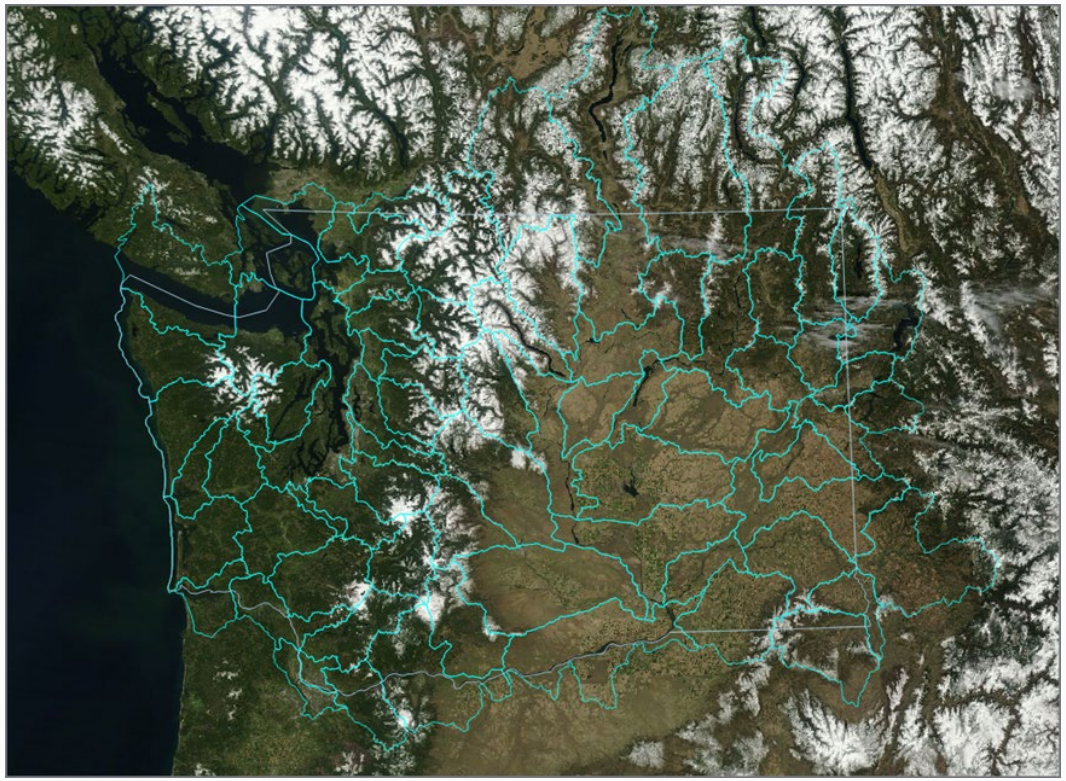
June 1 Statewide Average Snowpack ~64 Percent* of Normal



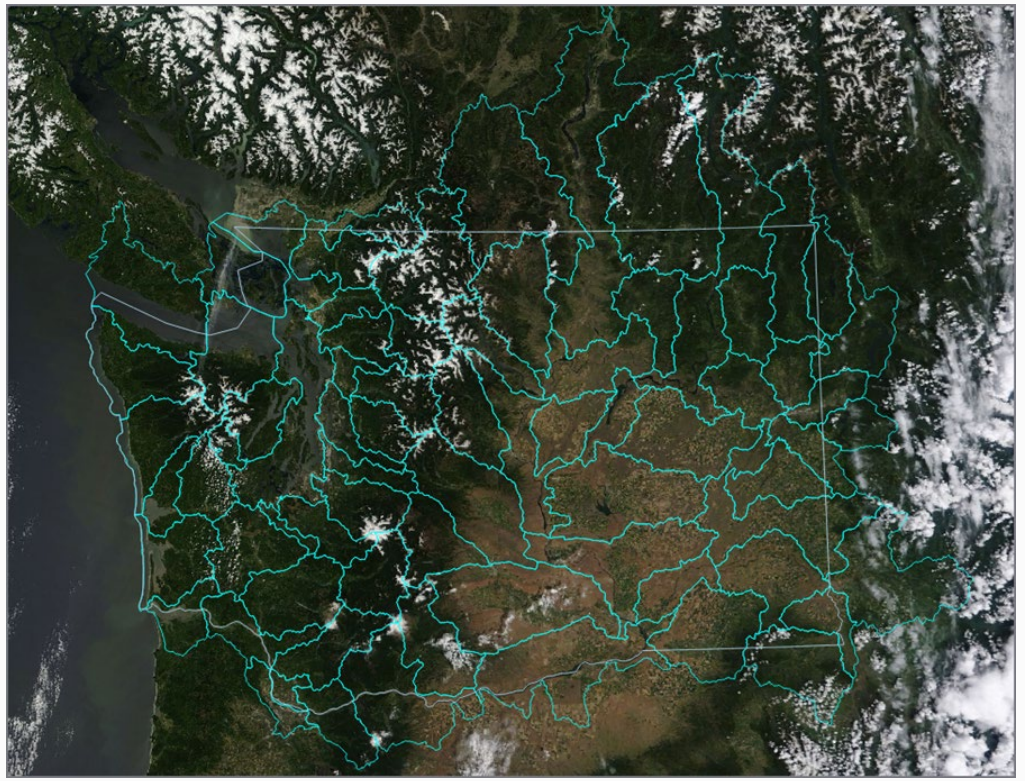
* NRCS flagged for data quality

DEPARTMENT OF ECOLOGY
State of Washington

April 28, 2023

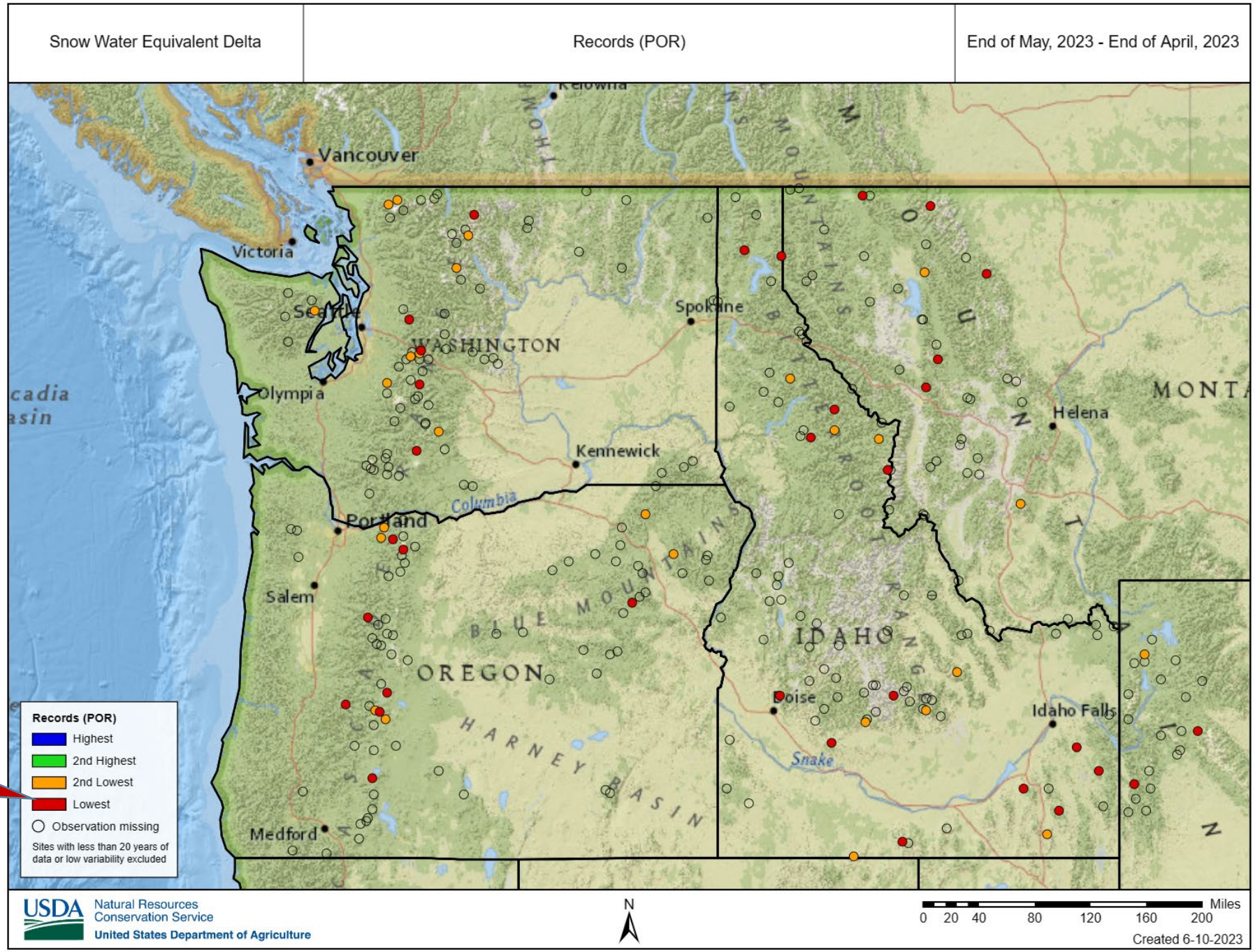


June 04, 2023



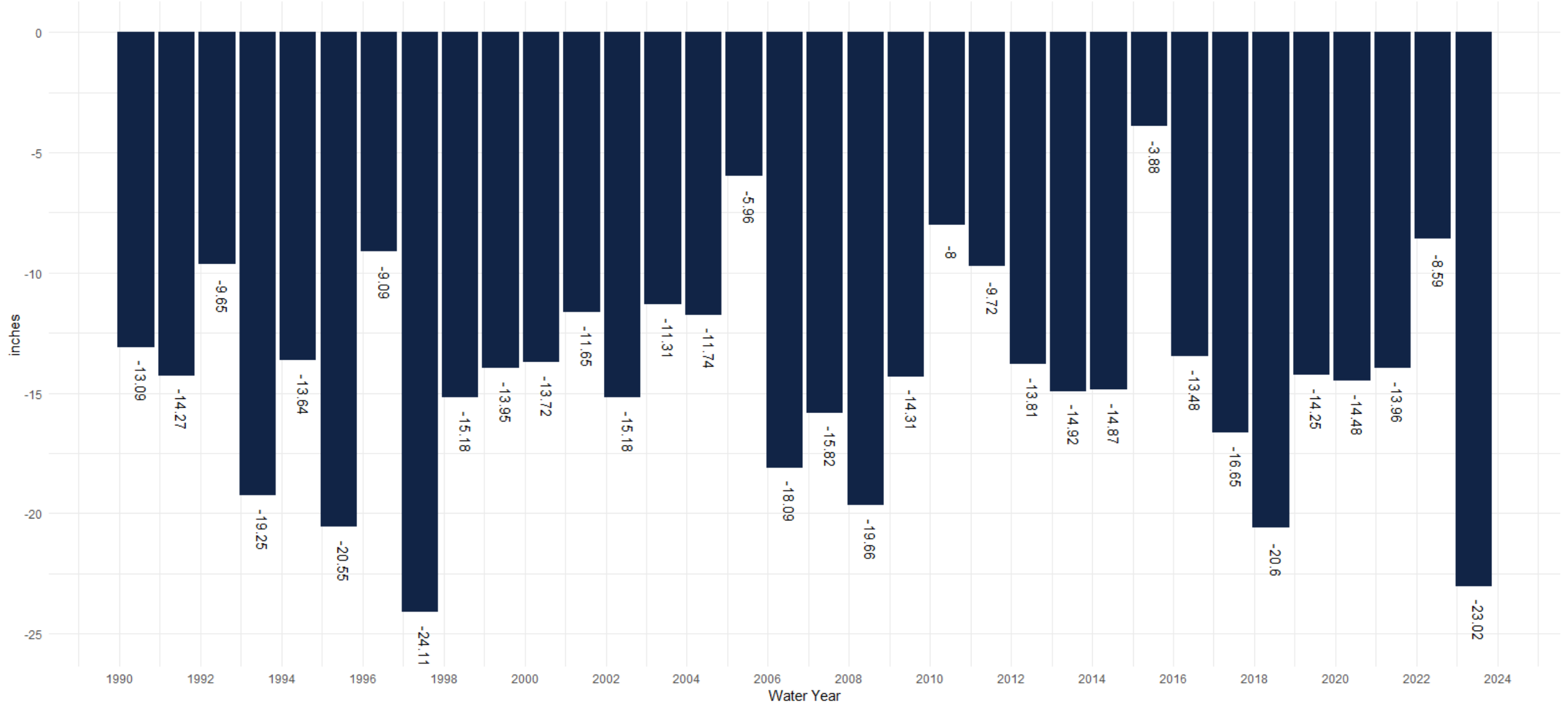
Where was record snowmelt measured in the month of May?

Lowest means most melt compared to previous Mays



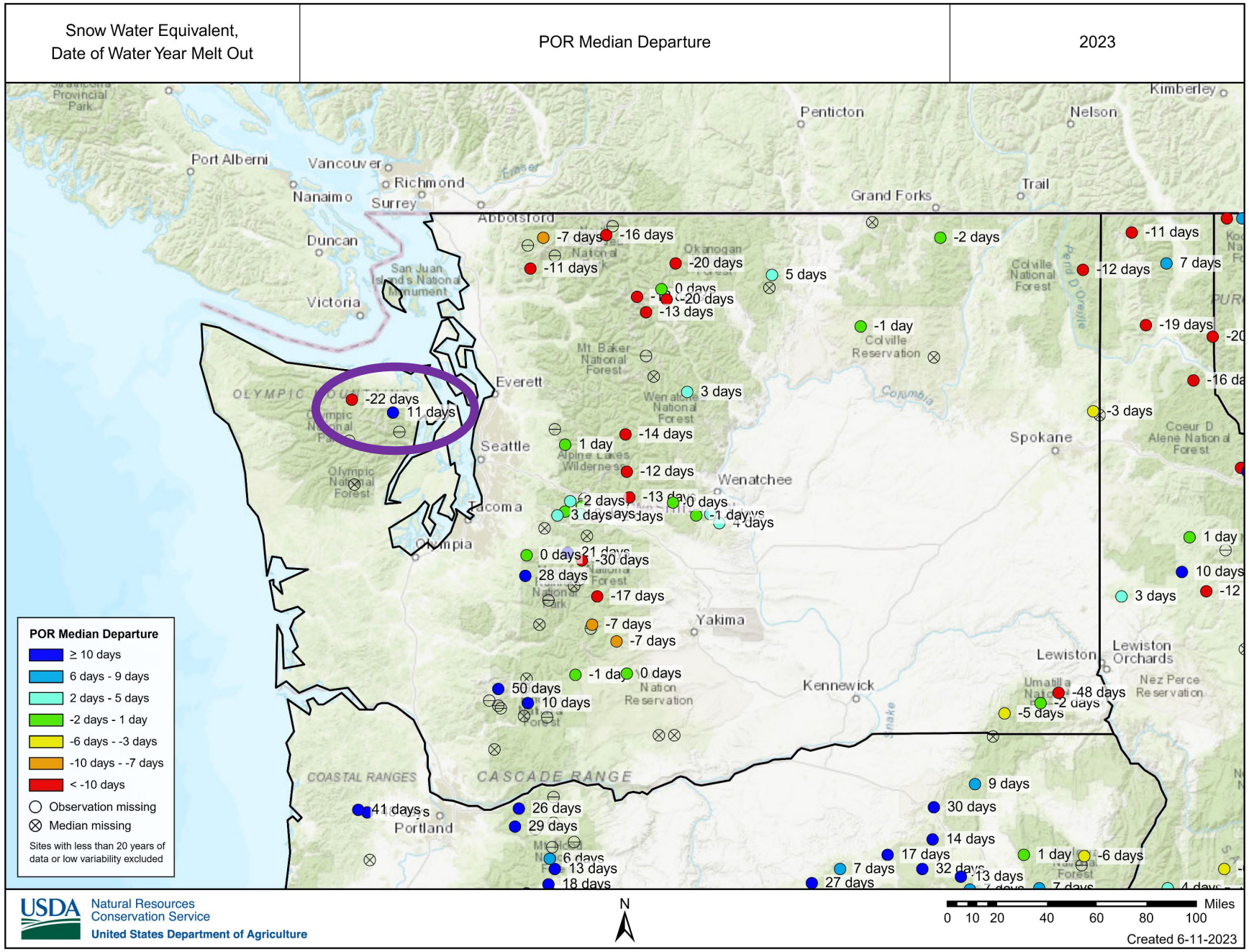
Changes in Monthly Statewide Average SWE for May

Water Years 1990 -



Data: NRCS SNOTEL

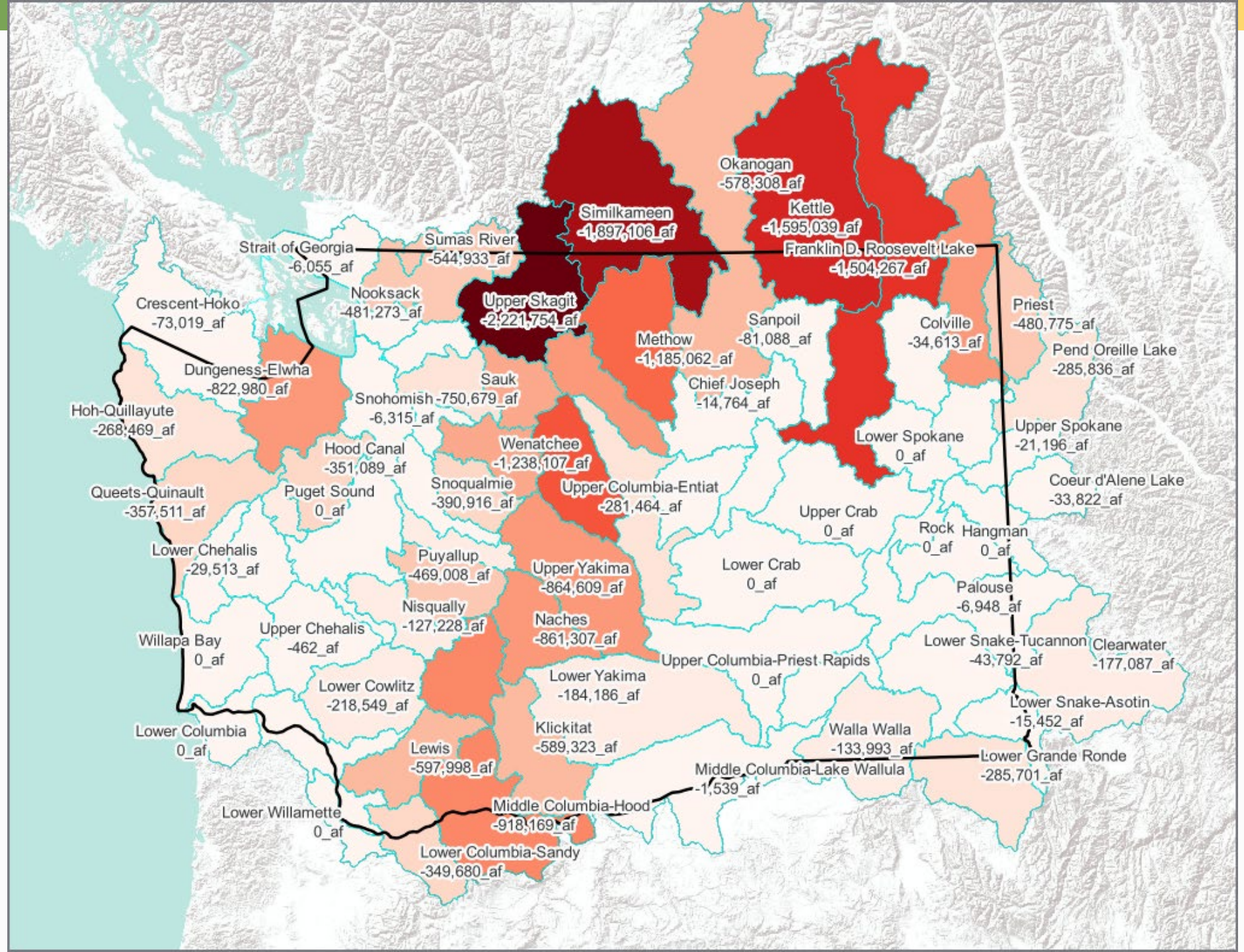
Has the date of total meltout so far been earlier or later than usual?

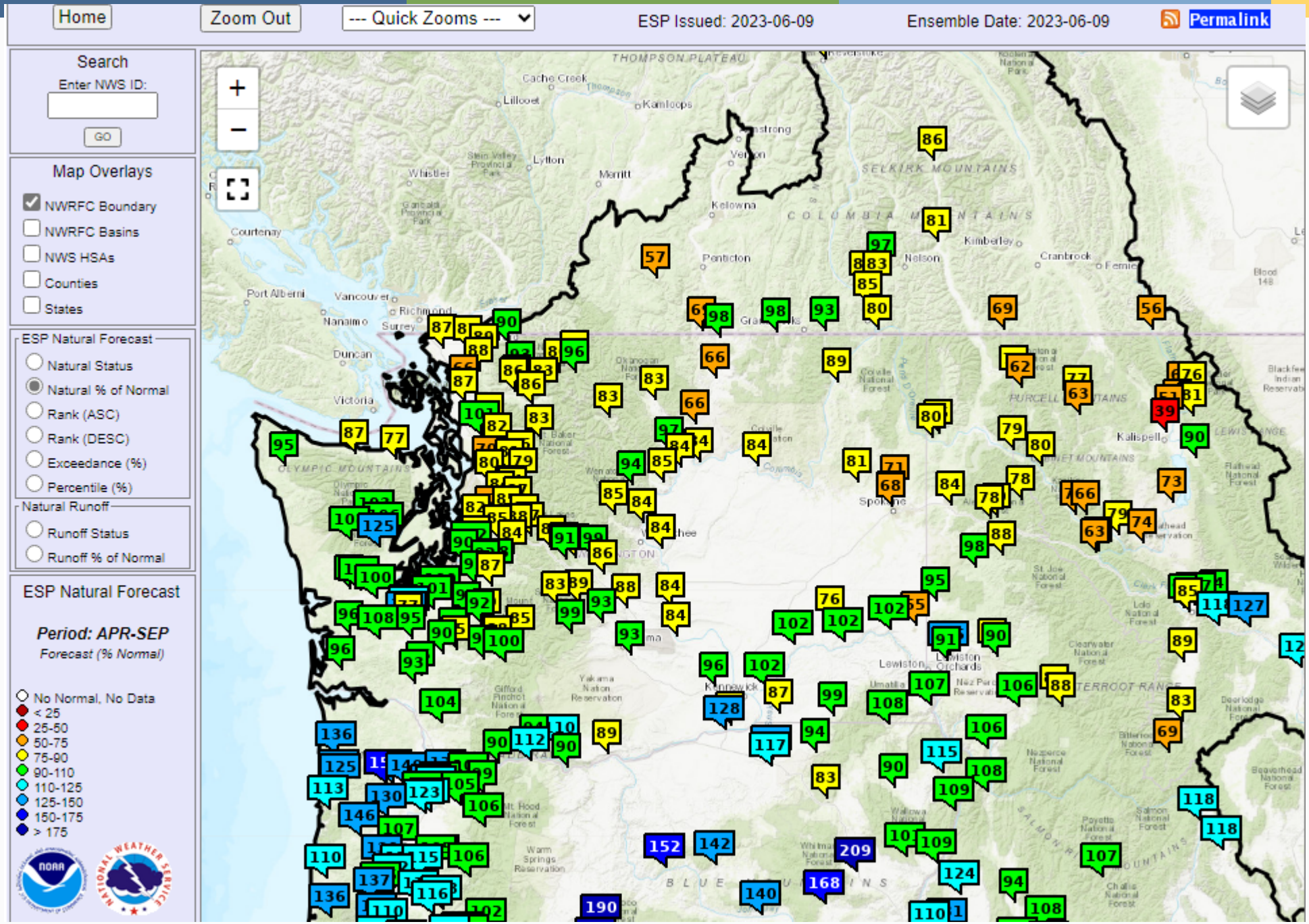


May 1 Total SWE
34.4 million acre-feet

June 1 Total SWE
8.7 million acre-feet

Overall decrease of ↓ 74.7%

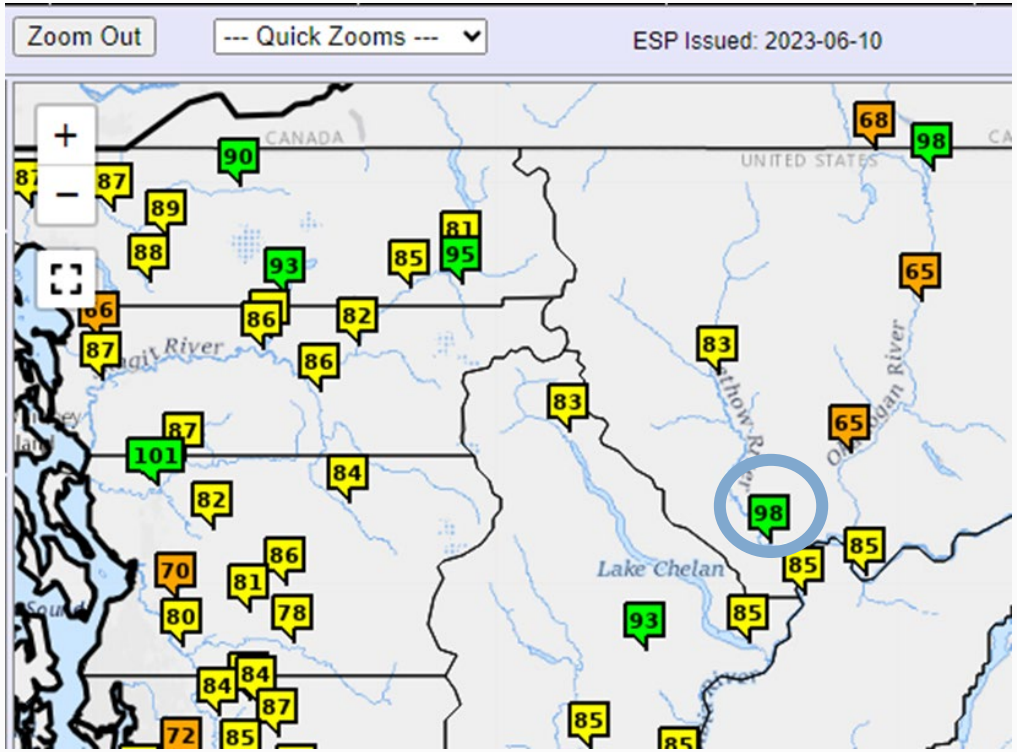


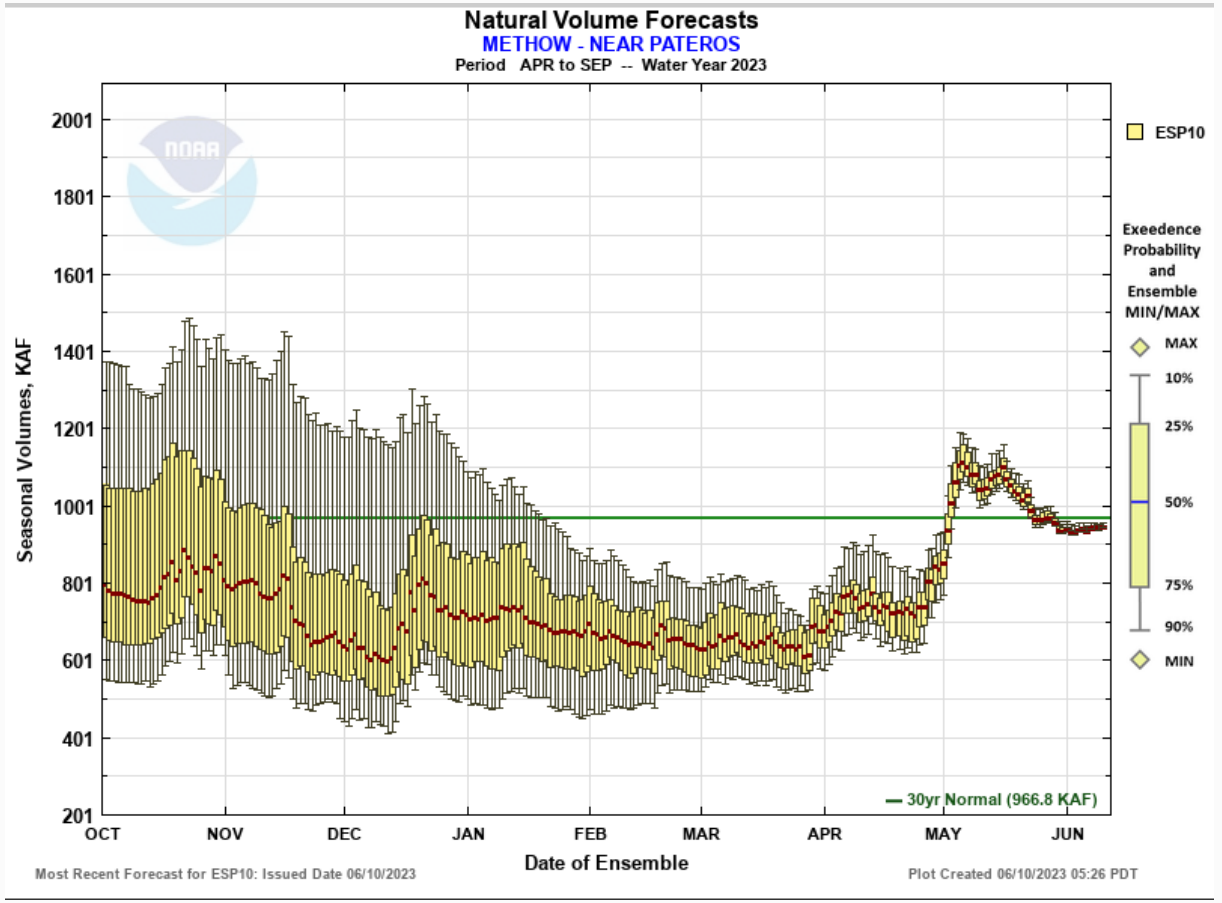


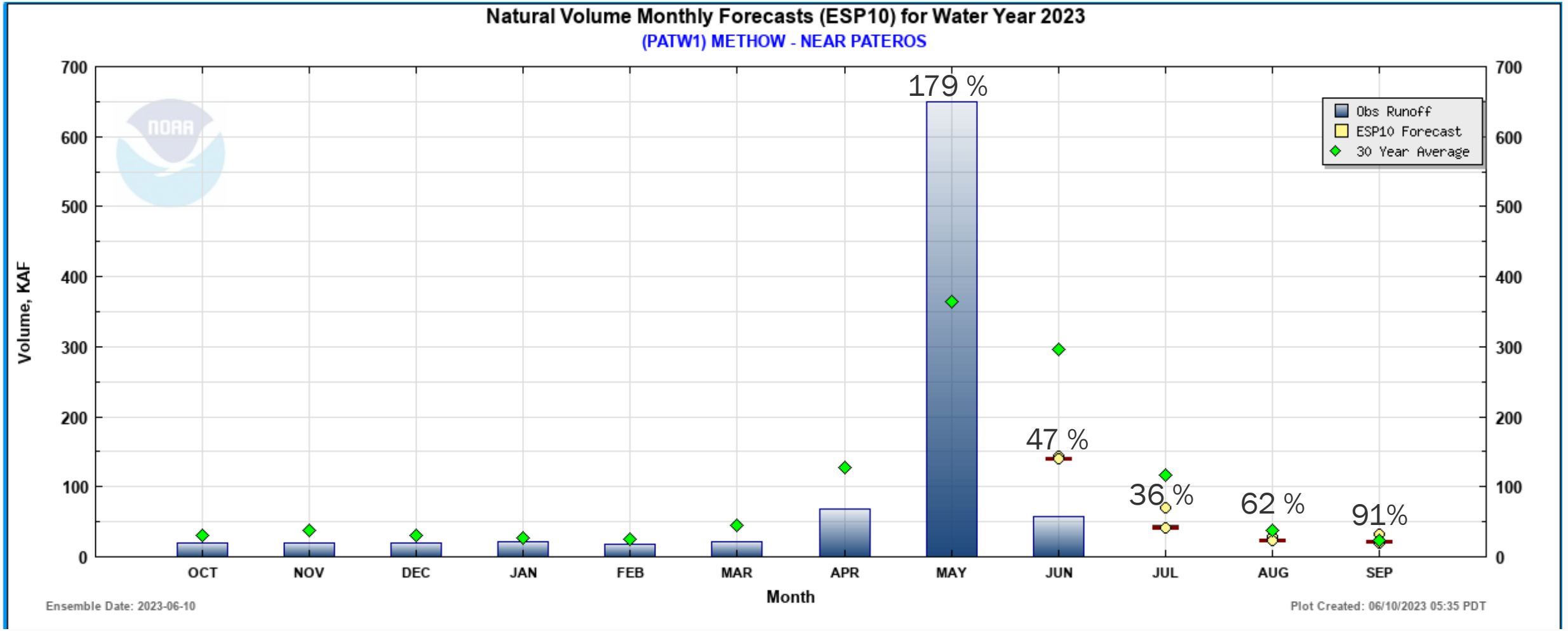
DEPARTMENT OF ECOLOGY
State of Washington

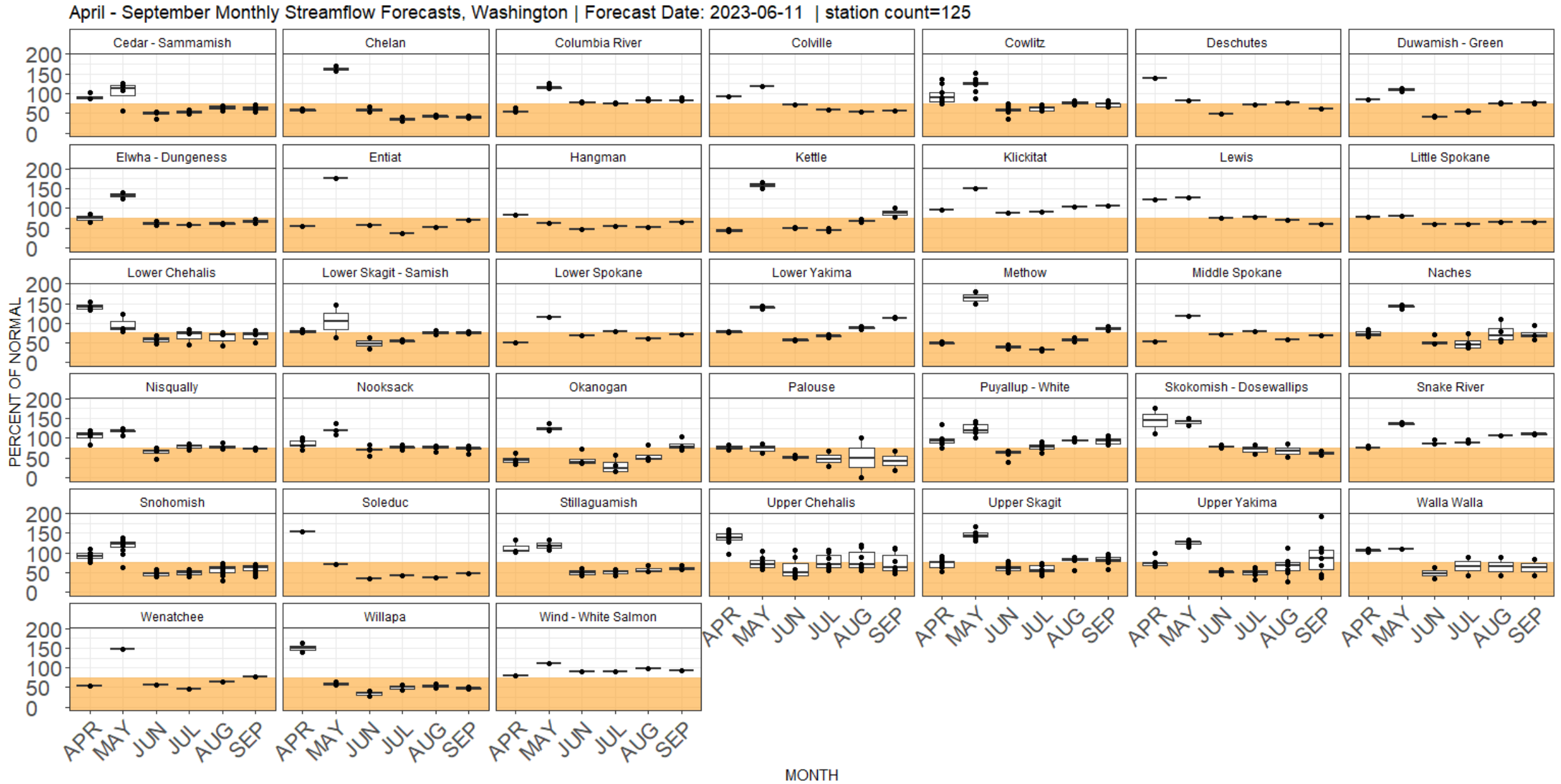
Statewide Median runoff forecast 88 percent of normal

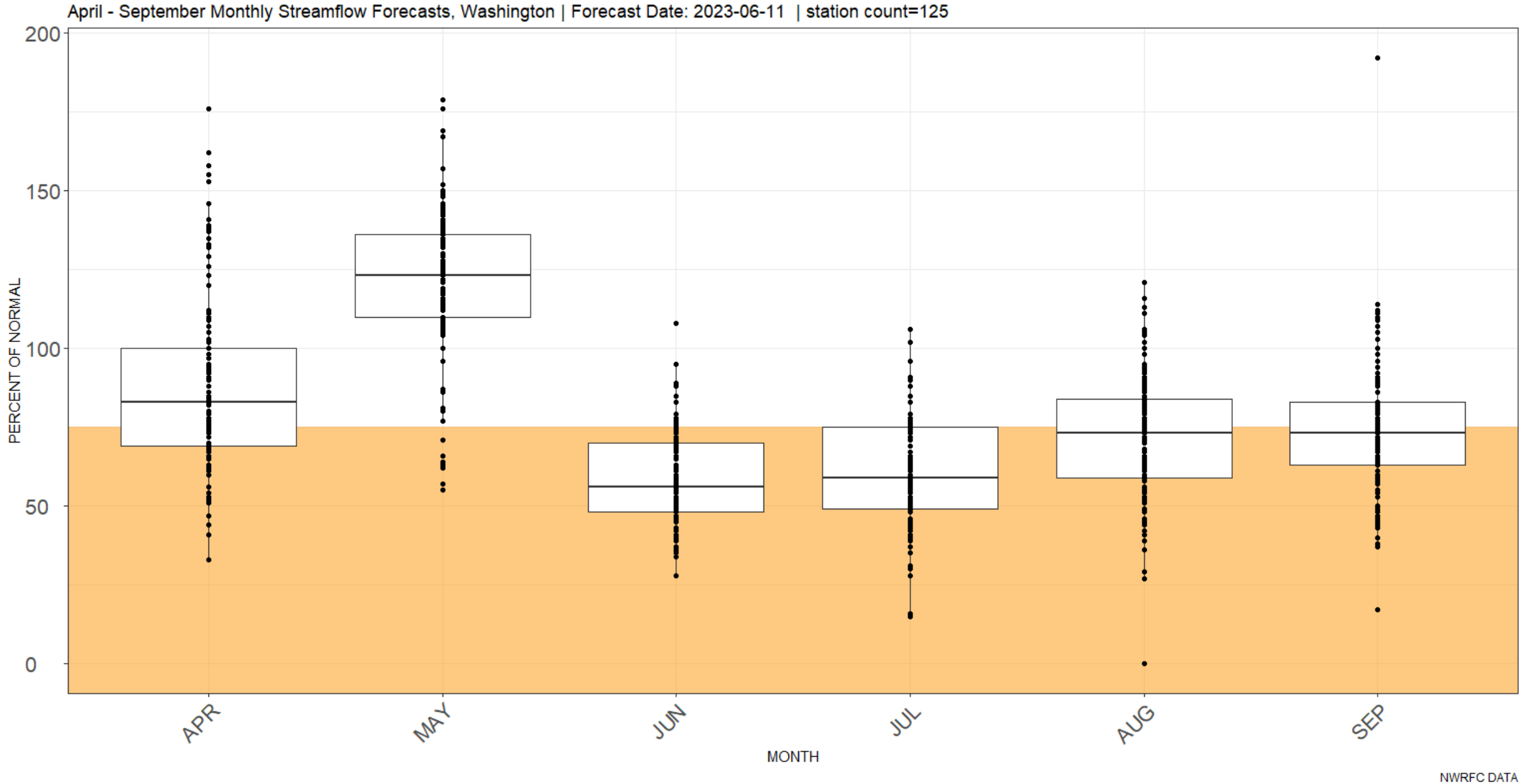
Monthly breakdown of seasonal water supply forecasts: Methow Example

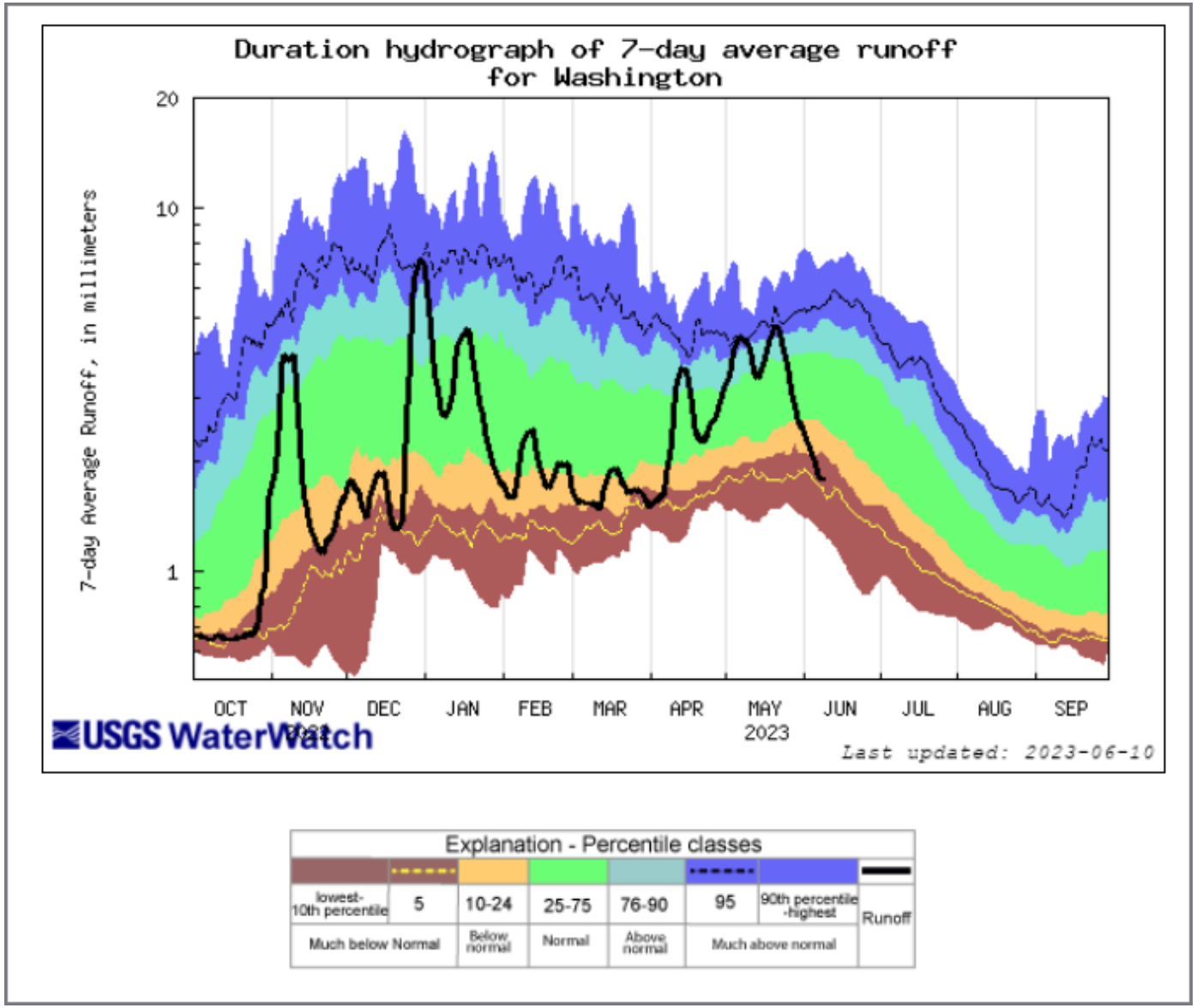




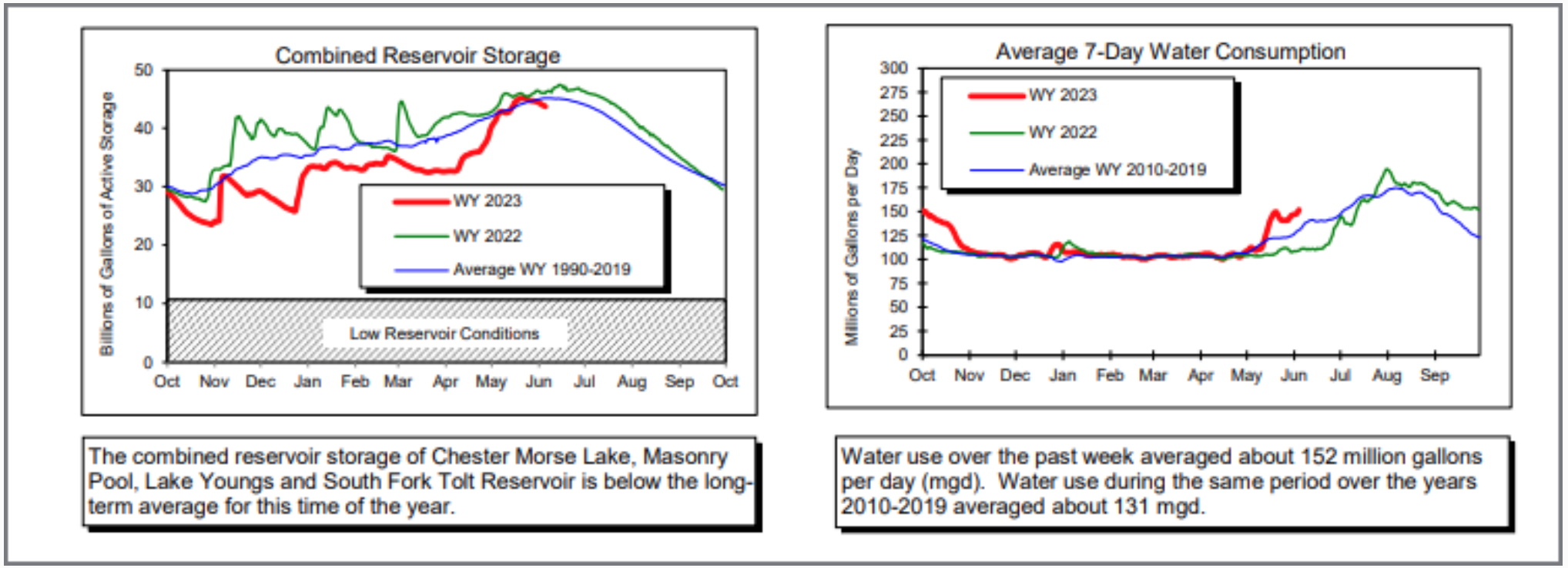

Natural Volume Monthly Forecasts (ESP10) for Water Year 2023
(PATW1) METHOW - NEAR PATEROS
Volume, KAF
Month
Obs Runoff
ESP10 Forecast
30 Year Average
179 %
47 %
36 %
62 %
91%
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
0
100
200
300
400
500
600
700
Ensemble Date: 2023-06-10
Plot Created: 06/10/2023 05:35 PDT


April - September Monthly Streamflow Forecasts, Washington | Forecast Date: 2023-06-11 | station count=125
Cedar - Sammamish
Chelan
Columbia River
Colville
Cowlitz
Deschutes
Duwamish - Green
Elwha - Dungeness
Entiat
Hangman
Kettle
Klickitat
Lewis
Little Spokane
Lower Chehalis
Lower Skagit - Samish
Lower Spokane
Lower Yakima
Methow
Middle Spokane
Naches
Nisqually
Nooksack
Okanogan
Palouse
Puyallup - White
Skokomish - Dosewallips
Snake River
Snohomish
Soleduc
Stillaguamish
Upper Chehalis
Upper Skagit
Upper Yakima
Walla Walla
Wenatchee
Willapa
Wind - White Salmon
PERCENT OF NORMAL
0
50
100
150
200
APR
MAY
JUN
JUL
AUG
SEP
MONTH
NWRFC DATA


April - September Monthly Streamflow Forecasts, Washington | Forecast Date: 2023-06-11 | station count=125
200
150
100
50
0
PERCENT OF NORMAL
APR
MAY
JUN
JUL
AUG
SEP
MONTH
NWRFC DATA


Duration hydrograph of 7-day average runoff
for Washington
7-day Average Runoff, in millimeters
20
10
1
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
2023
JUN
JUL
AUG
SEP
USGS WaterWatch
Last updated: 2023-06-10
Explanation - Percentile classes
lowest-10th percentile
5
10-24
25-75
76-90
95
90th percentile -highest
Runoff
Much below Normal
Below normal
Normal
Above normal
Much above normal

Major Westside Water Supply: Seattle

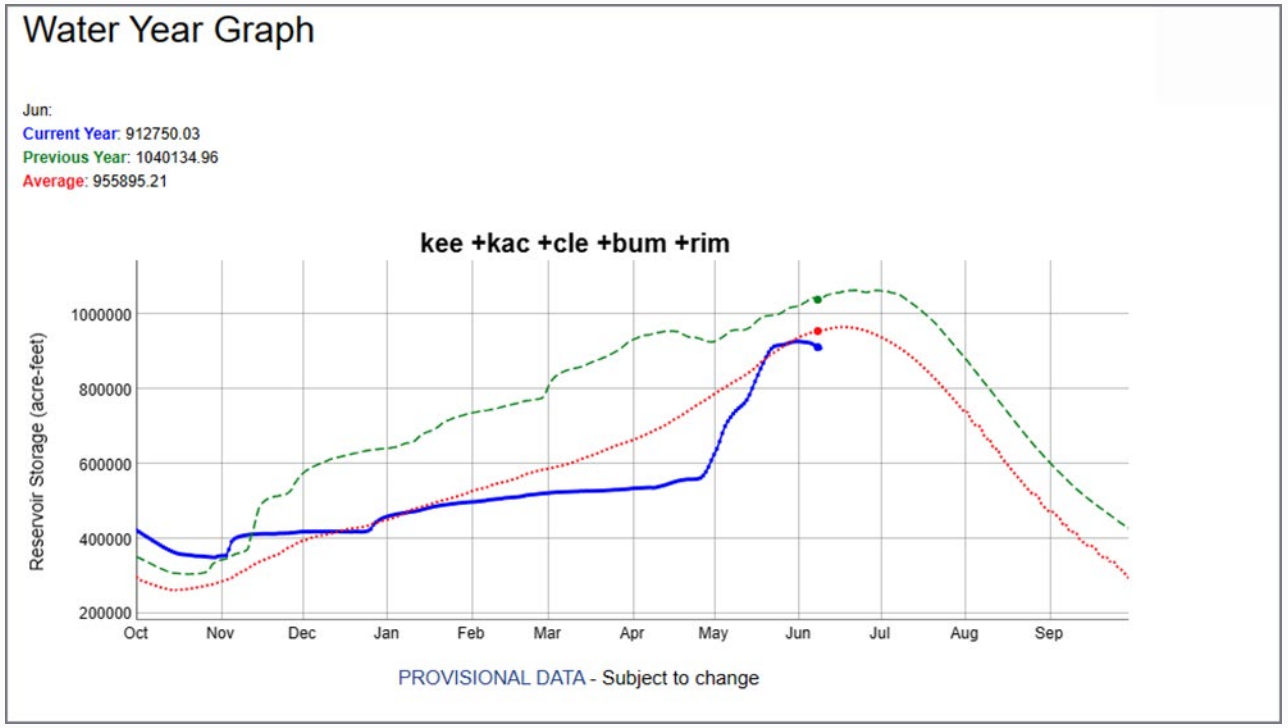


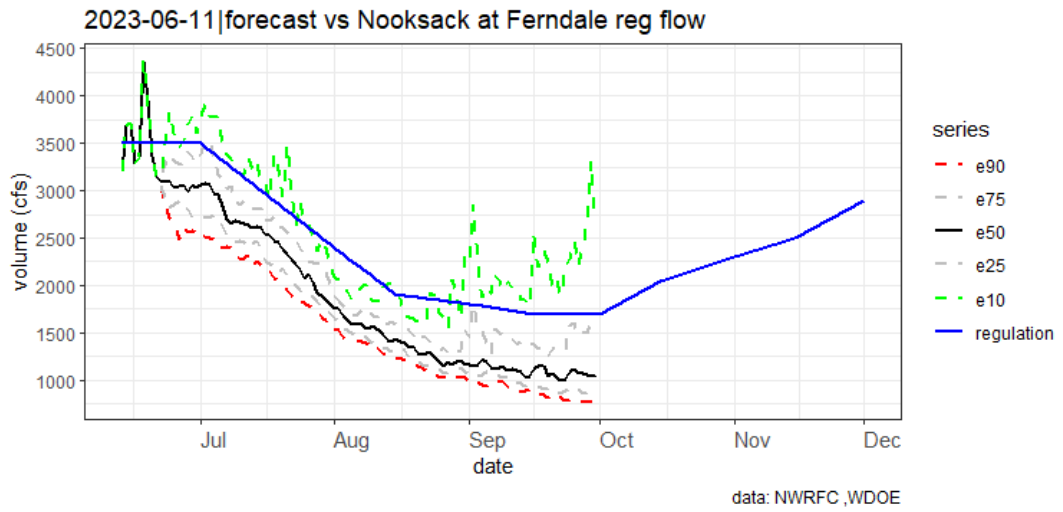
"Based on current conditions and forecasts, Seattle anticipates the regional water system will have sufficient water supply for people and fish this spring. As always, we continue to ask customers to use water wisely."

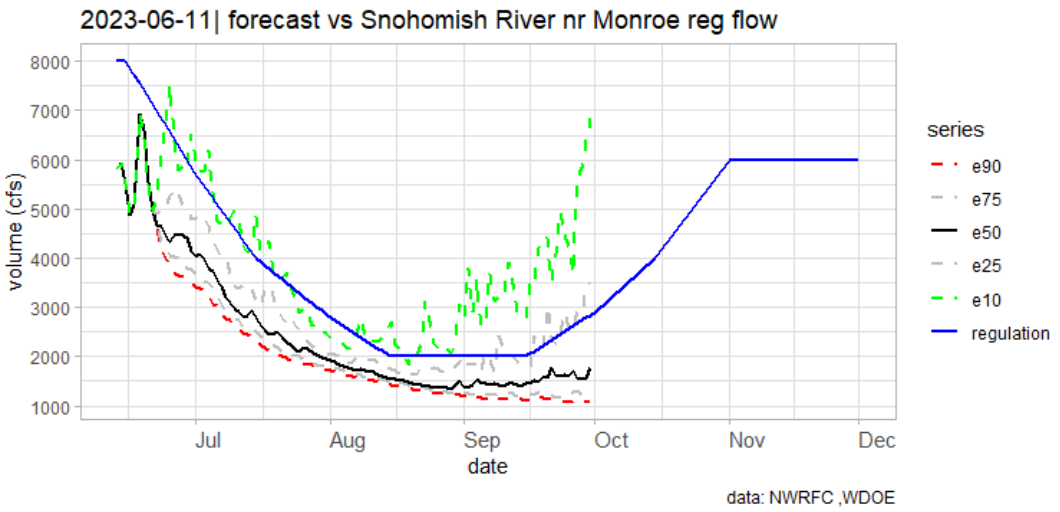
June 5th, https://www.seattle.gov/documents/Departments/SPU/Services/Water/WaterSupplyGraphs.pdf

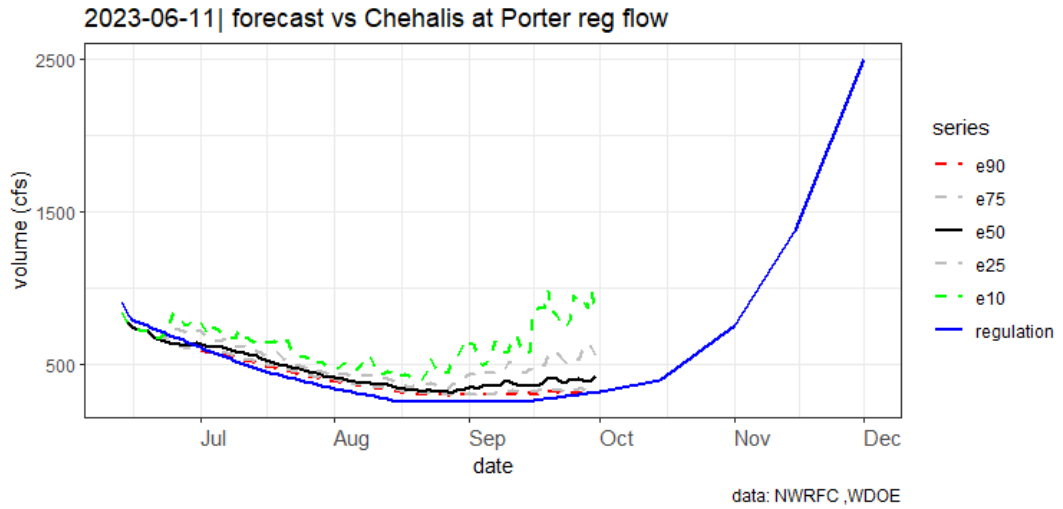
Yakima Basin Water Supply

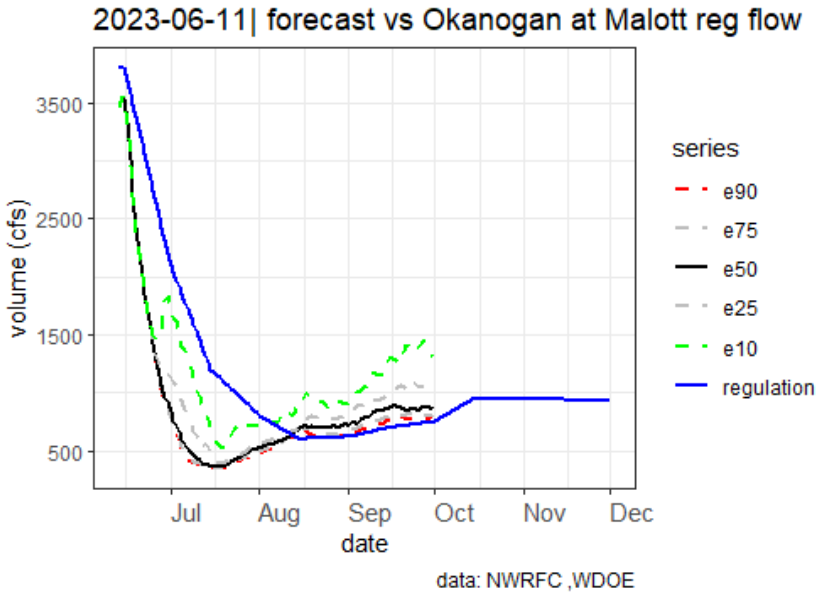
- Precipitation was 53% of average in May and was 74% of average for October–May.
- On June 1, the amount of water in the snowpack, known as snow water equivalent, was 19% of average down from 99% of average at the start of the month.
- Junior irrigation districts pro-rated to 77 percent (down from 86 percent in May).
- Storage control started June 1
- Precipitation at the five reservoirs for JUN 1 to date is 1.95 inches, or 79% of average and 26% of the months average.
- BOR will provide a mid-month forecast on June 15th.

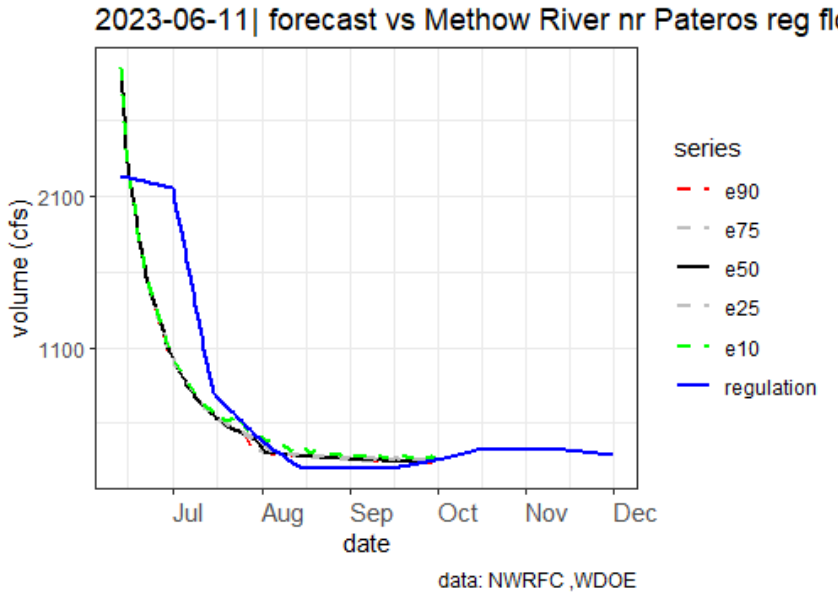


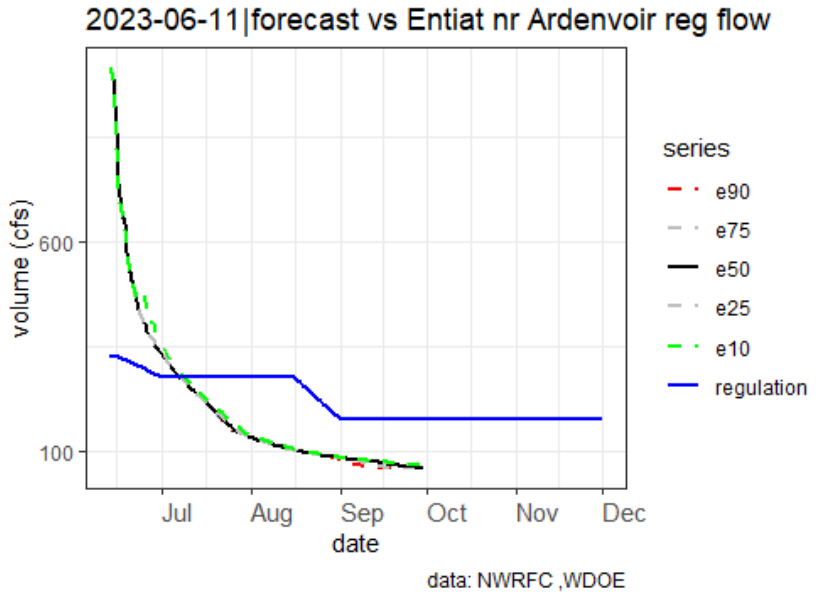

2023-06-11|forecast vs Nooksack at Ferndale reg flow
volume (cfs)
4500
4000
3500
3000
2500
2000
1500
1000
Jul
Aug
Sep
Oct
Nov
Dec
date
series
e90
e75
e50
e25
e10
regulation
data: NWRFC ,WDOE

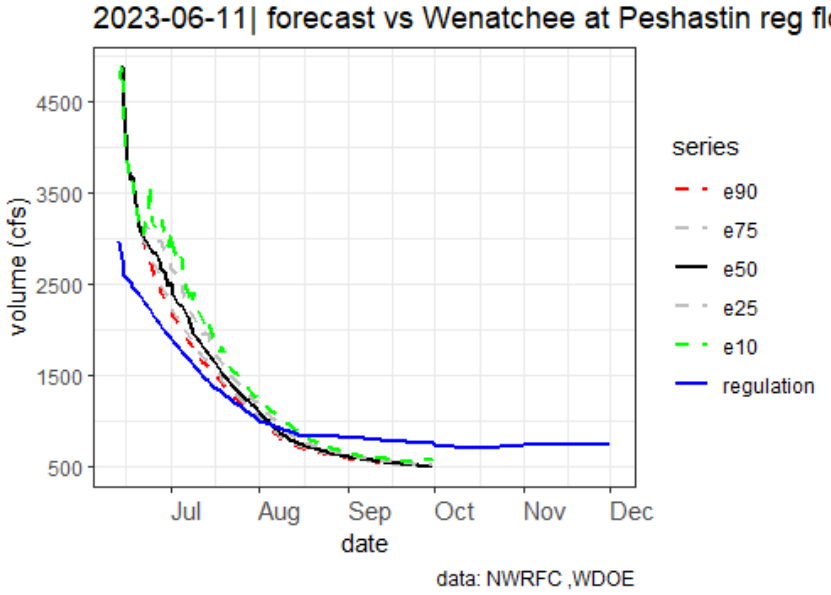

2023-06-11| forecast vs Snohomish River nr Monroe reg flow
volume (cfs)
8000
7000
6000
5000
4000
3000
2000
1000
Jul
Aug
Sep
Oct
Nov
Dec
date
series
e90
e75
e50
e25
e10
regulation
data: NWRFC ,WDOE

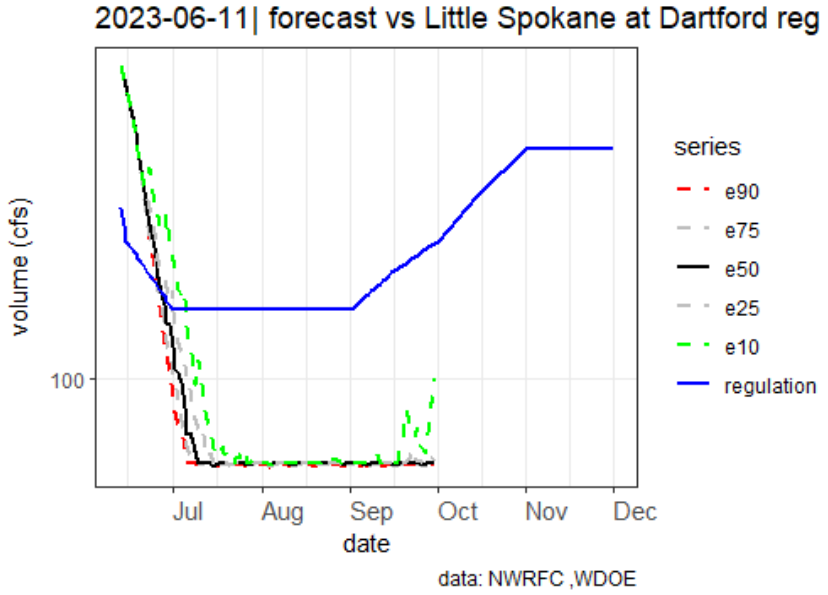

2023-06-11| forecast vs Chehalis at Porter reg flow
volume (cfs)
2500
1500
500
Jul
Aug
Sep
Oct
Nov
Dec
date
series
e90
e75
e50
e25
e10
regulation
data: NWRFC ,WDOE


2023-06-11| forecast vs Okanogan at Malott reg flow
volume (cfs)
3500
2500
1500
500
Jul
Aug
Sep
Oct
Nov
Dec
date
series
e90
e75
e50
e25
e10
regulation
data: NWRFC ,WDOE

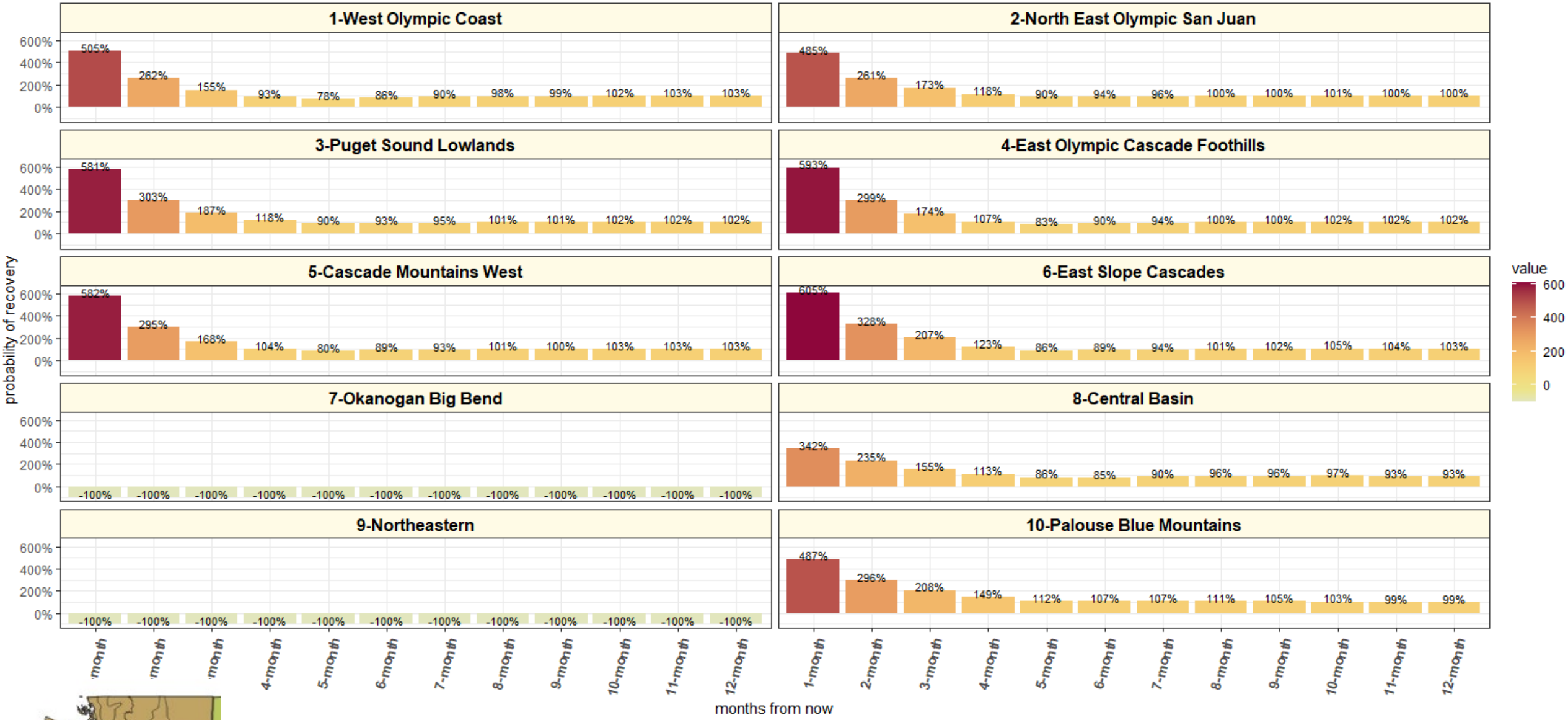

2023-06-11| forecast vs Methow River nr Pateros reg flc
volume (cfs)
2100
1100
Jul
Aug
Sep
Oct
Nov
Dec
date
series
e90
e75
e50
e25
e10
regulation
data: NWRFC ,WDOE


2023-06-11|forecast vs Entiat nr Ardenvoir reg flow
volume (cfs)
600
100
Jul
Aug
Sep
Oct
Nov
Dec
date
series
e90
e75
e50
e25
e10
regulation
data: NWRFC ,WDOE


2023-06-11| forecast vs Wenatchee at Peshastin reg flc
volume (cfs)
4500
3500
2500
1500
500
Jul
Aug
Sep
Oct
Nov
Dec
date
series
e90
e75
e50
e25
e10
regulation
data: NWRFC ,WDOE


2023-06-11| forecast vs Little Spokane at Dartford reg flow
volume (cfs)
100
Jul
Aug
Sep
Oct
Nov
Dec
date
series
e90
e75
e50
e25
e10
regulation
data: NWRFC ,WDOE

Percent precipitation needed to recover from drought | 2023-06-11



Data: NOAA Drought Termination Tool

Assumes climatological conditions for the remainder of the month.
Monthly timesteps are not interdependent.
A drought is considered to be ameliorated when the PHDI is raised to -2.0, and ended when above -0.5.

Drought Statute (RCW 43.83B)

- "Drought condition" means that the water supply for a geographic area, or for a significant portion of a geographic area, is below seventy-five percent of normal and the water shortage is likely to create undue hardships for water users or the environment.

- "Normal" water supply, for the purpose of determining drought conditions, means the median amount of water available to a geographical area, relative to the most recent thirty-year base period used to define climate normals.

Drought Rule (WAC 173-166)

- The determination of drought conditions will consider seasonal water supply forecasts, other relevant hydro-meteorological factors (e.g., precipitation, snowpack, soil moisture, streamflow, and aquifer levels) and also **may consider extreme departures from normal conditions over subseasonal time frames.**

DEPARTMENT OF ECOLOGY
State of Washington

Some key upcoming dates

June 15 -- Bureau of Reclamation Updated Yakima Forecast

June 23 -- Water Supply Availability Committee

TBD -- Executive Water Emergency Committee

Summary

The total volume of seasonal runoff (APR-SEPT) will be slightly below normal.

From now until OCT, runoff is likely to be much-below normal and below the state drought threshold.

Curtailment is underway and will likely expand to include other basins as the summer continues.

Unlikely to eradicate current precipitation deficits in the normally dry months ahead.

Making current storage last until fall rains likely to require active management on the supply and demand side.

Users and uses dependent on natural flows may face greatest challenges.