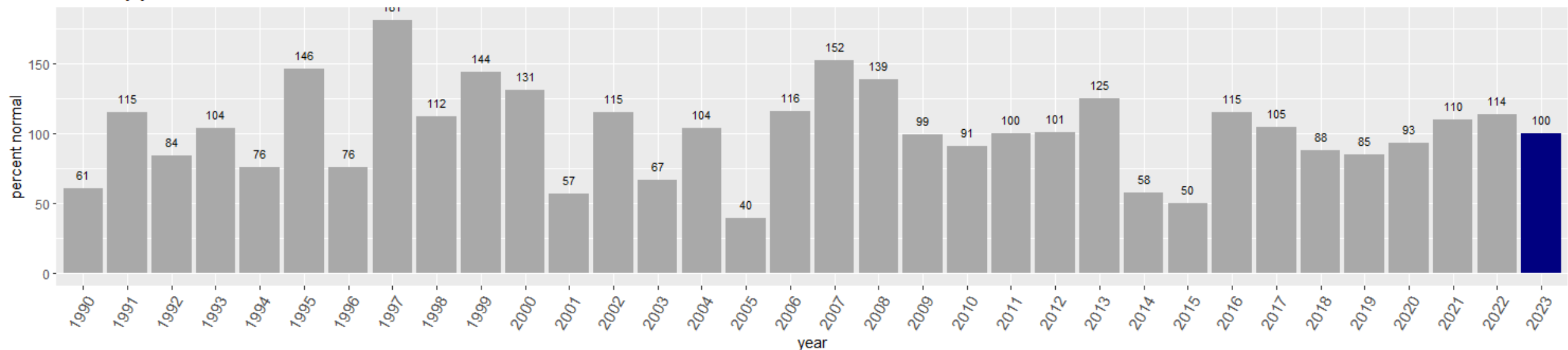


Water Supply Availability Committee

Friday, January 20, 2023

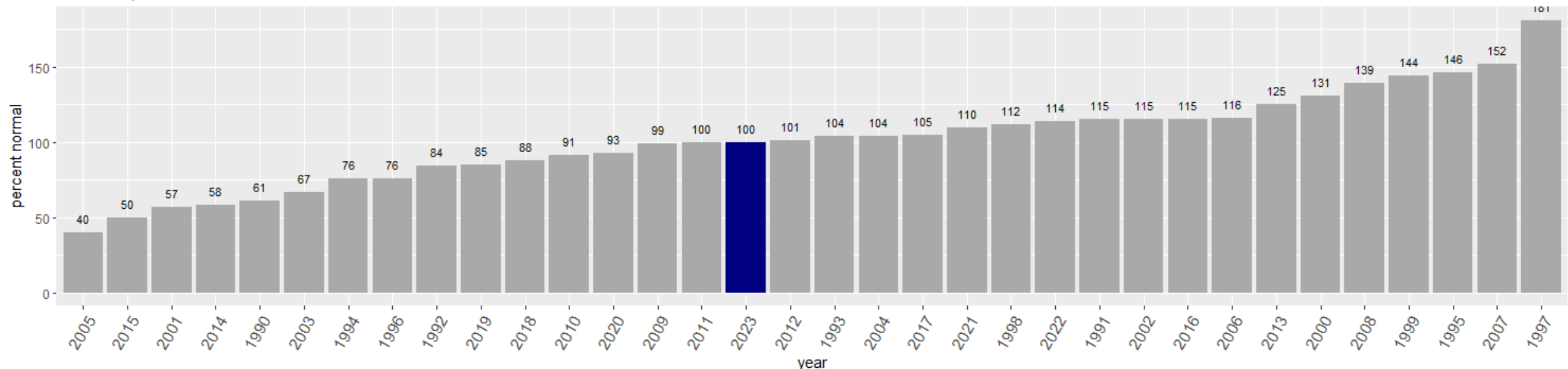
Start Time	End Time	Duration, min	Description	
10:00	10:10	10	Welcome & Introductions	Jeff Marti, Ecology
10:10	10:25	15	Regional Climate Setting/ ENSO	Karin Bumbaco, OWSC Nick Bond, OWSC
10:25	10:40	15	Mountain Conditions	Scott Pattee, NRCS
10:40	10:50	10	Streamflow and Groundwater	Nick Sutfin, USGS
10:50	11:00	10	Water Supply Forecasts	Brent Bower/Geoffrey Walters, NWS -NWRFC
11:00	11:10	10	Yakima Basin	Chris Lynch, BOR
11:10	11:30	20	All	All

Washington statewide average Snow Water Equivalent on January 20 compared to previous years
sorted by year



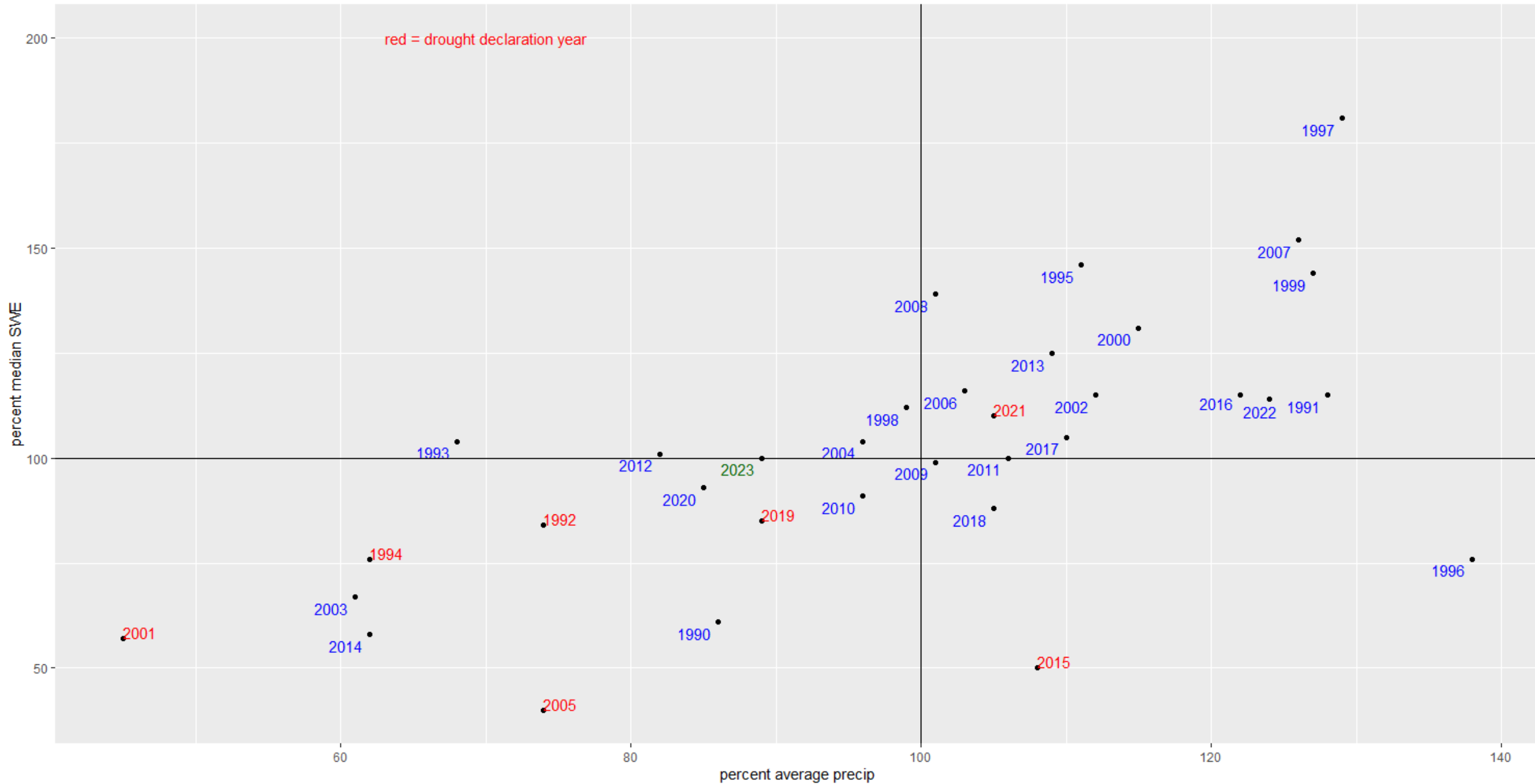
NRCS data

ranked by SWE

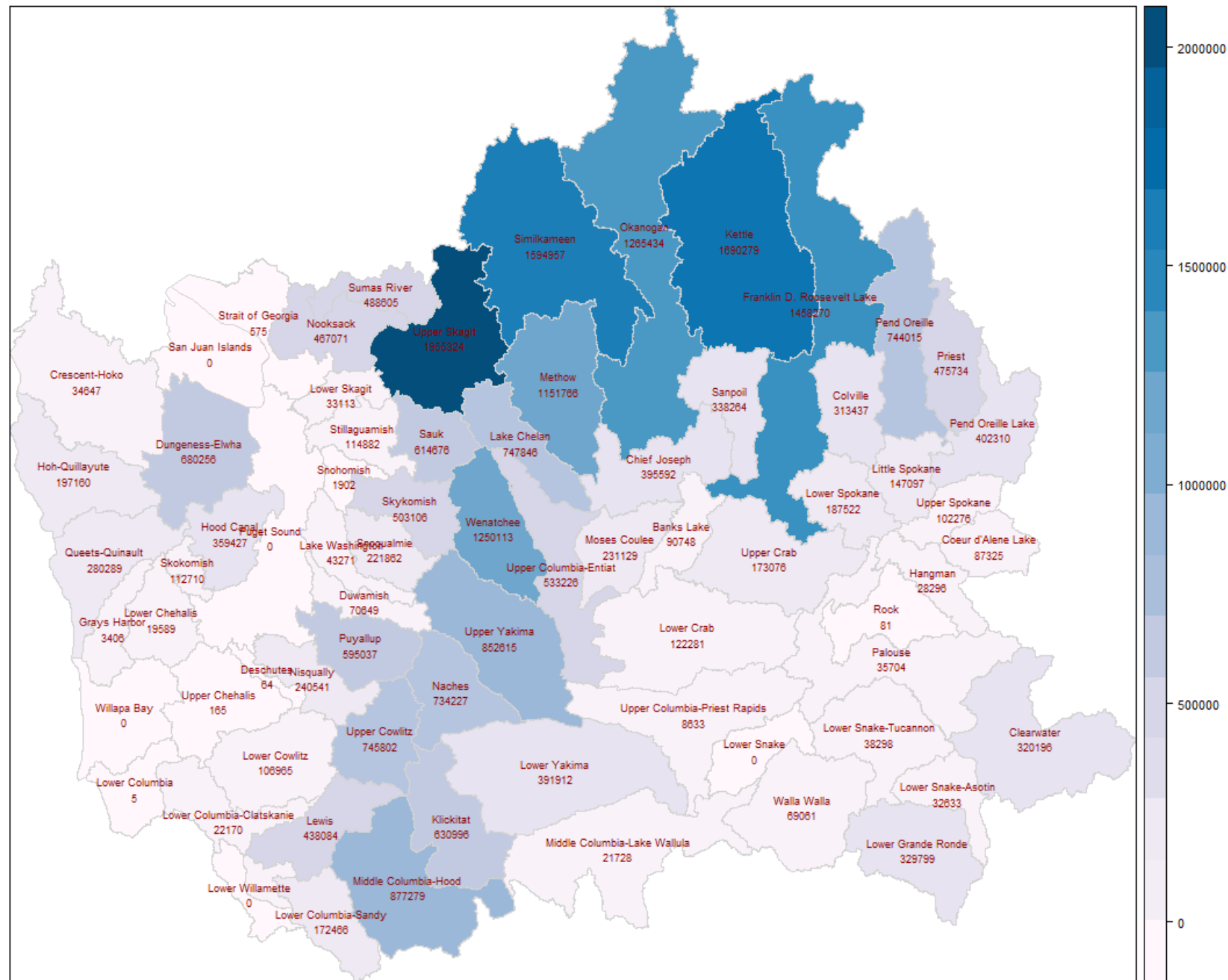


NRCS data

statewide SWE vs accumulated precipitation since Oct 1
day of year January 20



total volume of snow storage (acre-feet) by basin (HUC8)



file:C:/Users/jema461/Documents/data/data/geo/SNODAS_20230118.tif
total acre feet: 26397974

Oct. 1 Snow Storage:
483,442 af

Nov. 17 : 6,171,010 af

January 1, 2022
24,175,516 af

January 18, 2023
26,397,974 af

January 18, 2015:
13,991,769 af

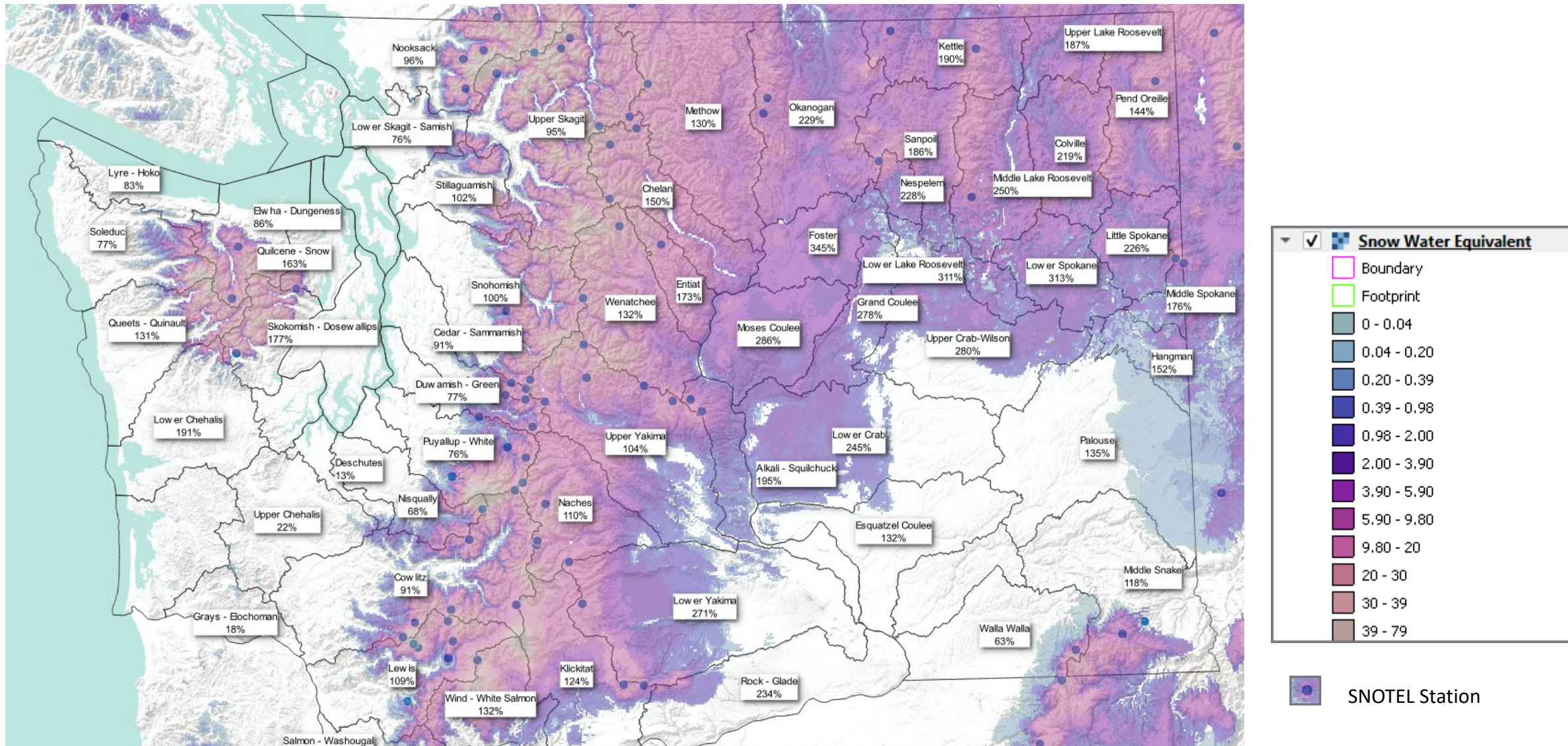
Total Yakima Snow
Storage: 1,978,354 af
+
Reservoir Storage:
485,322 af

= Total of 2,463,676 af



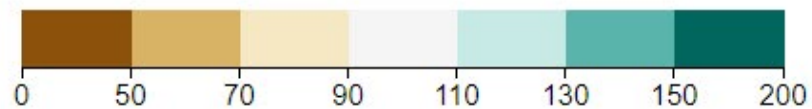
This is the end.

SNODAS Gridded Basin Averages: Percent of Average (2003-2023)

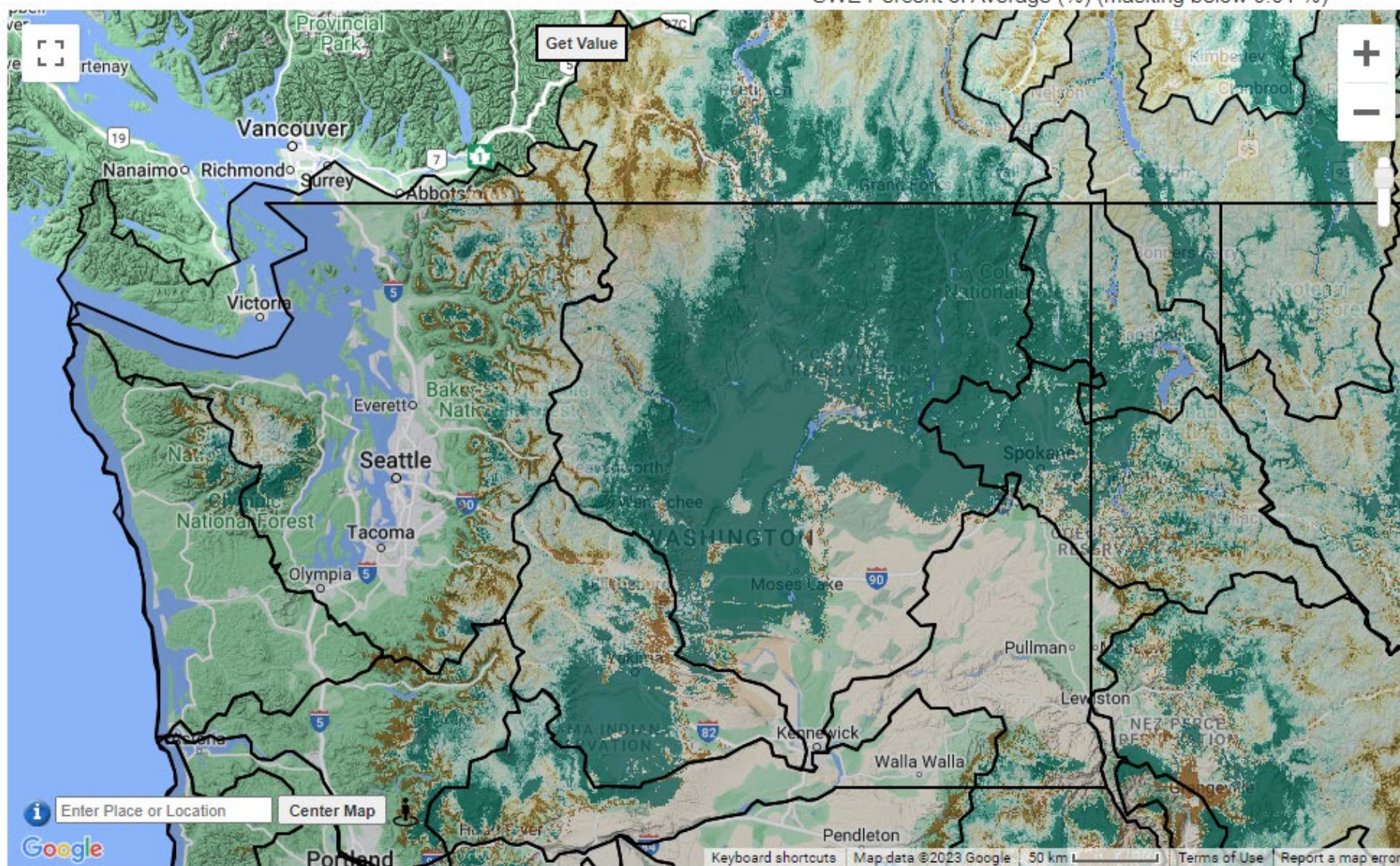


SWE Percent Of Average (SNODAS)

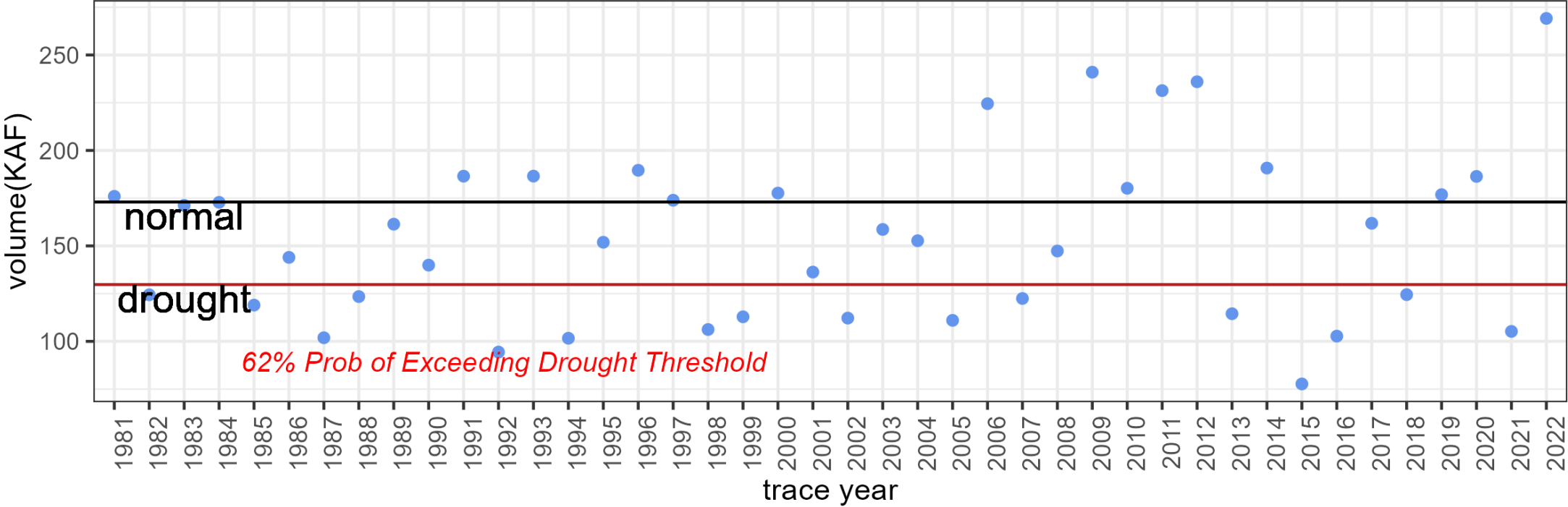
2023-01-18 to 2023-01-18, Mean, vs. 2004 - 2023



SWE Percent of Average (%) (masking below 0.01 %)

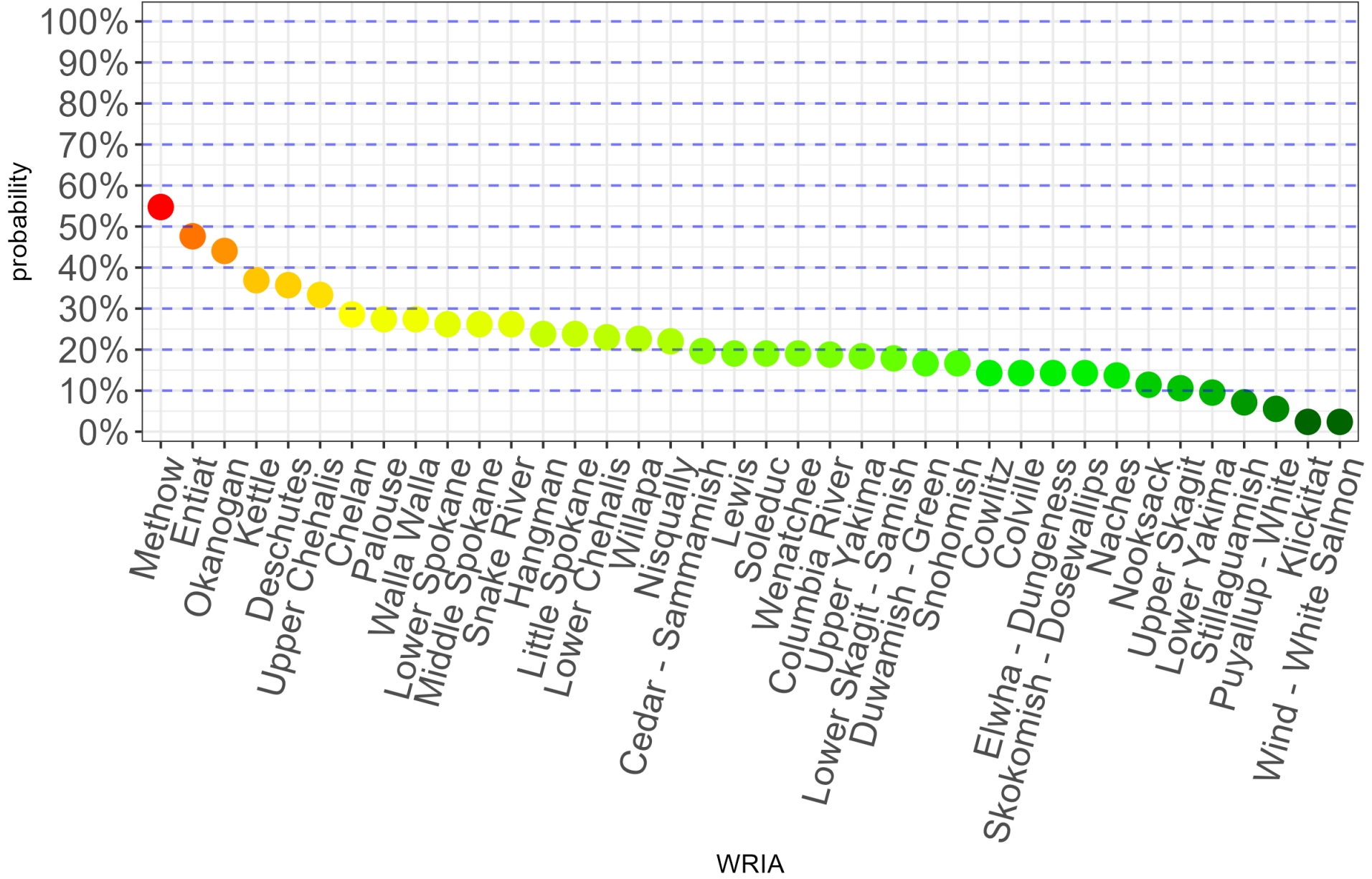


WALLA WALLA NEAR TOUCHET
ENSEMBLE TRACES vs DROUGHT THRESHOLD, APR-SEPT



75pct of 1991-2020 normal 1991-2020 normal trace year

Drought Risk: Probability of Reaching Drought Threshold
Averaged by WRIA





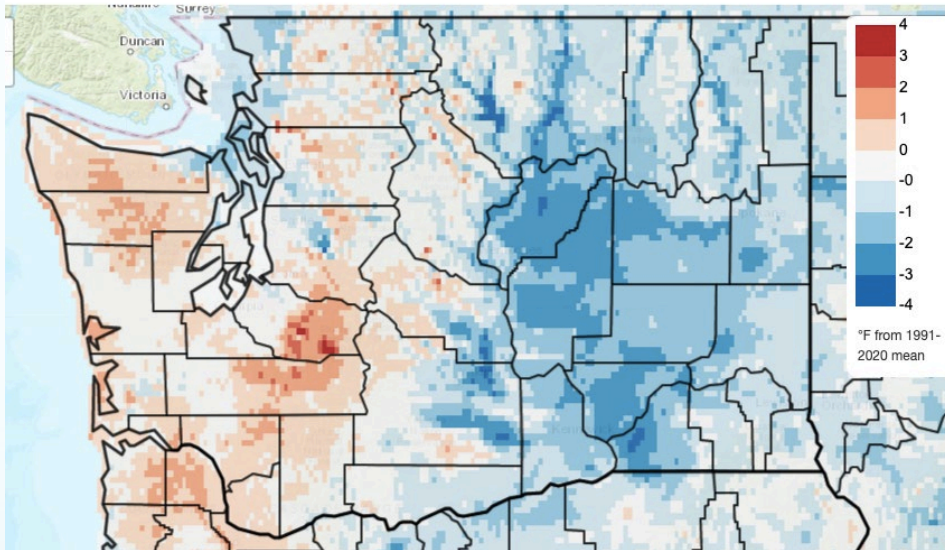
Current Conditions and Seasonal Outlook

Nick Bond & Karin Bumbaco
Office of the Washington State Climatologist
Cooperative Institute for Climate, Ocean, and Ecosystem Studies
University of Washington
20 January 2023

Water Year 2023

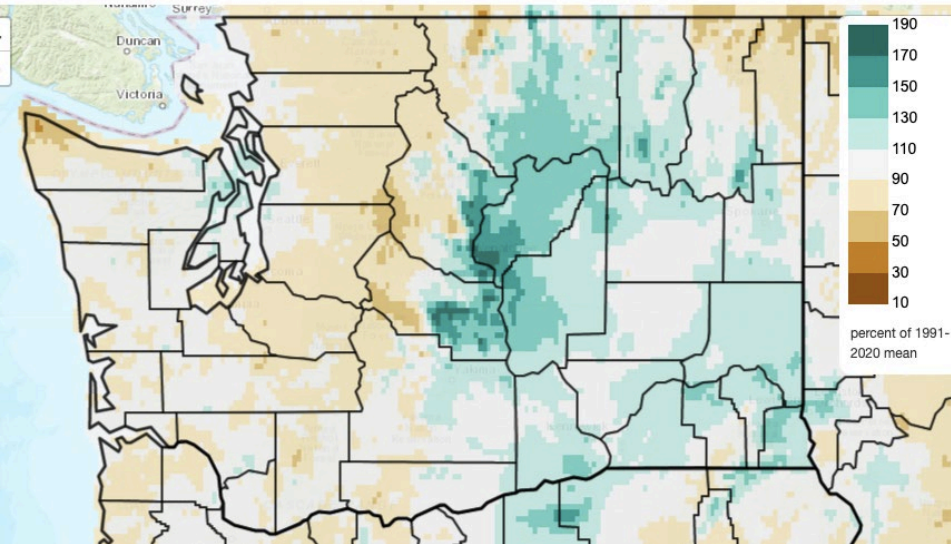
Temperature

Mean Daily Temperature Anomaly, Since Oct 1st
2022/10/01 - 2023/01/17



Precipitation

Total Precipitation Anomaly, Since Oct 1st
2022/10/01 - 2023/01/17



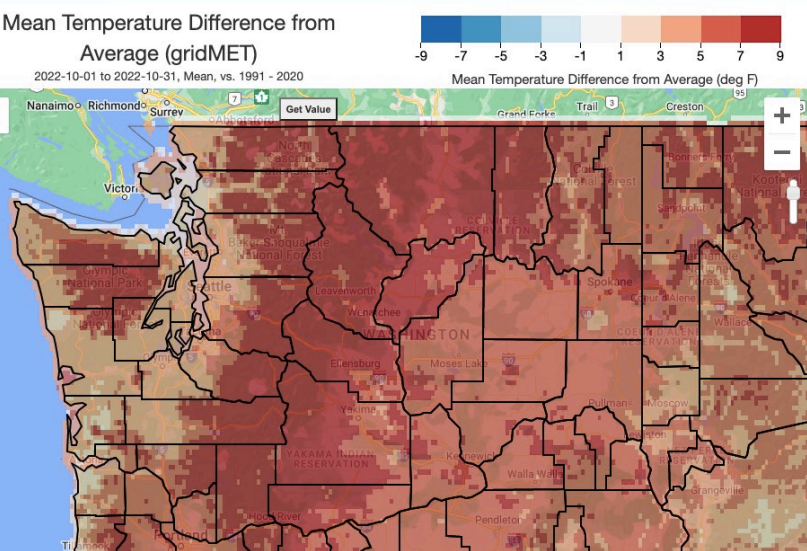
Climate Toolbox

- Averaged statewide, Oct-Dec was the 37th coldest (-1.4°F) on record*
- Oct-Dec precipitation was the 56th driest (-1.01") averaged statewide

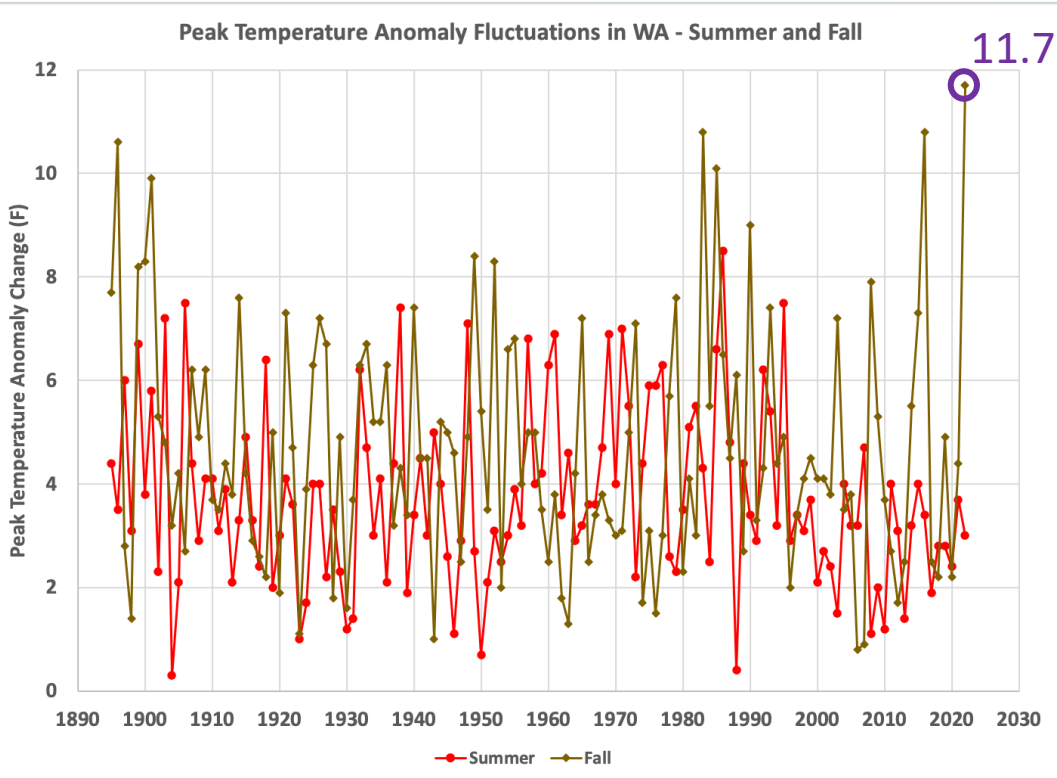
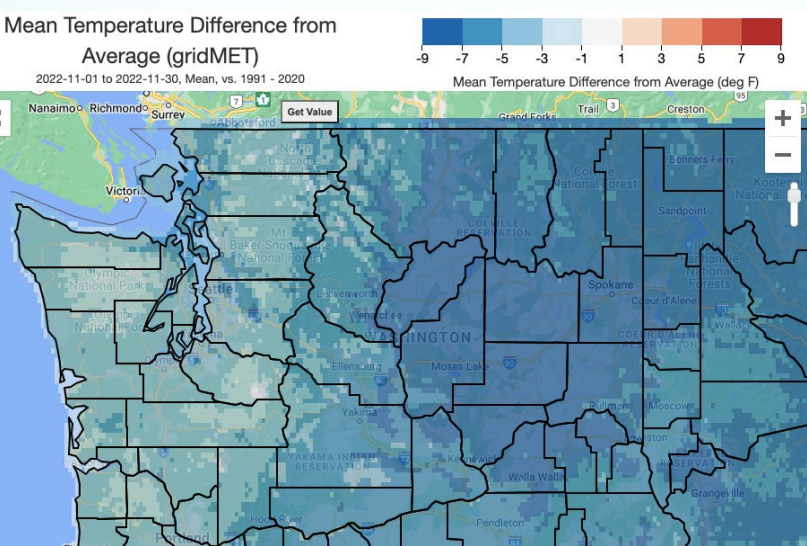
*Records since 1895

Fluctuations in Temperature Anomalies

October: +6.6 °F; warmest on record



November: -5.1 °F; tied 5th coldest



December 2022

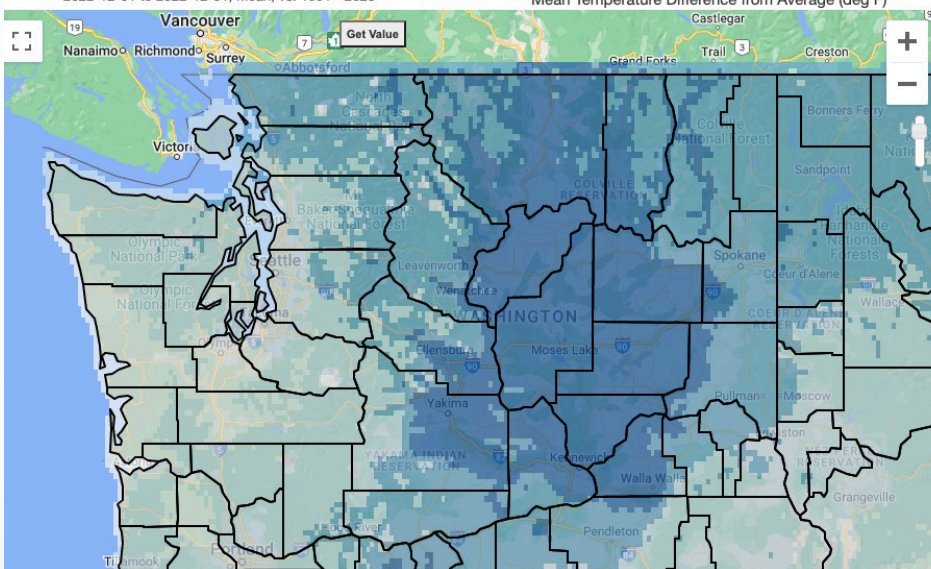
Temperature

Mean Temperature Difference from Average (gridMET)



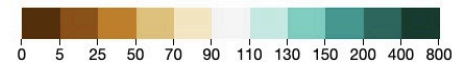
2022-12-01 to 2022-12-31, Mean, vs. 1991 - 2020

Mean Temperature Difference from Average (deg F)



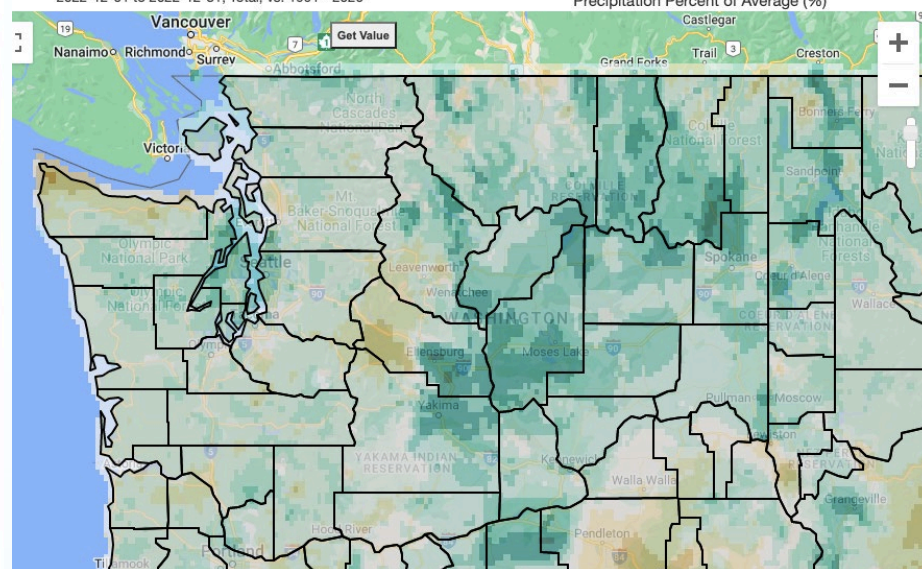
Precipitation

Precipitation Percent Of Average (gridMET)



2022-12-01 to 2022-12-31, Total, vs. 1991 - 2020

Precipitation Percent of Average (%)



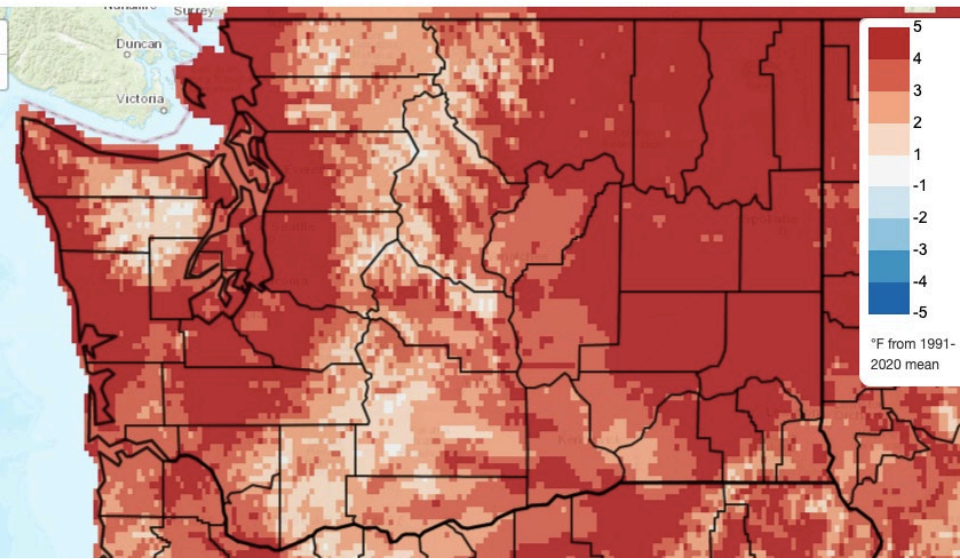
- Averaged statewide, December was the 17th coldest on record* (-4.7°F)
- Averaged statewide, December precipitation was the 50th wettest (+0.64") on record

*Records since 1895

January 2023 so far

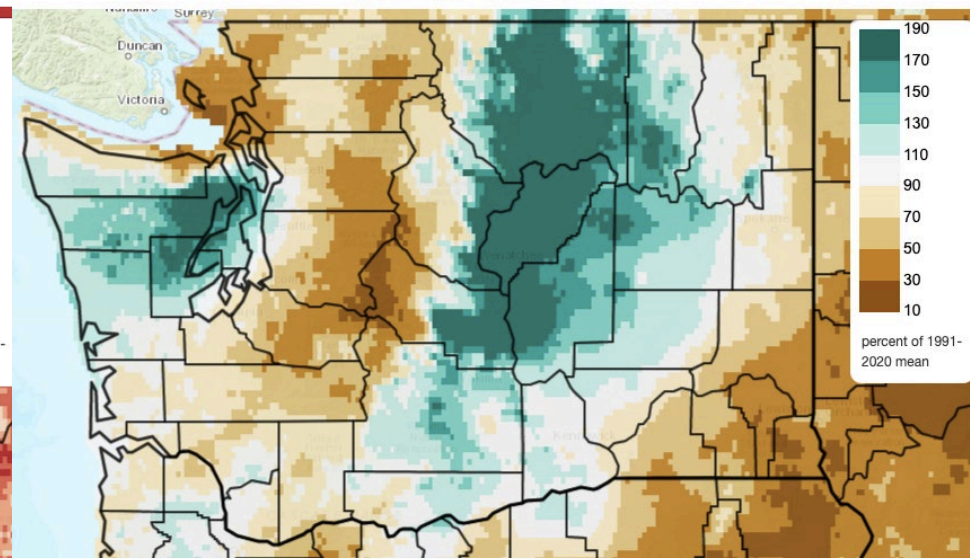
Temperature

Mean Daily Temperature Anomaly, Since Jan 1st
2023/01/01 - 2023/01/17



Precipitation

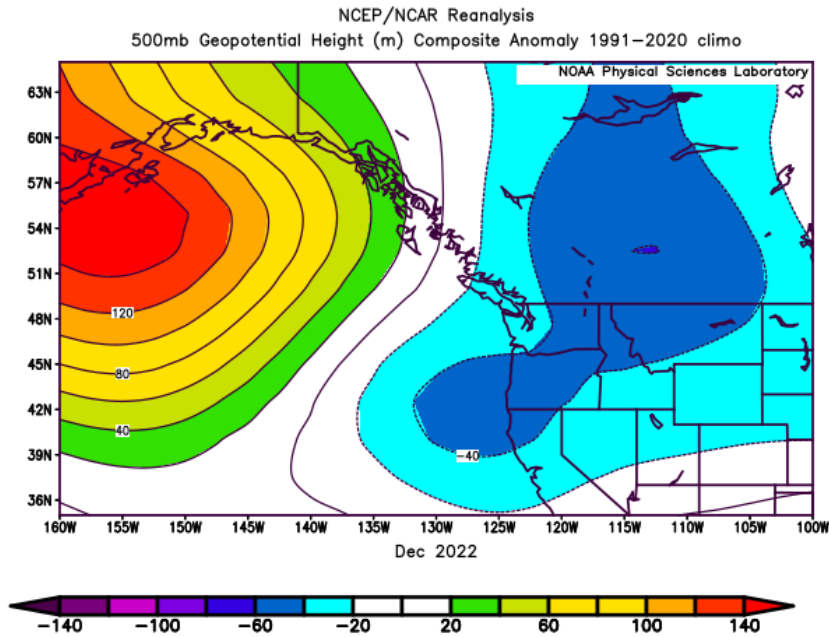
Total Precipitation Anomaly, Since Jan 1st
2023/01/01 - 2023/01/17



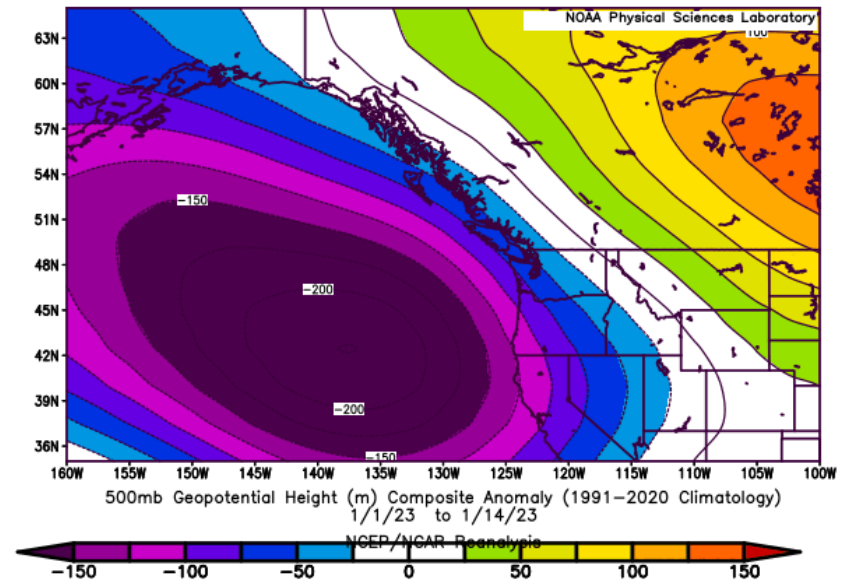
Climate Toolbox

Atmospheric Circulation

December



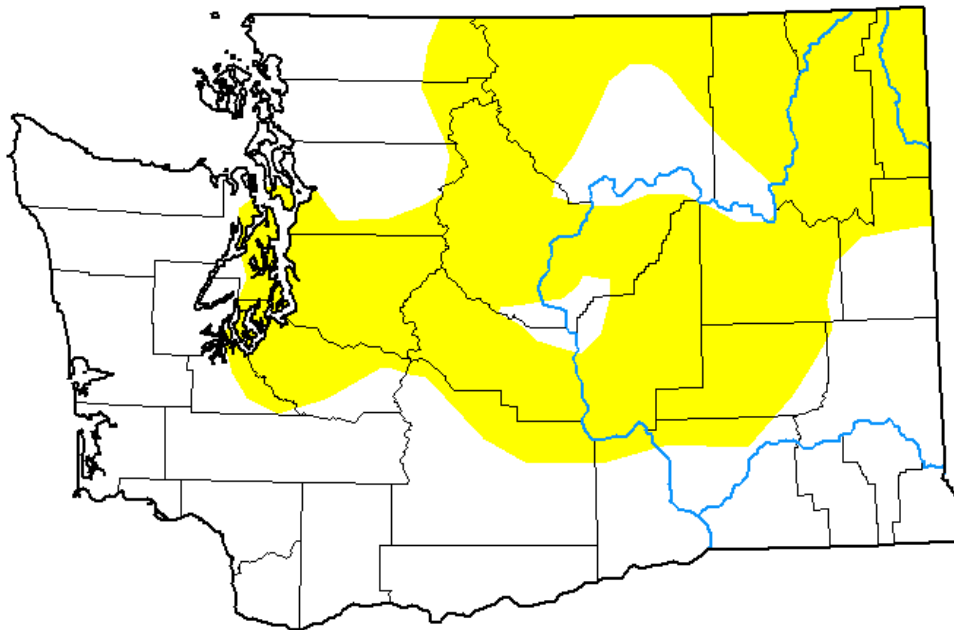
January



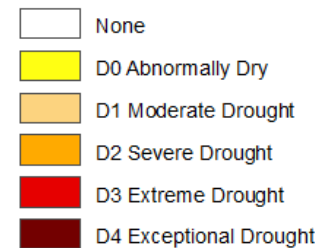
U.S. Drought Monitor

U.S. Drought Monitor Washington

January 17, 2023
(Released Thursday, Jan. 19, 2023)
Valid 7 a.m. EST



Intensity:



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>

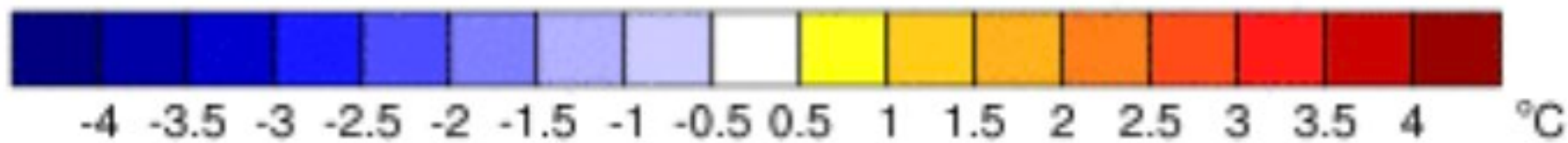
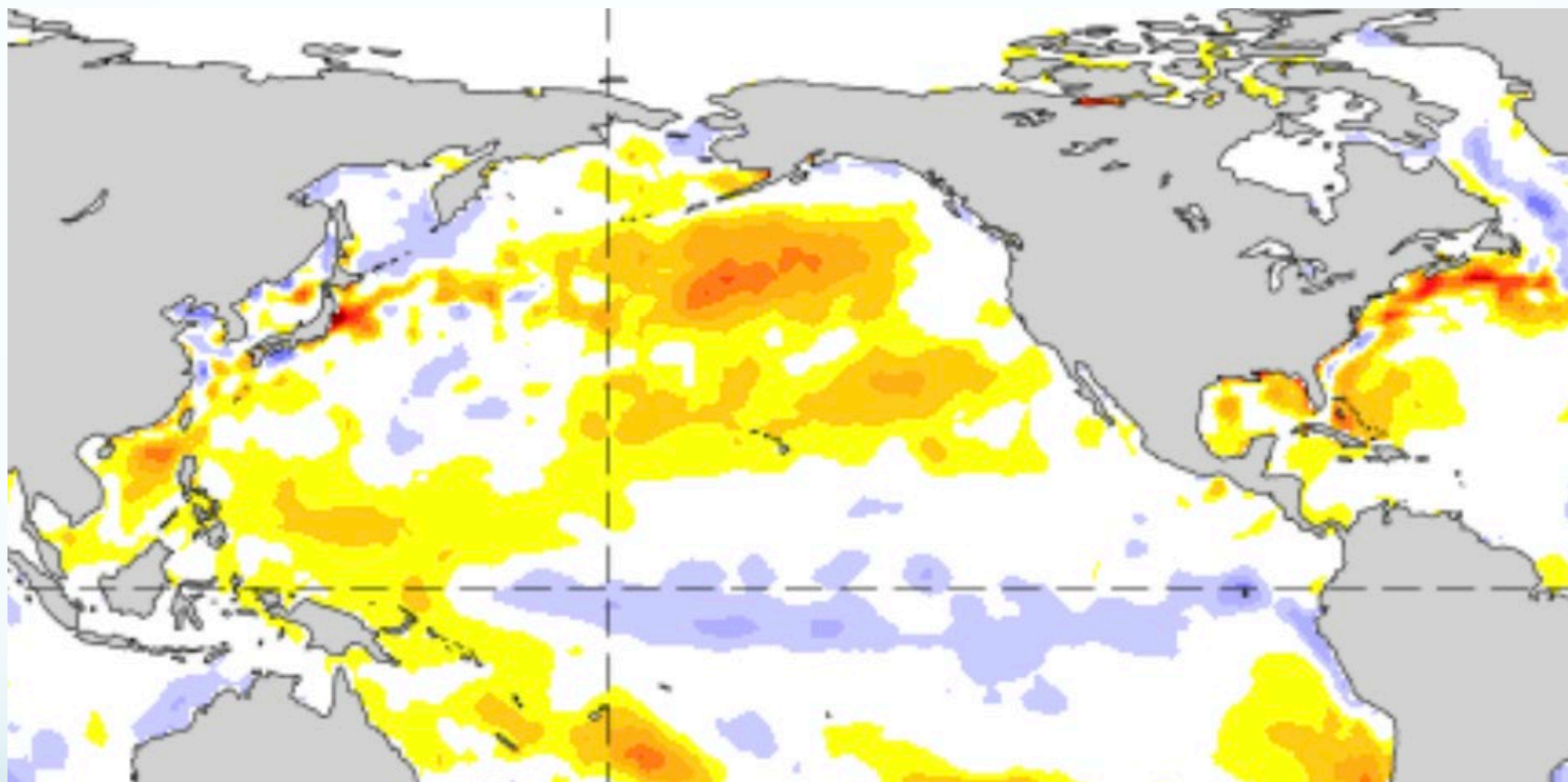
Author:

Deborah Bathke
National Drought Mitigation Center



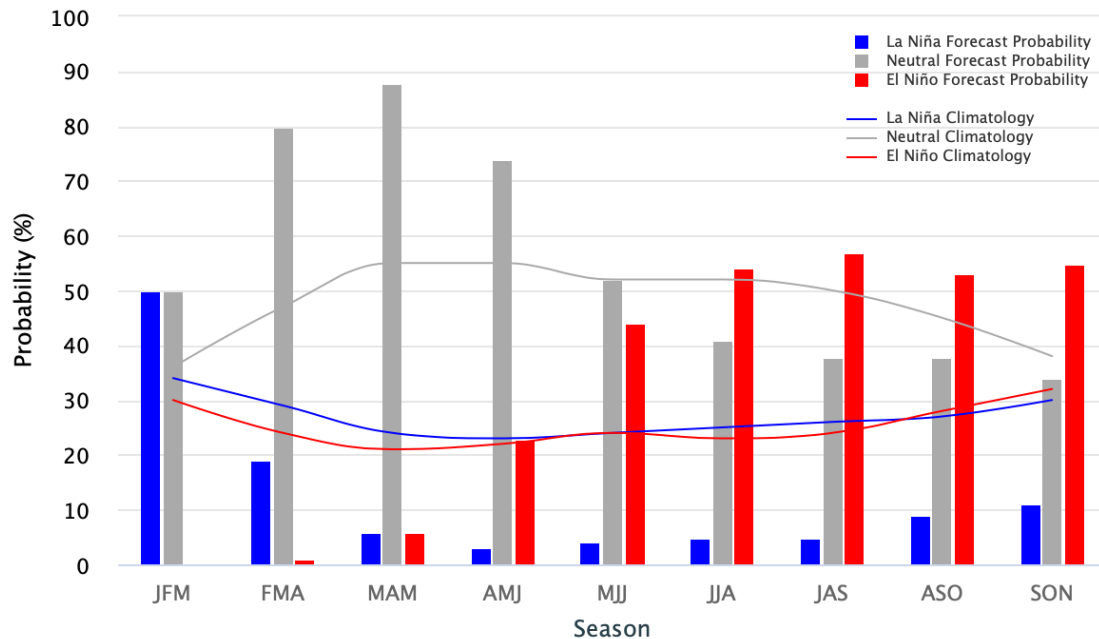
droughtmonitor.unl.edu

Sea Surface Temperature Anomalies: 08-14 Jan 2023

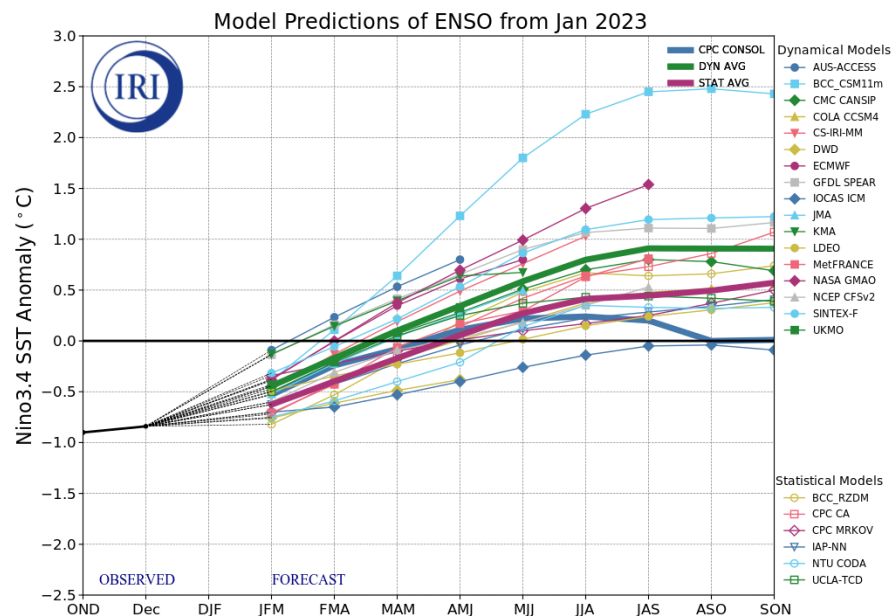


Mid-January 2023 IRI Model-Based Probabilistic ENSO Forecasts

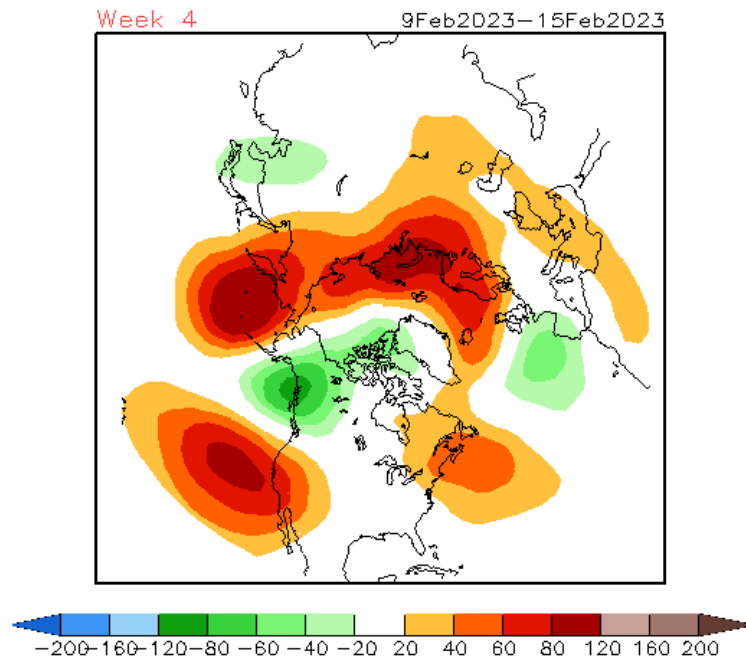
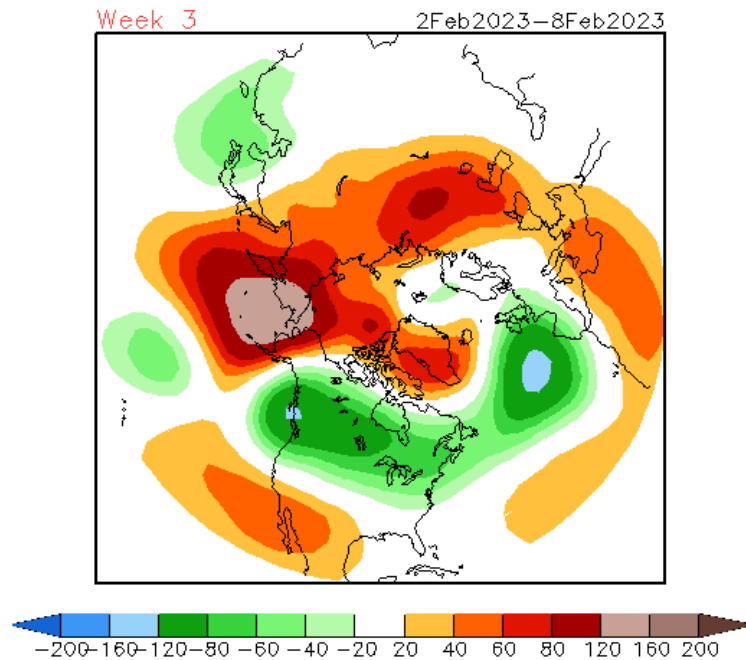
ENSO state based on NINO3.4 SST Anomaly Neutral ENSO: -0.5°C to 0.5°C



Latest ENSO predictions indicate that La Nina is on its last legs

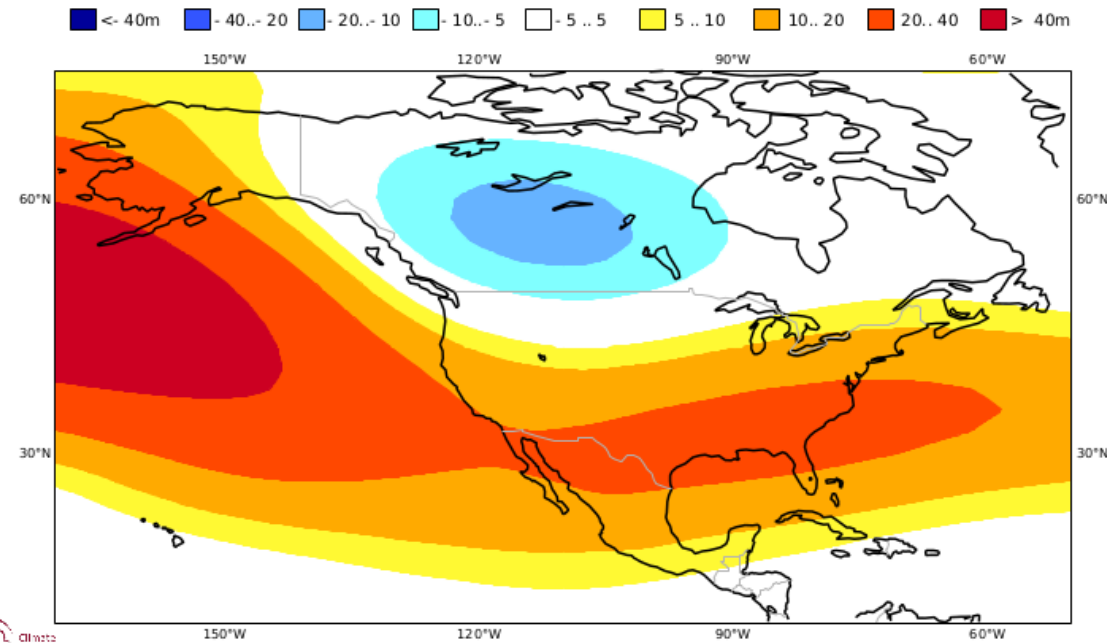


CFSv2 Weeks 3 & 4 500 hPa Z Anomalies (m)
16 Member Ensemble Mean Forecast from 18Jan2023



**CFS 3 & 4 Week 500 hPa
Model Projections: Wet
and Cool (Early Feb) in
WA State**

500 hPa Z

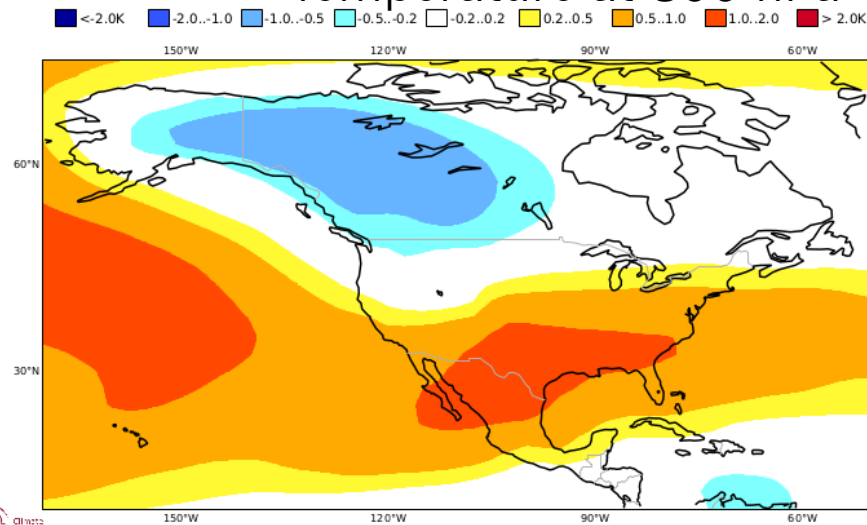


**IMME Projections
for Feb-Apr:
Consistent with
La Nina Historical
Composites**

WF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC
FMA 2023

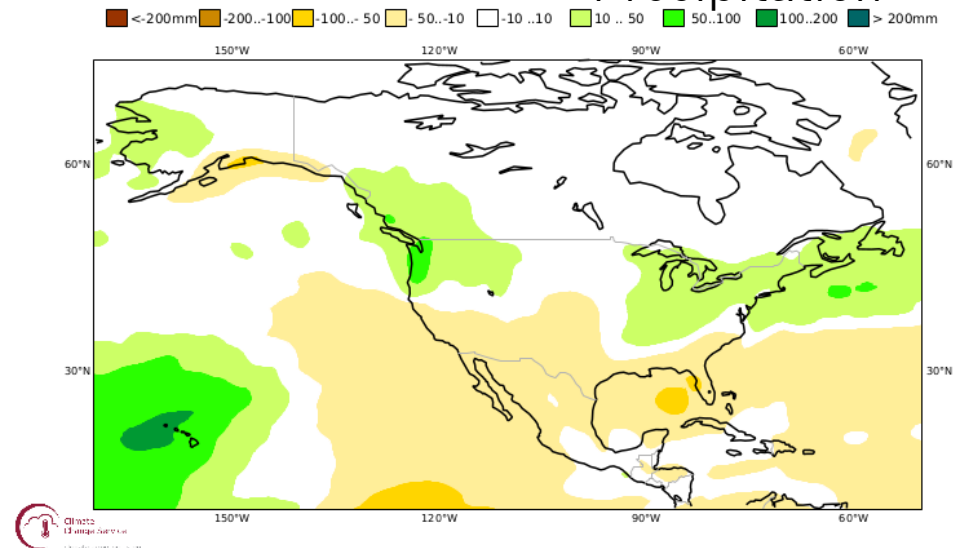
C3S multi-system
Mean T850 anomaly
Nominal forecast start: 01/01/23
Variance-standardized mean

Temperature at 850 hPa



Nominal forecast start: 01/01/23
Variance-standardized mean

Precipitation

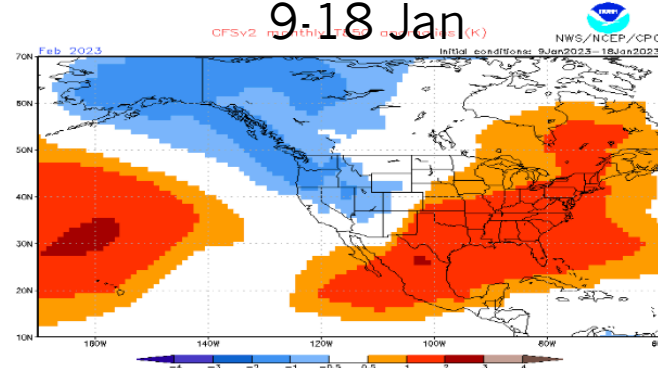
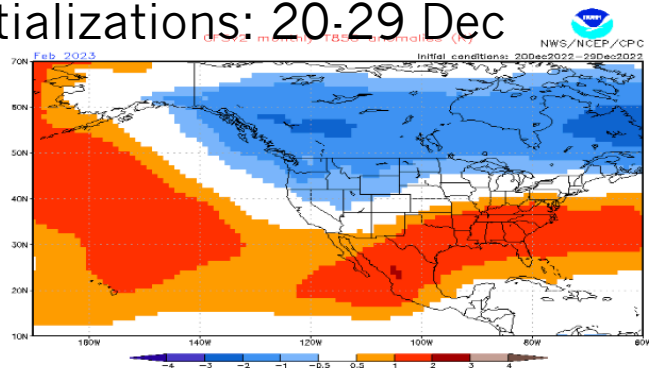


Feb 2023

Feb 2023

Initializations: 20-29 Dec

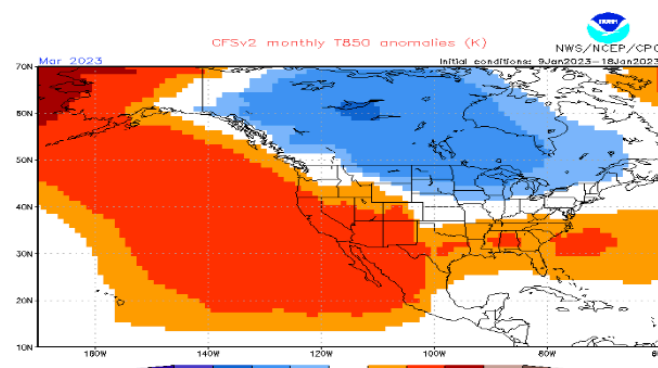
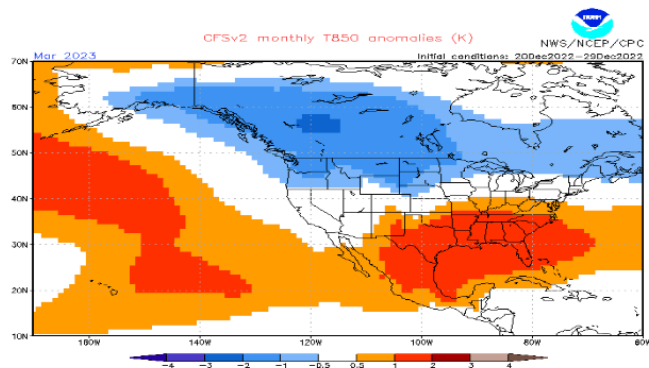
9-18 Jan



CFSv2 Forecasts of 850 mb Ta for Feb-Mar-Apr: Early vs. Late

Mar 2023

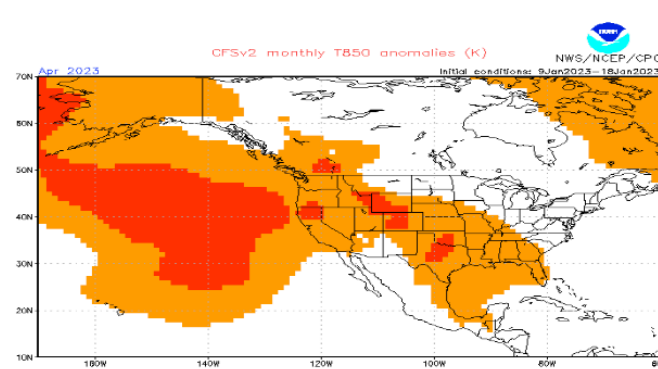
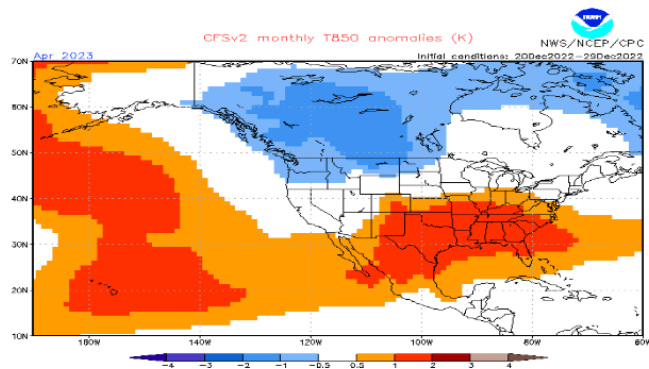
Mar 2023



Earlier runs also indicated more precipitation in March & April

Apr 2023

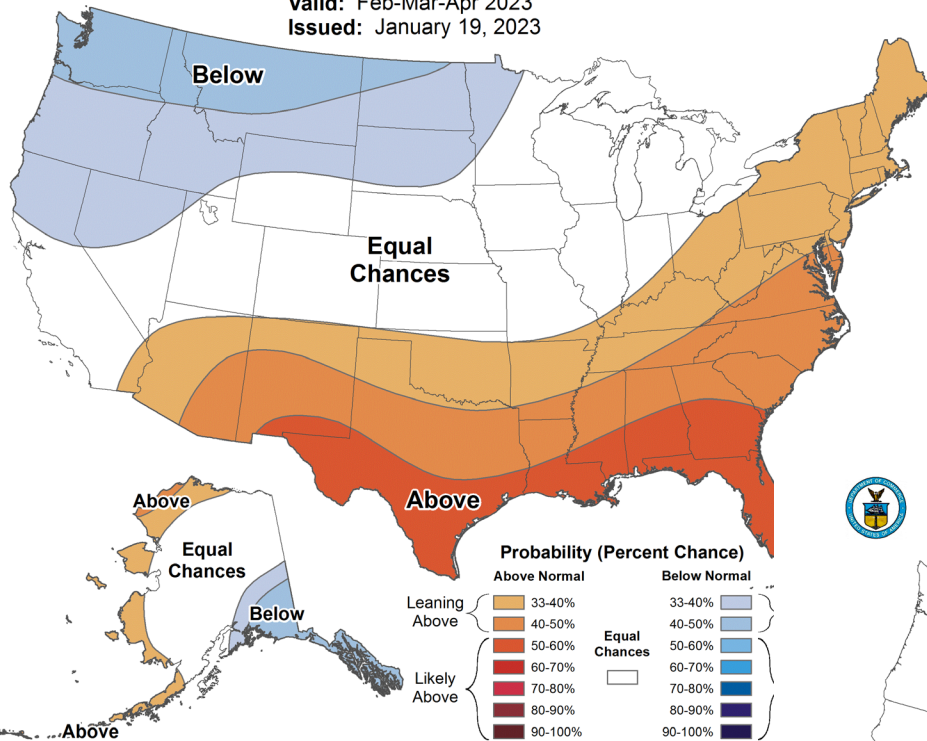
Apr 2023





Seasonal Temperature Outlook

Valid: Feb-Mar-Apr 2023
Issued: January 19, 2023

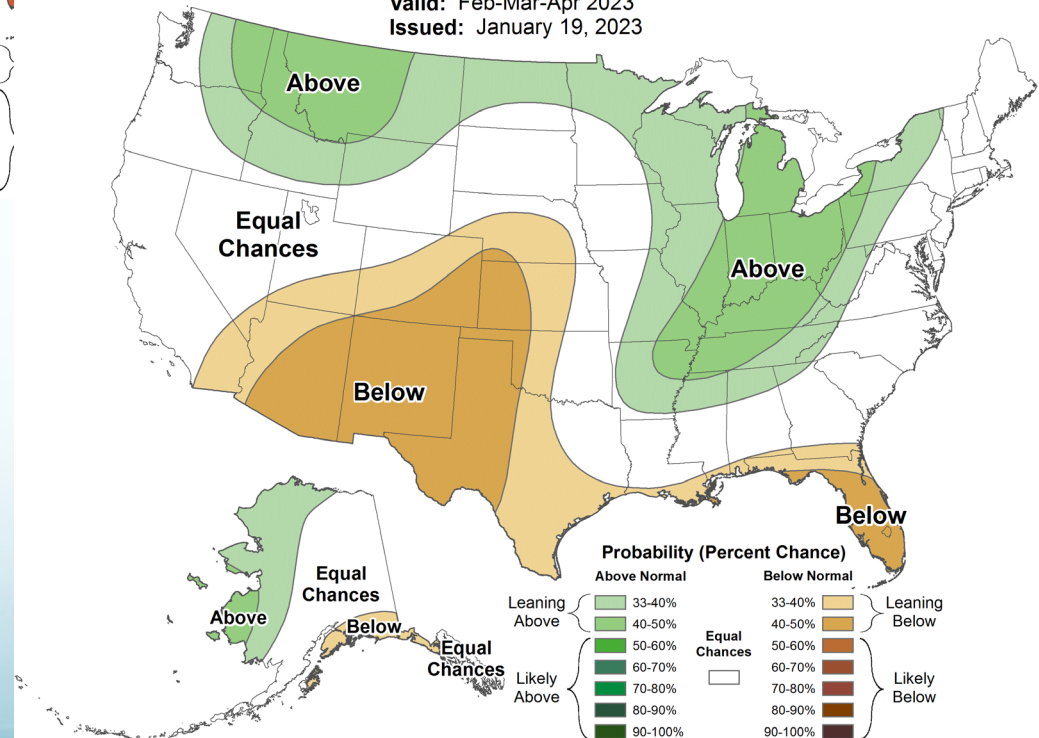


NOAA/CPC Forecasts for February-April 2023



Seasonal Precipitation Outlook

Valid: Feb-Mar-Apr 2023
Issued: January 19, 2023



Summary

- Water year on average has generally been drier and warmer in western WA and wetter and cooler in eastern WA
- Eastern WA still in recovery from sub-par precipitation in 2021
- Regional atmospheric pattern over the last few weeks more reminiscent of El Niño, but there is still quite a bit of our wet/cool season left
- Growth in the winter snowpack is anticipated
- Spring 2023: *Probably* a warm-up relative to seasonal norms
- The weeds in your gardens should grow like crazy this spring



Natural Resources Conservation Service
U.S. DEPARTMENT OF AGRICULTURE

 Search



CONSERVATION BASICS

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RESOURCES

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CONTACT

Washington Snow Survey & Water Supply Program

WSAC January 2023

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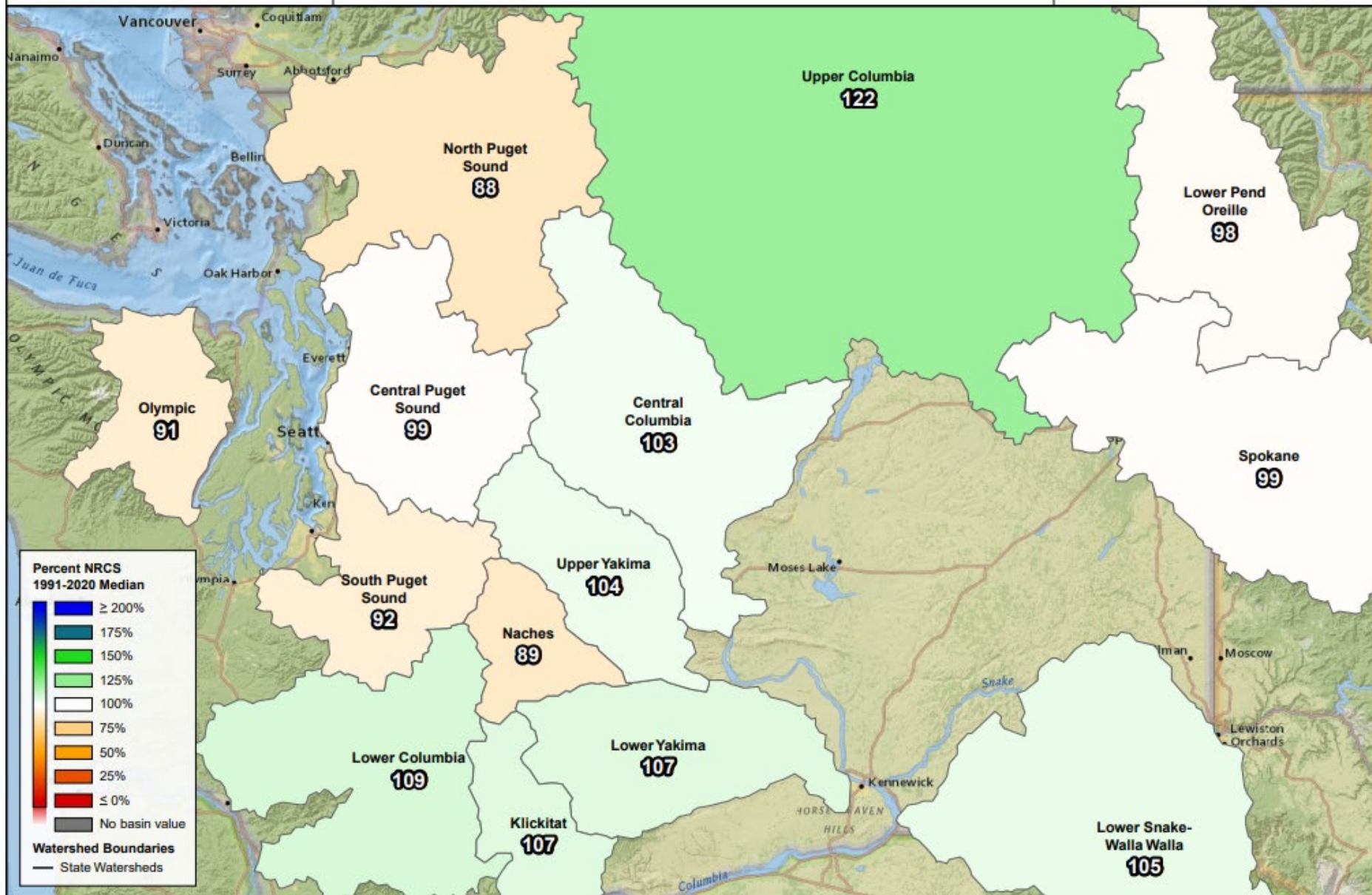
The NRCS Snow Survey Program provides mountain snowpack data and streamflow forecasts for the western United States. Applications of snow survey products include water supply management, flood control, climate modeling, recreation, and



Snow Water Equivalent

Percent NRCS 1991-2020 Median

January 20, 2023, first of day



Natural Resources
Conservation Service
United States Department of Agriculture



0 10 20 40 60 80 100 Miles

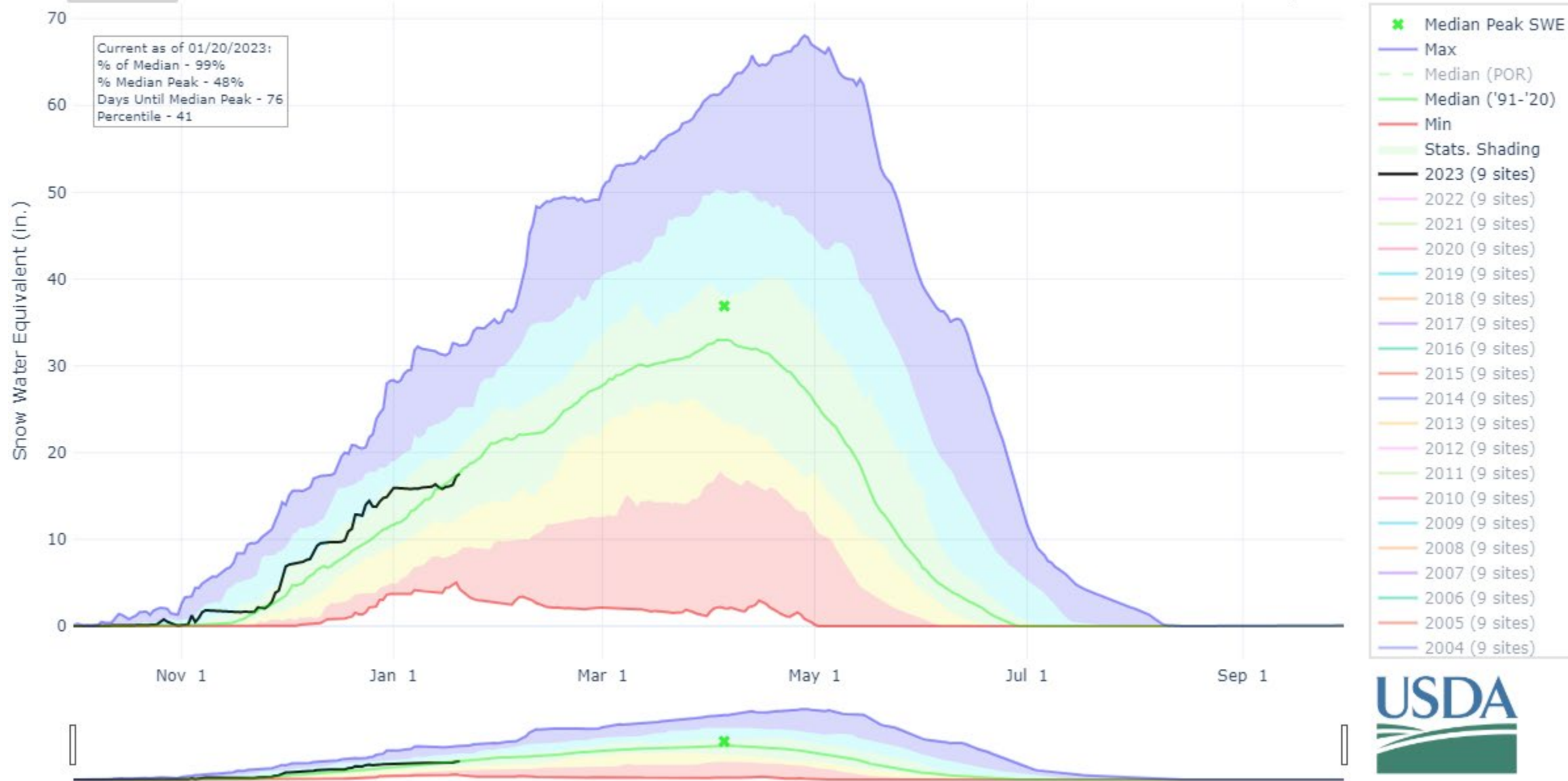
Created 1-20-2023

SNOW WATER EQUIVALENT IN CENTRAL PUGET SOUND

Reset Range

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

Station List



Basin Site Name	Elev (ft)	Snow Water Equivalent				Percent of	
		Current (in)	Today's Median (in)	Median Peak (in)	Median Peak Date	Today's Median	Median Peak
SPOKANE							
Sherwin	3200	7.7	6.6 ₍₂₉₎	9.6 ₍₂₉₎	Mar 06 ₍₂₉₎	117	80
Ragged Mountain	4210	14.7	12.4 ₍₁₄₎	22.8 ₍₁₄₎	Apr 01 ₍₁₄₎	119	64
Humboldt Gulch	4250	8.7	8.1 ₍₂₉₎	11.7 ₍₂₉₎	Mar 16 ₍₂₉₎	107	74
Mica Creek	4510	12.1	13.5	23.0 ₍₂₉₎	Mar 29 ₍₂₉₎	90	53
Quartz Peak	4700	14.6	13.0	21.5	Mar 25	112	68
Lookout	5190	13.4	14.8	26.7	Apr 09	91	50
Mosquito Ridge	5260	18.5	18.8	34.2 ₍₂₉₎	Apr 15 ₍₂₉₎	98	54
Sunset	5540	9.4	11.2	23.0	Apr 15	84	41
Lost Lake	6110	28.1	29.0	55.2	Apr 23	97	51
Basin Index (%)		100					56

DAILY AVERAGE TEMPERATURE IN CENTRAL PUGET SOUND

Reset Range

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

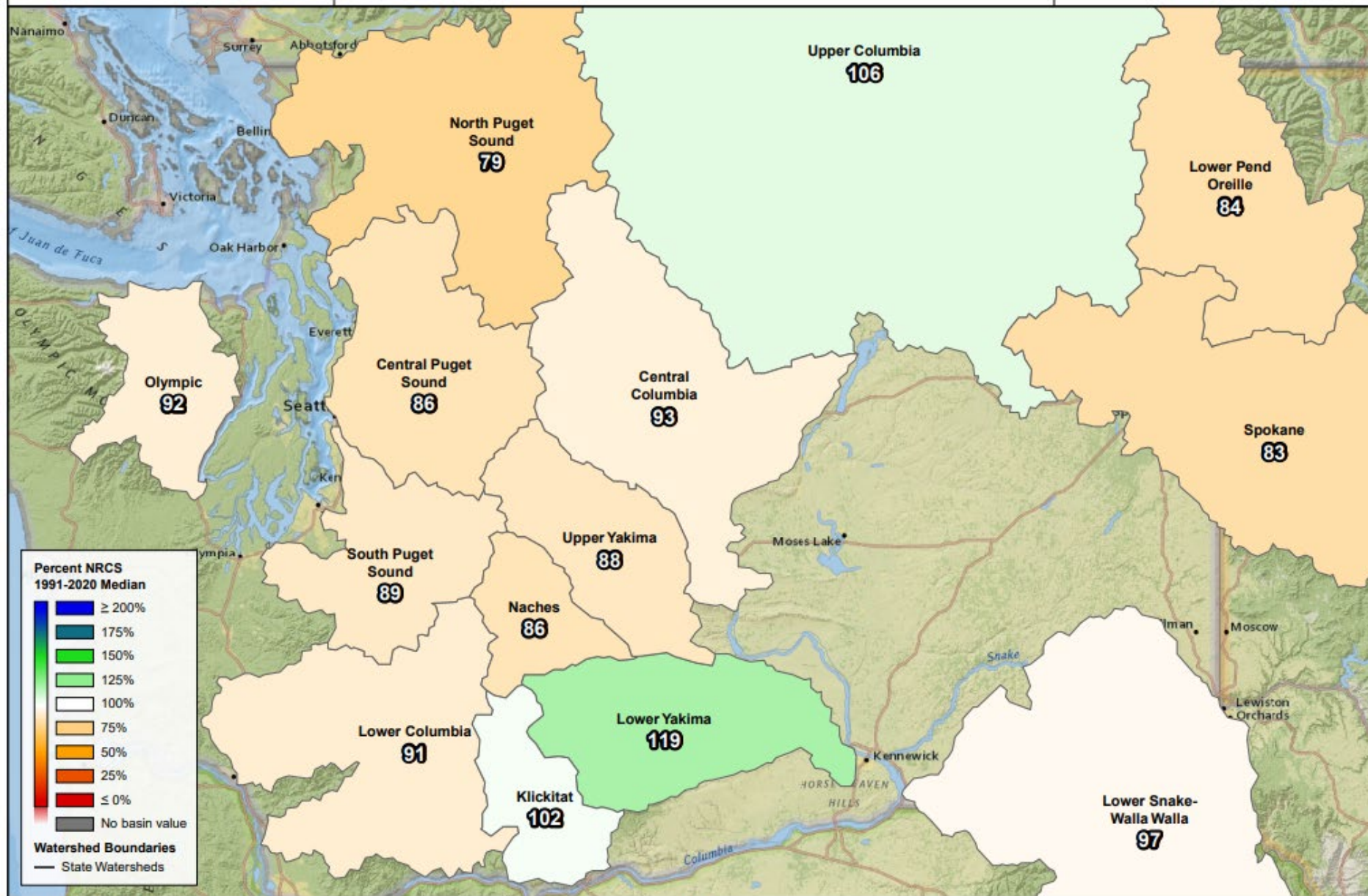
Station List



Water Year to Date Precipitation

Percent NRCS 1991-2020 Median

October 1, 2022 - January 19, 2023

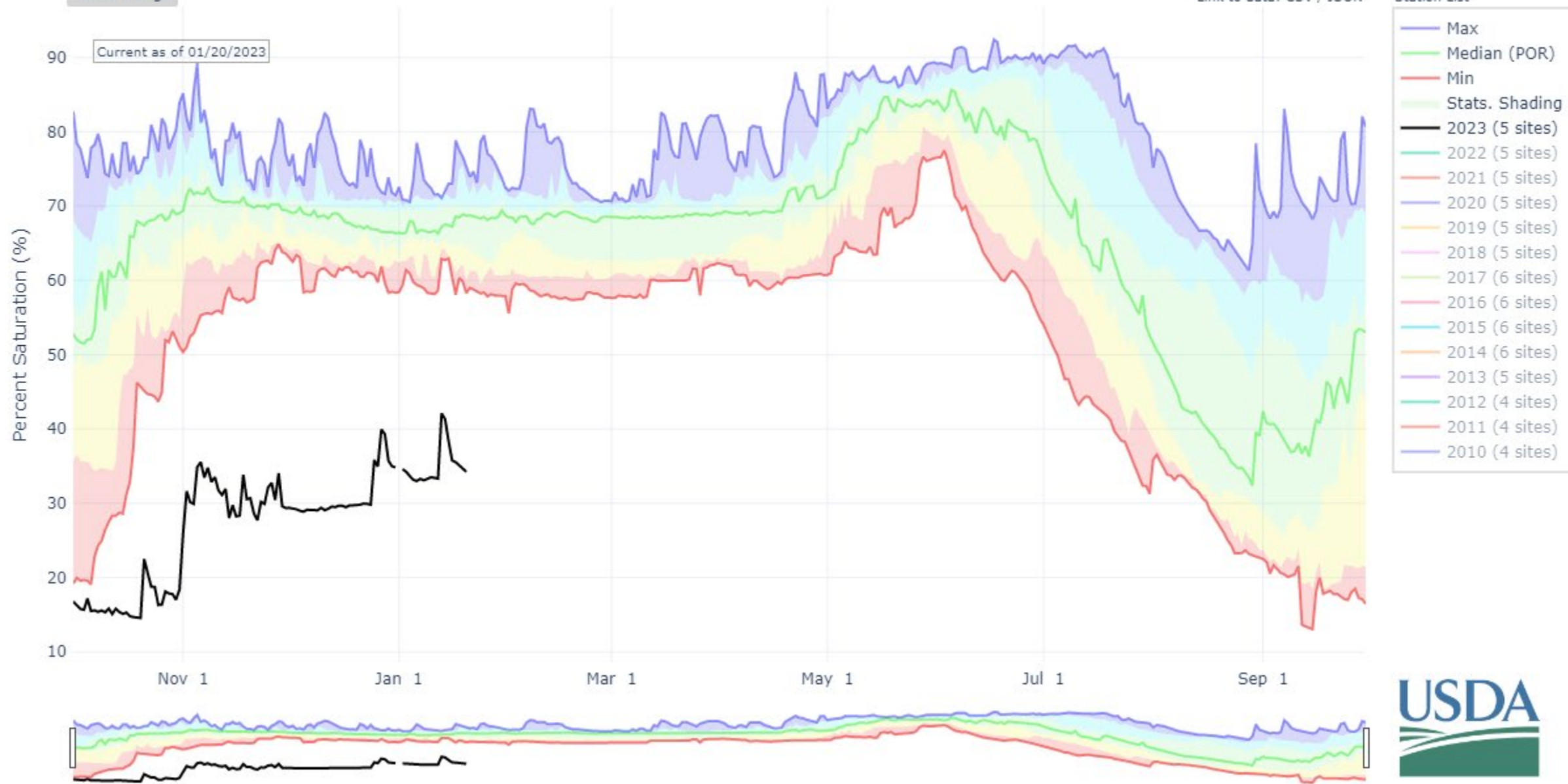


DEPTH AVERAGED SOIL SATURATION IN NORTH PUGET SOUND

Reset Range

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

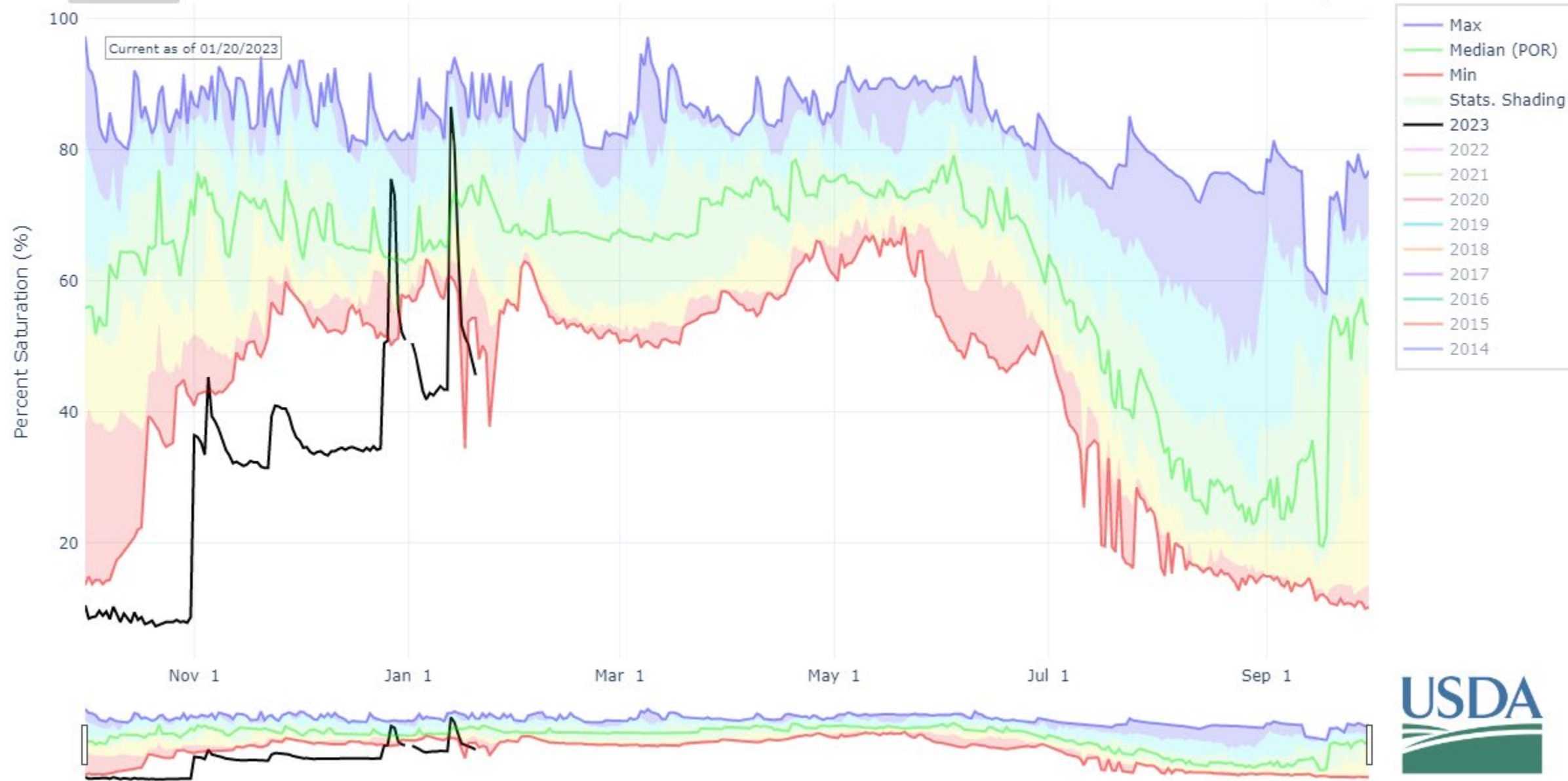
Station List



DEPTH AVERAGED SOIL SATURATION AT MARTEN RIDGE

Reset Range

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

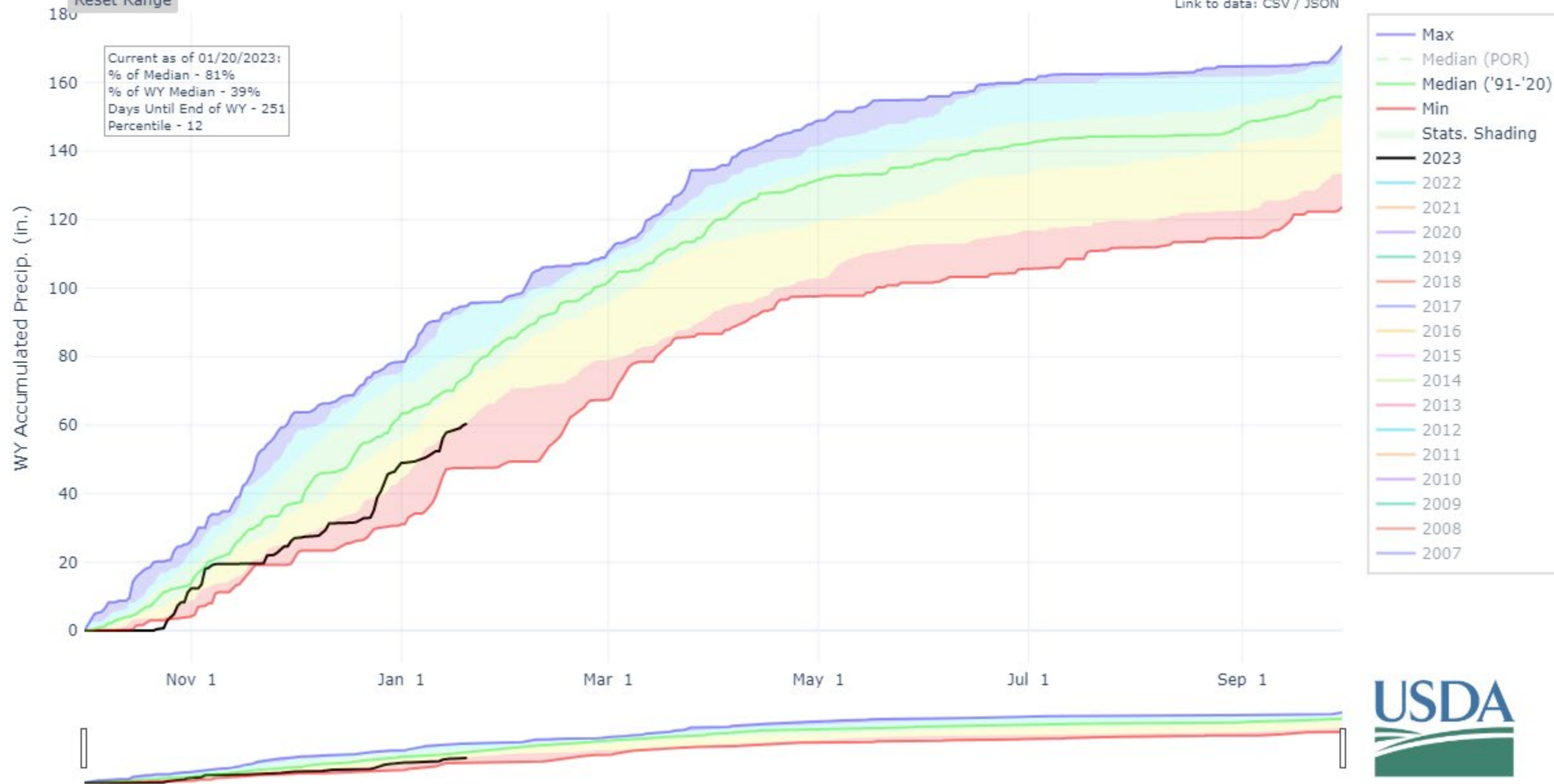


PRECIPITATION AT MARTEN RIDGE

Reset Range

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

Current as of 01/20/2023:
% of Median - 81%
% of WY Median - 39%
Days Until End of WY - 251
Percentile - 12

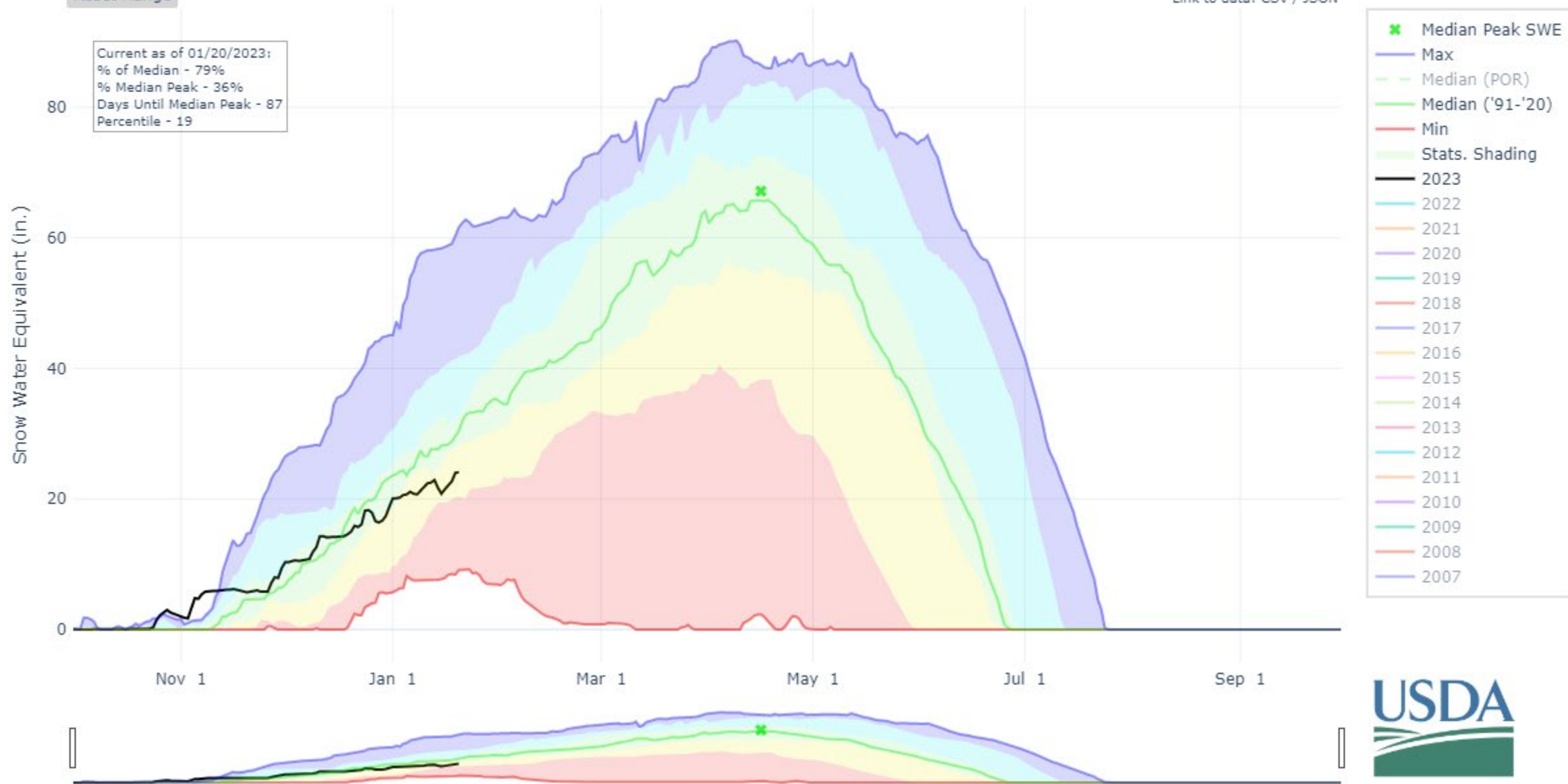


SNOW WATER EQUIVALENT AT MARTEN RIDGE

Reset Range

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

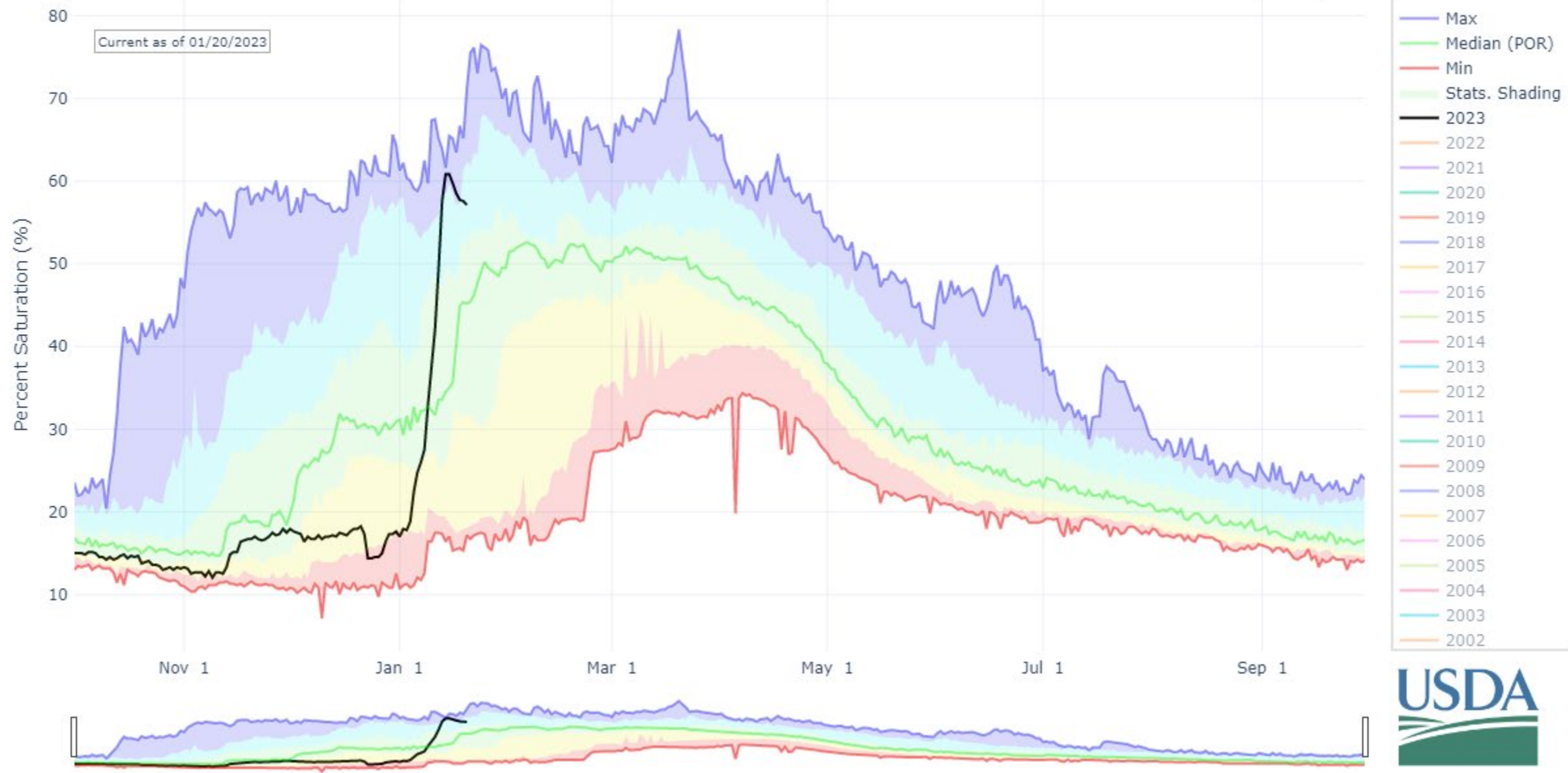
Current as of 01/20/2023:
% of Median - 79%
% Median Peak - 36%
Days Until Median Peak - 87
Percentile - 19



DEPTH AVERAGED SOIL SATURATION AT LIND #1

Reset Range

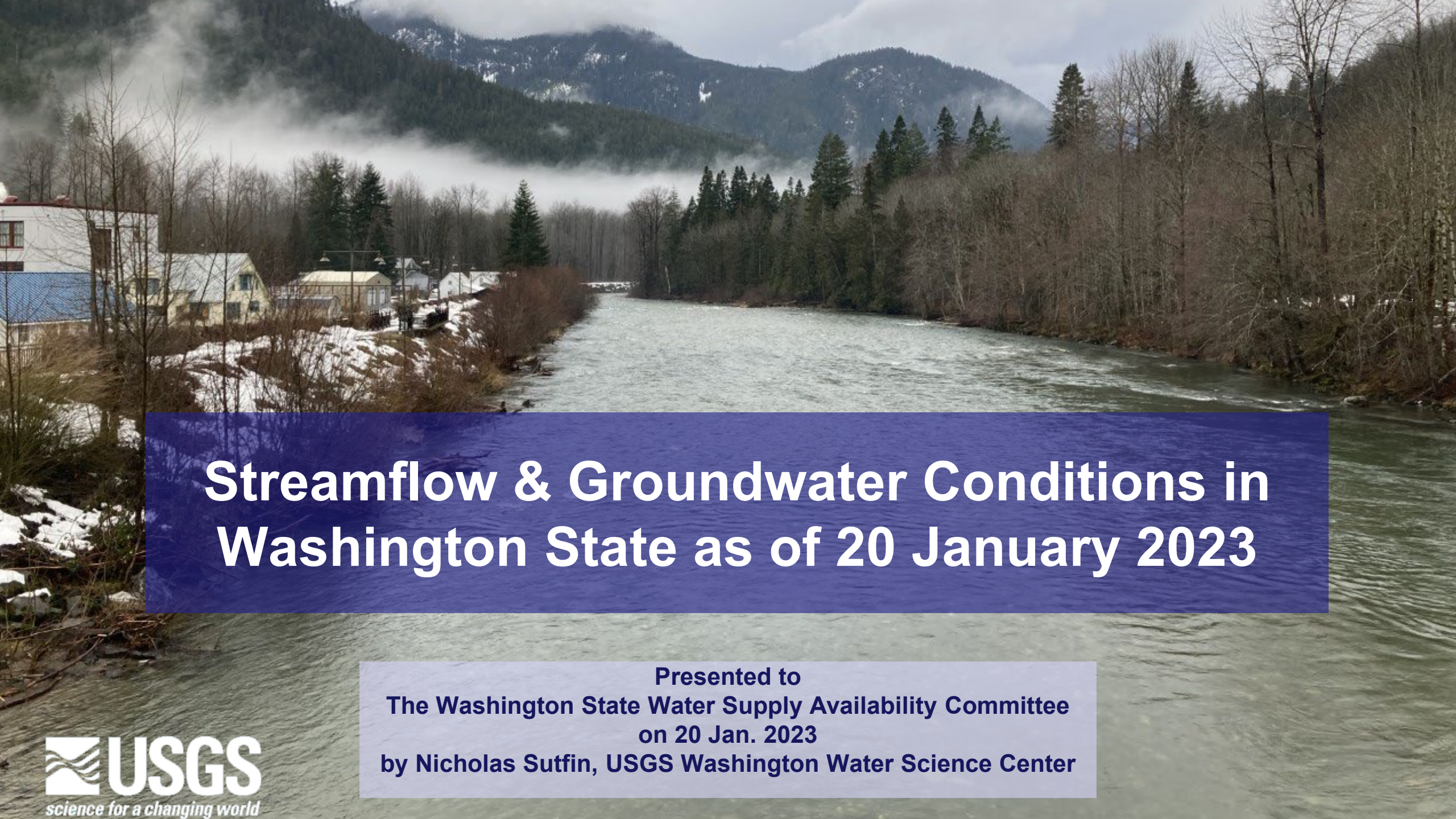
[Link to data: CSV / JSON](#)



Conclusions:

- WY precipitation is worrisome
- SM conditions are concerning for future runoff
- SWE is lagging in some basins at the halfway mark

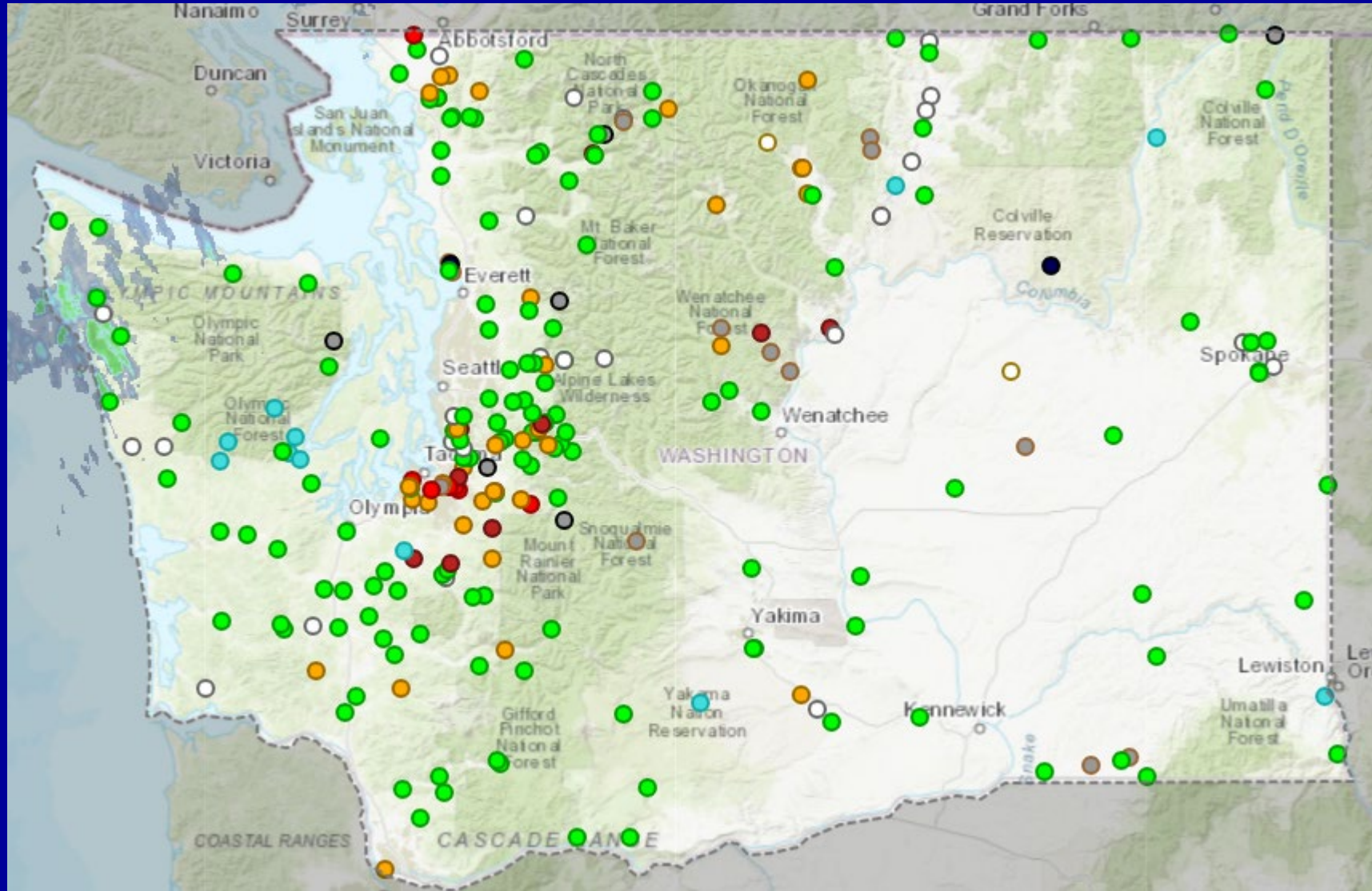
Questions?



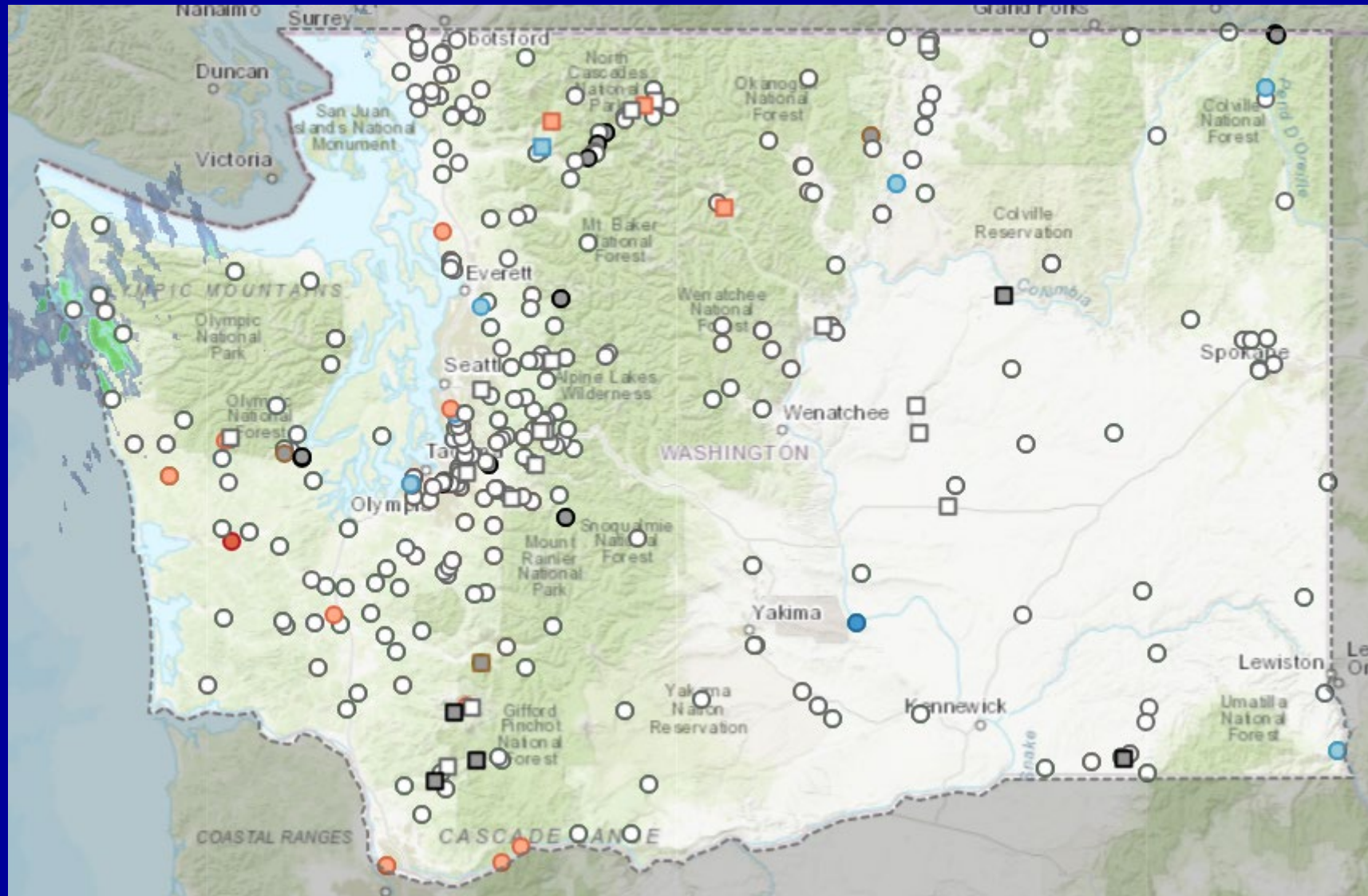
Streamflow & Groundwater Conditions in Washington State as of 20 January 2023

Presented to
The Washington State Water Supply Availability Committee
on 20 Jan. 2023
by Nicholas Sutfin, USGS Washington Water Science Center

WA Current Streamflow Conditions, 20 Jan. 2023



Rising and Falling conditions of WA streams on 20 Jan. 2023



Surface-Water Levels: Rising and falling

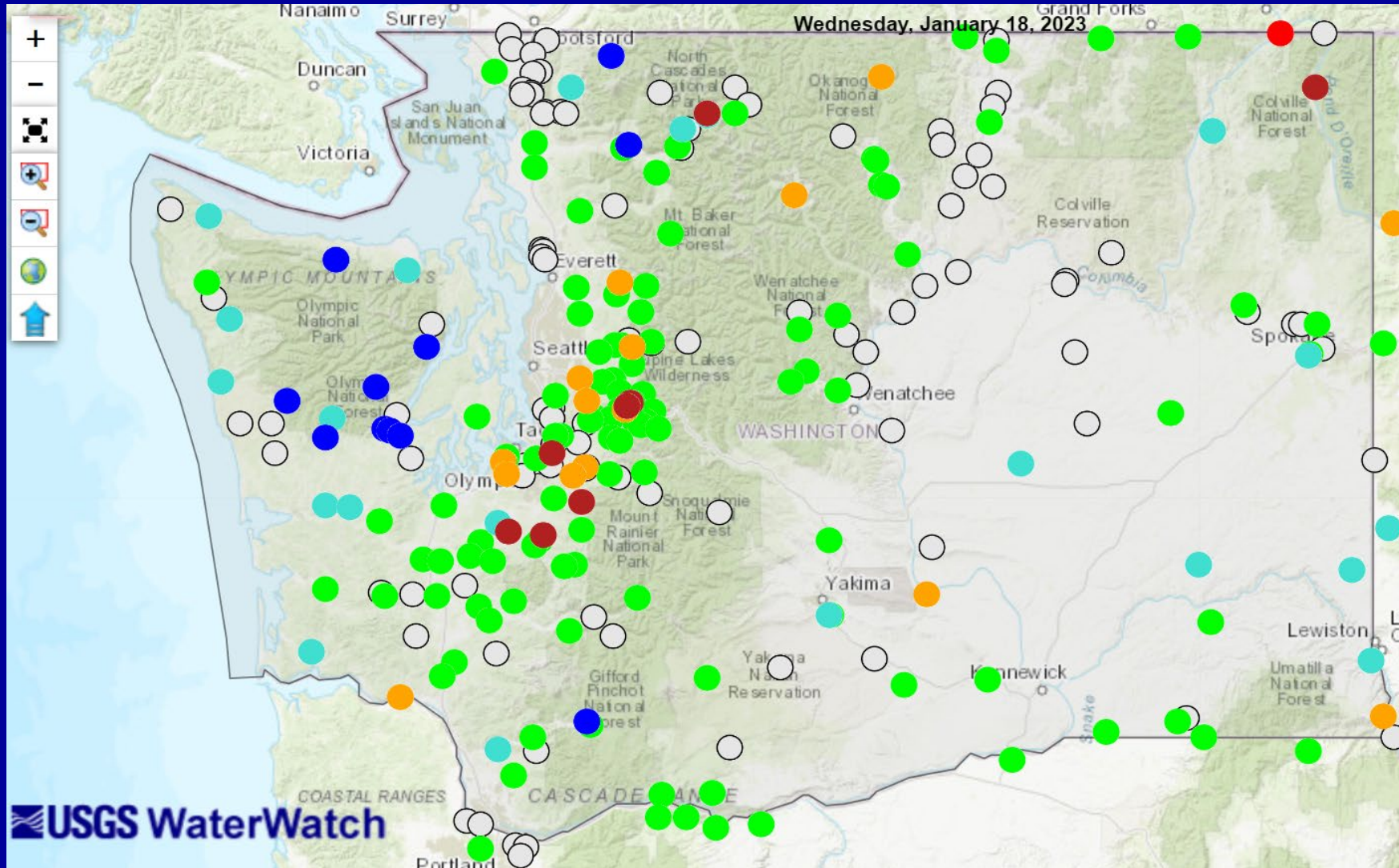
COLOR – CHANGE

- Water level rising ≥ 1 foot/hour
- Water level rising $\geq 0.5 - 1$ foot/hour
- Water level rising $\geq 0.05 - 0.5$ foot/hour
- Water level changing < 0.05 foot/hour
- Water level falling $\geq 0.05 - 0.5$ foot/hour
- Water level falling $\geq 0.5 - 1$ foot/hour
- Water level falling ≥ 1 foot/hour

SHAPE – SITE TYPE

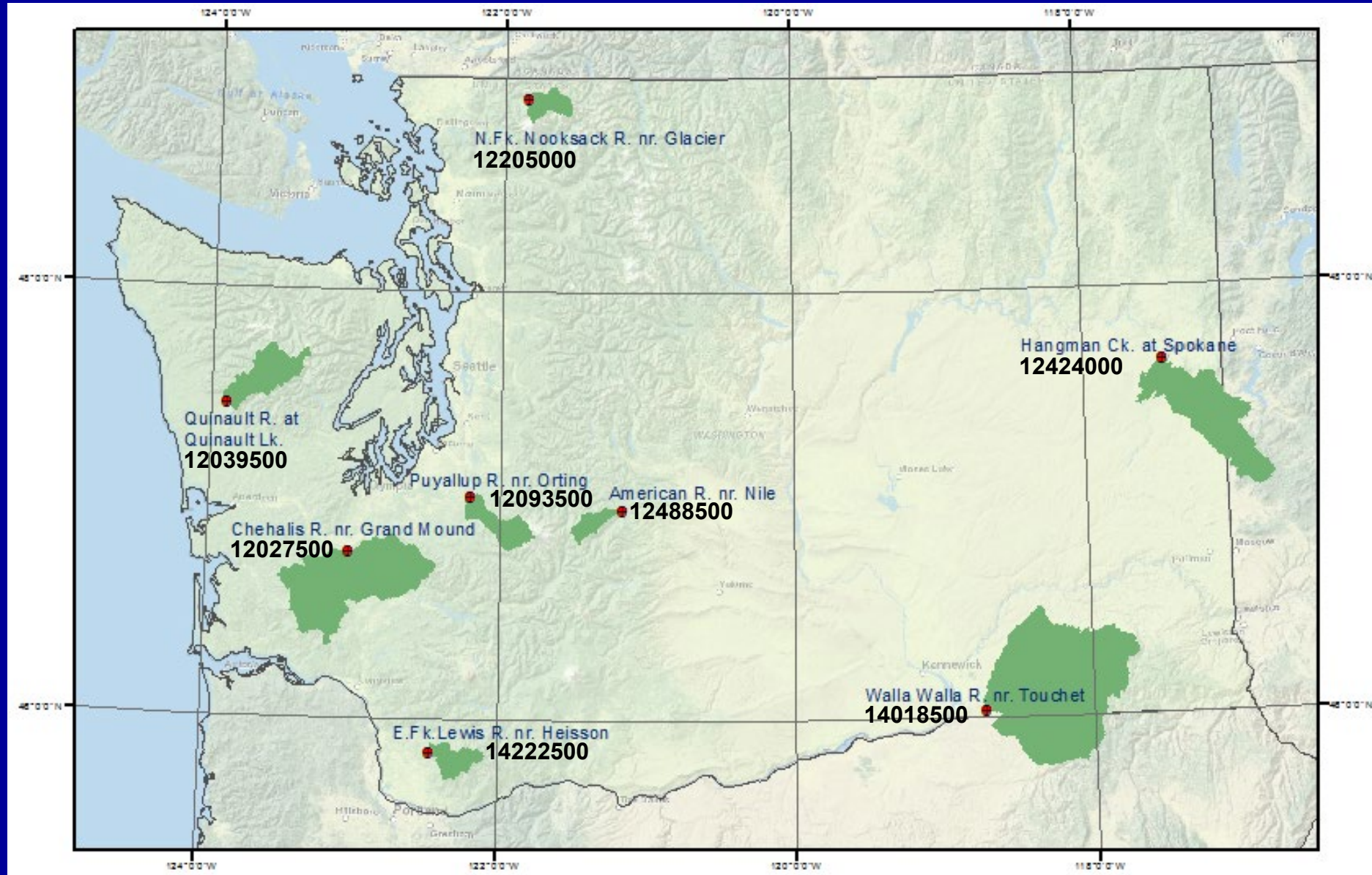
- Stream
- Lake
- Wetland
- Estuary
- Coastal

WA 7-day Average Streamflow Conditions as of 19 Jan. 2023

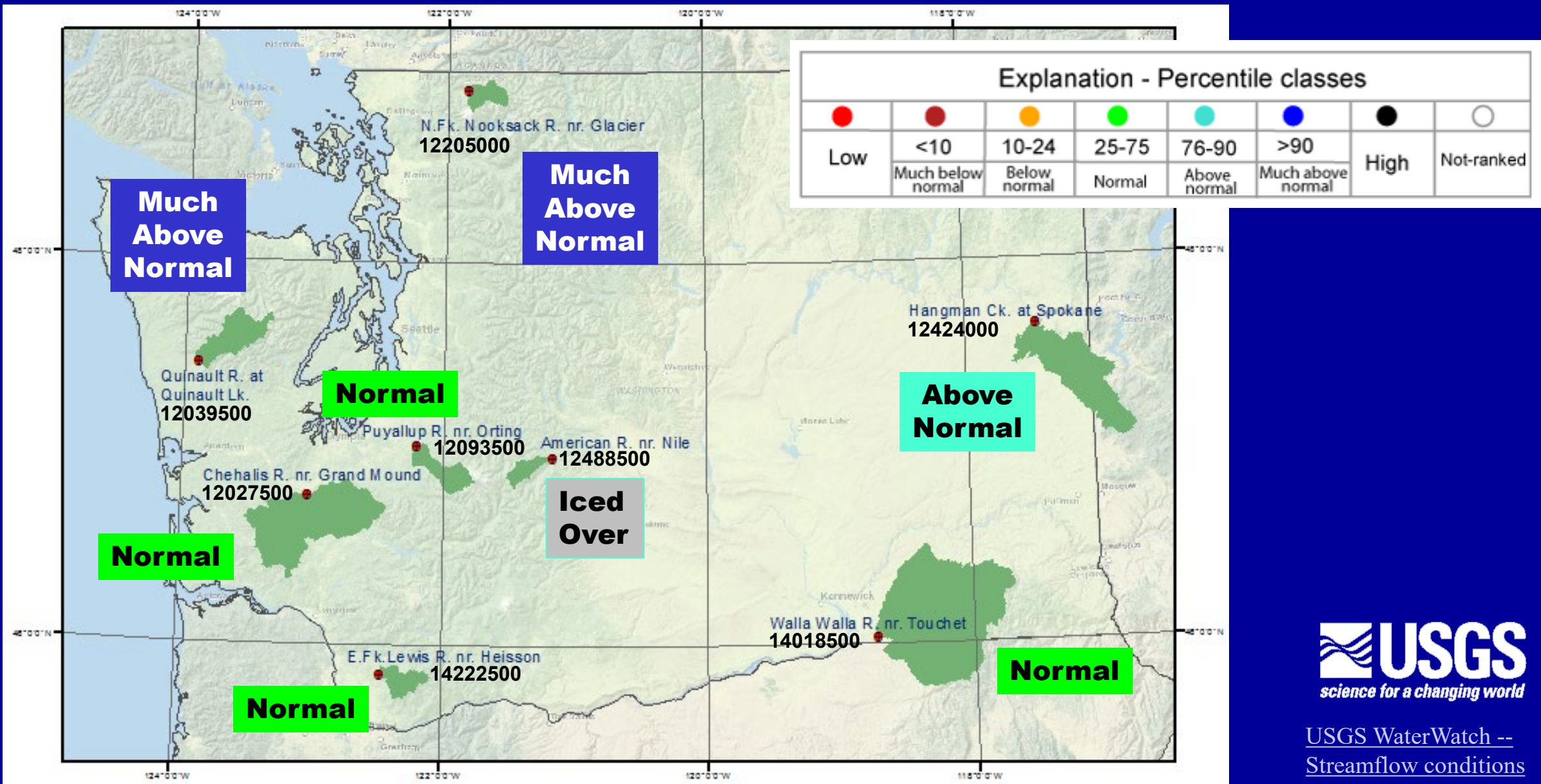


Index Gaging Stations

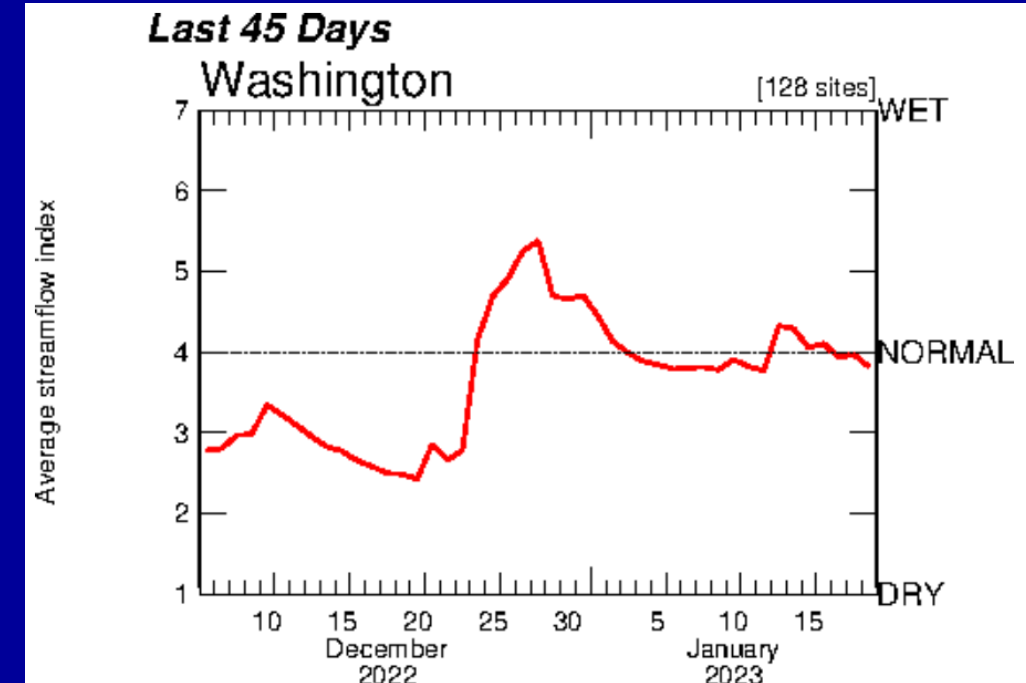
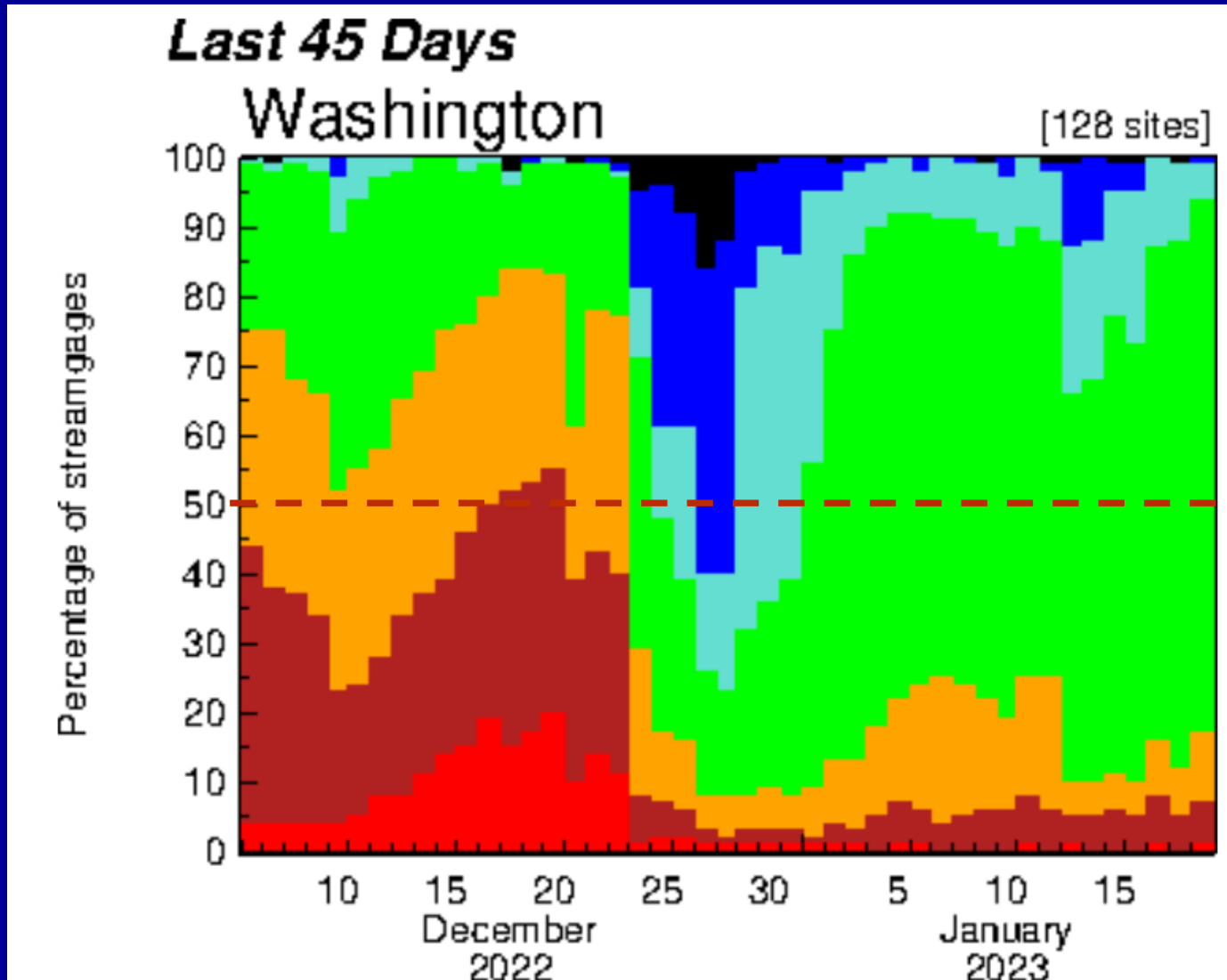
(Stations that measure natural or near-natural streamflow)



Index Gaging Stations, 7-day average streamflow (as of 19 Jan. 2023)



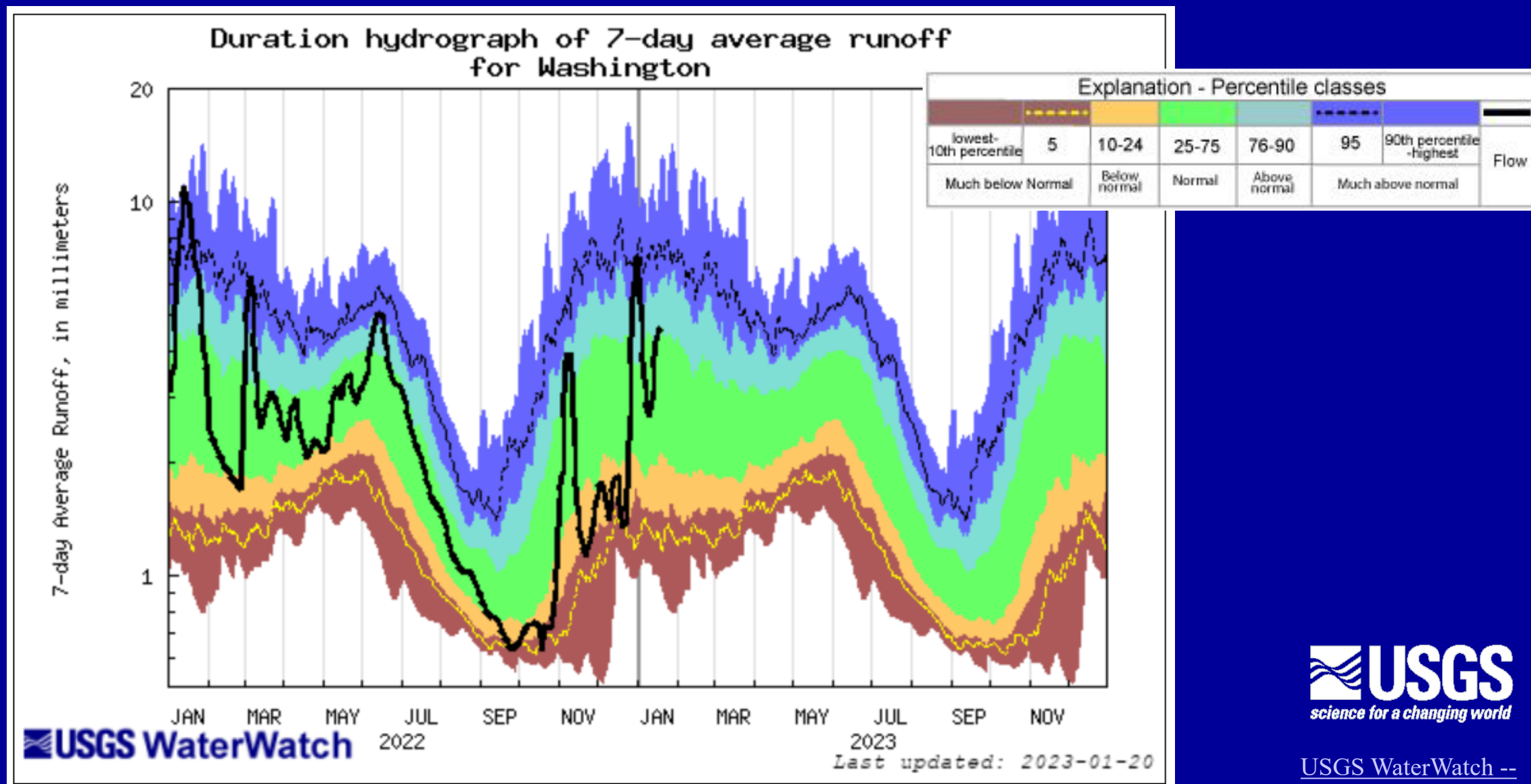
Daily streamflow in Washington Rivers compared to historical streamflow, Dec. 2022 to Jan 2023



Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

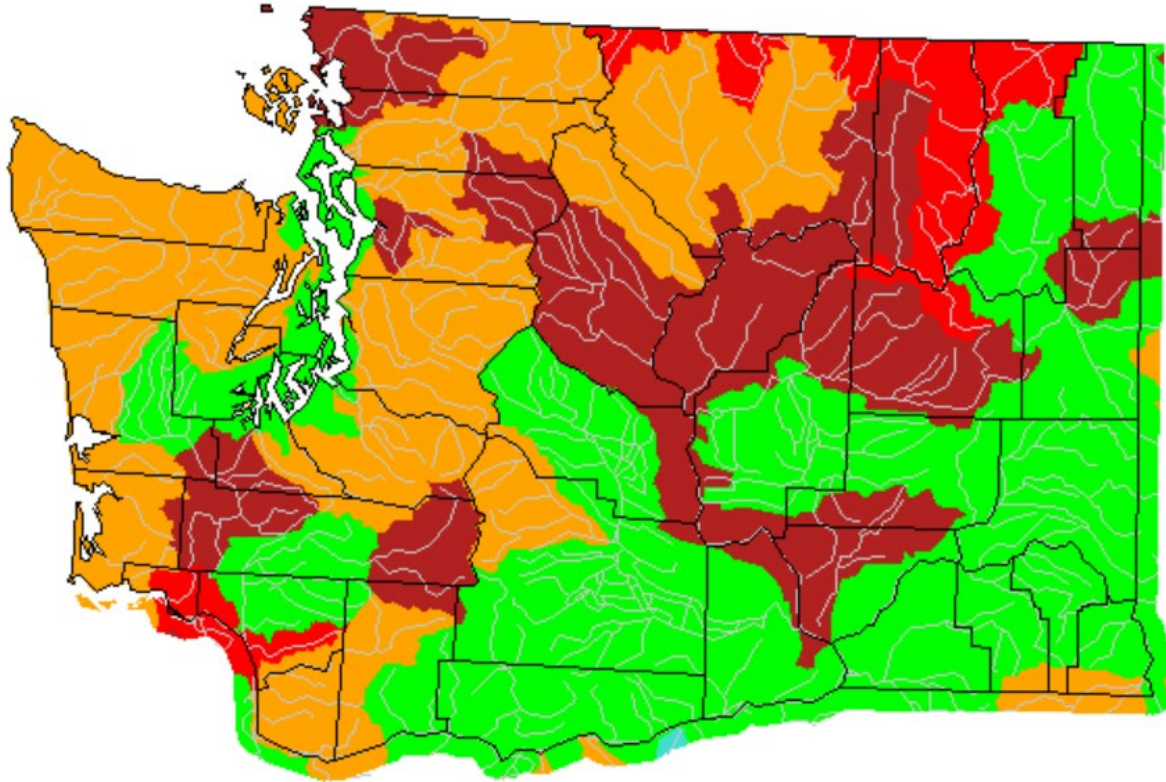
Duration Hydrograph, Washington State

7-day Average Streamflow (as of 19 Jan. 2023) is slightly above normal

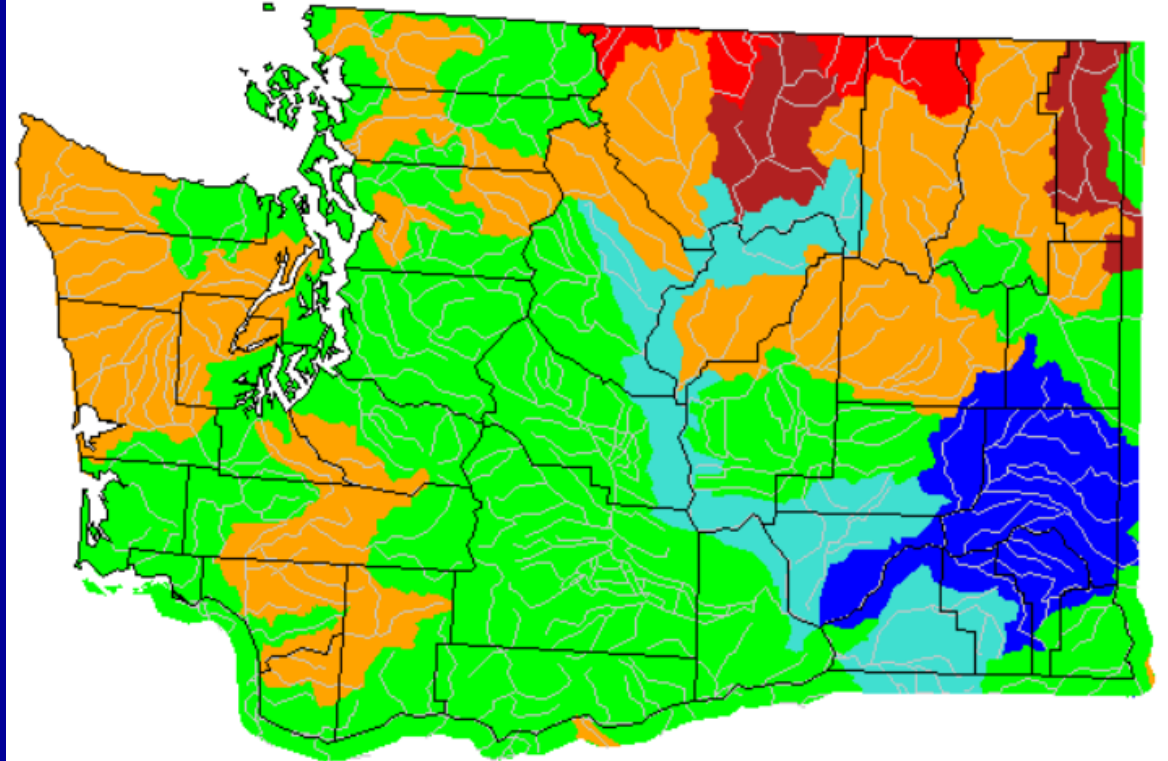



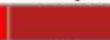


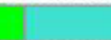
Monthly average streamflow compared to historical record for Oct. 2022 & Nov. 2022

October 2022



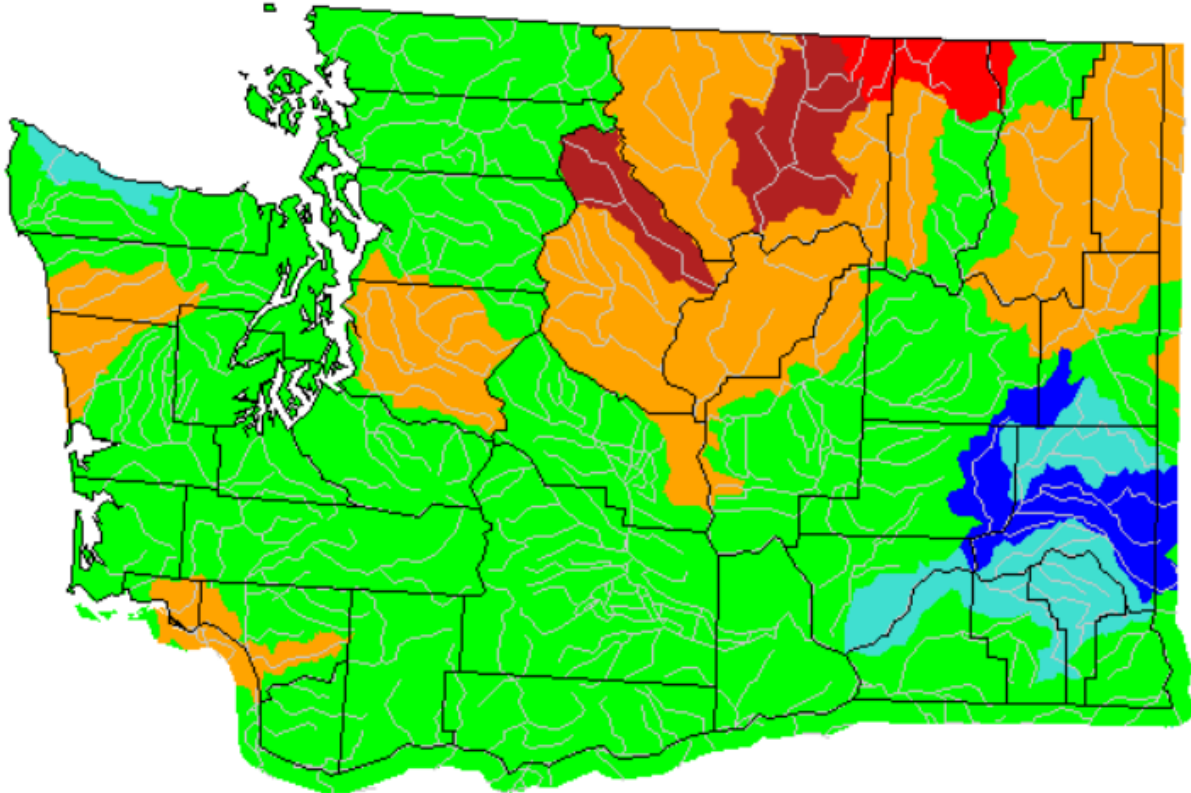
November 2022



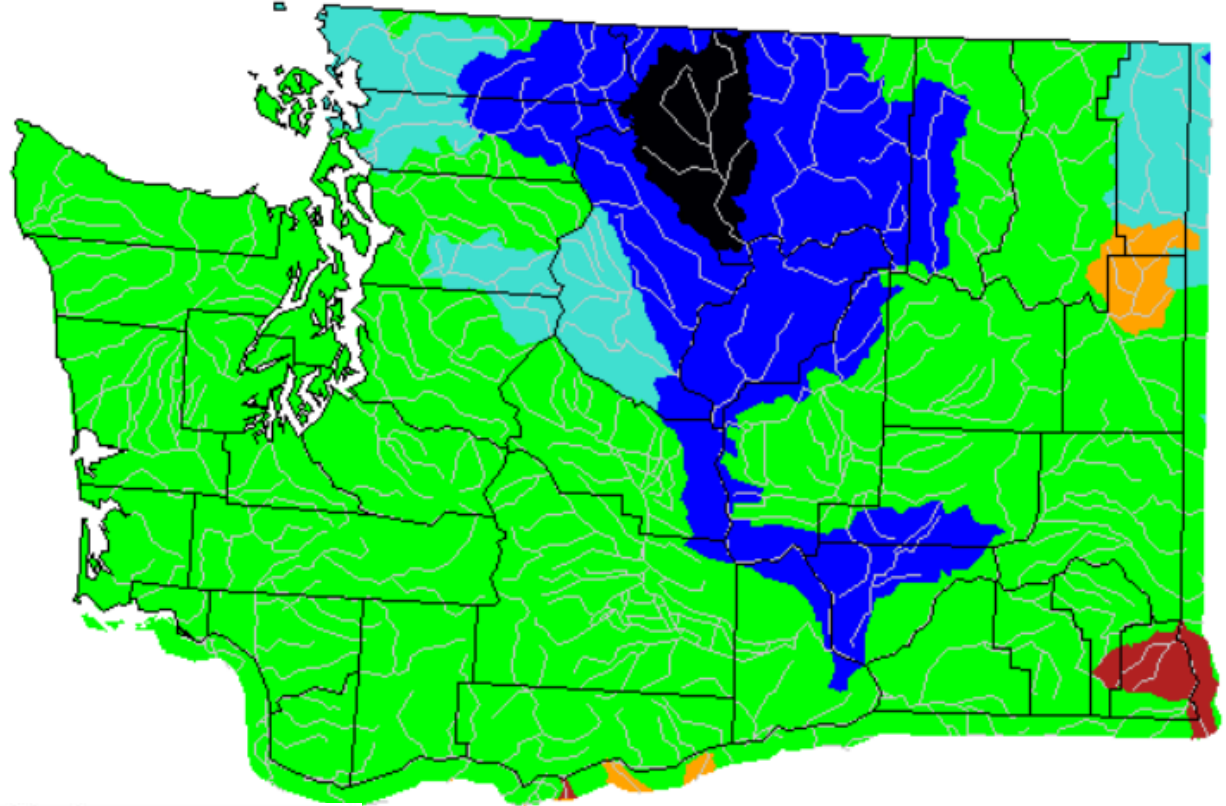
Explanation - Percentile classes						
						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

Monthly average streamflow compared to historical record for Dec. 2021 & Dec. 2022

December 2022



December 2021

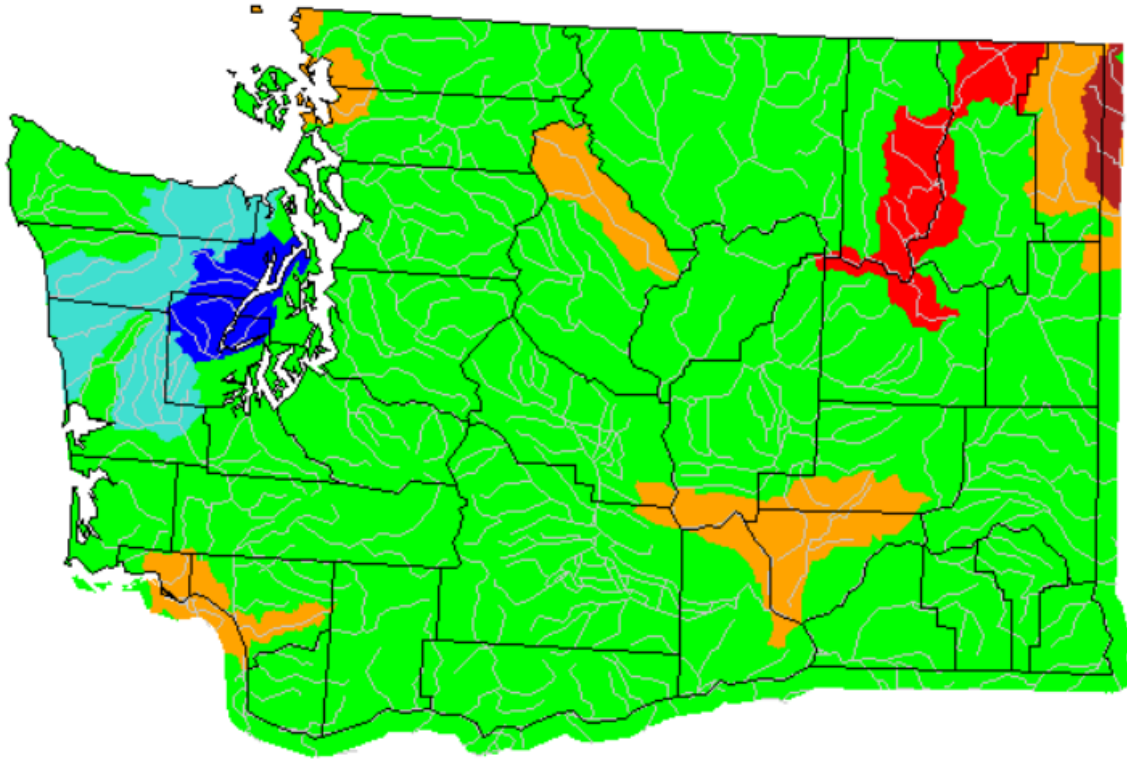


Explanation - Percentile classes						
	<10	10-24	25-75	76-90	>90	
Low	Much below normal	Below normal	Normal	Above normal	Much above normal	High

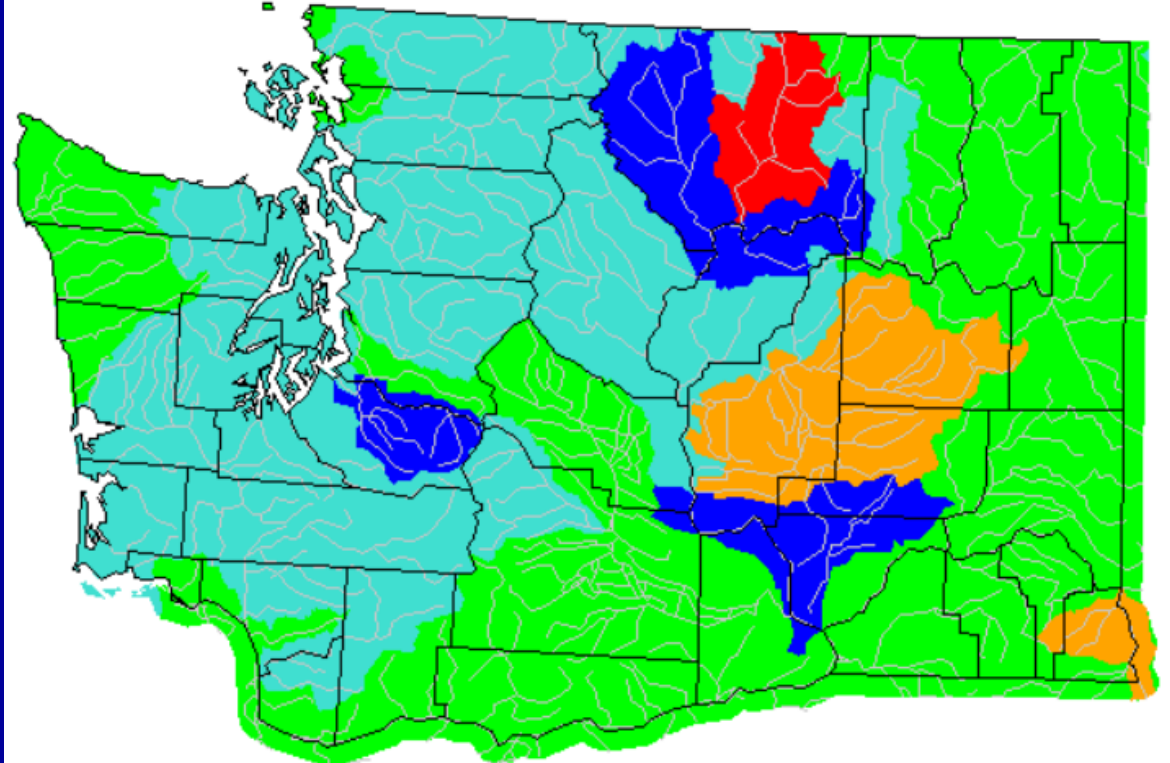
WA 14-day average streamflow

as of 19 Jan. 2023 compared to January 2022

Last 14 days



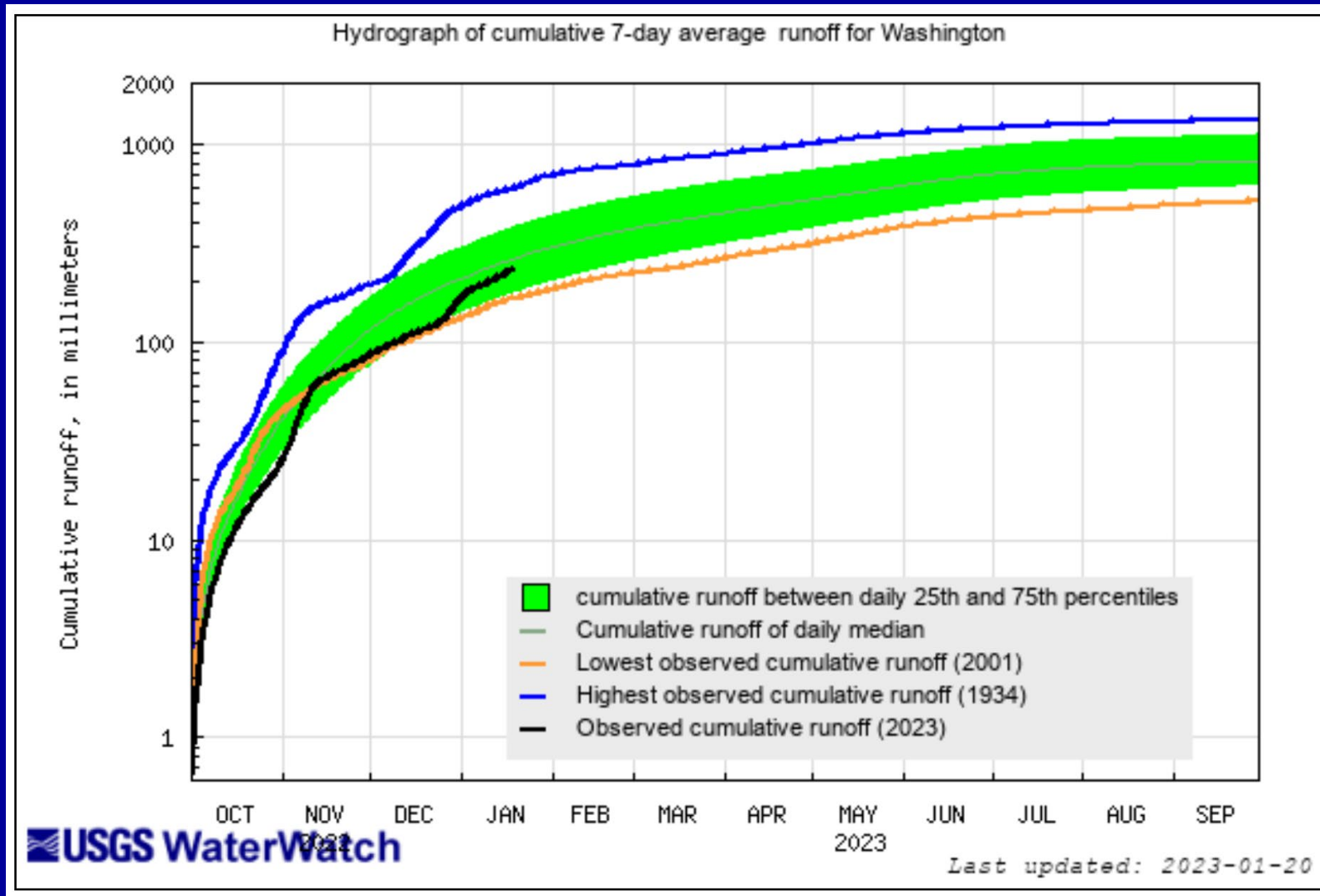
January 2022



Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

Hydrograph of cumulative 7-day average Area-based Hydrograph, Washington State

2023 Water year (as of 19 Jan. 2023) is normal

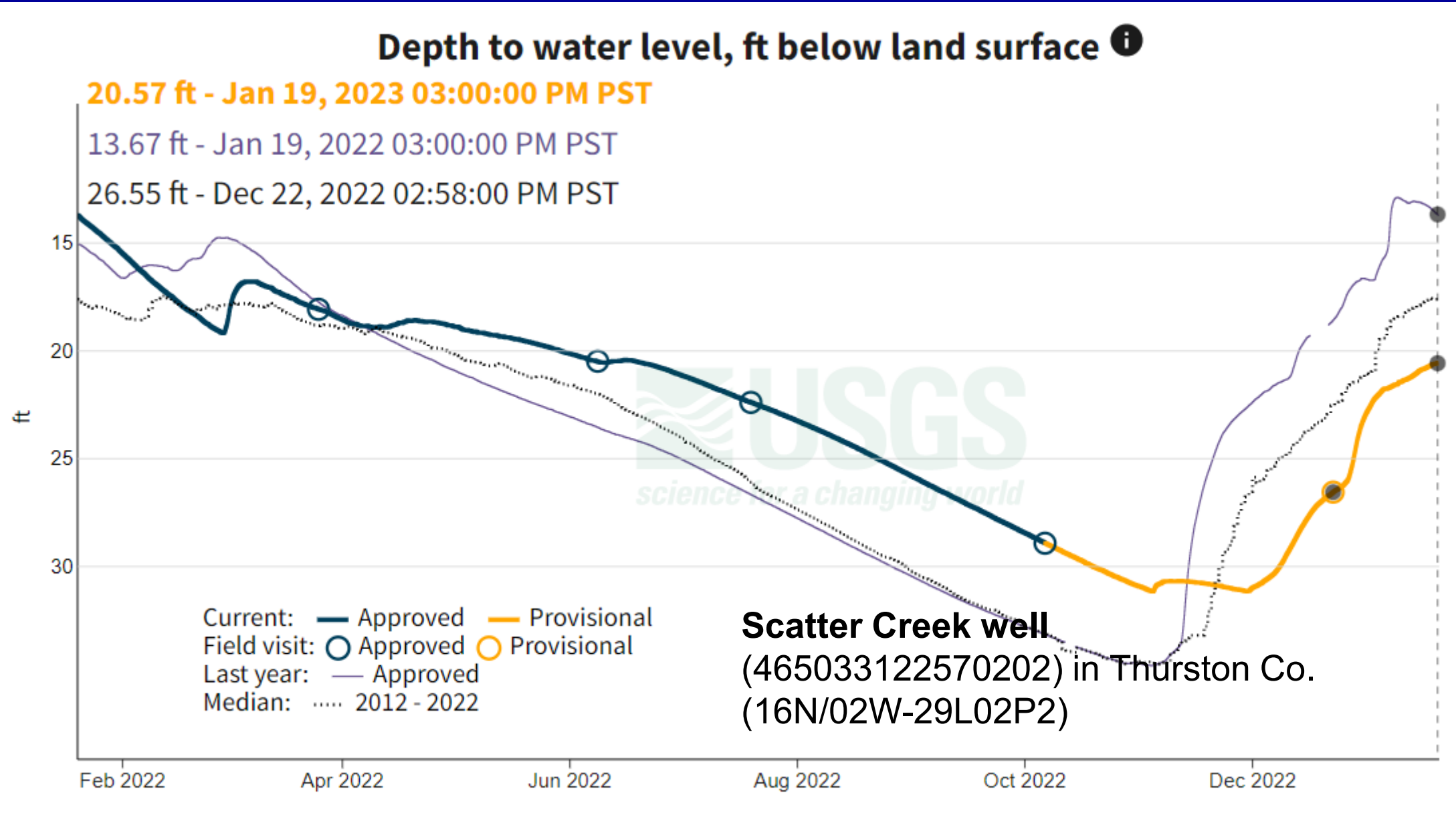


USGS WaterWatch --
[Streamflow conditions](#)

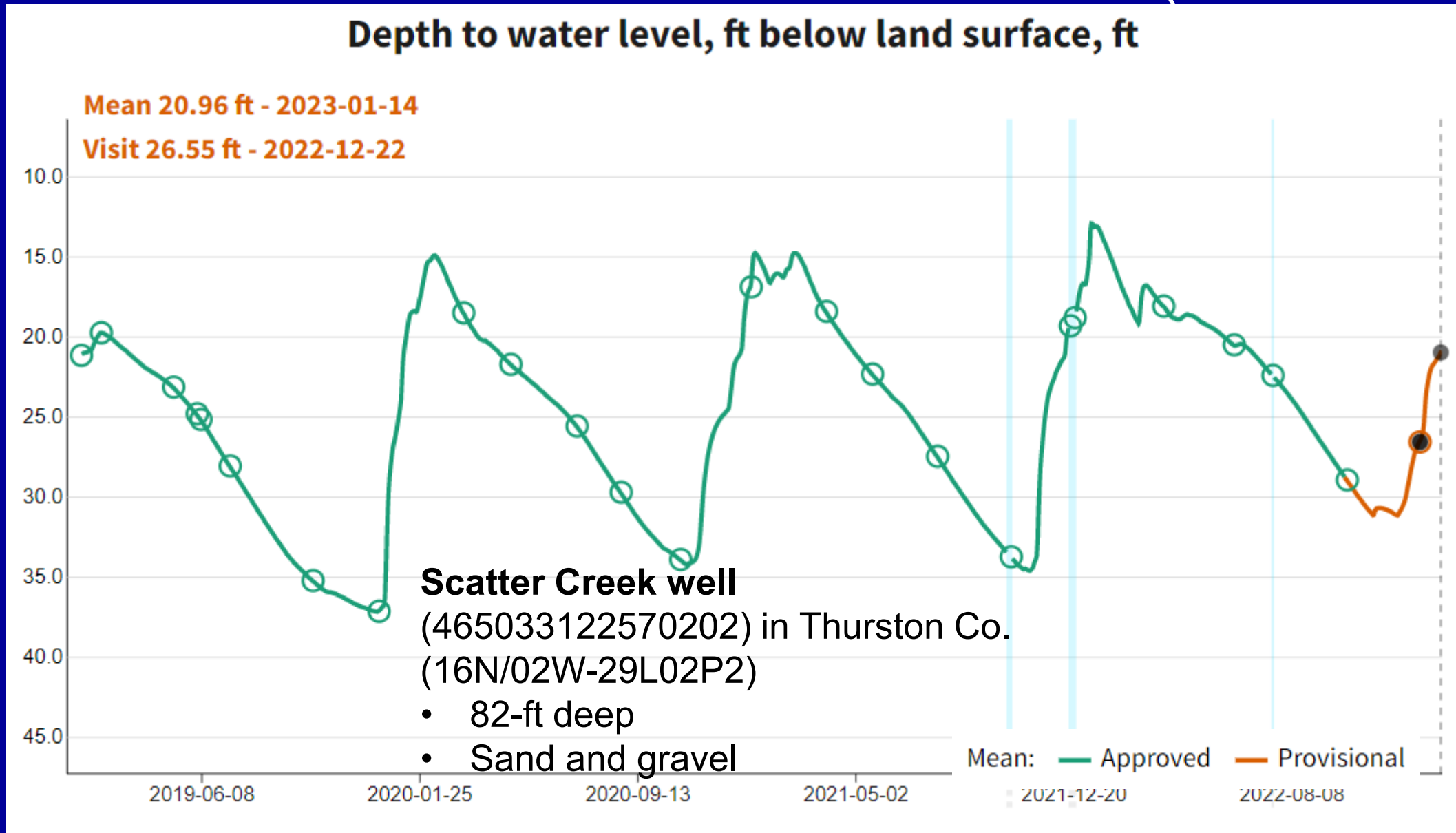
WA Current Groundwater Conditions (19 Jan. 2023)



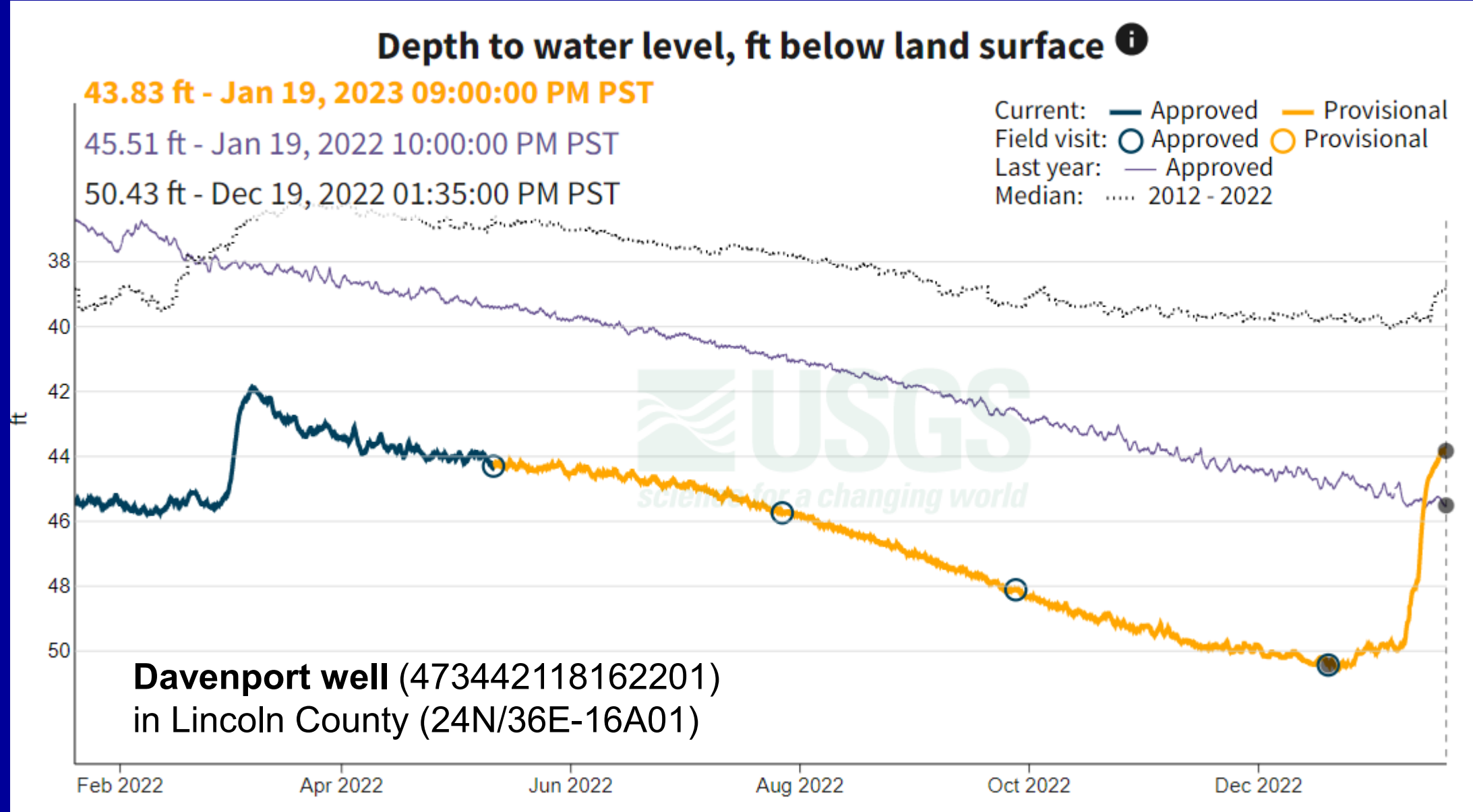
Scatter Creek Well Groundwater Conditions (19 Jan. 2023)



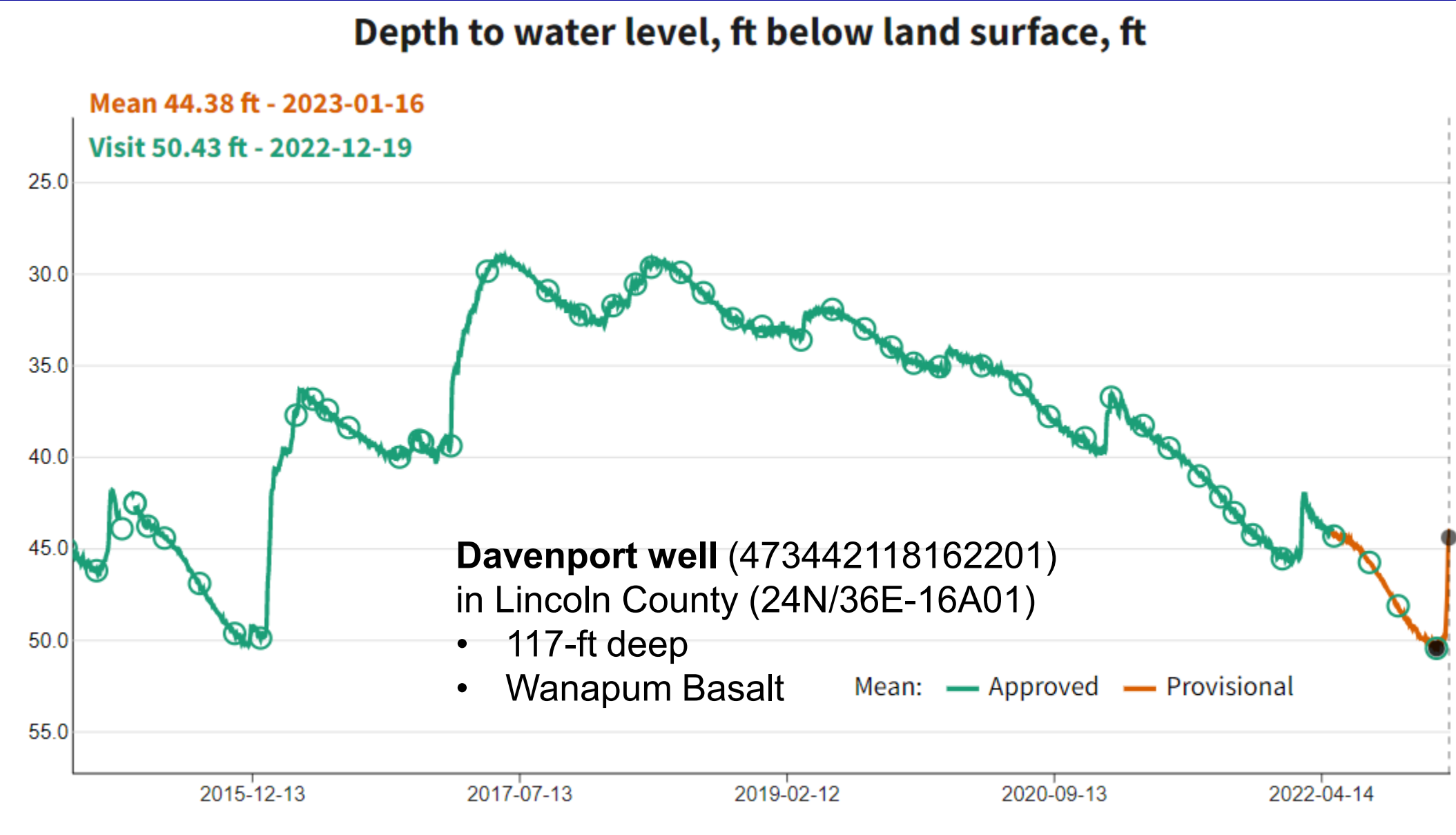
Scatter Creek Well Groundwater Conditions (19 Jan. 2023)



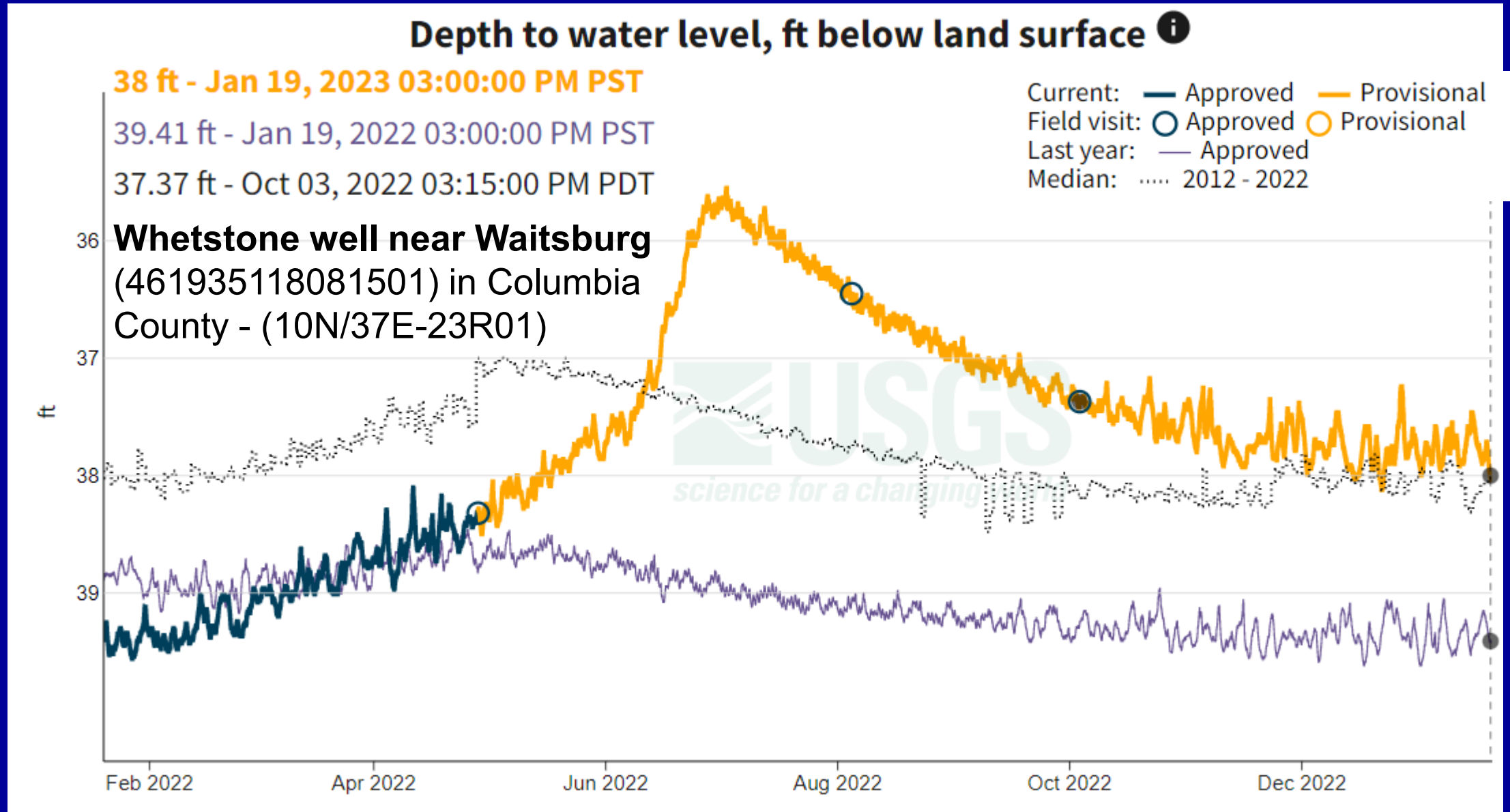
Davenport Well Groundwater Conditions (19 Jan. 2023)



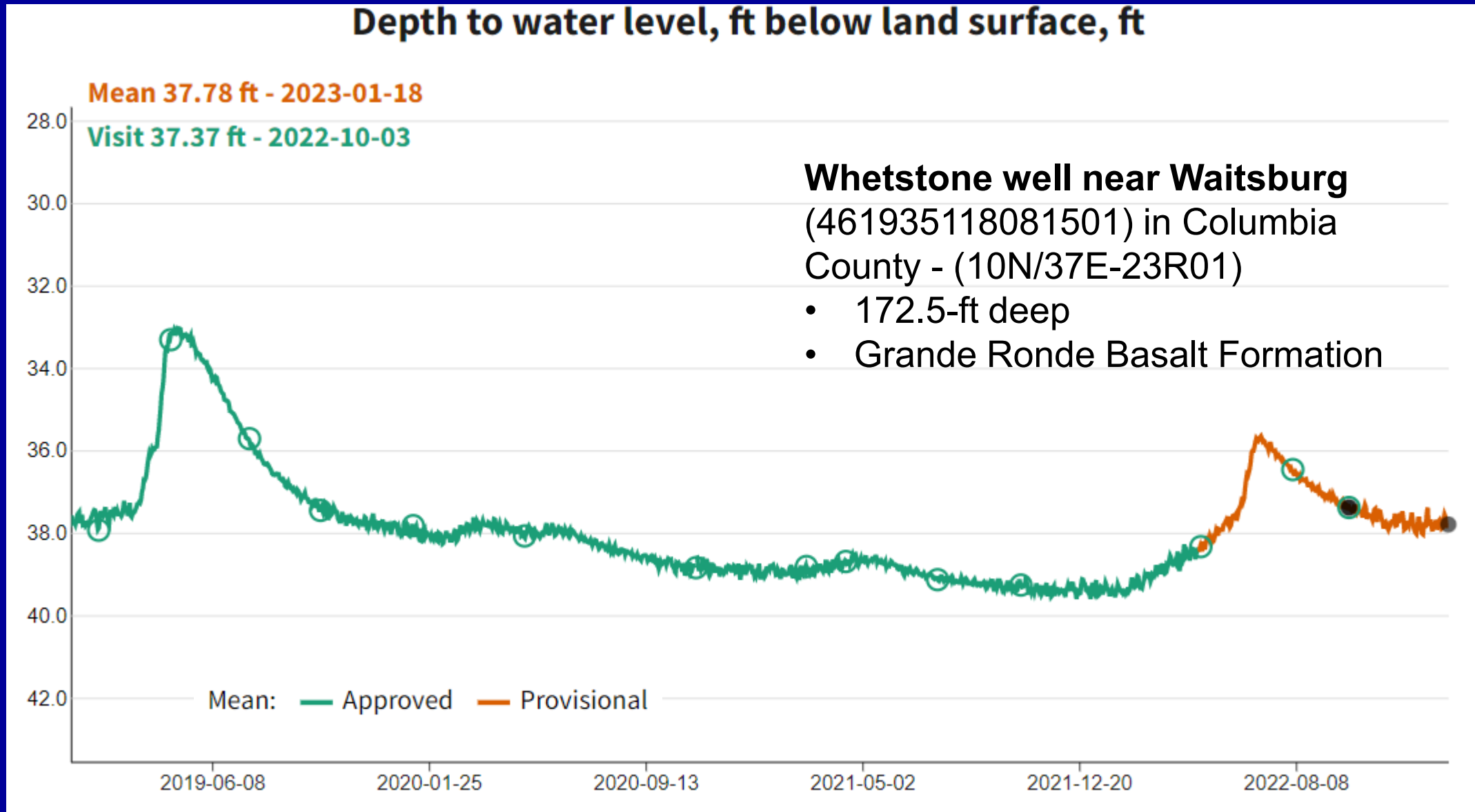
Davenport Well Groundwater Conditions (19 Jan. 2023)



Whetstone Well Groundwater Conditions (19 Jan. 2023)

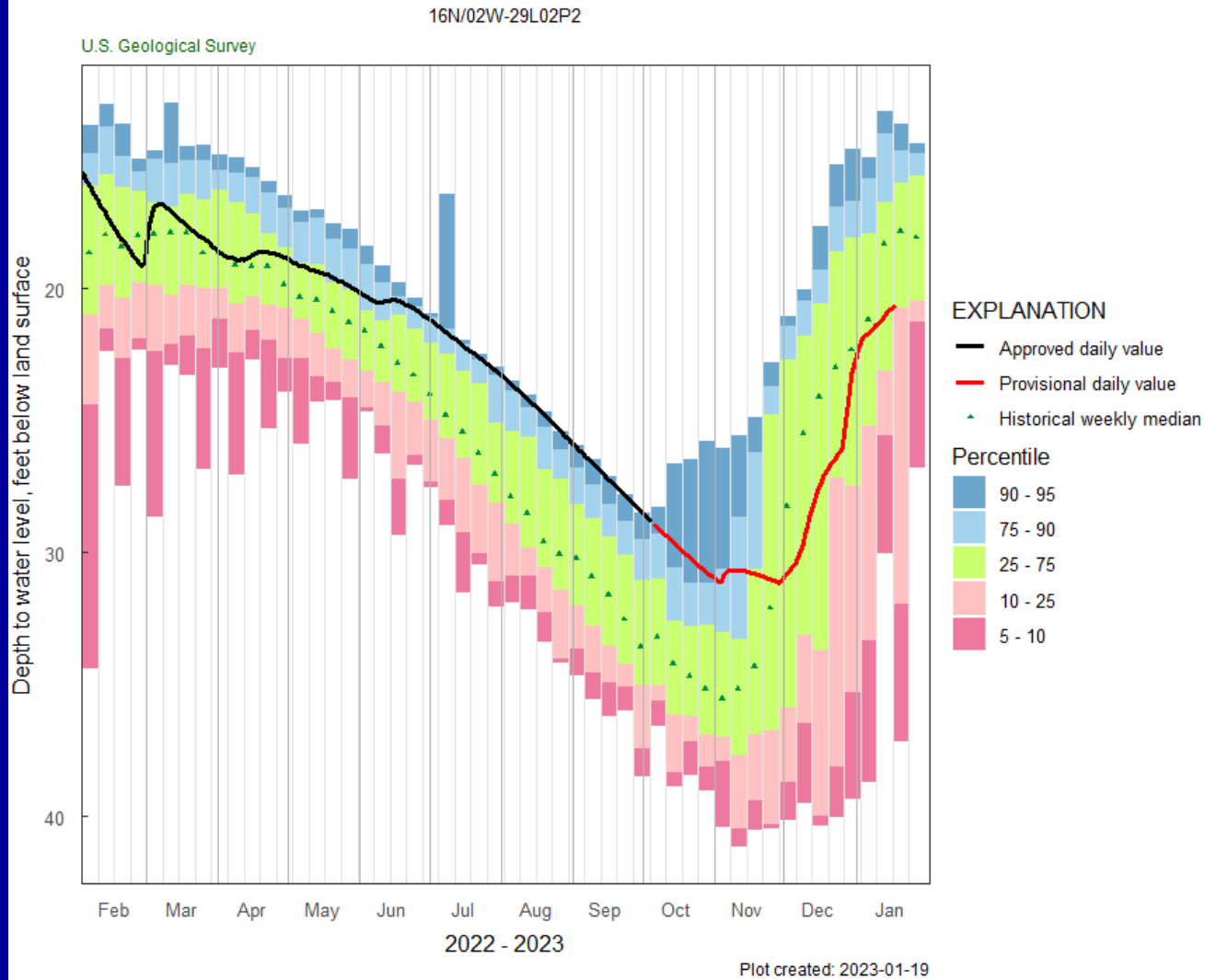


Whetstone Well Groundwater Conditions (19 Jan. 2023)

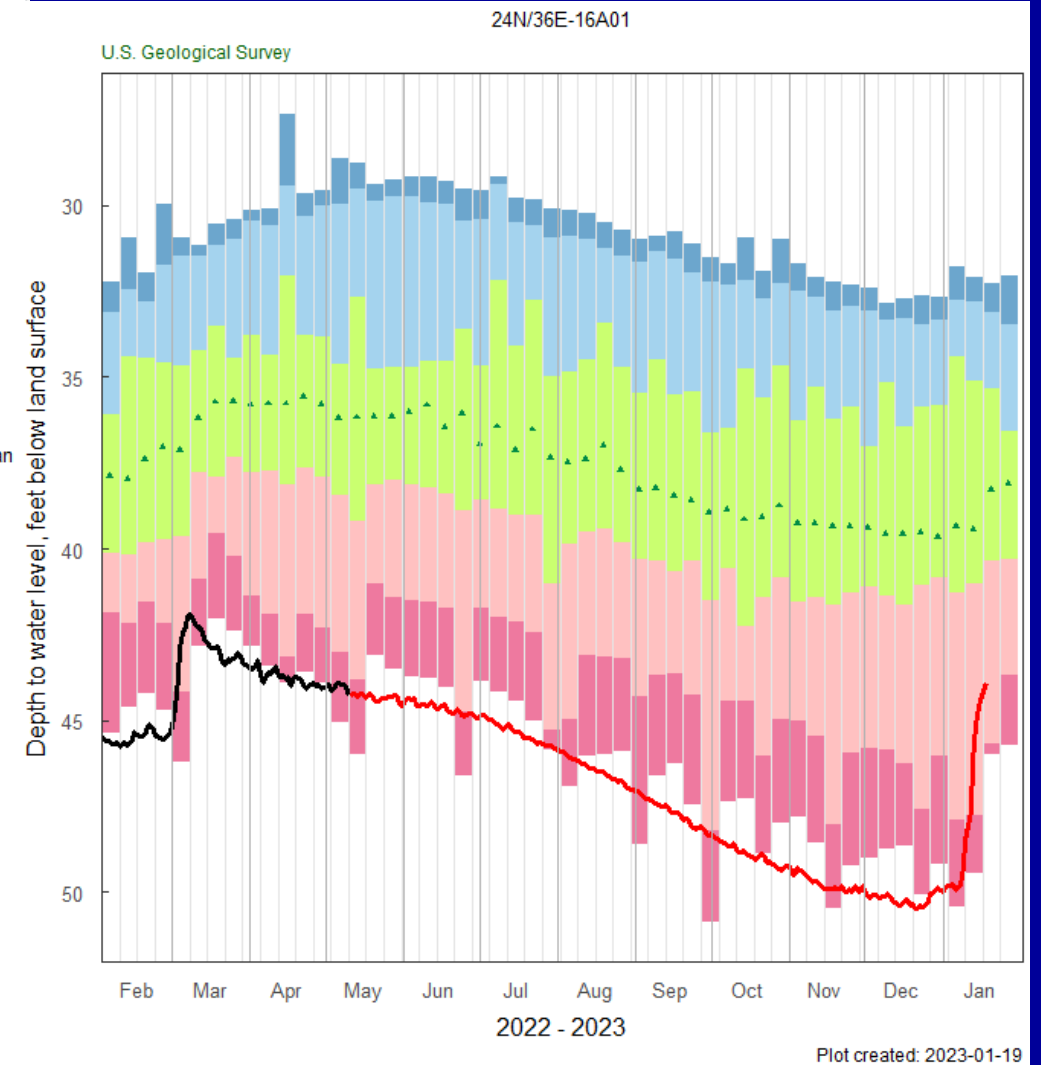


WA Current Groundwater Condition (19 Jan. 2023)

Scatter Creek well



Davenport well

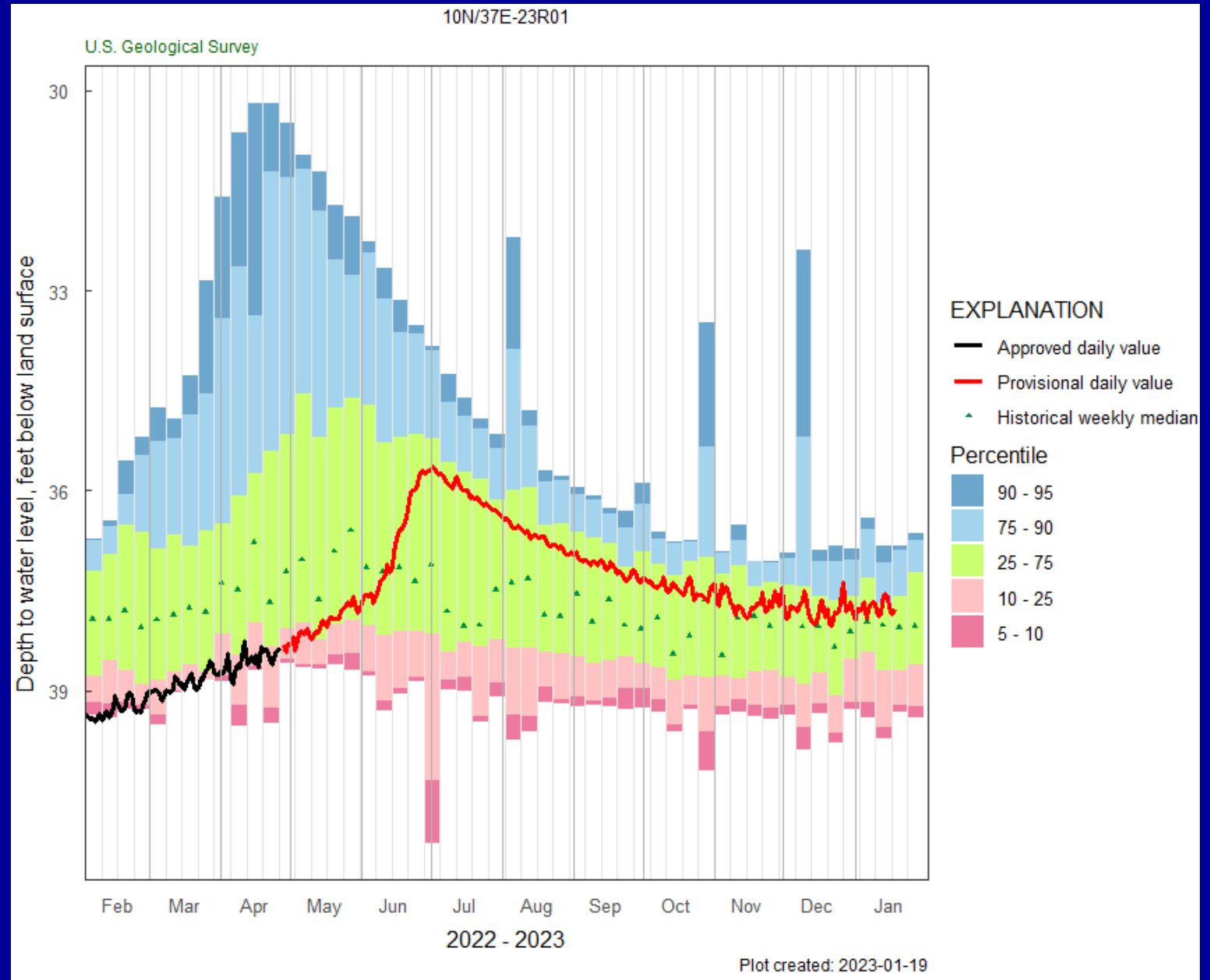


WA Current Groundwater Conditions (19 Jan. 2023)

Whetstone well near Waitsburg

(461935118081501)
in Columbia County
(10N/37E-23R01)

- 172.5-ft deep
- Grande Ronde Basalt Formation



Summary of Washington Streamflow & GW conditions as of 19 Jan. 2023

- 7-day average streamflow statewide is normal
- 7-day average streamflow at eight index gaging stations:

Northern WA

- Quinault River – Much Above Normal
- NF Nooksack River – Much above Normal
- Hangman Creek – Above Normal

Southern WA

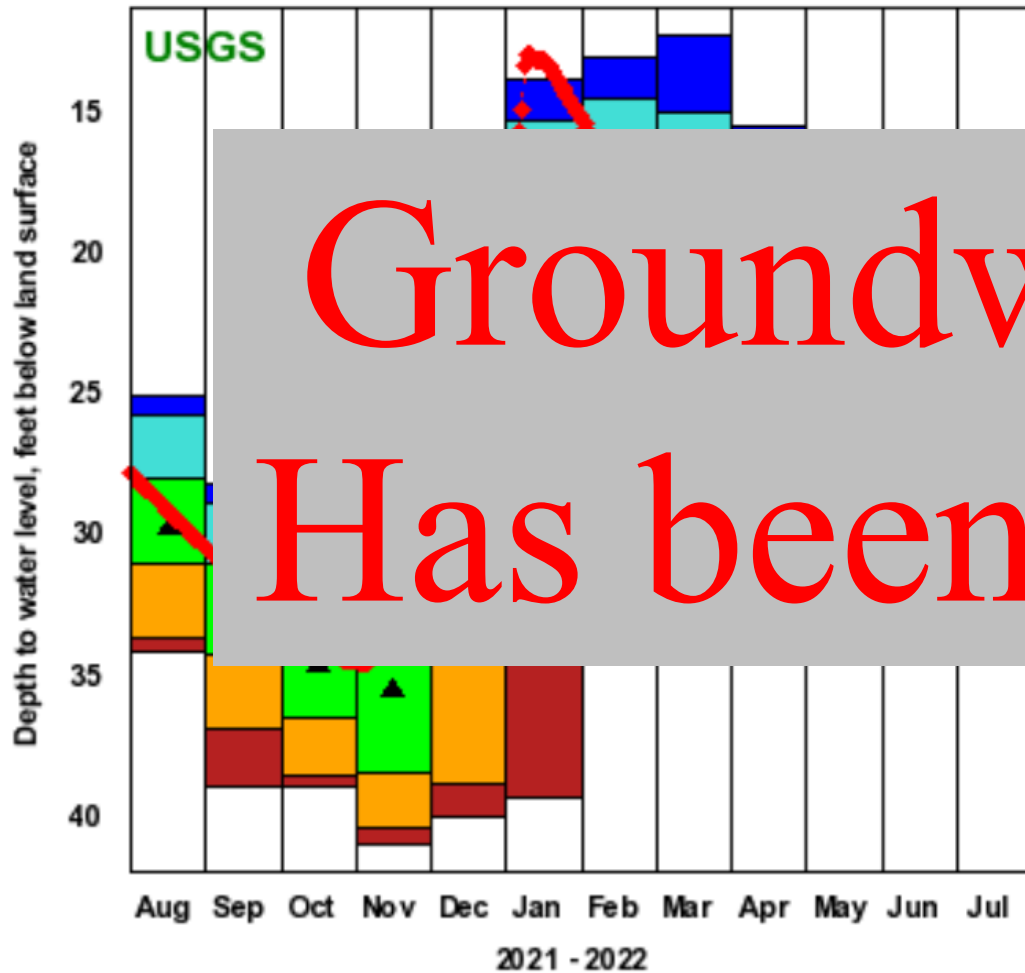
- Chehalis River nr. Grand Mound – Normal
- Puyallup River nr. Orting – Normal
- Walla Walla River – Normal
- EF Lewis River – Normal
- American River - Iced Over

- Index groundwater sites: **(below normal)**
 - Scatter Creek well (west) – Normal
 - Davenport well (east) – Below normal
 - Waitsburg well - Normal

WA Current Groundwater Condition

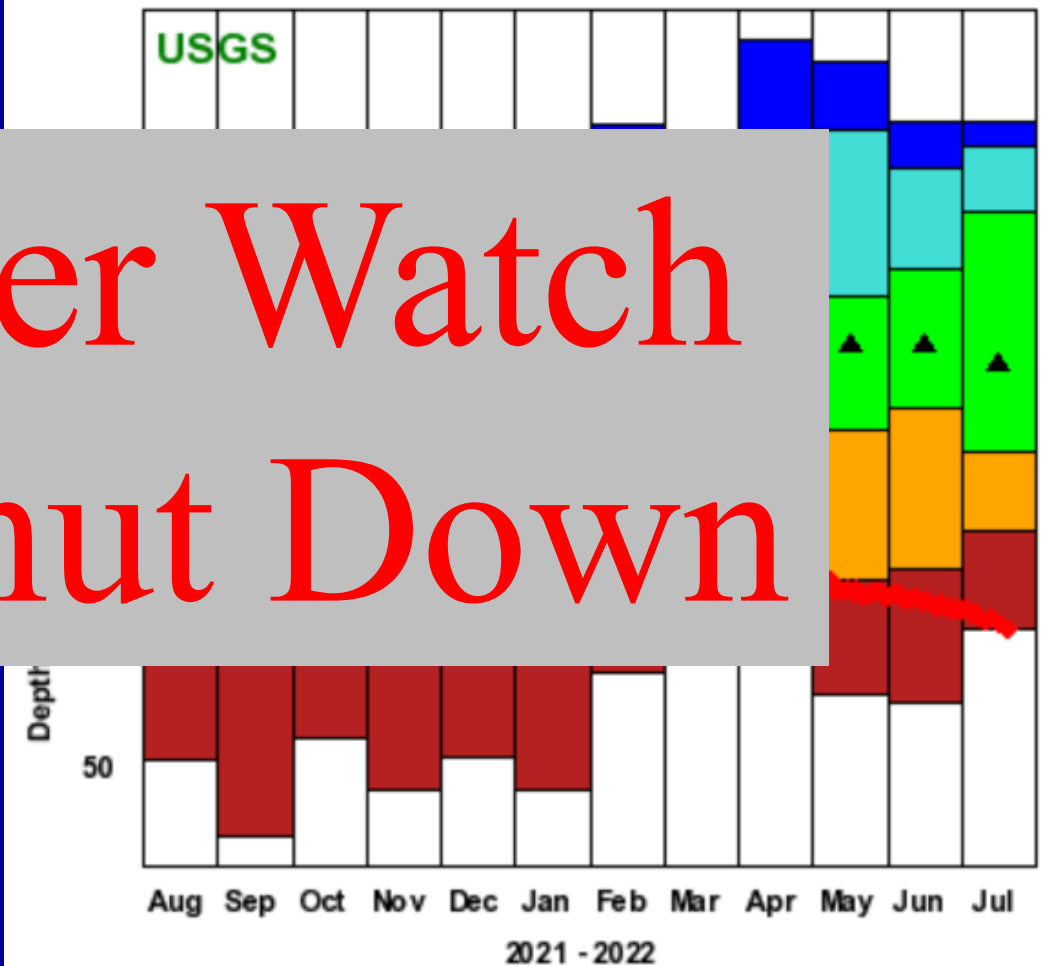
Scatter Creek well

465033122570202 - 16N/02W-29L02P2



Davenport well

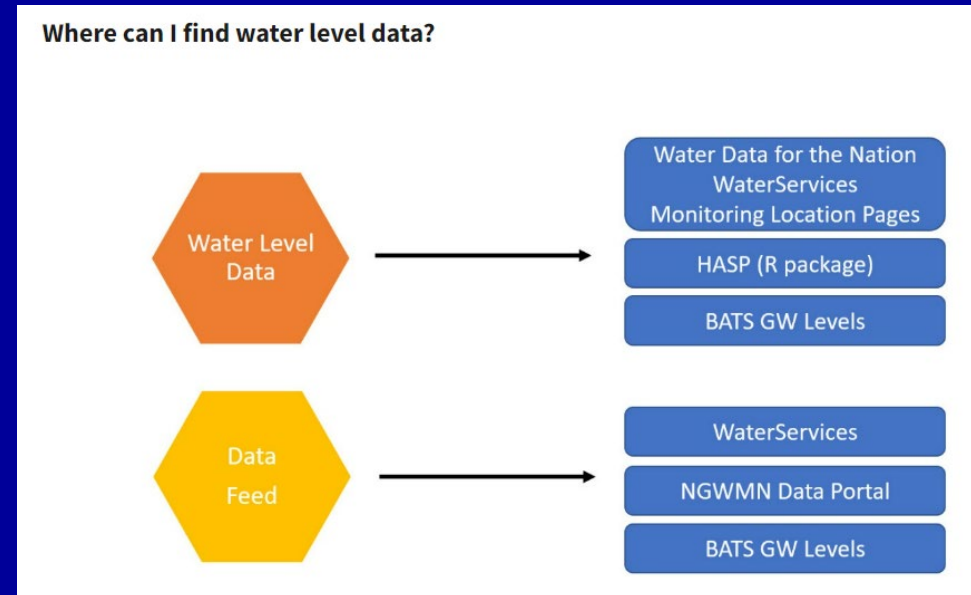
473442118162201 - 24N/36E-16A01



Groundwater Watch
Has been Shut Down

Other Groundwater Resources

- Groundwater Watch (usgs.gov)



- Climate Response Network - USGS Water Data for the Nation
- National Ground-Water Monitoring Network (usgs.gov)

National Ground-Water Monitoring Network

>> NGWMN NETWORKS

>> FILTER MAP DATA

>> Principal Aquifer

>> Available Data

>> Site Type

>> State and County

Mississippi

Montana

Nebraska

Nevada

New Hampshire

New Jersey

New Mexico

New York

North Carolina

North Dakota

Ohio

Oklahoma

Oregon

Pennsylvania

Puerto Rico

Rhode Island

South Carolina

South Dakota

Tennessee

Texas

Utah

Vermont

Virginia

Virgin Islands

Washington

West Virginia

Wisconsin

Wyoming

>> Contributing Agency

>> Aquifer Characteristics

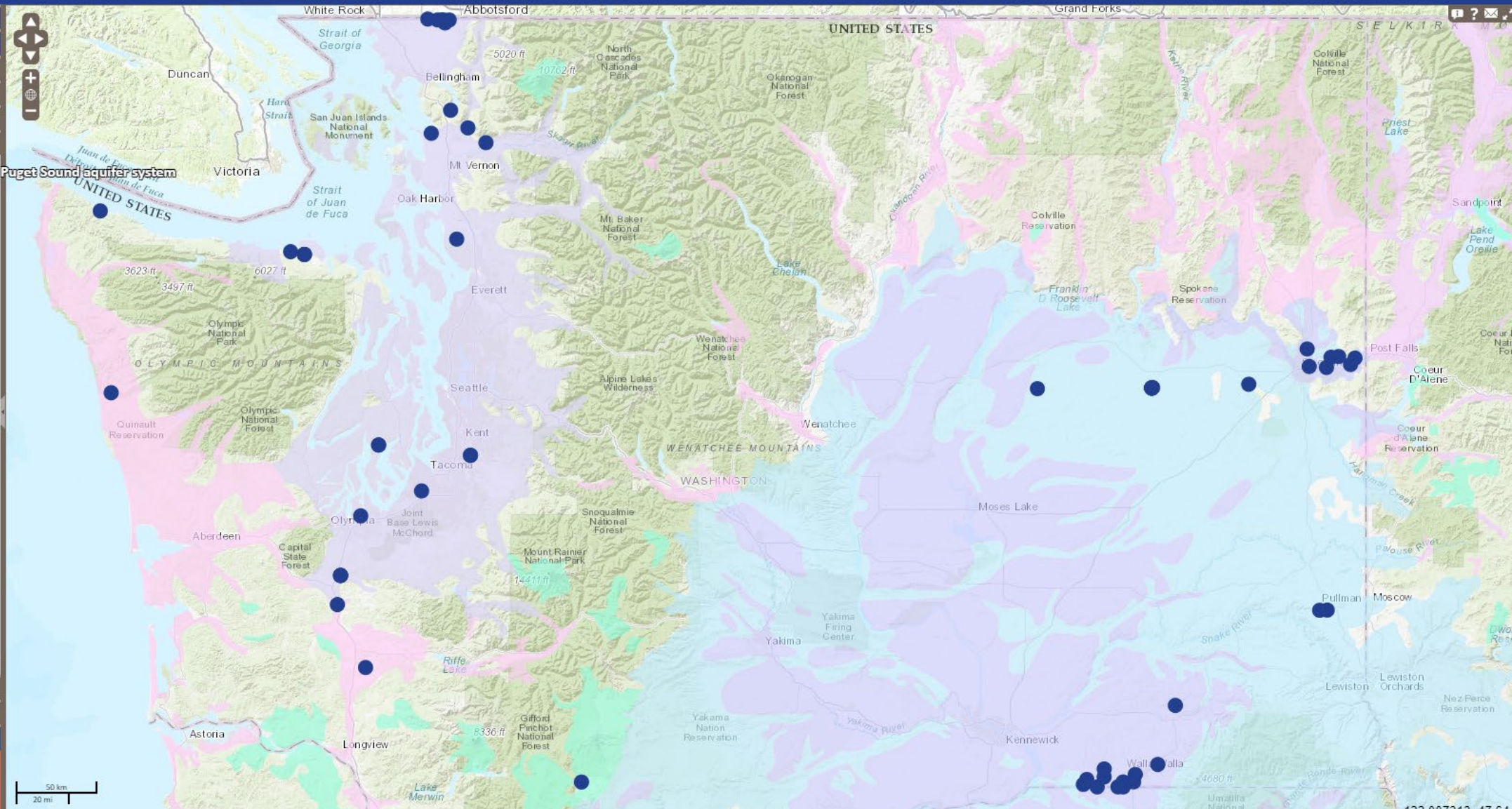
CURRENT STATUS

61 Sites mapped

61 Sites matching filter

61 Water-level network wells

6 Water-quality network wells

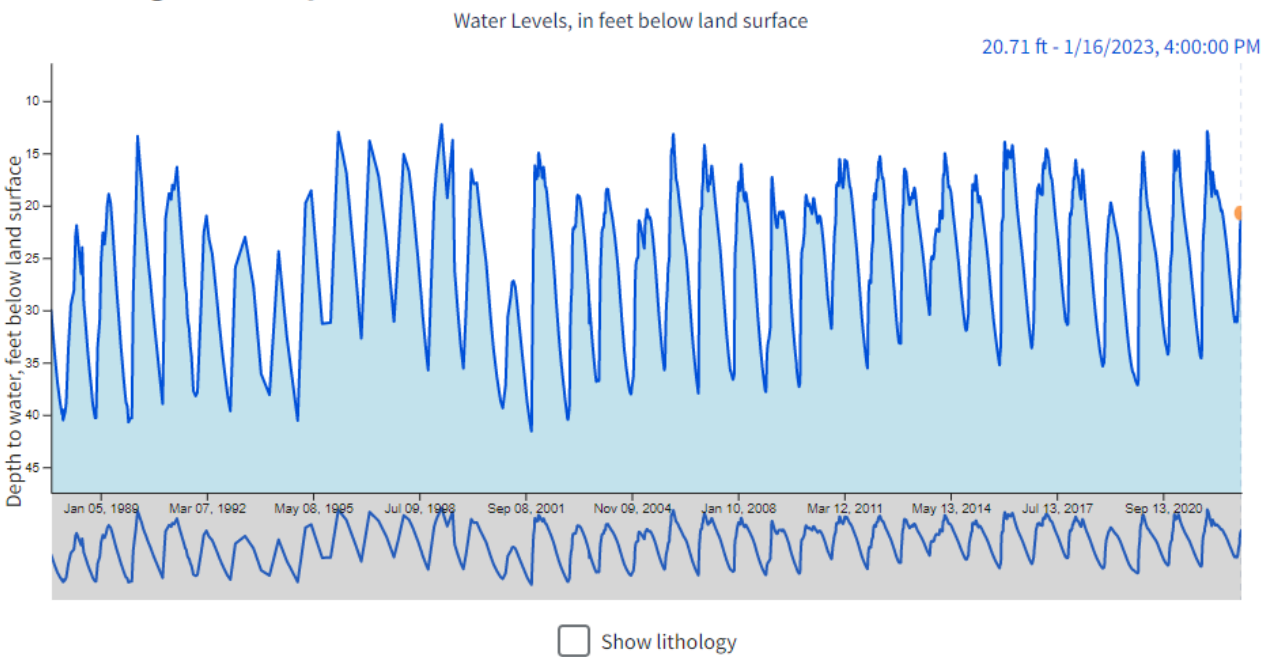


<https://cida.usgs.gov/ngwmn/index.jsp>

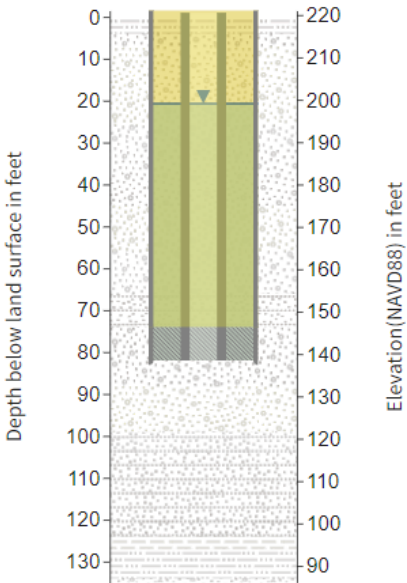


National
Ground-Water
Monitoring Network

16N/02W-29L02P2
U.S. Geological Survey



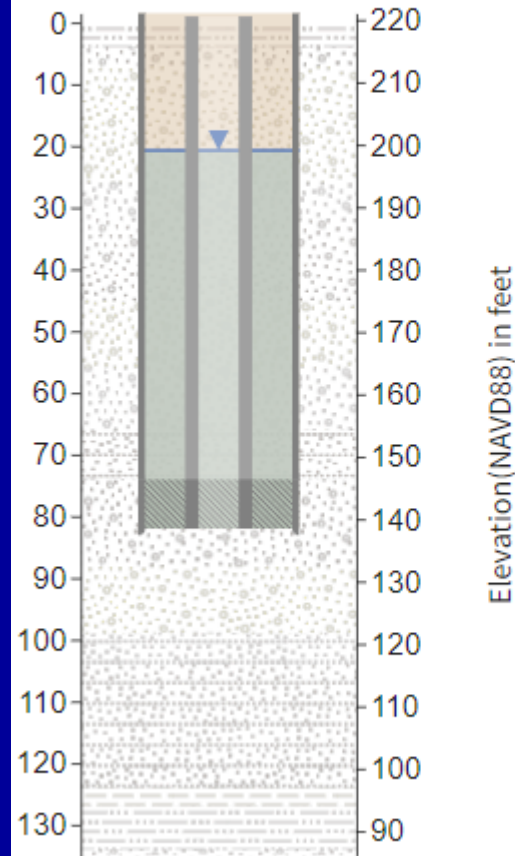
Located in Thurston County, Washington, this groundwater monitoring location is associated with a water well in the Puget Sound aquifer system.



Well Construction		Detailed Lithology
All	ScreensCasings	
Depth		Description
	-1.0-82.0 ft	2.0 in diameter pvc or plastic casing
	-1.5-74.0 ft	6.0 in diameter steel casing
	74.0-82.0 ft	6.0 in diameter steel screen

- Summary
- Water Quality
- Water Levels
- Water Level Statistics

Located in Thurston County, Washington, this groundwater monitoring location is associated with a water well in the Puget Sound aquifer system.



Well Construction		Detailed Lithology
Depth	Lithology	Description
0.0-4.0 ft	Soil	Soil
4.0-7.0 ft	Gravel	Gravel
7.0-26.0 ft	Gravel	Gravel
26.0-32.0 ft	Gravel	Gravel
32.0-43.0 ft	Gravel	Gravel
43.0-45.0 ft	Gravel	Gravel
45.0-56.0 ft	Gravel	Gravel
56.0-66.0 ft	Sand & Gravel	Sand & Gravel

<https://cida.usgs.gov/ngwmn/provider/USGS/site/465033122570202/>



Northwest River Forecast Center



Jan 20, 2023 Washington Water Supply Availability Meeting

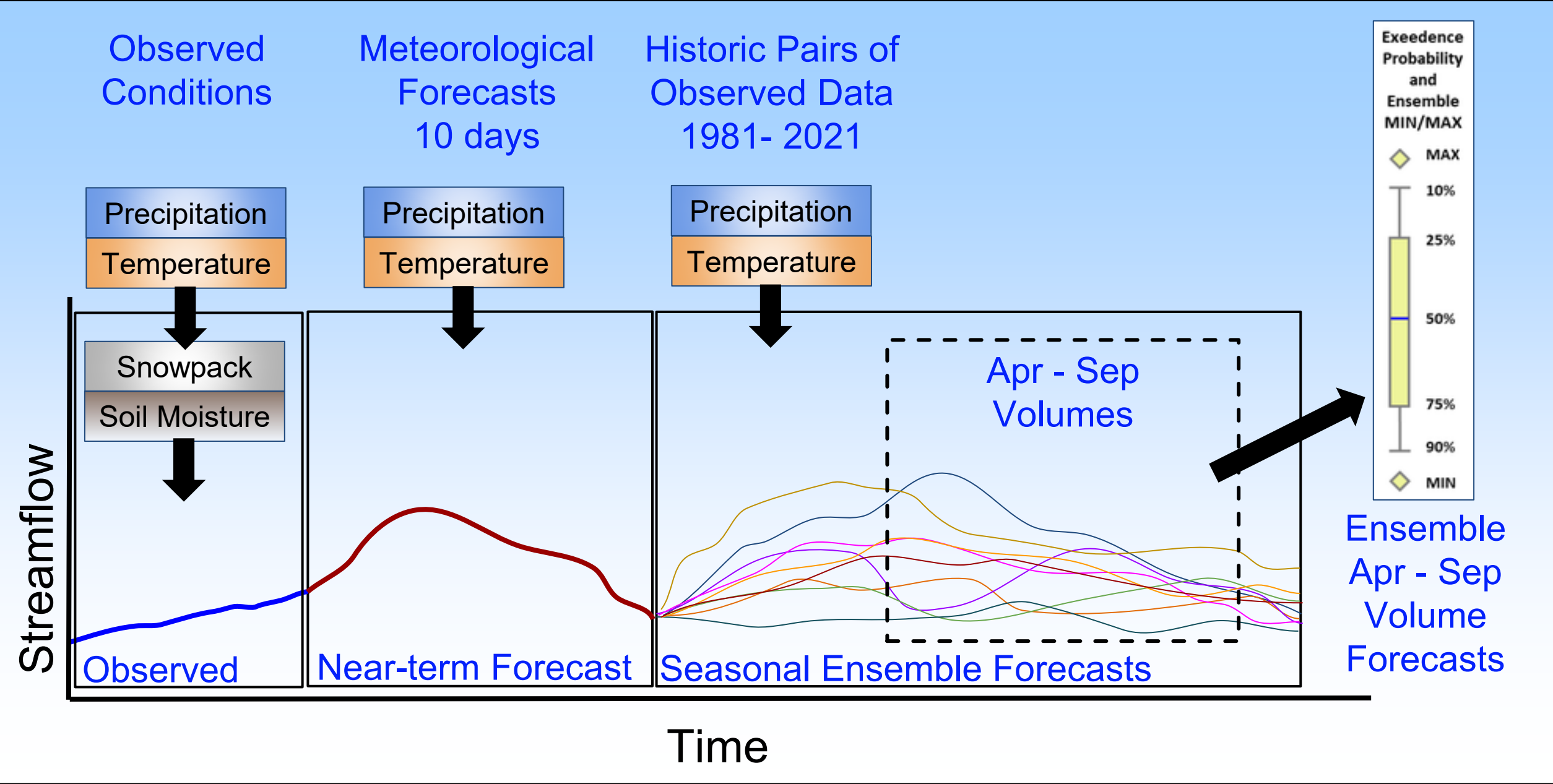


Geoffrey Walters, PE
NWRFC.watersupply@noaa.gov





NWRFC Forecast Technique





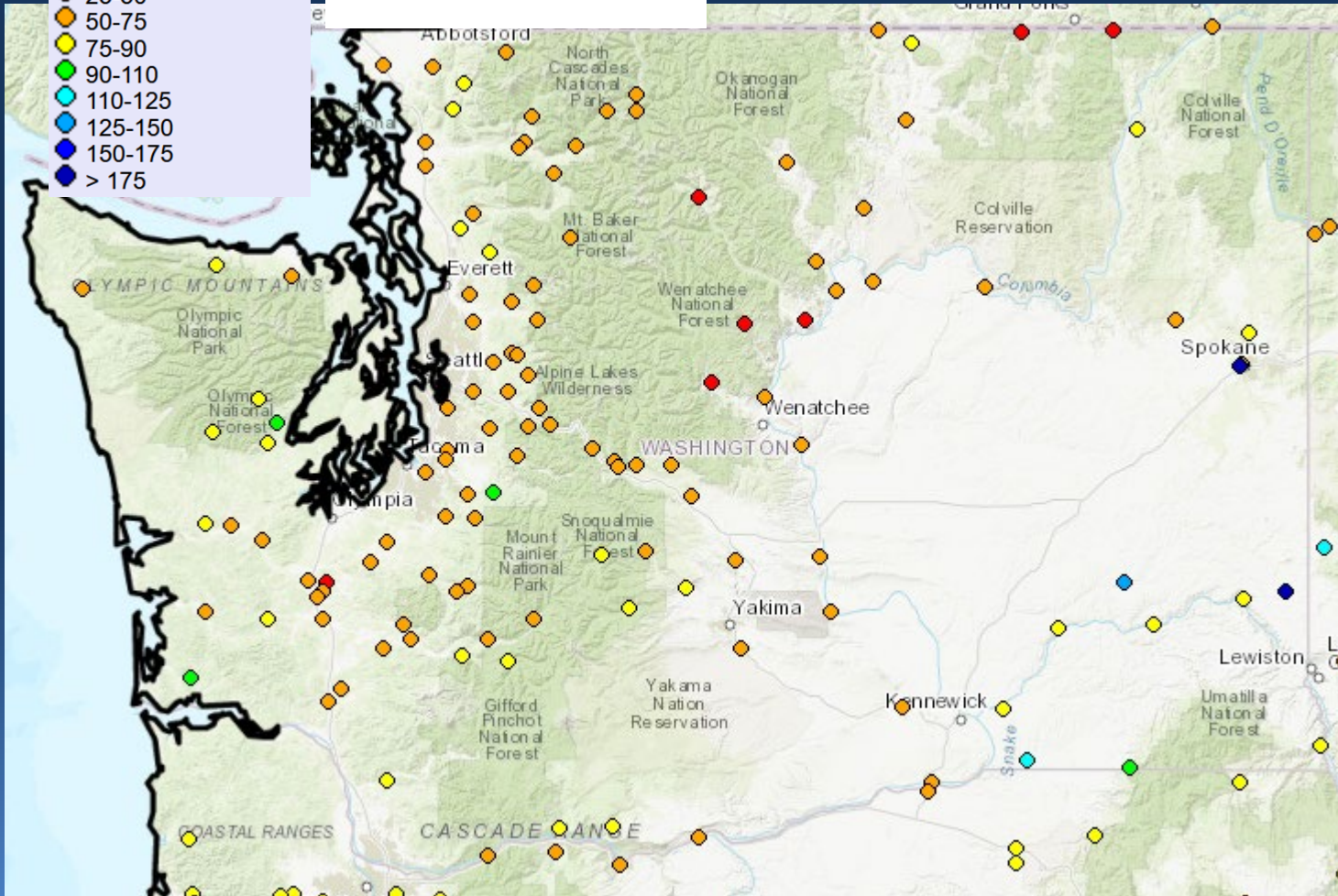
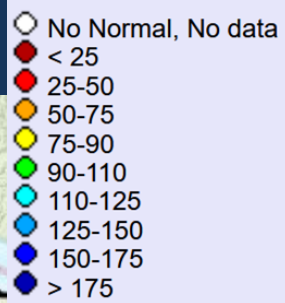
Take Home Messages

- Adjusted Runoff to date is below normal
- 10 day QPF forecast is below normal
- ESP10 Natural Water Supply is below normal
 - ESP Median traces have mostly stayed below normal through WY
 - The chances for normal WS conditions off of the east side of the cascades have decreased over the past 1.5 months
- It is still Early!



YTD Adjusted Runoff

Jan 19th 2023



% Normal Runoff Oct 1st – Jan 19th Washington

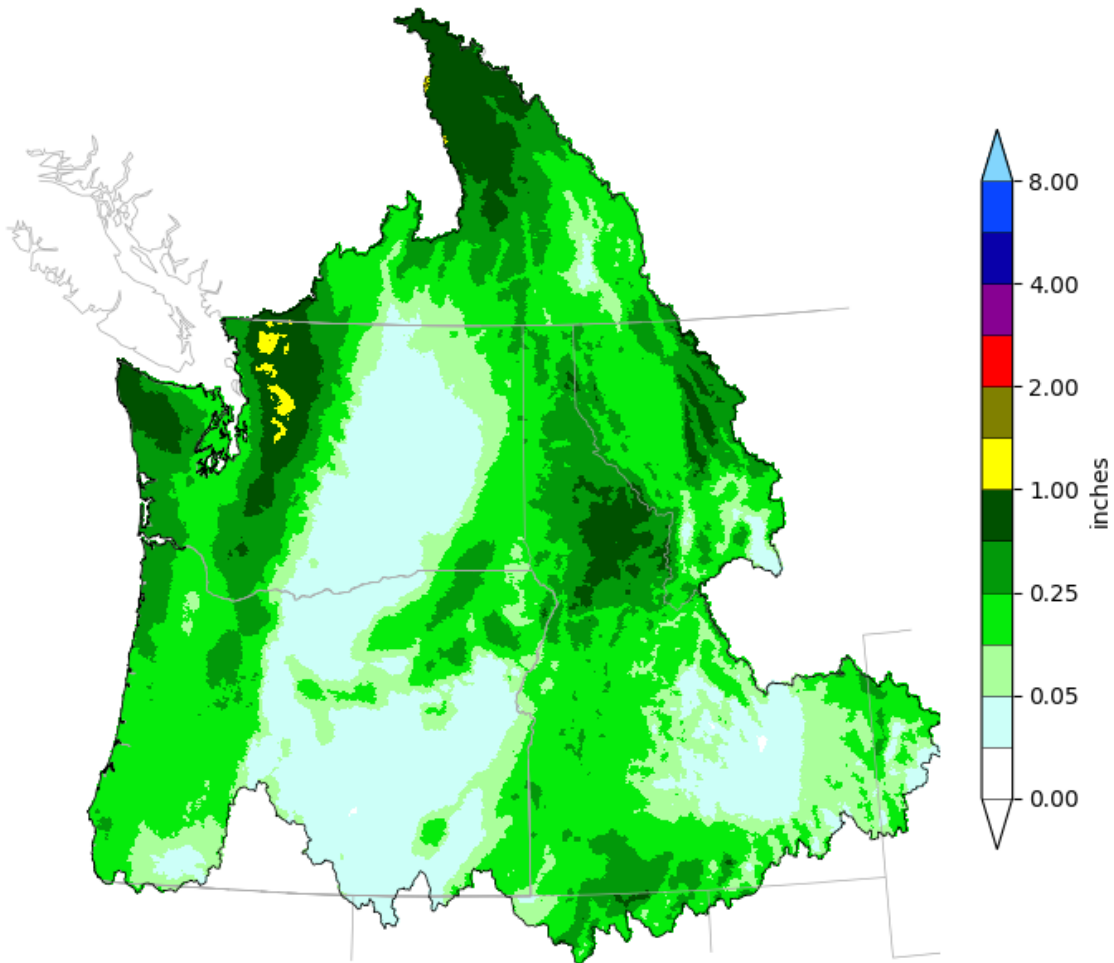
Skagit nr Mt Vernon	63
Dungeness nr Sequim	66
Chehalis at Porter	68
Okanogan at Malott	62
Methow nr Pateros	61
Yakima at Parker	71
Walla Walla nr Touchet	113



Precipitation Forecast (Jan 19-29)



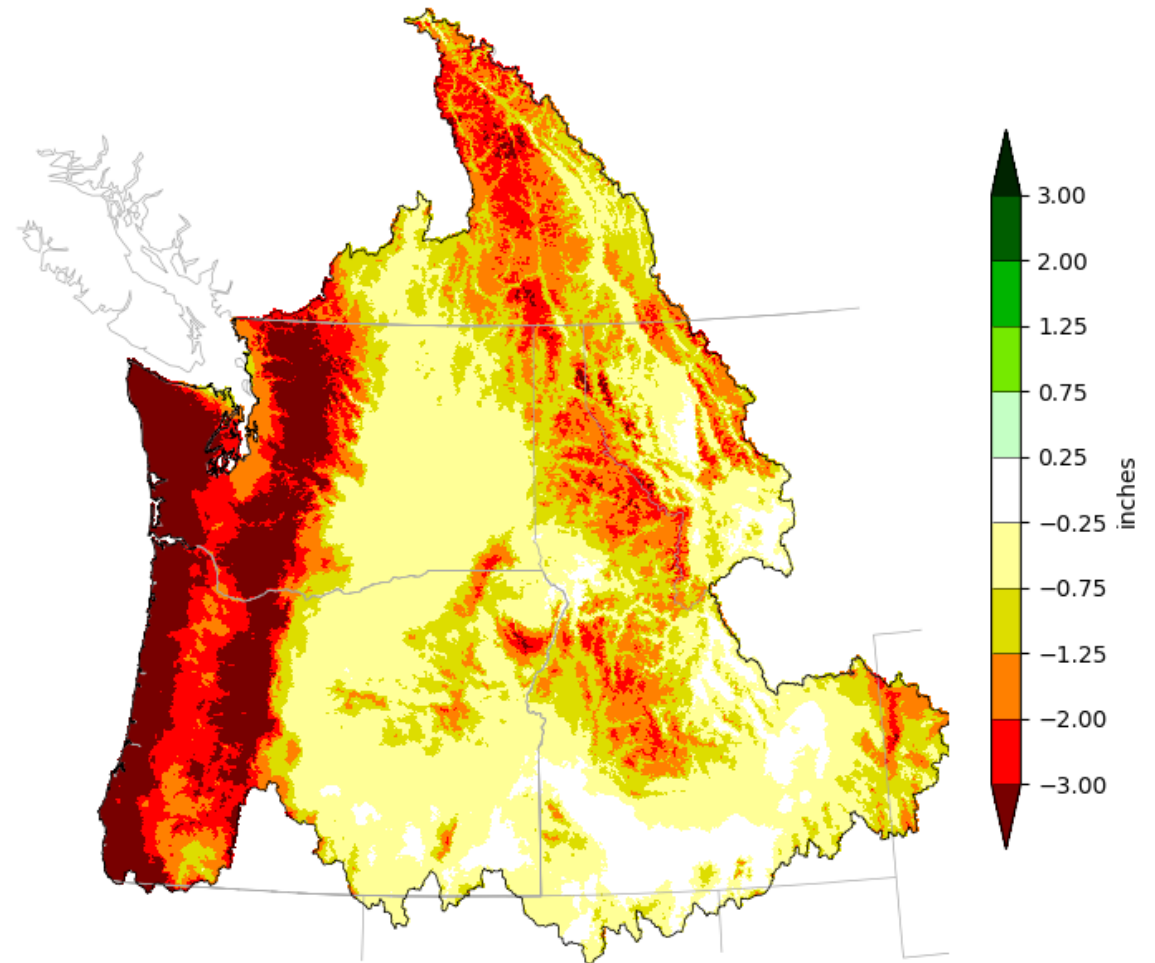
Northwest River Forecast Center
10 Day QPF, Ending 12Z, 01/29/23



Creation Time: Thu Jan 19 15:14:21 UTC 2023



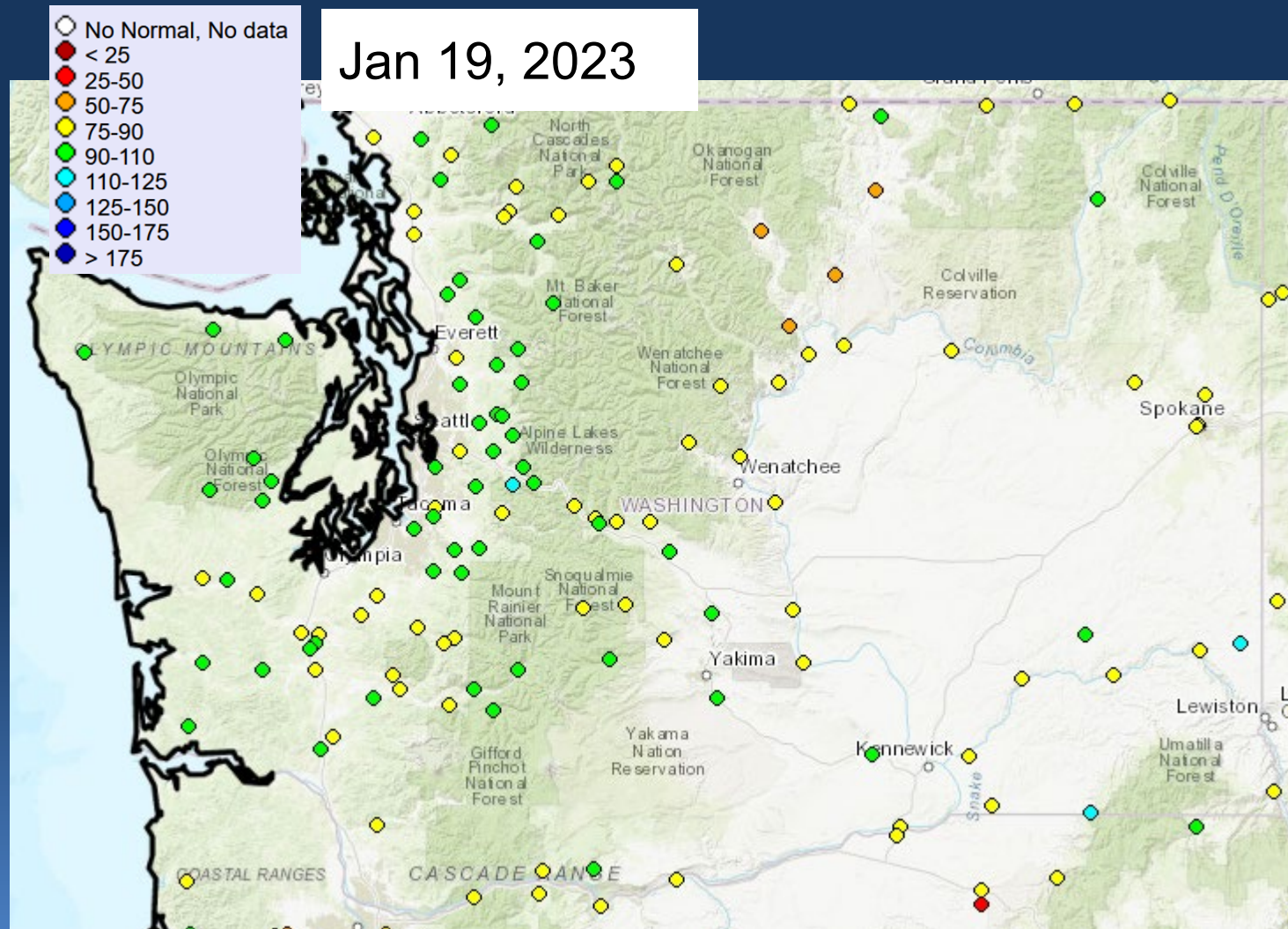
Northwest River Forecast Center
10 Day QPF (Deviation from Climatology), Ending 12Z, 01/29/23



Creation Time: Thu Jan 19 15:16:05 UTC 2023



ESP10 Natural Water Supply Forecasts



% Normal Apr -Sep Volume

Washington

Skagit nr Mt Vernon	89
Dungeness nr Sequim	92
Chehalis at Porter	89
Okanogan at Malott	72
Methow nr Pateros	72
Yakima at Parker	92
Walla Walla nr Touchet	85



ESP10 Apr-Sep Nat Water Supply Forecasts

DUNGENESS - NEAR SEQUIM (DRSW1) Forecasts for Water Year 2023

Natural Forecast

ESP with 10 Days QPF Ensemble: 2023-01-19 Issued: 2023-01-19

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	103	134	92	174	145
APR-JUL	89	115	94	142	121
JAN-SEP	159	200	91	250	219
JAN-JUL	144	181	92	220	195
OCT-SEP	199	240	83	290	288

Experimental

HEFS with 15 days EQPF Ensemble: 2023-01-19 Issued: 2023-01-19

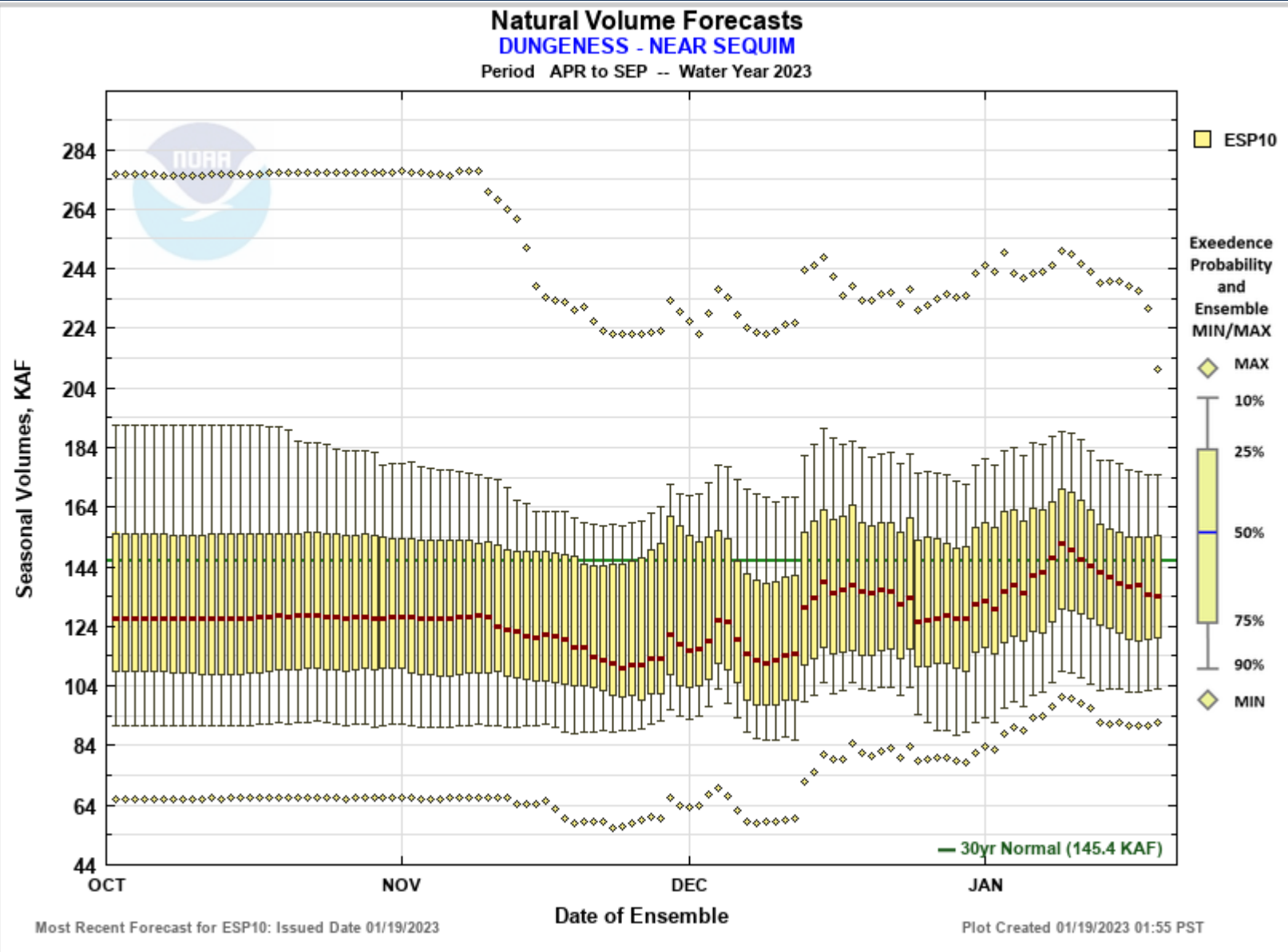
APR-SEP	101	134	92	174	145
APR-JUL	87	114	93	142	121
JAN-SEP	153	200	91	246	219
JAN-JUL	138	181	93	220	195
OCT-SEP	193	240	84	286	288

Reference

ESP with 0 Days QPF Ensemble: 2023-01-19 Issued: 2023-01-19

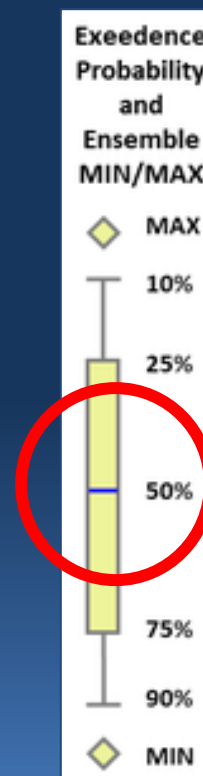
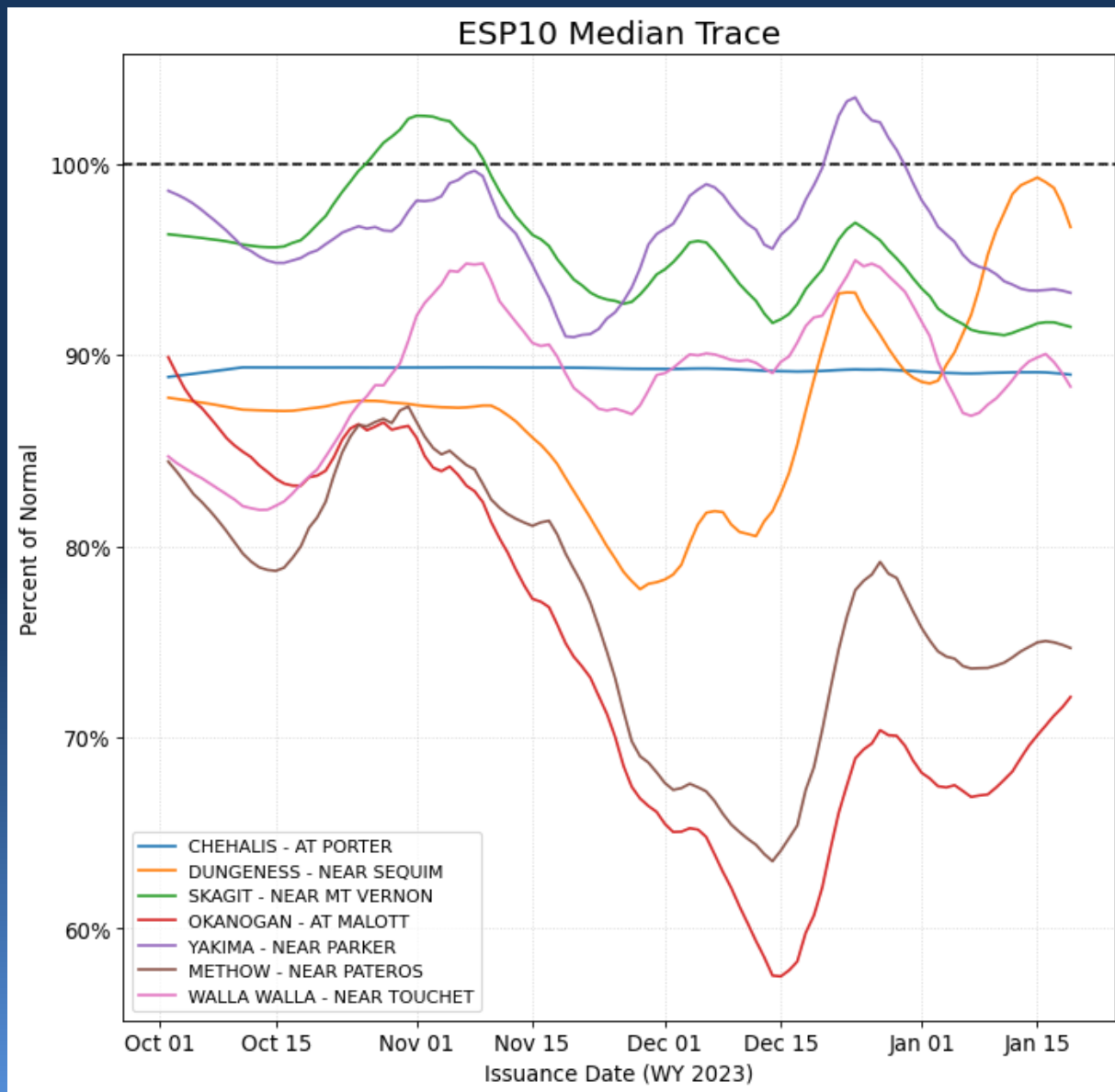
APR-SEP	102	143	99	182	145
APR-JUL	88	118	97	150	121
JAN-SEP	163	220	100	270	219
JAN-JUL	147	192	99	247	195
OCT-SEP	203	280	90	310	288

Move the mouse over the desired "Forecast Period" to display a graph.



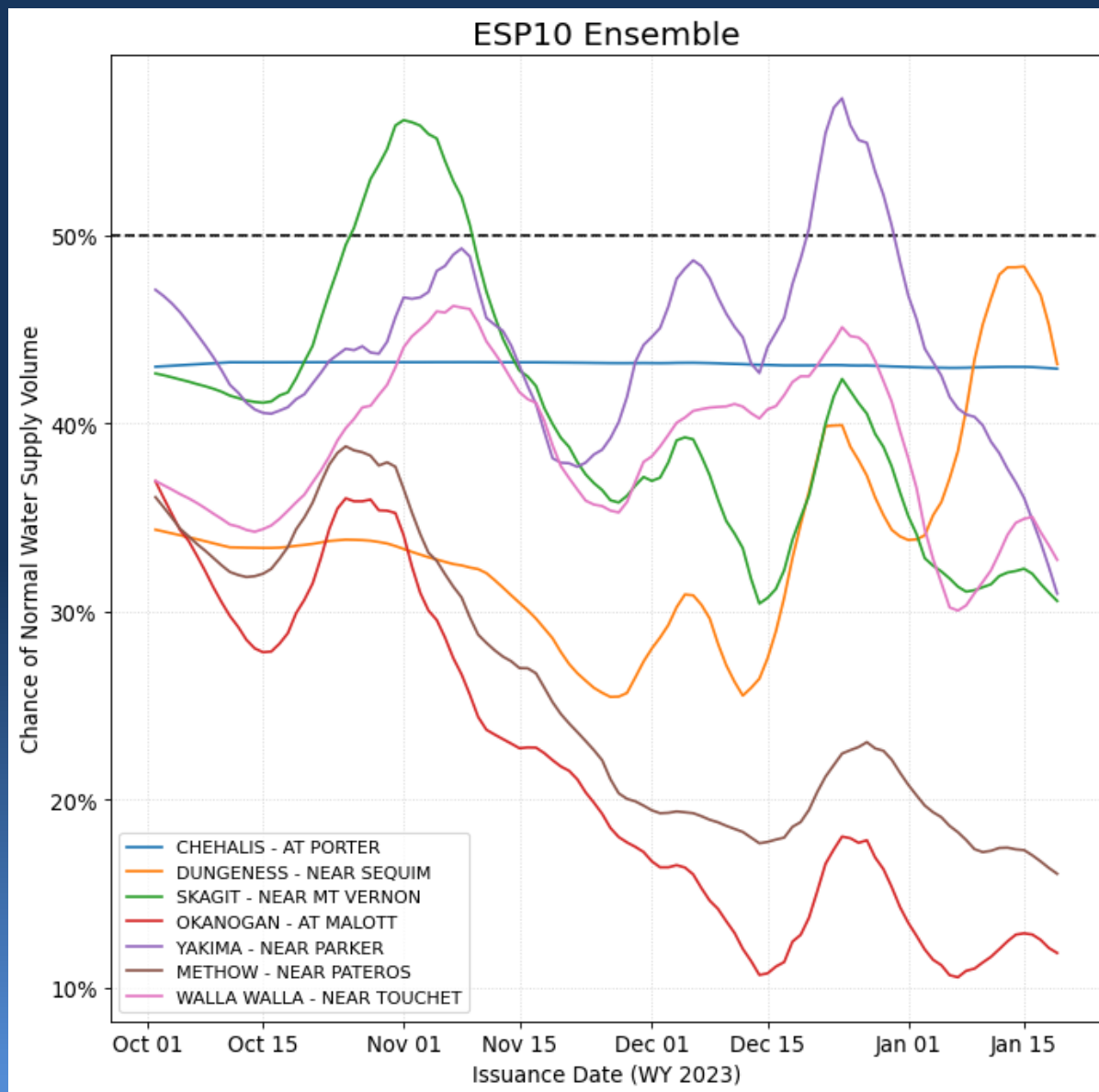


ESP10 Apr-Sep Nat Water Supply Forecasts

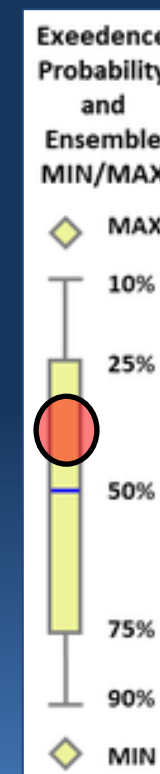




ESP10 Apr-Sep Nat Water Supply Forecasts

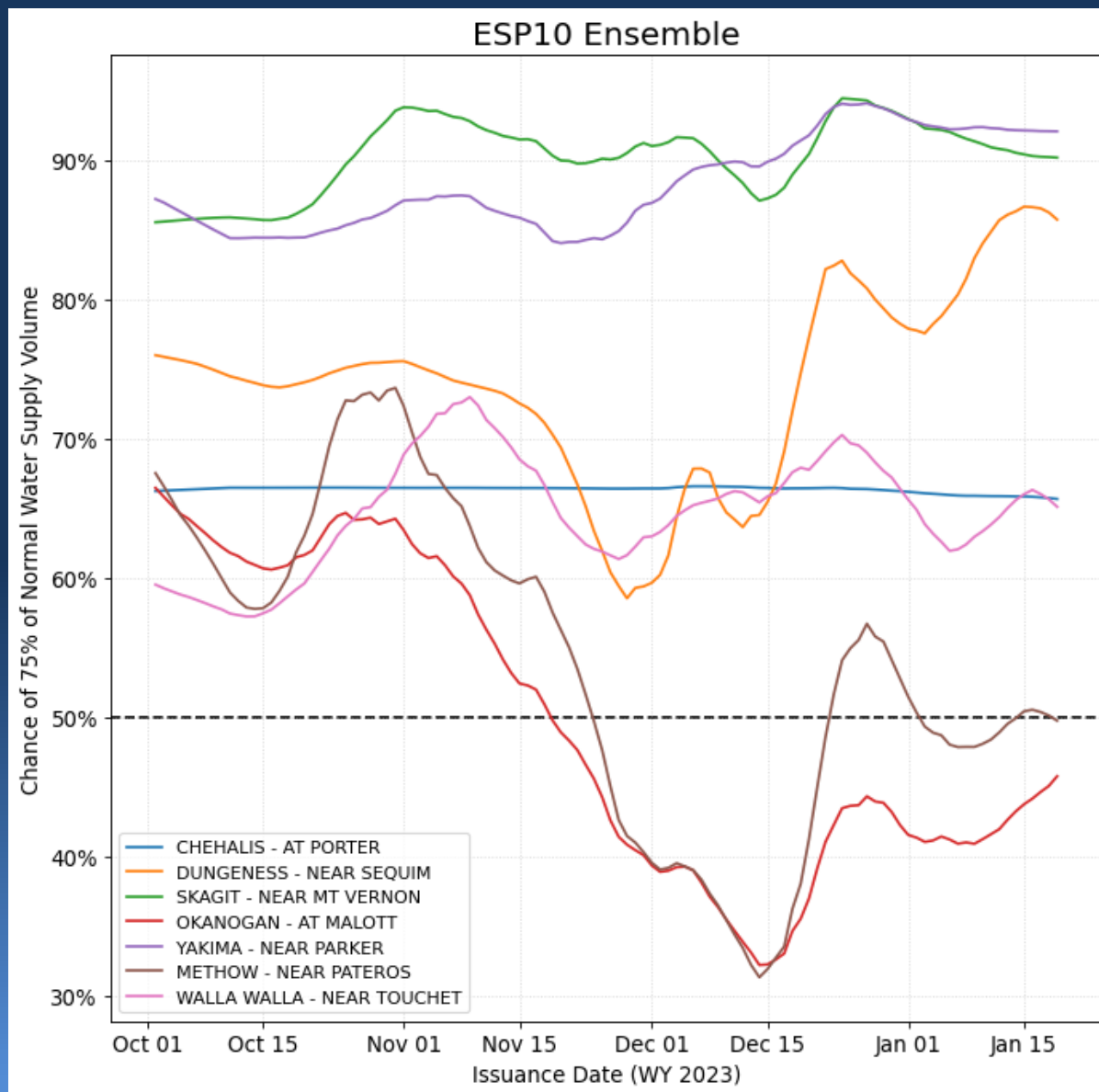


Normal
Apr-Sep
Volume

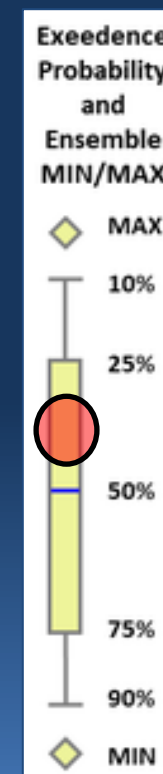




ESP10 Apr-Sep Nat Water Supply Forecasts



.75*Normal
Apr-Sep
Volume





Take Home Messages

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- It is still Early!



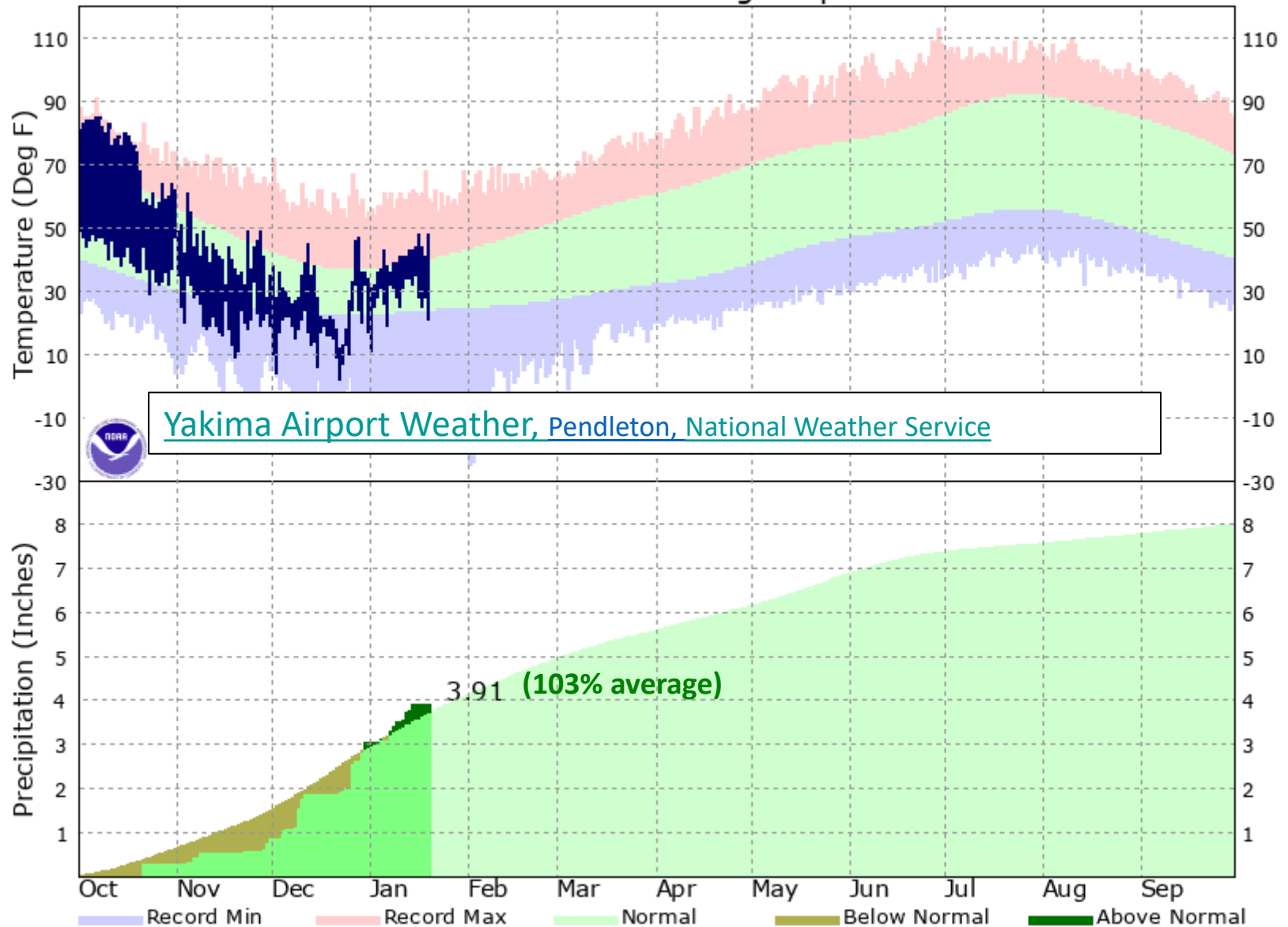
— BUREAU OF —
RECLAMATION

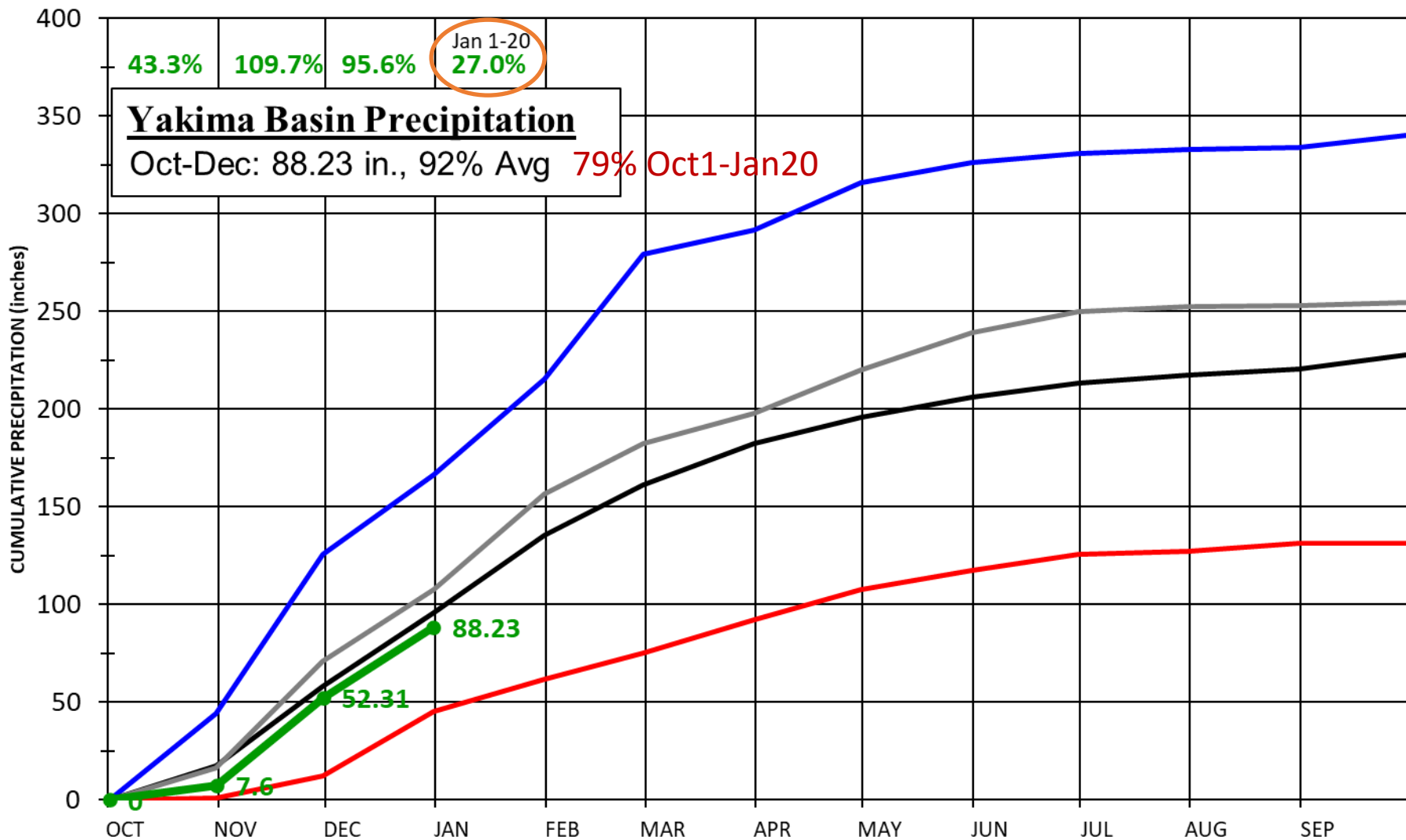
Yakima Basin for Wa Water Supply Availability Meeting

Yakima Basin, Washington

Jan 20, 2023, WY 2023

KYKM - Oct 2022 Through Sep 2023

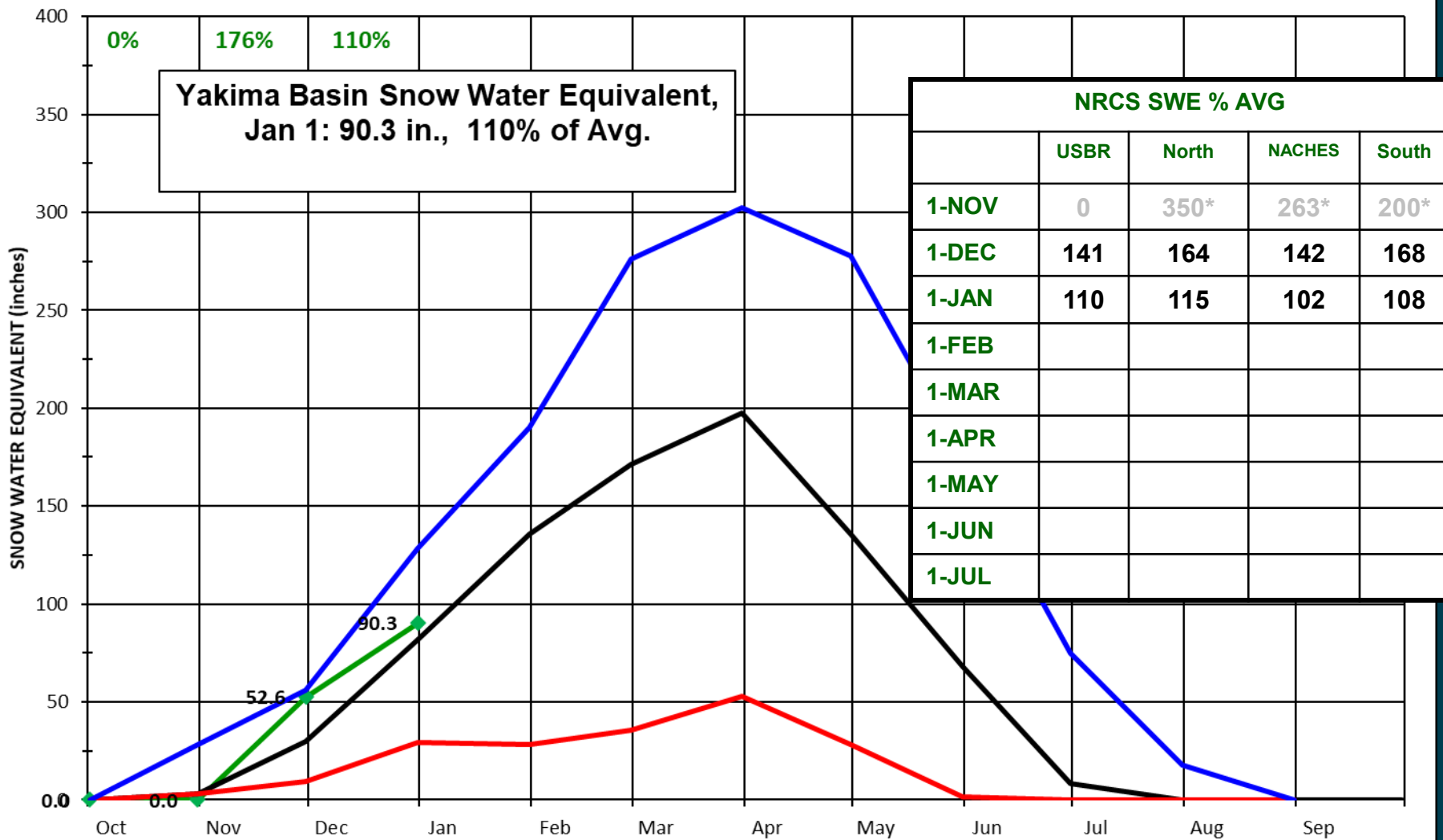




— Maximum — Average
 — Minimum — WY2022
 ● WY 2023

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



- ◆ Water Year 2023
- Average
- Low Year (2005)
- High Year (1999)

YAKIMA BASIN WATER YEAR SNOW WATER EQUIVALENT

Average based on greater of 1981-2010 or POR-1995
Totals derived from 8 Yakima forecast sites
Corral, Stampede, Olallie, Fish, Bumping, Domerie, & Tunnel Avenue

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

SNOW WATER EQUIVALENT IN YAKIMA

Reset Range

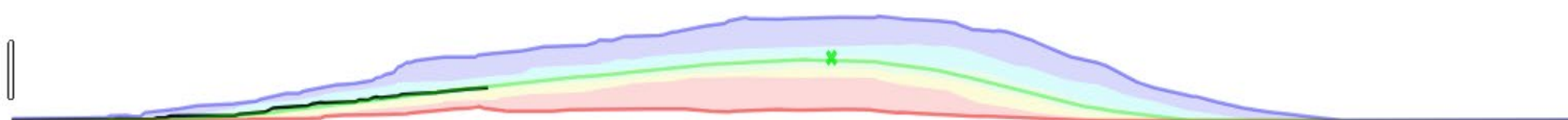
[Link to data: CSV / JSON](#)

[Station List](#)

Current as of 01/20/2023:
% of Median - 95%
% Median Peak - 52%
Days Until Median Peak - 80
Percentile - 43

Snow Water Equivalent (in.)

- ✕ Median Peak SWE
- Max
- Median (POR)
- Median ('91-'20)
- Min
- Stats. Shading
- 2023 (17 sites)
- 2022 (17 sites)
- 2021 (16 sites)
- 2020 (17 sites)
- 2019 (17 sites)
- 2018 (16 sites)
- 2017 (17 sites)
- 2016 (17 sites)
- 2015 (17 sites)
- 2014 (17 sites)
- 2013 (17 sites)
- 2012 (17 sites)
- 2011 (17 sites)
- 2010 (17 sites)
- 2009 (16 sites)
- 2008 (16 sites)
- 2007 (16 sites)
- 2006 (14 sites)
- 2005 (14 sites)
- 2004 (14 sites)
- 2003 (14 sites)
- 2002 (14 sites)

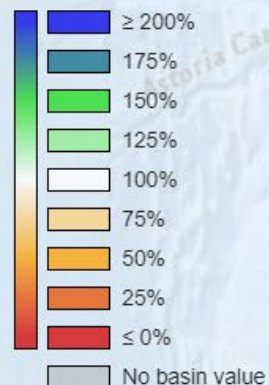


Selected Stations: 331

Print/Export



**Snow Water Equivalent
Percent NRCS 1991-2020
Average**
January 19, 2023, end of day



- ⊖ Observation Missing
- ⊕ Average is zero
- ⊗ Average missing

Watershed Boundaries

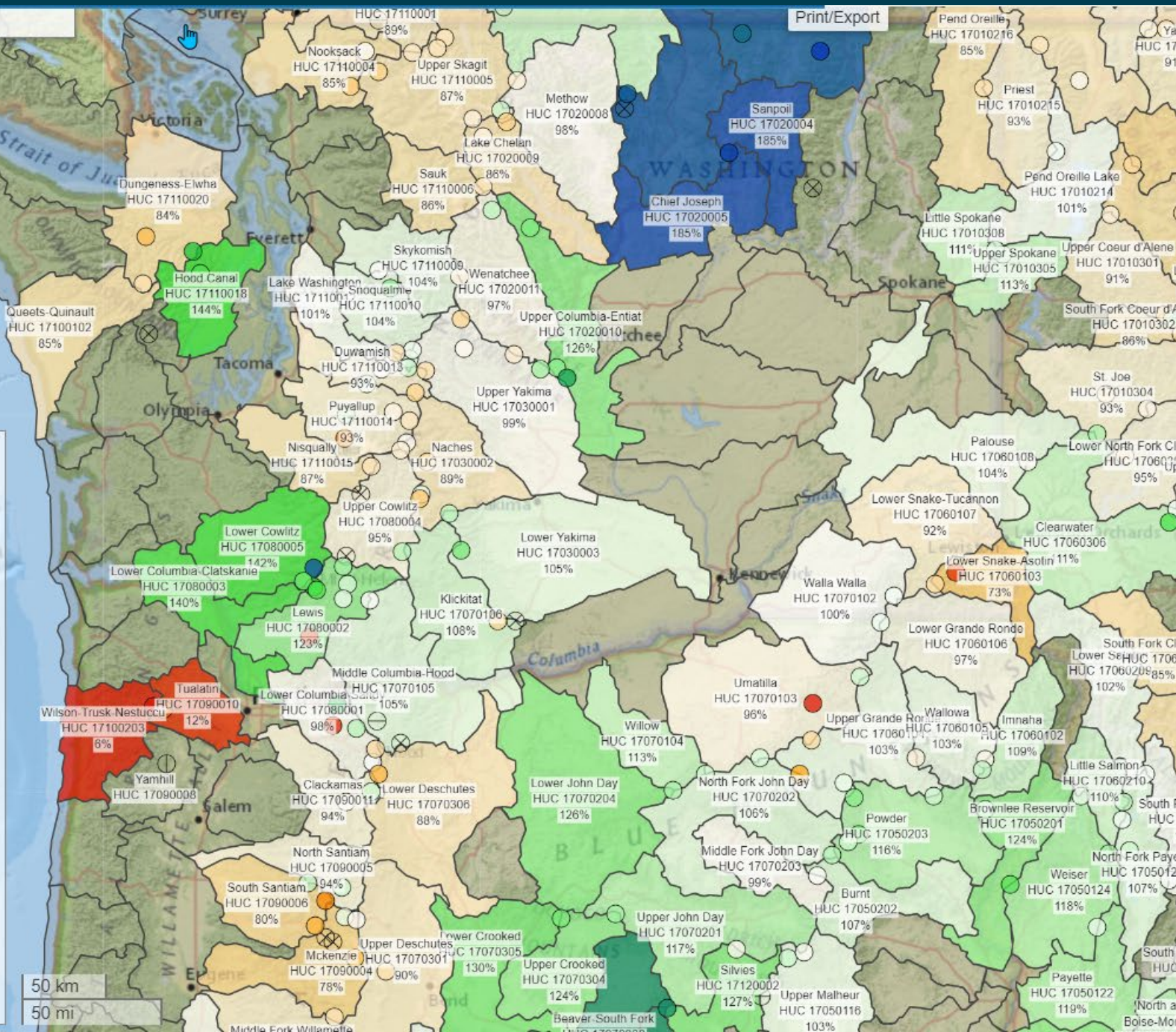
— Subbasin (8-Digit HUC)

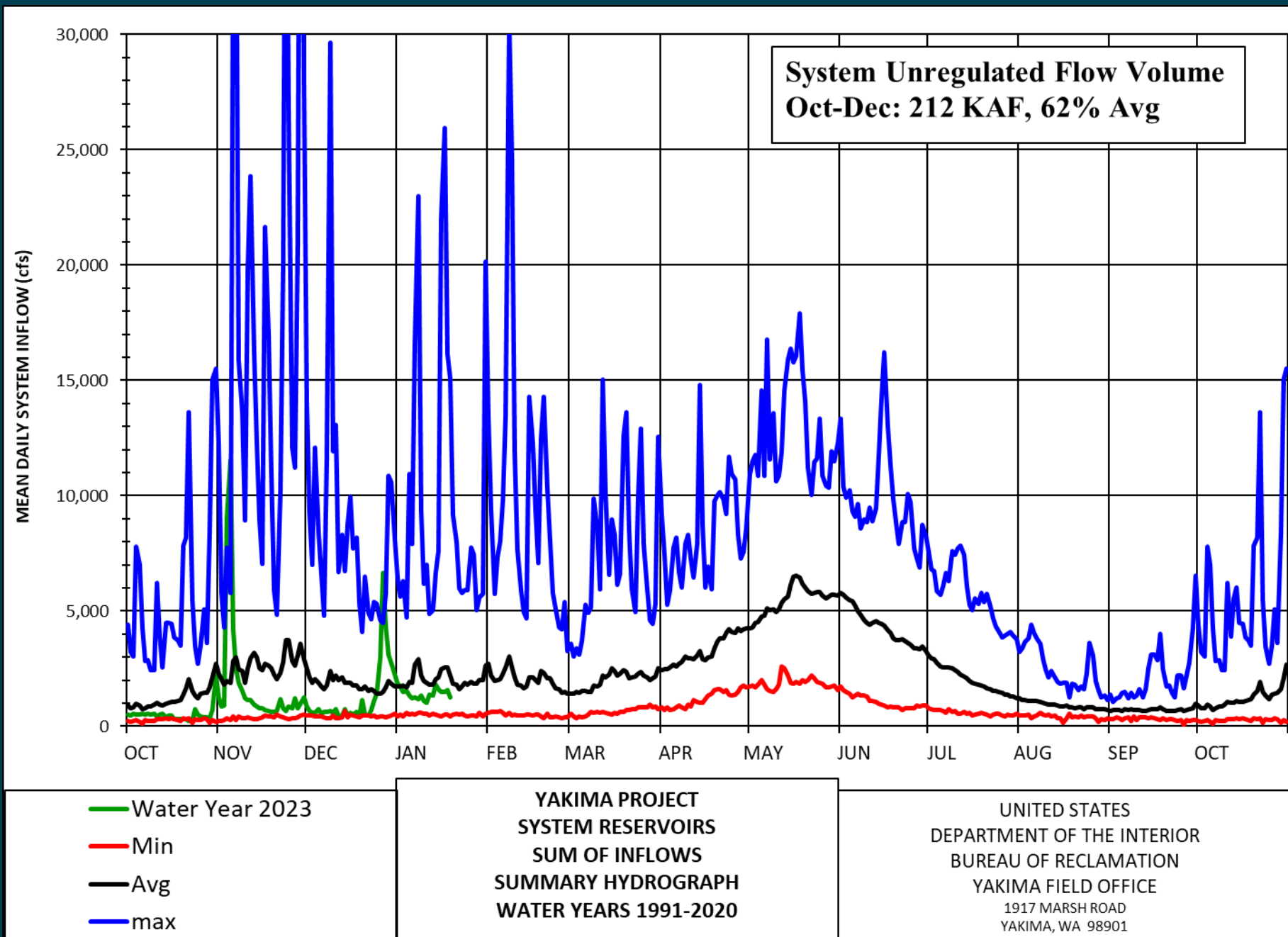
NRCS Natural Resources
Conservation Service

Created 1-20-2023, 08:52 AM PST

50 km

50 mi





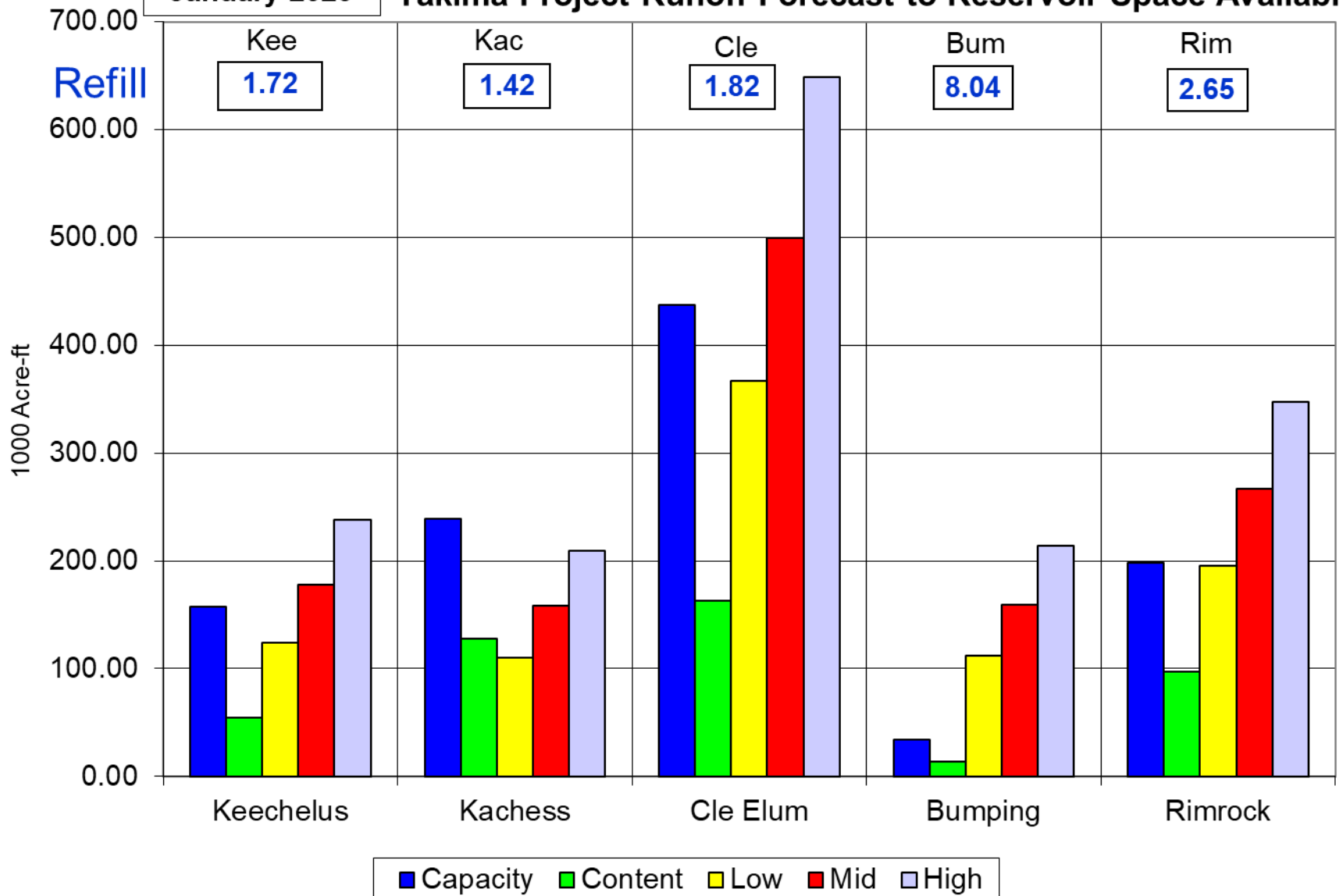
Yakima Subbasin forecasts

Yakima Basin Forecasts, Jan-Jul, AF						
January 1, 2023	Min	Composite	Max	Min	Composite	Max
Parw	1789286	2609874	3528796	69%	101%	137%
kee	124166	177484	237965	70%	100%	134%
kac	109781	158594	209740	69%	100%	133%
cle	367192	499679	648198	72%	98%	127%
bum	112254	159732	213876	71%	101%	135%
rim	195137	266972	347754	72%	99%	129%
Yumw	786521	1109829	1467817	70%	98%	130%
Nacw	669554	1011004	1369822	65%	98%	133%



January 2023

Yakima Project Runoff Forecast to Reservoir Space Available



Hydrologic Summary

- Low tributary flows and reservoir inflows
- Poor reservoir refill
- Low January Precip
- Below average snow