

[The Washington State Water Supply Availability Committee Meeting meets periodically to review current and forecasted water supply conditions for Washington State.](#)

Join Zoom Meeting

<https://waecy-wa-gov.zoom.us/j/9245850348?pwd=ckRlMFhBWj9keDNuL2JpOWkwb2FjQT09>

Meeting ID: 924 585 0348

Passcode: rainDance

One tap mobile

+12532050468,,9245850348#,,,,*024558771# US

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Dial by your location

+1 253 205 0468 US

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+1 346 248 7799 US (Houston)

+1 669 444 9171 US

+1 669 900 6833 US (San Jose)

+1 719 359 4580 US

+1 309 205 3325 US

+1 312 626 6799 US (Chicago)

+1 360 209 5623 US

+1 386 347 5053 US

+1 507 473 4847 US

+1 564 217 2000 US

+1 646 931 3860 US

+1 689 278 1000 US

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Meeting ID: 924 585 0348

Passcode: 024558771

Find your local number: <https://waecy-wa-gov.zoom.us/j/kdg5ckJMCq>

Water Supply Availability Committee

Friday, May 19				
Start Time	End Time	Duration, min	Description	
10:00	10:15	15	Welcome & Introductions	Jeff Marti, Ecology
10:15	10:30	15	Mountain Conditions	Scott Patte, NRCS
10:30	10:45	15	Regional Climate Setting/ ENSO	Karin Bumbaco & Nick Bond, OWSC
10:45	10:55	10	Streamflow and Groundwater	Nick Sutfin, USGS
10:55	11:15	20	River Forecasts	Amy Burke, NWRFC Robin Fox, NWS Spokane
11:15	11:35	20	Yakima Project	Chris Lynch
11:35	12:00	25	General Info Sharing	All
			Next Meeting: Friday, June 23rd	

Statute: RCW 43.83B

(2) "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.

(3) "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.

RULE: WAC 173-166

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

RCW [43.83B.405](#)

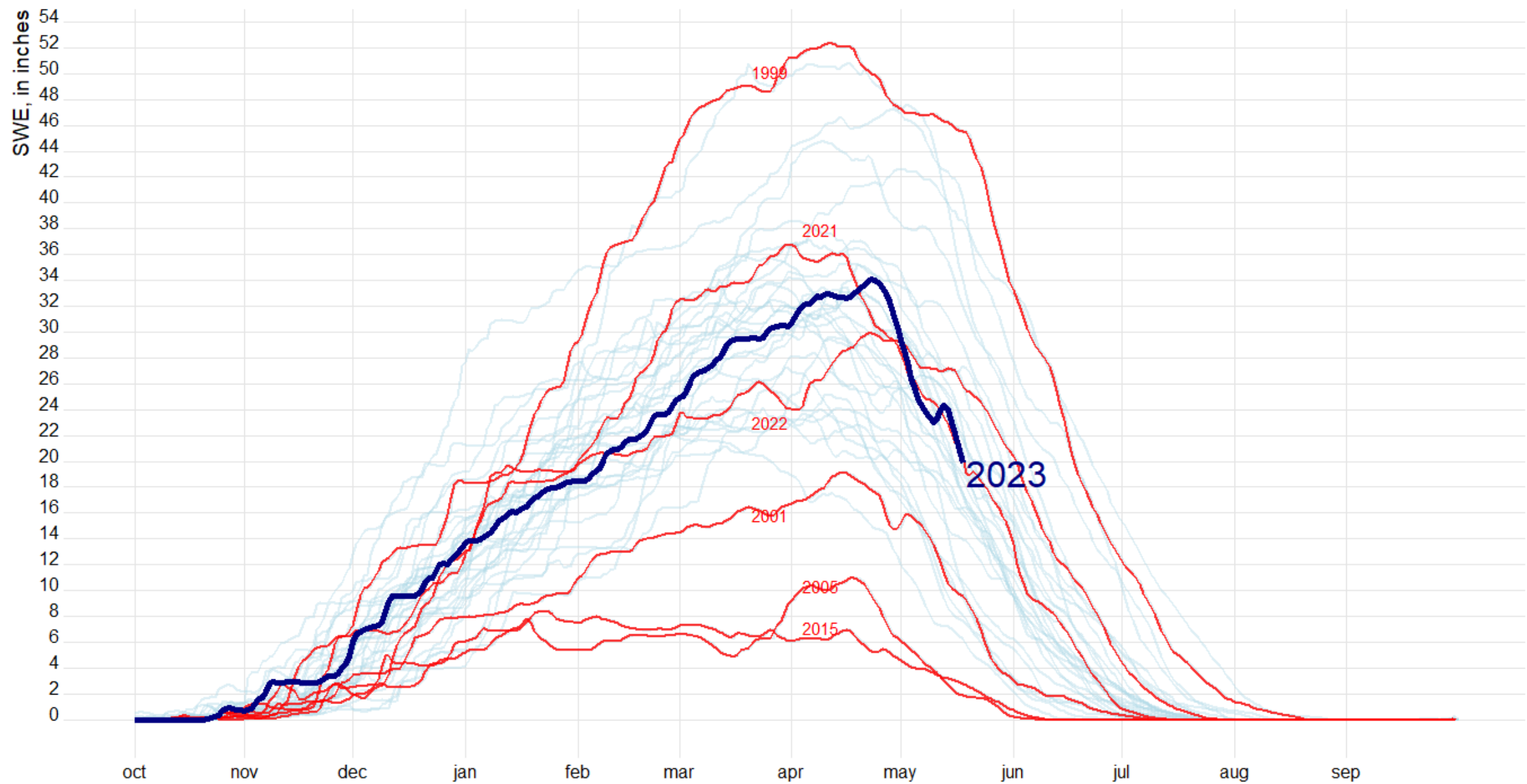
Drought advisories—Orders of drought emergency—Procedure.

(1) Whenever it appears to the department, based on the definitions of drought condition and normal water supply set forth in RCW 43.83B.011, that drought conditions may develop, the department may issue a **drought advisory**. The drought advisory should seek to increase the awareness and readiness of affected water users and may recommend voluntary actions to alleviate drought impacts.

(2)(a) Whenever it appears to the department, based on the definitions of drought condition and normal water supply set forth in RCW 43.83B.011, that a drought condition either exists or is forecast to occur within the state or portions thereof, the department is authorized to issue orders of **drought emergency**, pursuant to adopted rules, to implement the powers as set forth in RCW 43.83B.410 through 43.83B.420.

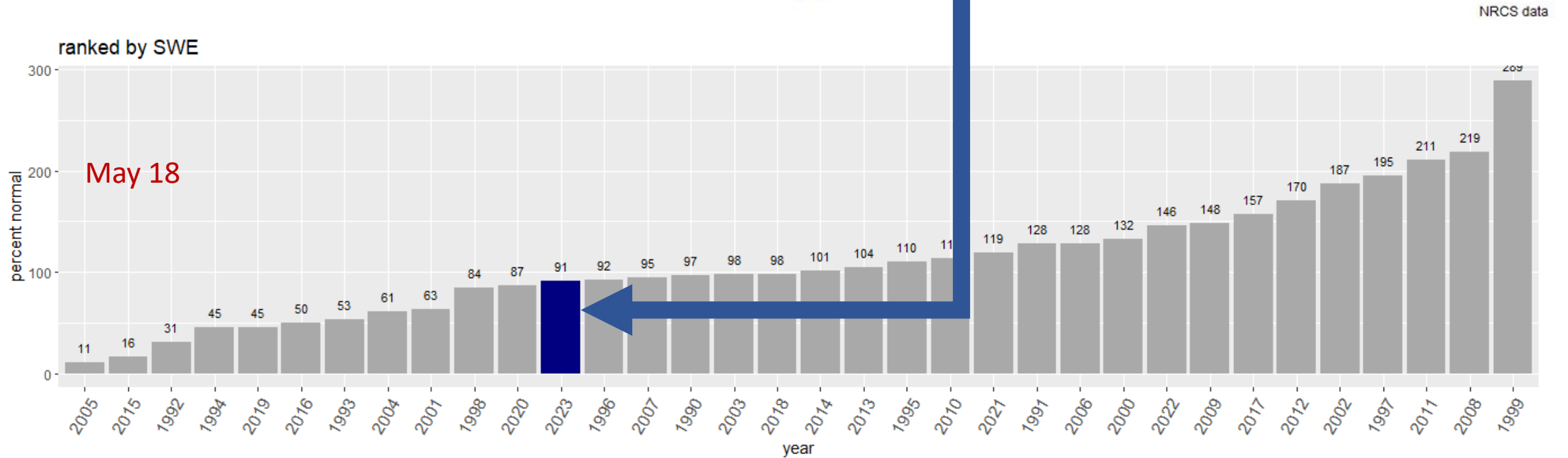
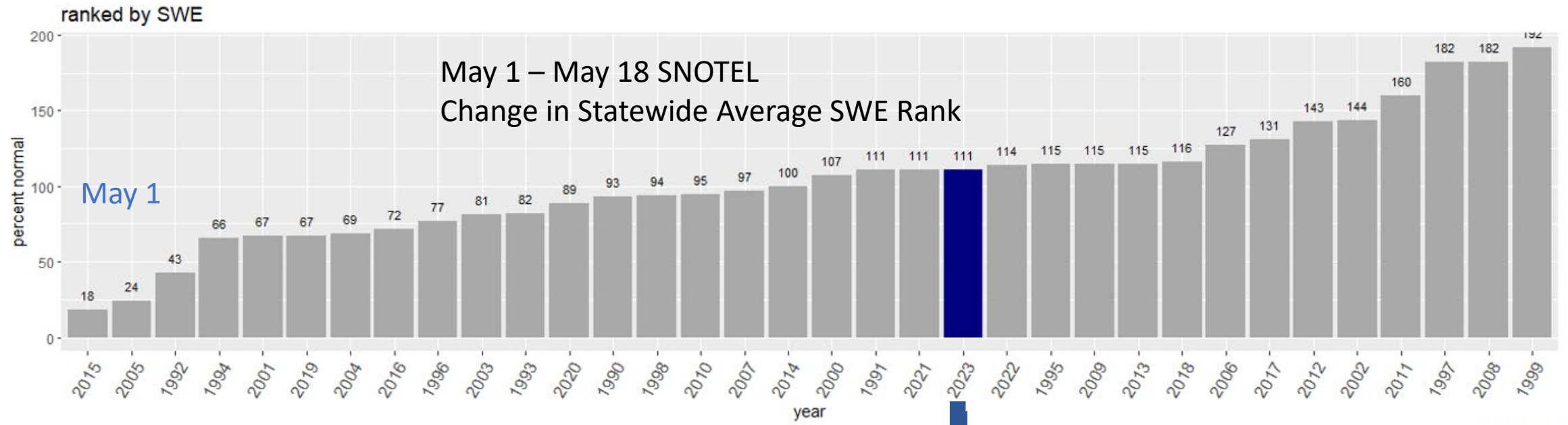
Average Washington State SWE (SNOTEL)

Water Years: 1990 - 2023 Created on: 2023-05-18



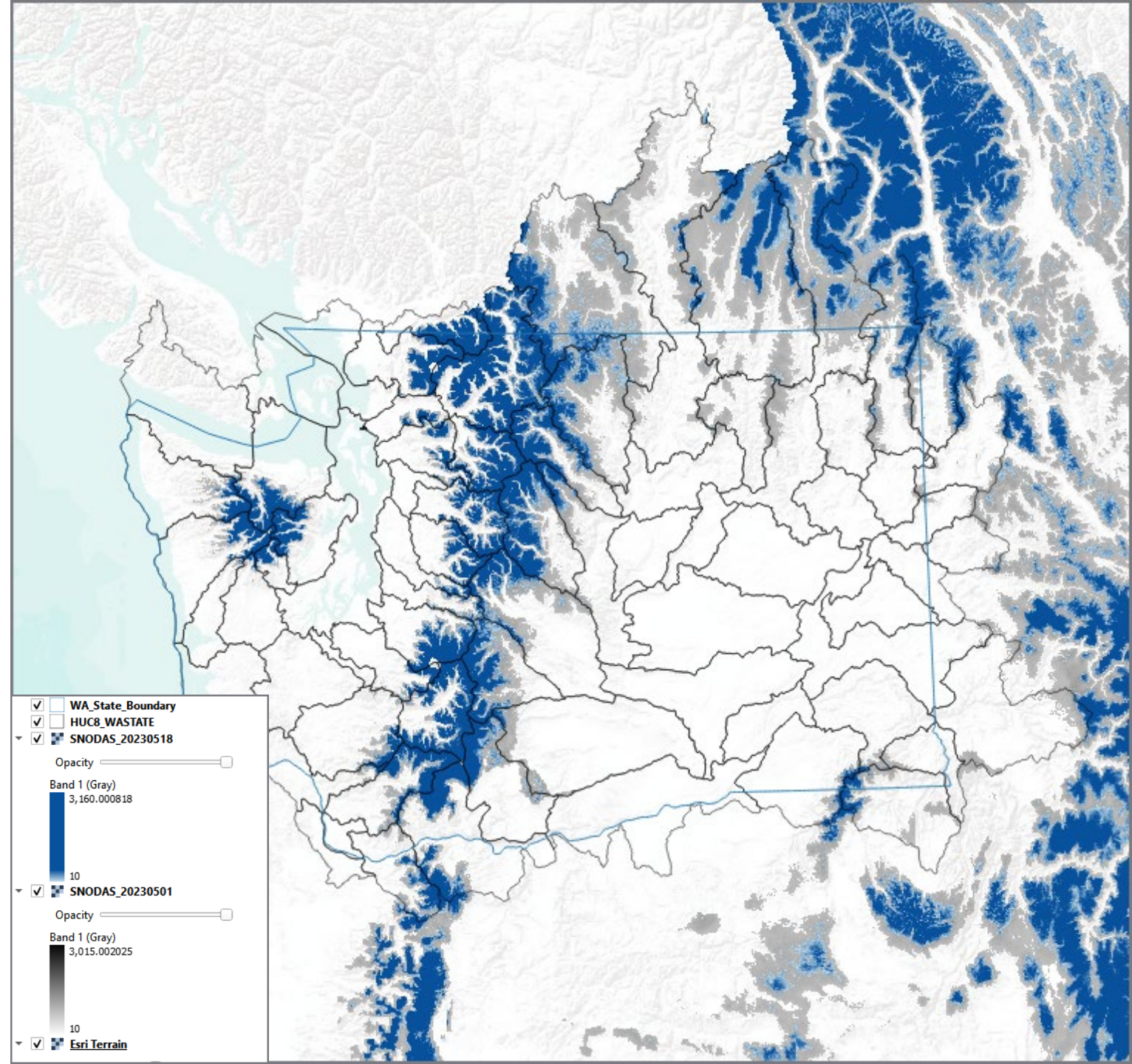
month

Data: NRCS

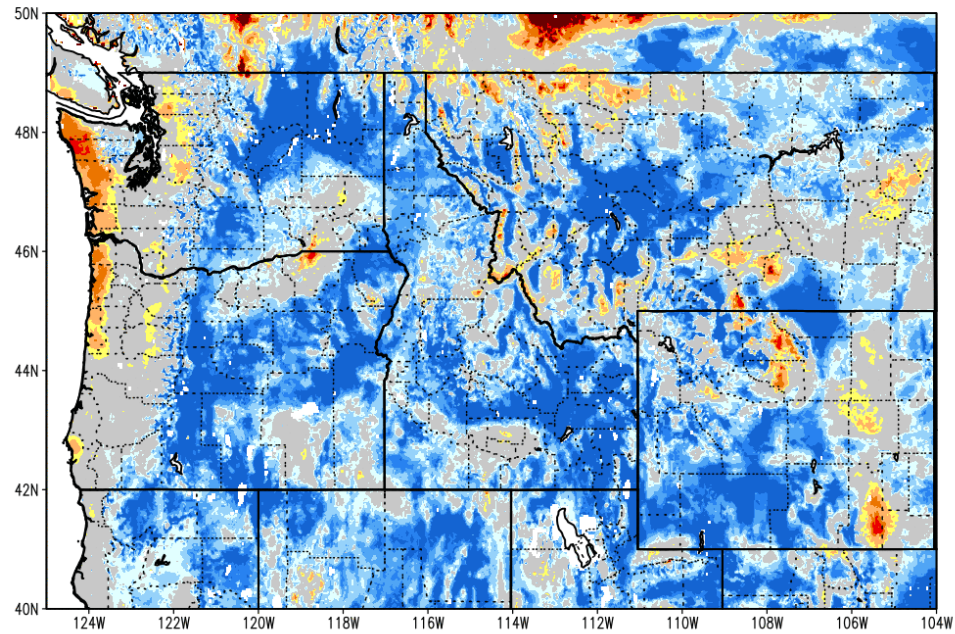


SNODAS

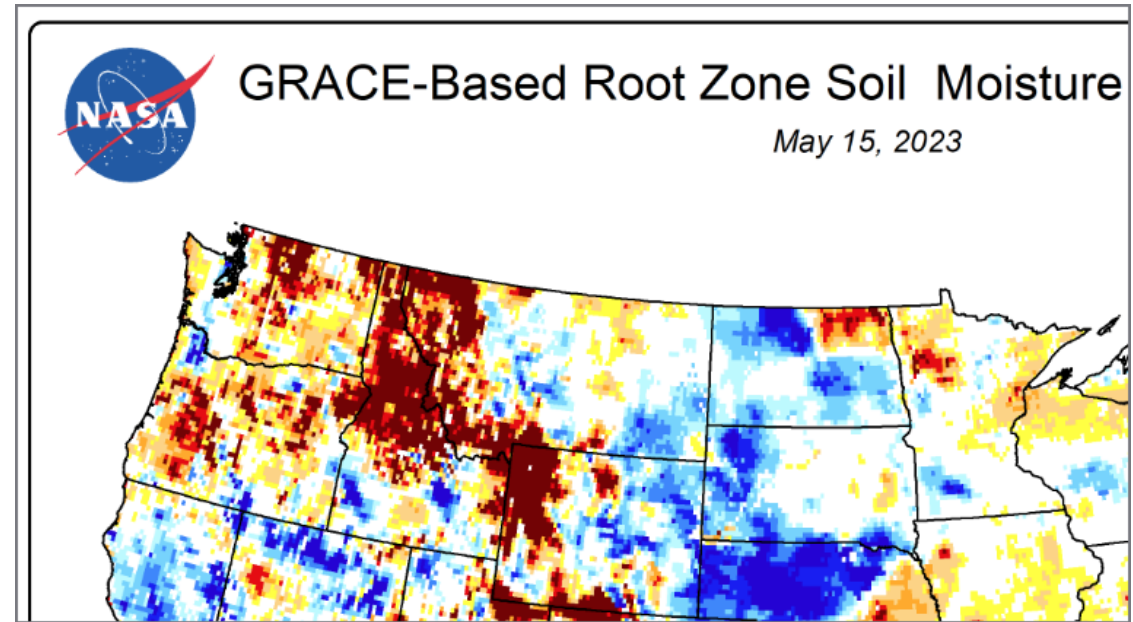
- Change in Snow Storage (WA HUC8)
- May 1 -> May 18
- 34,445,826 -> 17,376,564 acre feet
- 49.5% decrease



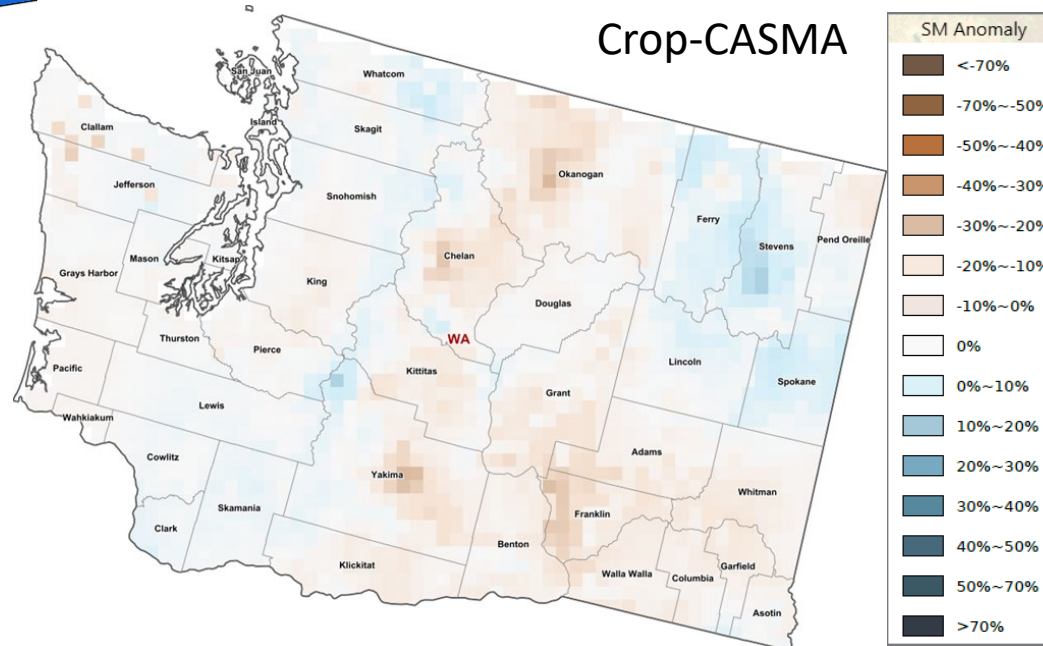
SPoRT-LIS 0-100 cm Soil Moisture percentile valid 18 May 2023



****NOTE****
****Experimental****



Crop-CASMA

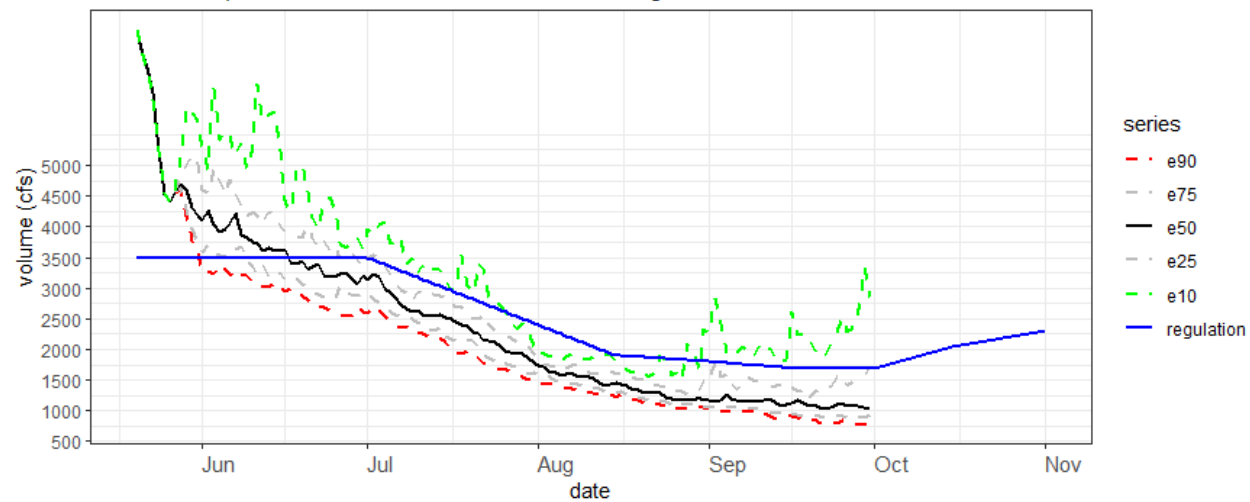


SMAP-9KM-ANOMALY-DAIL
Y-SUB_2023.05.16 [top](#)

Basins			Percentile Projections				
WRIA_NR	WRIA_NM	Name	MAY	JUN	JUL	AUG	SEP
1	Nooksack	MF NOOKSACK - NEAR DEMING	1.23	0.8	0.75	0.81	0.85
1	Nooksack	NF NOOKSACK - NEAR GLACIER	1.59	0.97	0.77	0.6	0.6
1	Nooksack	NOOK SACK - AT CEDARVILLE	1.24	0.82	0.79	0.75	0.75
1	Nooksack	NOOK SACK - AT FERNDALE	1.2	0.82	0.78	0.74	0.75
1	Nooksack	SF NOOKSACK - AT SAXON BRIDGE	1.13	0.8	0.76	0.79	0.74
3	Lower Skagit - Samish	SAMISH - NEAR BURLINGTON	0.63	0.57	0.79	1	0.96
3	Lower Skagit - Samish	SKAGIT - NEAR MT VERNON	1.49	0.8	0.64	0.82	0.83
4	Upper Skagit	BAKER - LAKE SHANNON	1.29	0.8	0.7	0.78	0.79
4	Upper Skagit	BAKER - UPPER BAKER LAKE	1.4	0.83	0.69	0.76	0.75
4	Upper Skagit	SAUK - ABOVE WHITE CHUCK	1.41	0.79	0.63	0.66	0.65
4	Upper Skagit	SAUK - NEAR SAUK	1.45	0.93	0.73	0.93	0.87
4	Upper Skagit	SKAGIT - AT MARBLEMOUNT	1.48	0.71	0.57	0.86	0.83
4	Upper Skagit	SKAGIT - AT NEWHALEM	1.46	0.72	0.6	0.89	0.91
4	Upper Skagit	SKAGIT - NEAR CONCRETE	1.48	0.8	0.64	0.84	0.83
4	Upper Skagit	SKAGIT - ROSS RESERVOIR	1.43	0.69	0.54	0.89	0.96
4	Upper Skagit	THUNDER CREEK - NEAR NEWHALEM	1.61	0.83	0.77	0.92	0.97
5	Stillaguamish	NF STILLAGUAMISH - NEAR ARLINGTON	1.1	0.84	0.76	0.83	0.76
5	Stillaguamish	SF STILLAGUAMISH - NEAR GRANITE FALLS	1.27	0.72	0.62	0.67	0.7
5	Stillaguamish	STILLAGUAMISH - NEAR ARLINGTON	1.43	0.82	0.72	0.67	0.7
7	Snohomish	MF SNOQUALMIE - NEAR TANNER	1.38	0.78	0.44	0.47	0.65
7	Snohomish	NF SNOQUALMIE - NEAR SNOQUALMIE FALLS	1.36	0.74	0.69	0.86	0.79
7	Snohomish	PILCHUCK - NEAR SNOHOMISH	0.68	0.65	0.78	0.92	0.64
7	Snohomish	SF SNOQUALMIE - NEAR GARCIA	1.38	0.67	0.75	0.78	0.58
7	Snohomish	SF TOLT - TOLT RESERVOIR	1.23	0.92	0.71	0.74	0.68
7	Snohomish	SKYKOMISH - NEAR GOLD BAR	1.46	0.8	0.65	0.74	0.67
7	Snohomish	SNOHOMISH - NEAR MONROE	1.3	0.76	0.68	0.74	0.73
7	Snohomish	SNOQUALMIE - NEAR CARNATION	1.27	0.79	0.65	0.74	0.76
7	Snohomish	SNOQUALMIE - NEAR SNOQUALMIE	1.3	0.77	0.58	0.67	0.71
7	Snohomish	SULTAN - NEAR SULTAN	1.08	0.67	0.56	0.34	0.48
7	Snohomish	SULTAN - SPADA LAKE	1.06	0.72	0.63	0.48	0.59
7	Snohomish	TOLT - NEAR CARNATION	1.07	0.79	0.76	0.79	0.75
8	Cedar - Sammamish	CEDAR - AT RENTON	1.03	0.73	0.78	0.71	0.71
8	Cedar - Sammamish	CEDAR - CHESTER MORSE LAKE	1.24	0.78	0.9	0.79	0.6
8	Cedar - Sammamish	CEDAR - NEAR LANDSBURG	1.13	0.76	0.92	0.86	0.67
8	Cedar - Sammamish	ISSAQUAH CREEK - NEAR MOUTH	0.62	0.61	0.72	0.87	0.88
9	Duwamish - Green	GREEN - HOWARD HANSON DAM	1.07	0.53	0.65	0.79	0.79
9	Duwamish - Green	GREEN - NEAR AUBURN	1.02	0.55	0.65	0.83	0.85
10	Puyallup - White	CARBON - NEAR FAIRFAX	1.38	0.94	0.88	0.94	0.83
10	Puyallup - White	PUYALLUP - AT PUYALLUP	1.38	0.87	0.85	0.94	0.88
10	Puyallup - White	PUYALLUP - NEAR ORTING	1.33	1.12	0.98	0.94	0.92
10	Puyallup - White	SOUTH PRAIRIE - AT SOUTH PRAIRIE	1.25	0.92	0.8	0.97	0.86
10	Puyallup - White	WHITE - AT MUD MOUNTAIN DAM	1.44	0.79	0.79	0.95	1
10	Puyallup - White	WHITE - AT R STREET	1.42	0.84	0.89	1.04	1.08

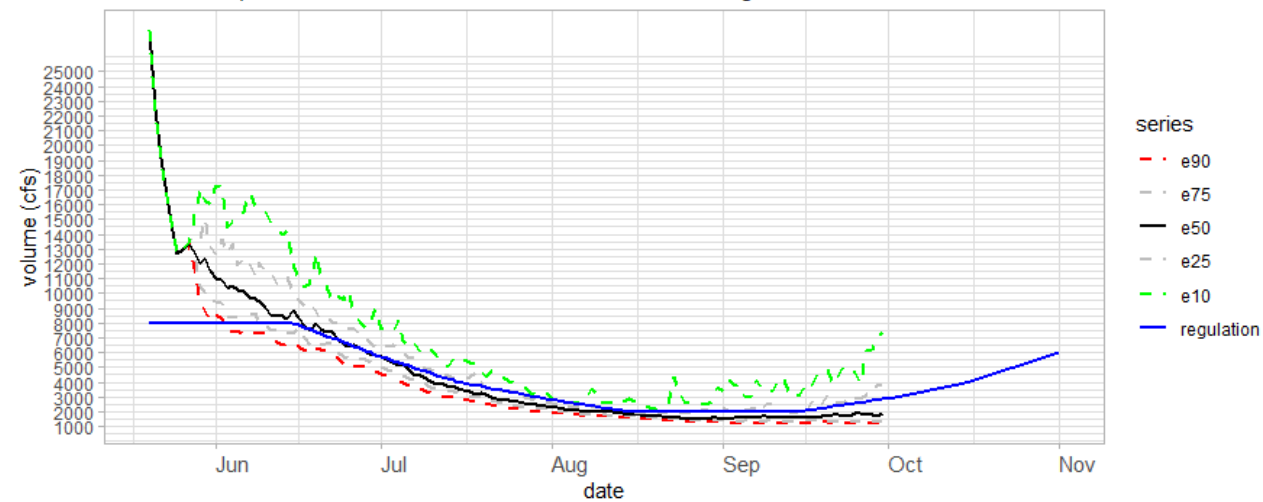
WRIA_NR	WRIA_NM	Basins Name	Percentile Projections				
			MAY	JUN	JUL	AUG	SEP
38	Naches	BUMPING - BELOW BUMPING DAM	1.67	0.58	0.42	0.61	0.73
38	Naches	NACHES - NEAR CLIFFDEL	1.64	0.55	0.41	0.59	0.65
38	Naches	NACHES - NEAR NACHES	1.63	0.56	0.52	0.82	0.71
38	Naches	TIETON - AT TIETON DAM	1.71	0.7	0.76	1.11	0.94
39	Upper Yakima	CLE ELUM - NEAR ROSLYN	1.3	0.66	0.37	0.27	0.47
39	Upper Yakima	KACHESS - NEAR EASTON	1.26	0.67	0.55	0.6	0.38
39	Upper Yakima	TEANAWAY - BELOW FORKS	1.53	0.65	0.55	0.87	0.86
39	Upper Yakima	YAKIMA - AT EASTON	1.32	0.69	0.7	0.8	0.92
39	Upper Yakima	YAKIMA - AT UMTANUM	1.43	0.71	0.66	0.74	0.84
39	Upper Yakima	YAKIMA - NEAR MARTIN	1.26	0.65	0.59	0.53	0.67
40	Upper Yakima	YAKIMA - NEAR HORLICK	1.43	0.69	0.52	0.58	0.85
45	Wenatchee	WENATCHEE - AT PESHASTIN	1.64	0.72	0.56	0.73	0.81
46	Entiat	ENTIAT - NEAR ARDENVOIR	1.89	0.69	0.46	0.58	0.76
47	Chelan	CHELAN - LAKE CHELAN DAM	1.99	0.6	0.38	0.47	0.47
47	Chelan	STEHEKIN - AT STEHEKIN	1.83	0.71	0.51	0.54	0.56
48	Methow	METHOW - AT WINTHROP	1.77	0.6	0.4	0.57	0.88
48	Methow	METHOW - NEAR PATEROS	2.05	0.63	0.42	0.66	0.96
49	Okanogan	OKANOGAN - AT MALOTT	1.37	0.63	0.29	0.55	0.88
49	Okanogan	OKANOGAN - AT OROVILLE	1.34	0.85	0.67	0.92	1.03
49	Okanogan	OKANOGAN - NEAR TONASKET	1.36	0.64	0.3	0.58	0.89
49	Okanogan	SIMILKAMEEN - NEAR NIGHTHAWK	1.37	0.67	0.45	0.6	0.81
54	Lower Spokane	SPOKANE - AT LONGLAKE	1.24	0.92	0.94	0.68	0.78
55	Little Spokane	LITTLE SPOKANE - AT DARTFORD	0.85	0.76	0.86	0.92	0.9
56	Hangman	HANGMAN CREEK - AT SPOKANE	0.7	0.98	1.08	1.18	1.21
57	Middle Spokane	SPOKANE - AT SPOKANE	1.24	0.91	0.94	0.64	0.75
59	Colville	COLVILLE - AT KETTLE FALLS	1.14	0.75	0.77	0.84	0.9
60	Kettle	KETTLE - AT LAURIER	1.48	0.81	0.56	0.74	0.85
60	Kettle	KETTLE - NEAR FERRY	1.68	0.79	0.5	0.82	1.07
NA	Columbia River	COLUMBIA - BLO ROCK ISLAND DAM	1.21	0.87	0.8	0.88	0.88
NA	Columbia River	COLUMBIA - CHIEF JOSEPH DAM	1.15	0.89	0.83	0.9	0.88
NA	Columbia River	COLUMBIA - GRAND COULEE DAM	1.15	0.89	0.83	0.9	0.88
NA	Columbia River	COLUMBIA - MCNARY DAM	1.27	0.87	0.81	0.91	0.91
NA	Columbia River	COLUMBIA - PRIEST RAPIDS DAM	1.21	0.87	0.8	0.88	0.87
NA	Columbia River	COLUMBIA - ROCKY REACH DAM	1.2	0.87	0.8	0.89	0.88
NA	Columbia River	COLUMBIA - THE DALLES DAM	1.29	0.87	0.81	0.91	0.92
NA	Columbia River	COLUMBIA - WANAPUM DAM	1.21	0.87	0.8	0.88	0.87
NA	Columbia River	COLUMBIA - WELLS DAM	1.17	0.88	0.81	0.89	0.88
NA	Snake River	SNAKE - ICE HARBOR DAM	1.39	0.87	0.9	1.04	1.08
NA	Snake River	SNAKE - LITTLE GOOSE DAM	1.39	0.87	0.9	1.04	1.08
NA	Snake River	SNAKE - LOWER GRANITE DAM	1.39	0.87	0.9	1.04	1.08
NA	Snake River	SNAKE - LOWER MONUMENTAL DAM	1.39	0.87	0.9	1.04	1.08

2023-05-18|forecast vs Nooksack at Ferndale reg flow



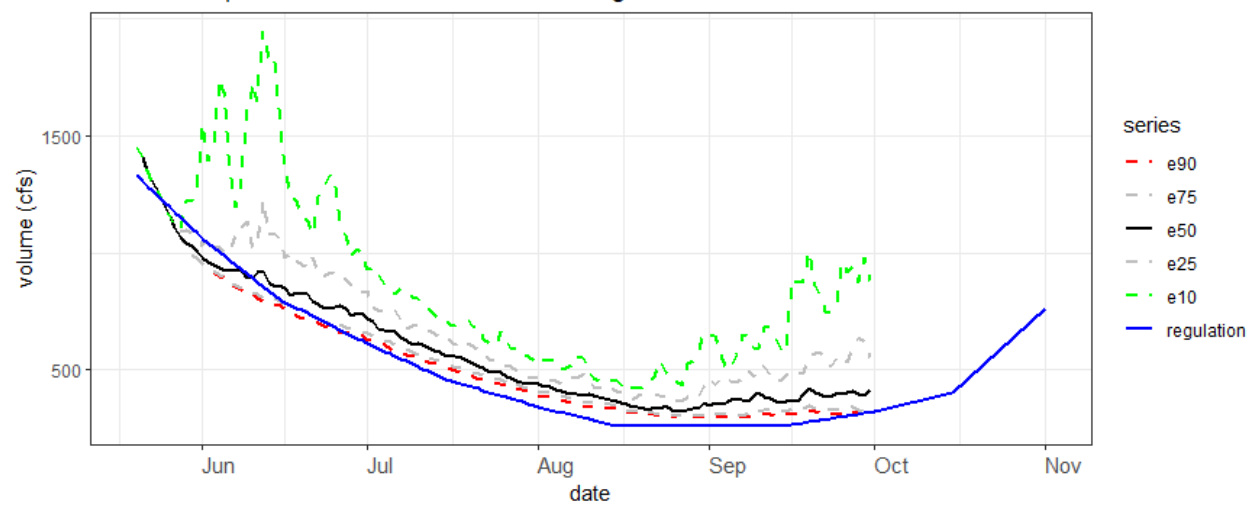
data: NWRFC ,WDOE

2023-05-18| forecast vs Snohomish River nr Monroe reg flow



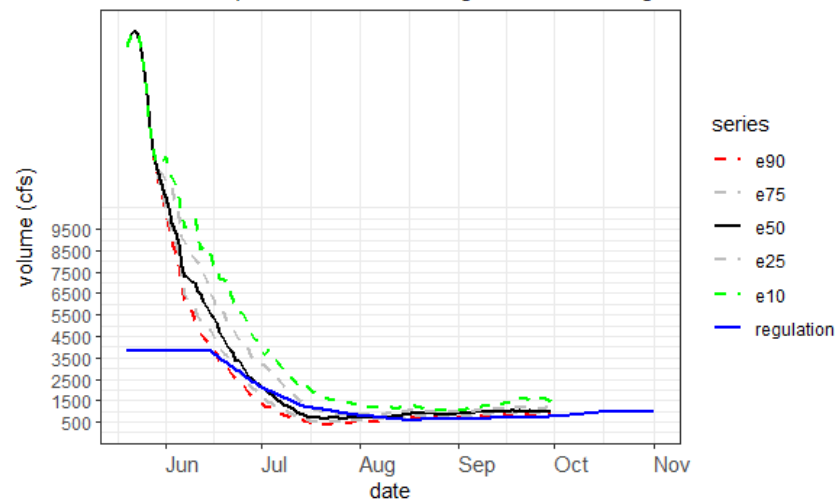
data: NWRFC ,WDOE

2023-05-18| forecast vs Chehalis at Porter reg flow

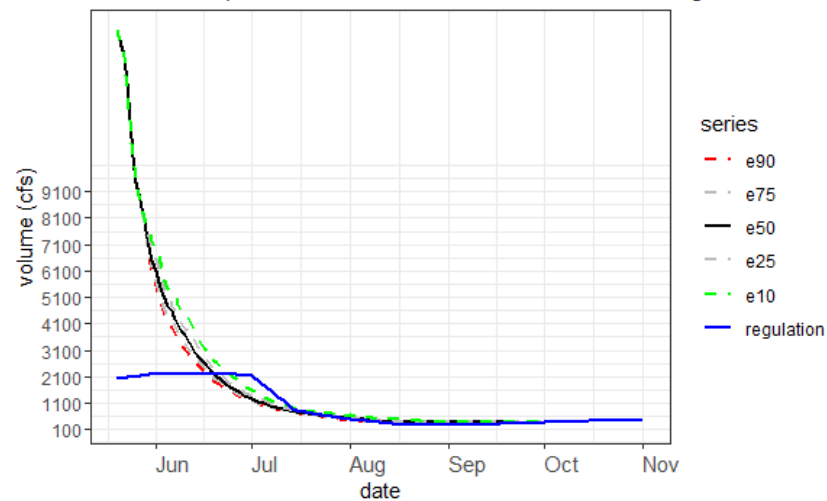


data: NWRFC ,WDOE

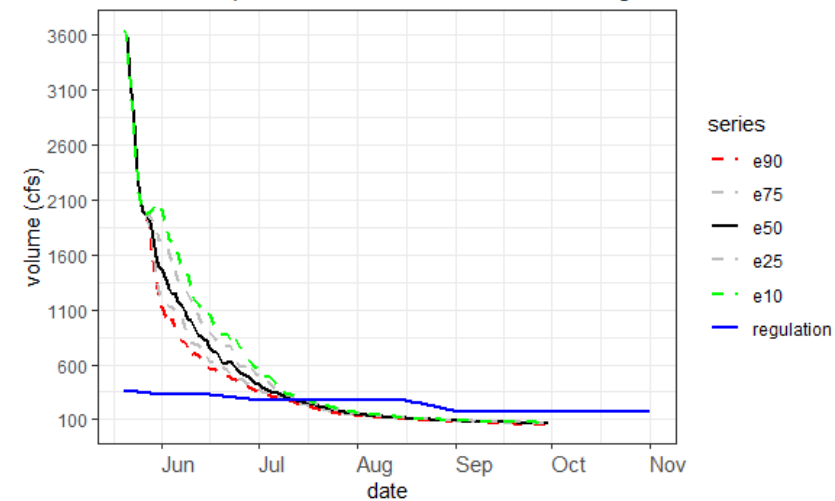
2023-05-18| forecast vs Okanogan at Malott reg flow



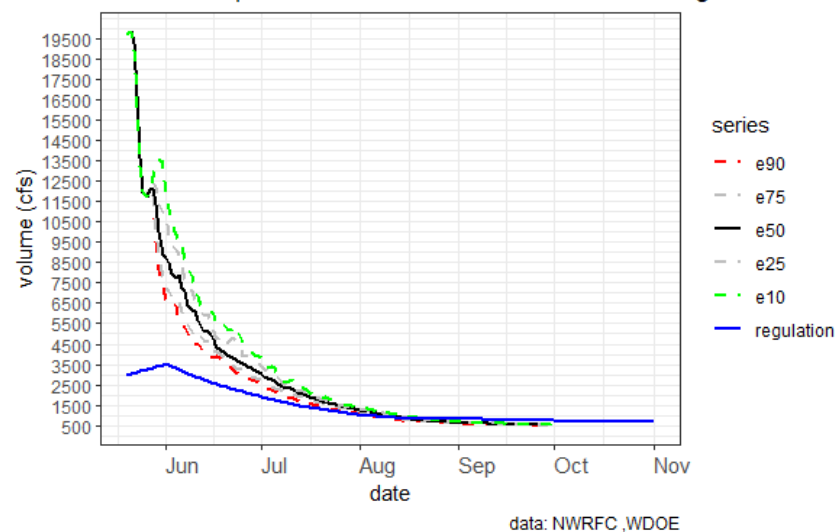
2023-05-18| forecast vs Methow River nr Pateros reg flow



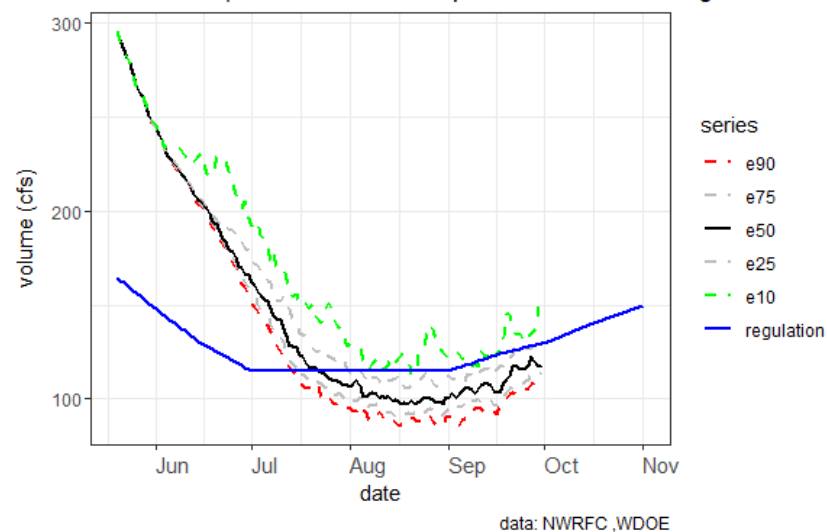
2023-05-18|forecast vs Entiat nr Ardenvoir reg flow



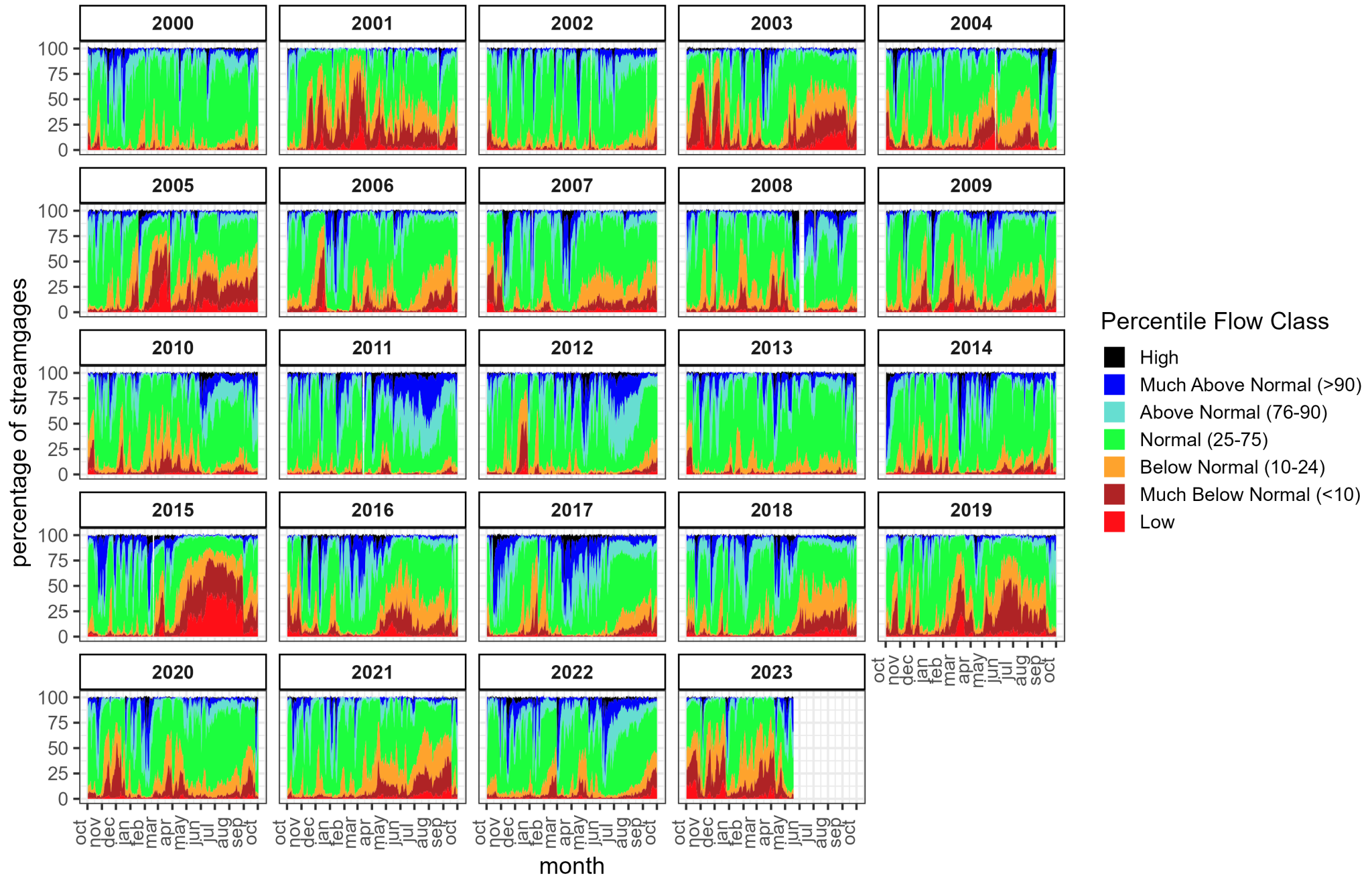
2023-05-18| forecast vs Wenatchee at Peshastin reg flow



2023-05-18| forecast vs Little Spokane at Dartford reg flow

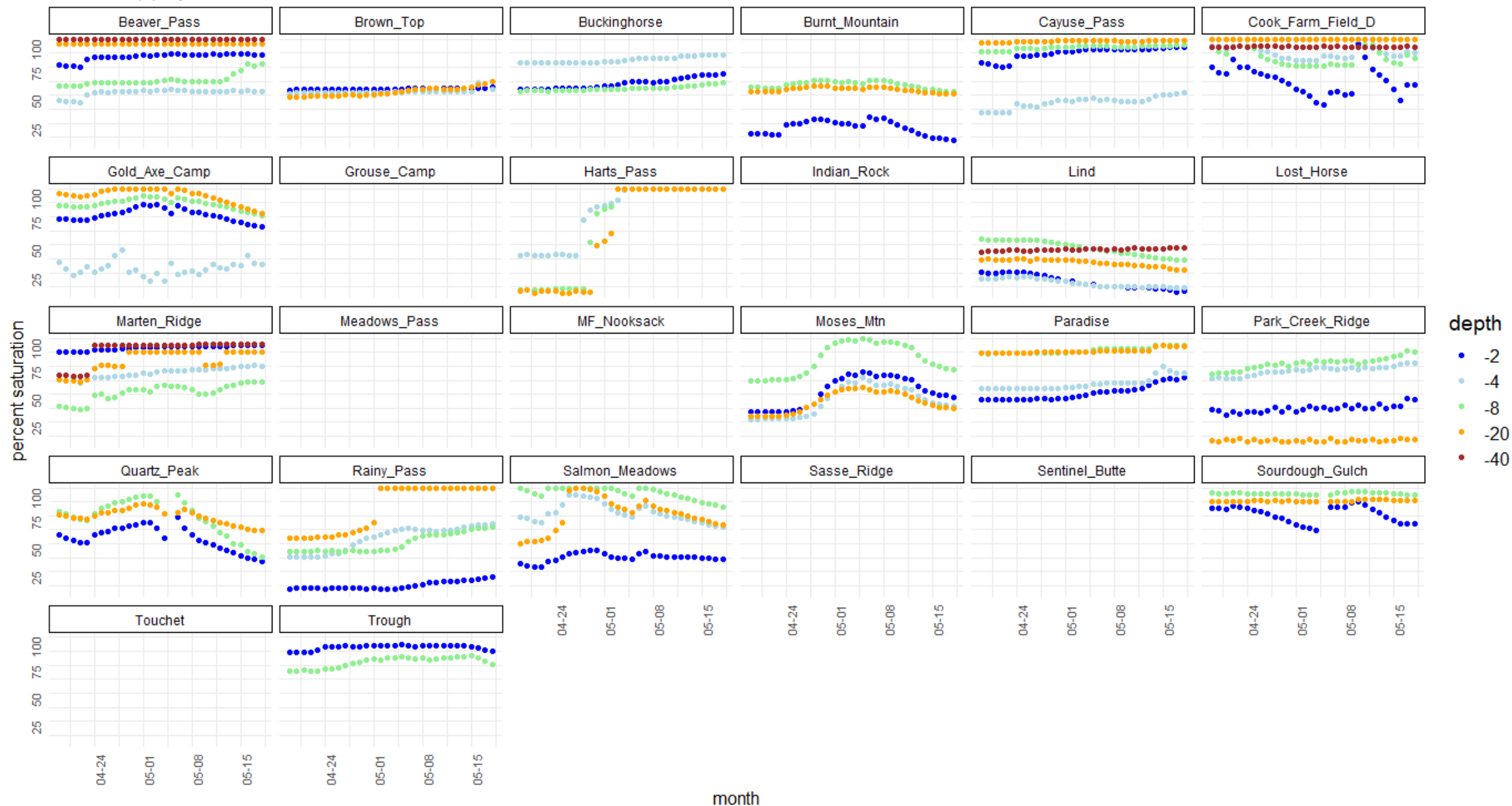


Time series plot of daily streamflow compared to historical streamflow for the day of the water year (Was



soil moisture saturation for the last 30 days at selected NRCS stations

NRCS Data | query date: 05-18





Natural Resources Conservation Service
U.S. DEPARTMENT OF AGRICULTURE

 Search



CONSERVATION BASICS

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Washington Snow Survey & Water Supply Program

WSAC May 2023

[Home](#) > [Conservation Basics](#) > [Conservation By State](#) > [Washington](#) > [Washington Snow Survey & Water Supply Program](#)

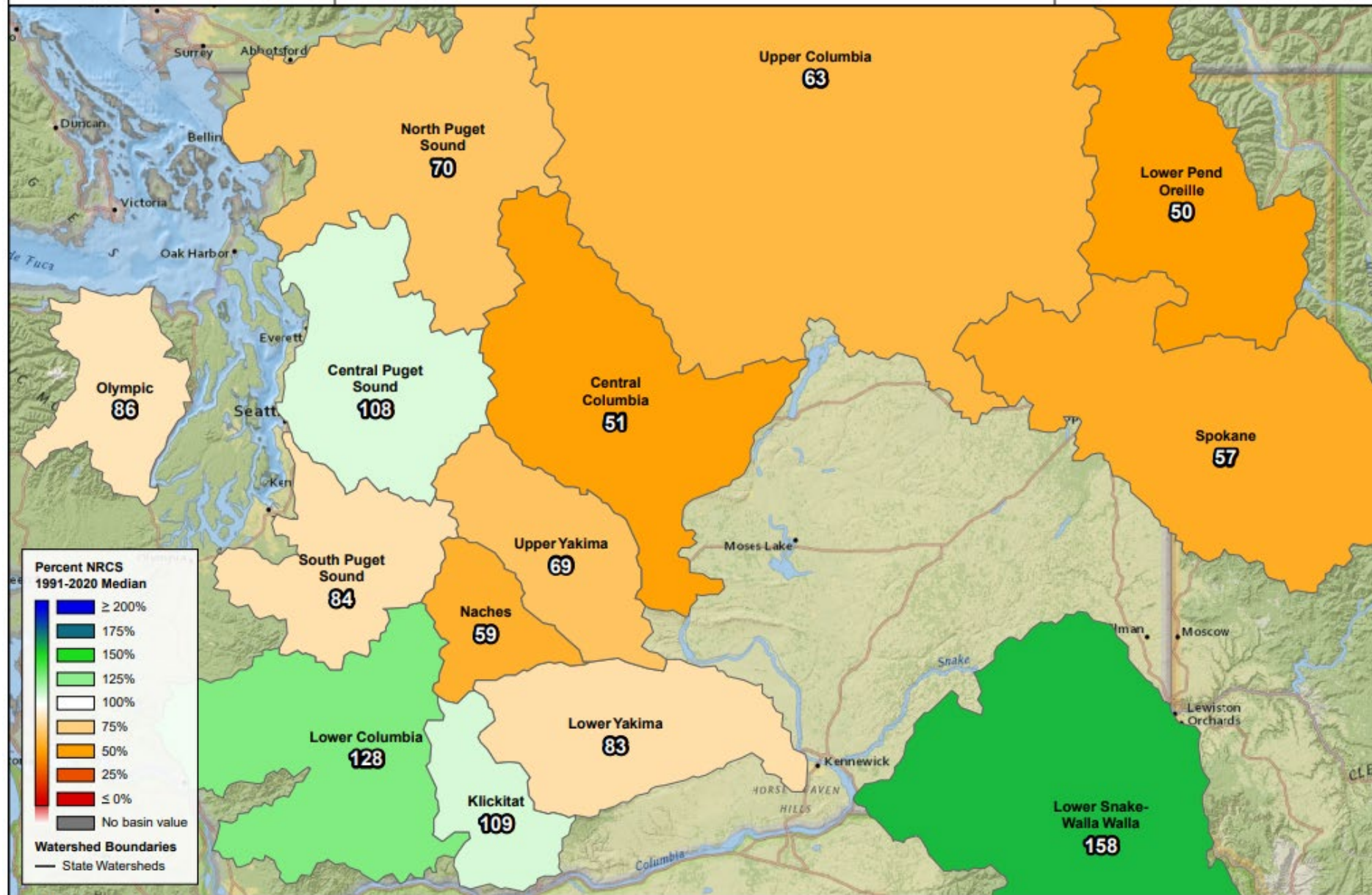
The NRCS Snow Survey Program provides mountain snowpack data and streamflow forecasts for the western United States. Applications of snow survey products include water supply management, flood control, climate modeling, recreation, and



Snow Water Equivalent

Percent NRCS 1991-2020 Median

May 18, 2023, first of day



Natural Resources
Conservation Service
United States Department of Agriculture



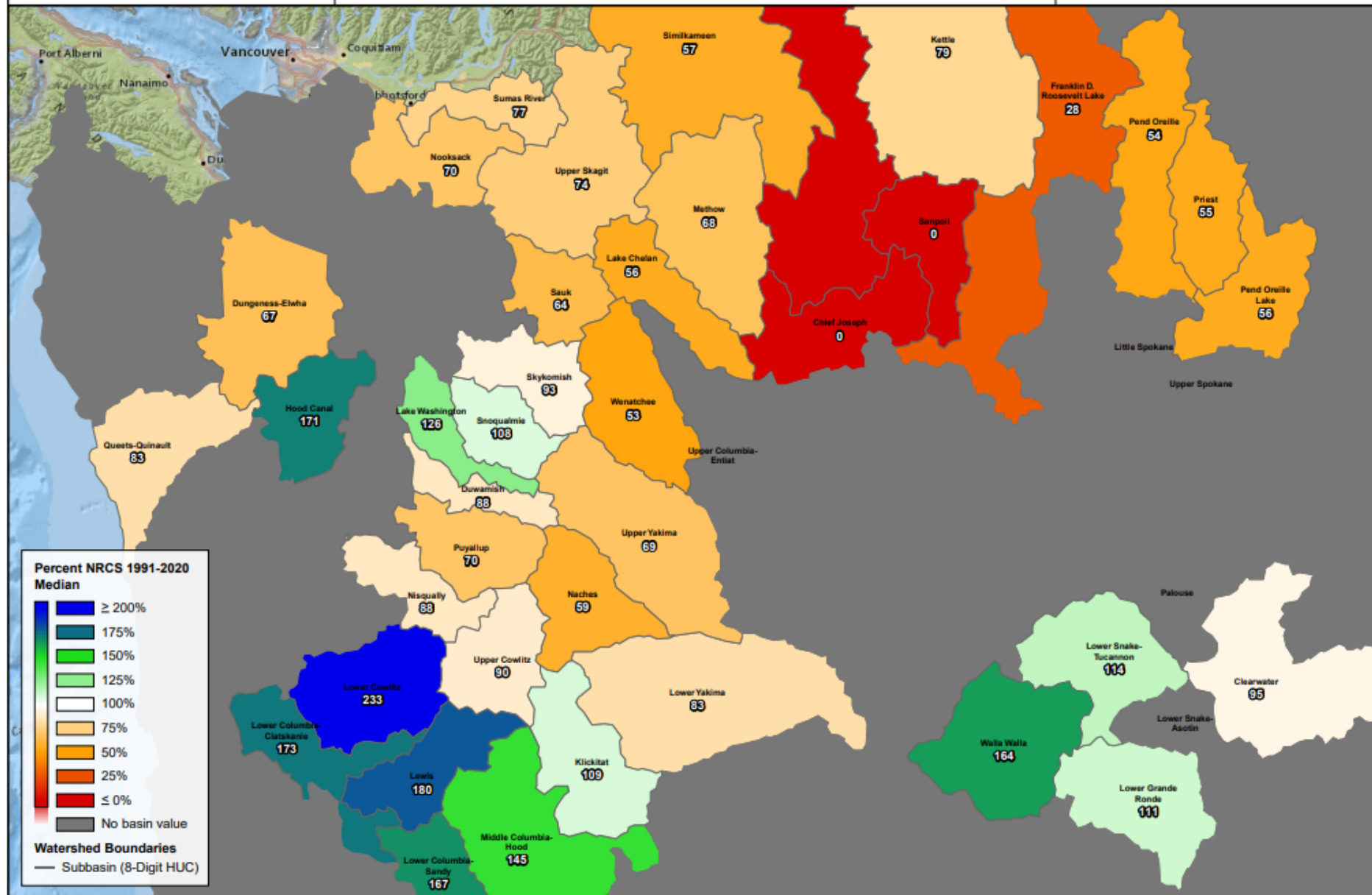
0 10 20 40 60 80 100 Miles

Created 5-18-2023

Snow Water Equivalent

Percent NRCS 1991-2020 Median

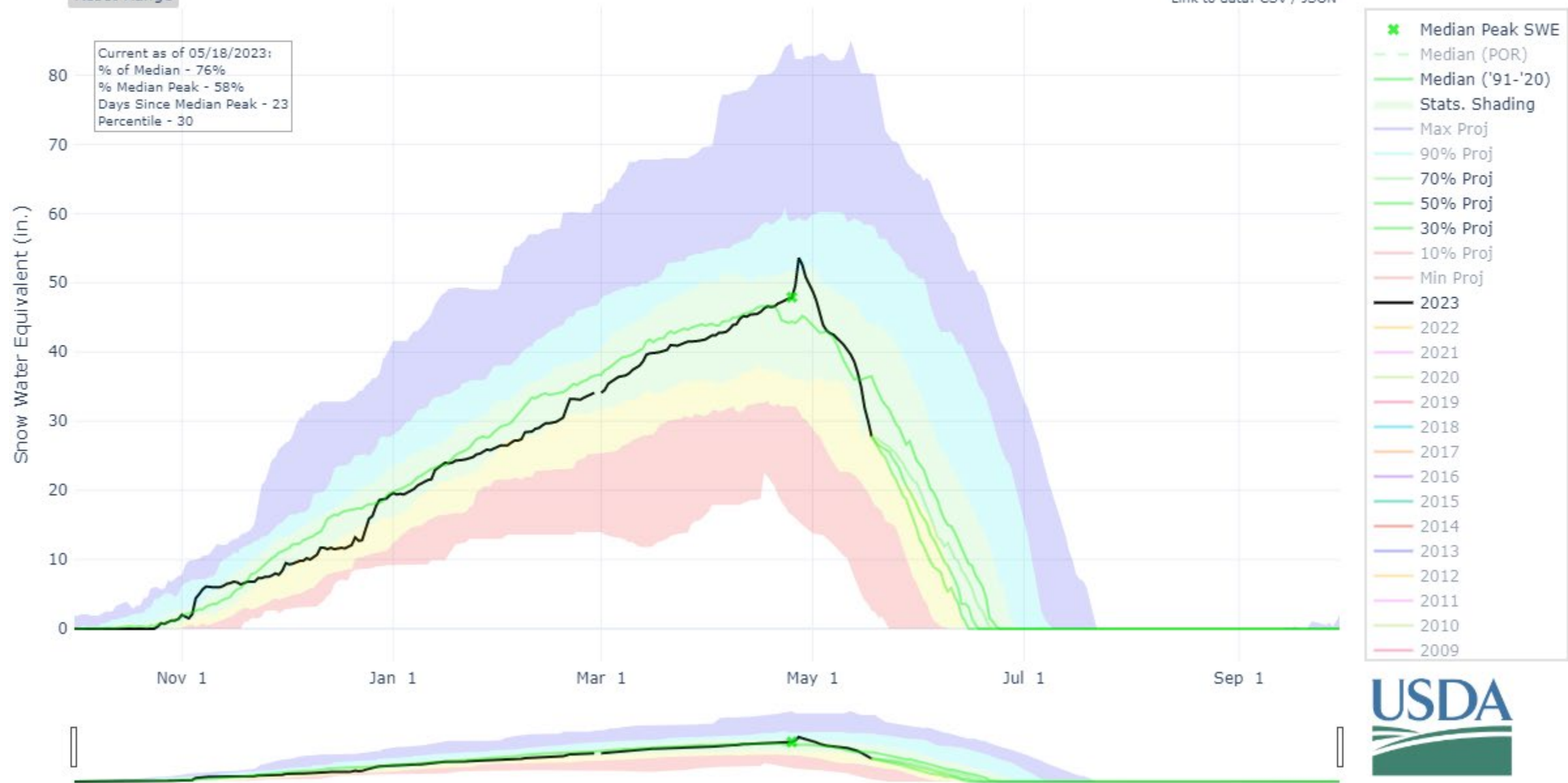
May 18, 2023, first of day



SNOW WATER EQUIVALENT PROJECTIONS AT HARTS PASS

Reset Range

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



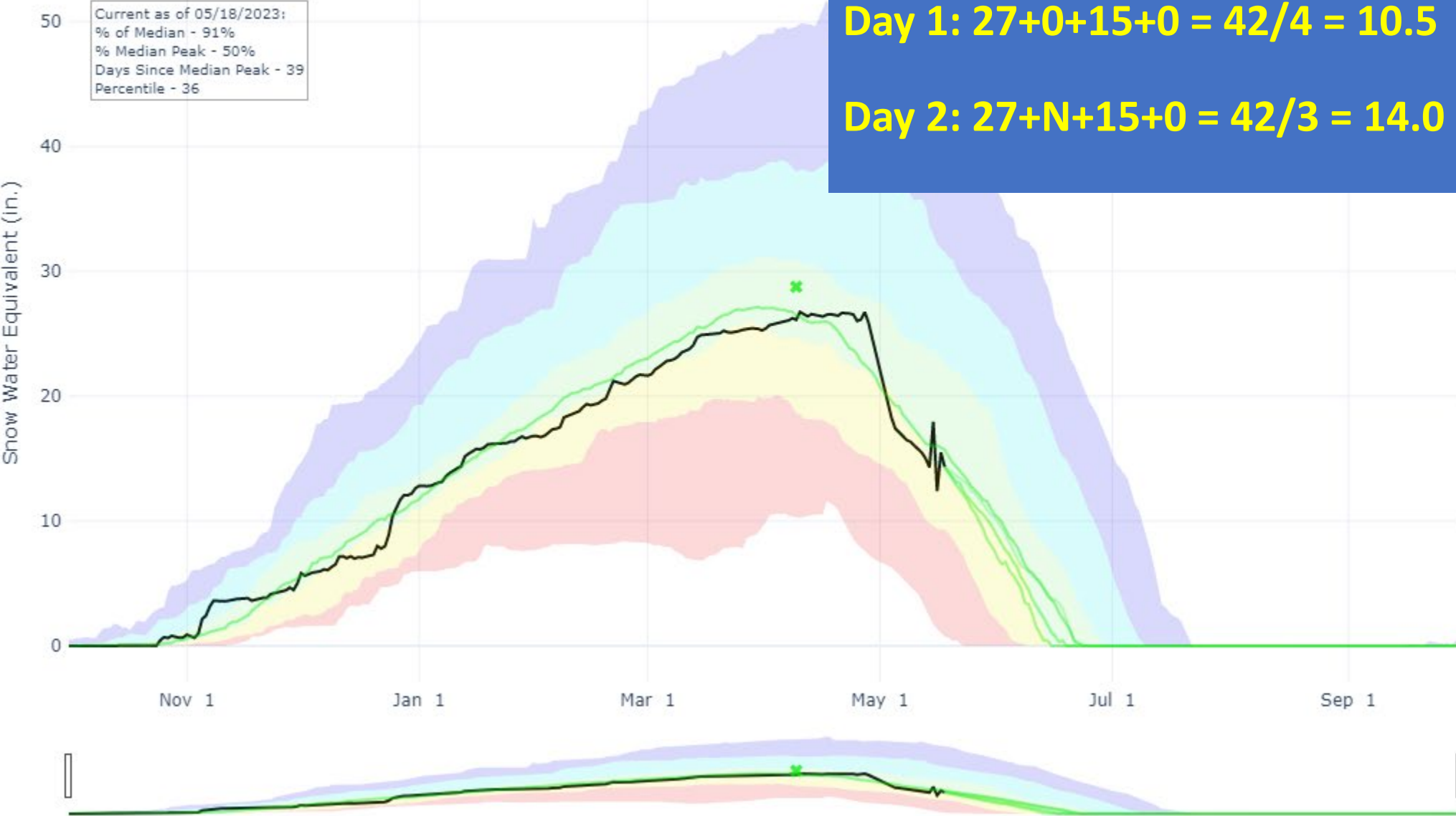
SNOW WATER EQUIVALENT PROJECTIONS IN METHOW

Reset Range

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

Station List

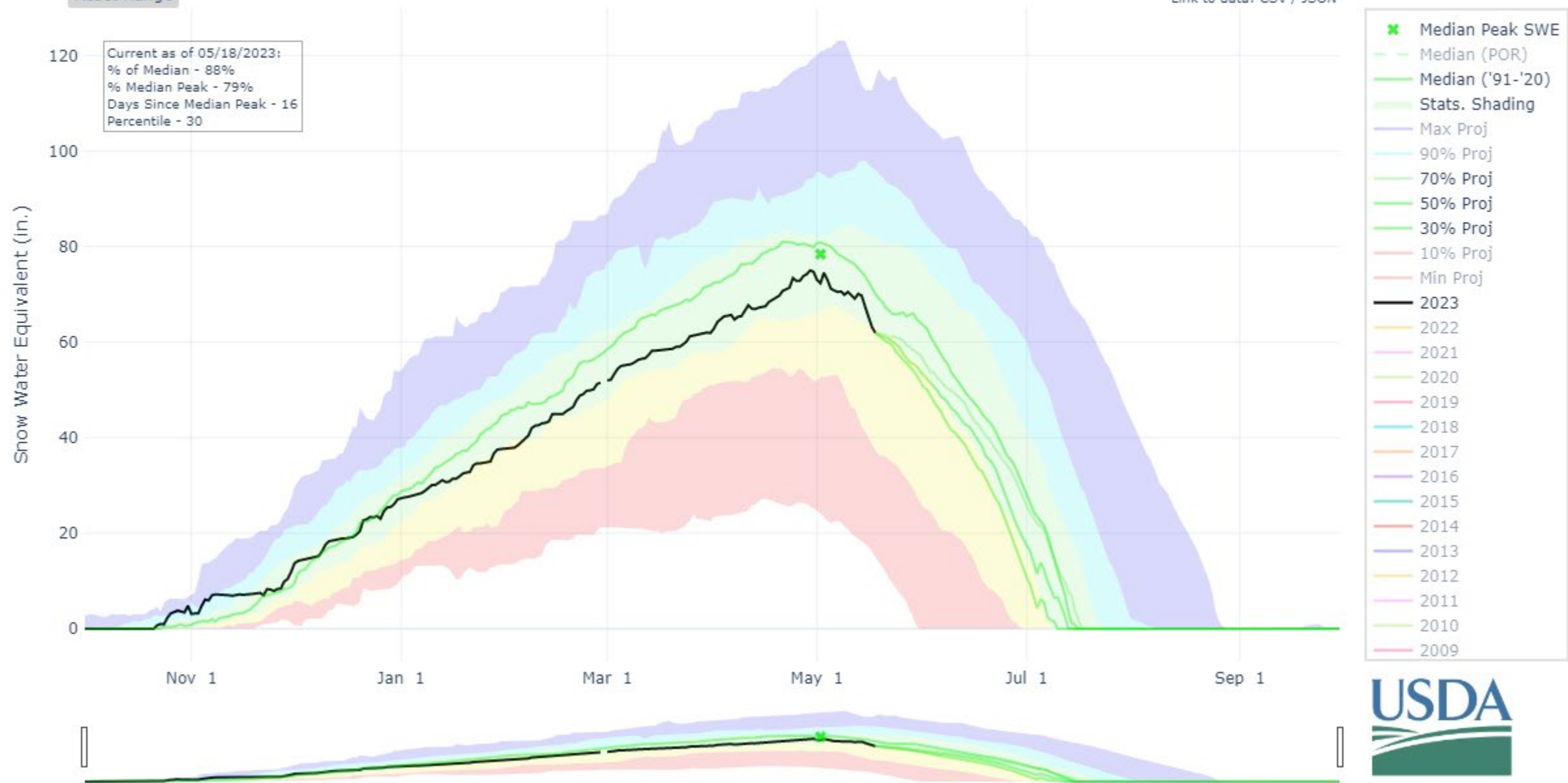
- ✱ Median Peak SWE
- Median (POR)
- Median ('91-'20)
- Stats. Shading
- Max Proj
- 90% Proj
- 70% Proj
- 50% Proj
- 30% Proj
- 10% Proj
- Min Proj
- 2023 (4 sites)
- 2022 (4 sites)
- 2021 (4 sites)
- 2020 (4 sites)
- 2019 (4 sites)
- 2018 (4 sites)
- 2017 (4 sites)
- 2016 (4 sites)
- 2015 (4 sites)
- 2014 (4 sites)
- 2013 (4 sites)
- 2012 (4 sites)
- 2011 (4 sites)
- 2010 (4 sites)
- 2009 (4 sites)



SNOW WATER EQUIVALENT PROJECTIONS AT PARADISE

Reset Range

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

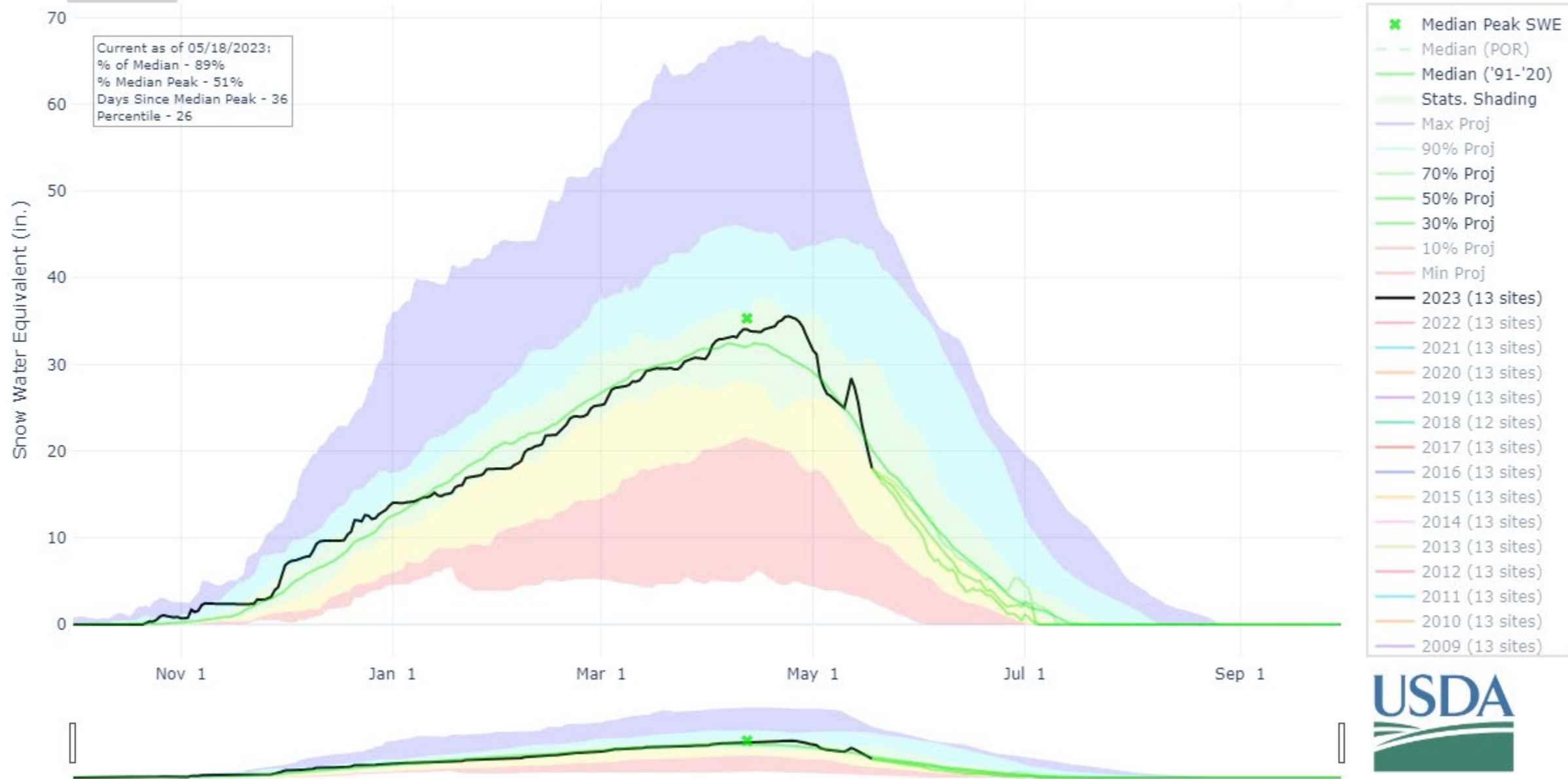


SNOW WATER EQUIVALENT PROJECTIONS IN SOUTH PUGET SOUND

Reset Range

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

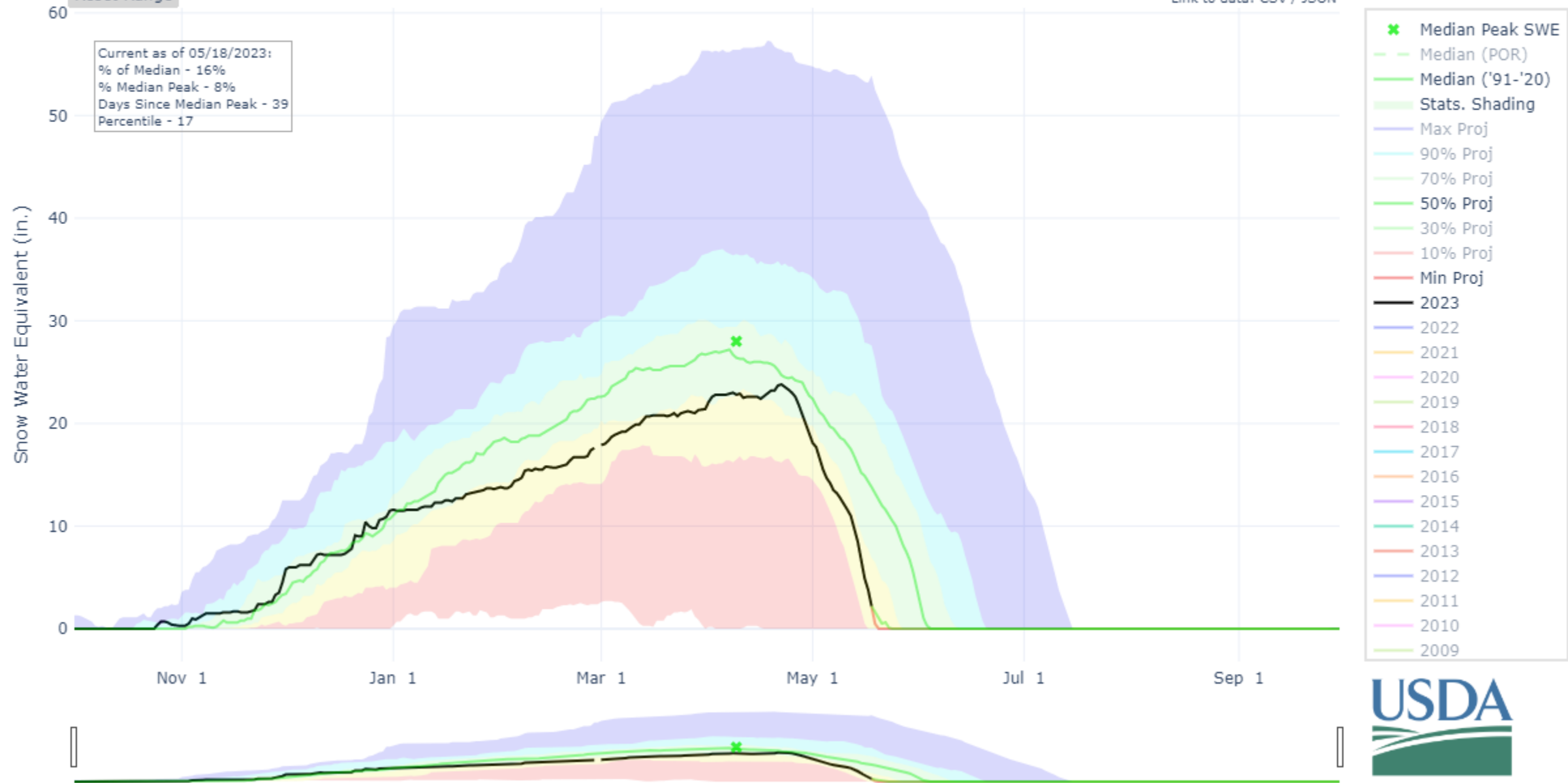
Station List



SNOW WATER EQUIVALENT PROJECTIONS AT BUMPING RIDGE

Reset Range

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

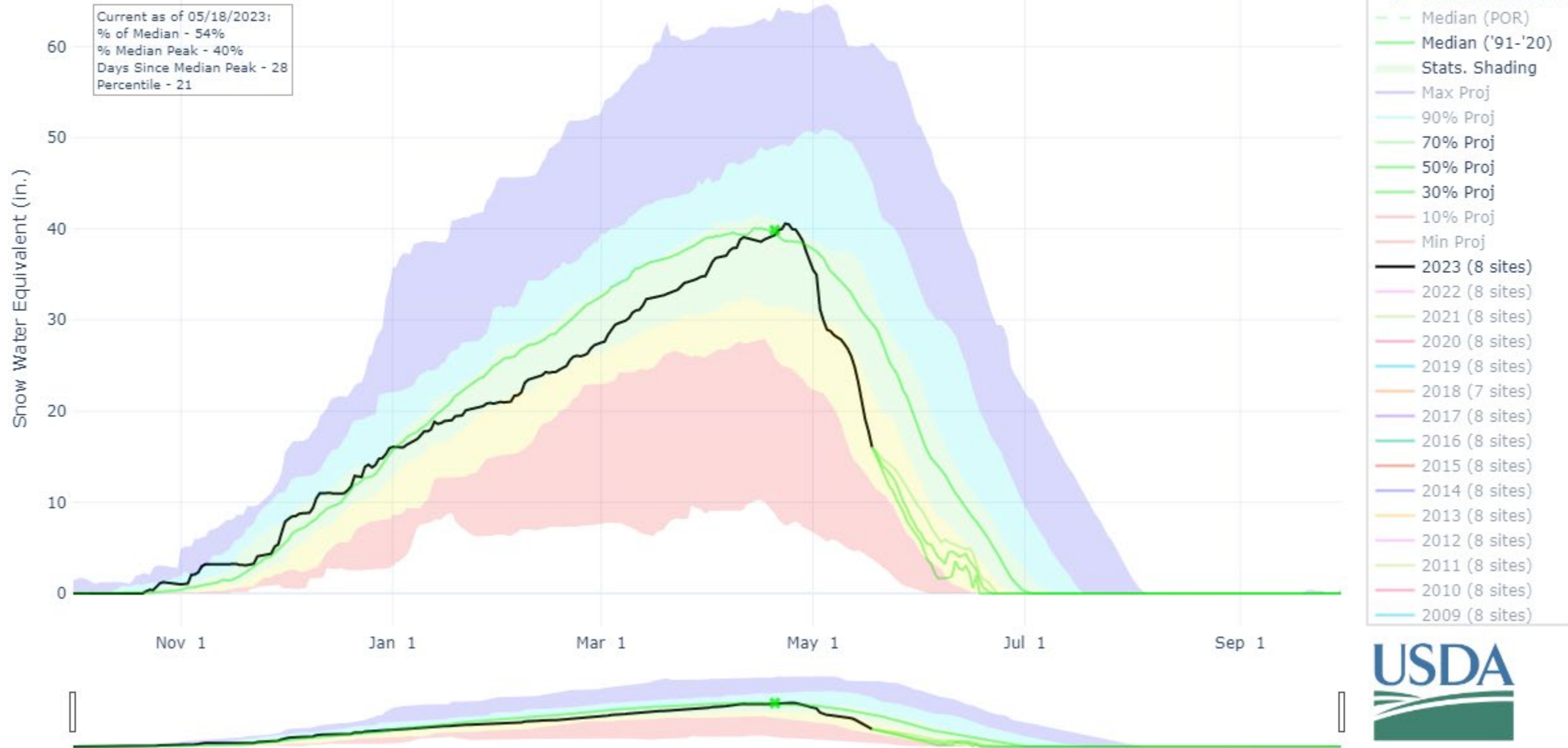


SNOW WATER EQUIVALENT PROJECTIONS IN NACHES

Reset Range

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

Station List

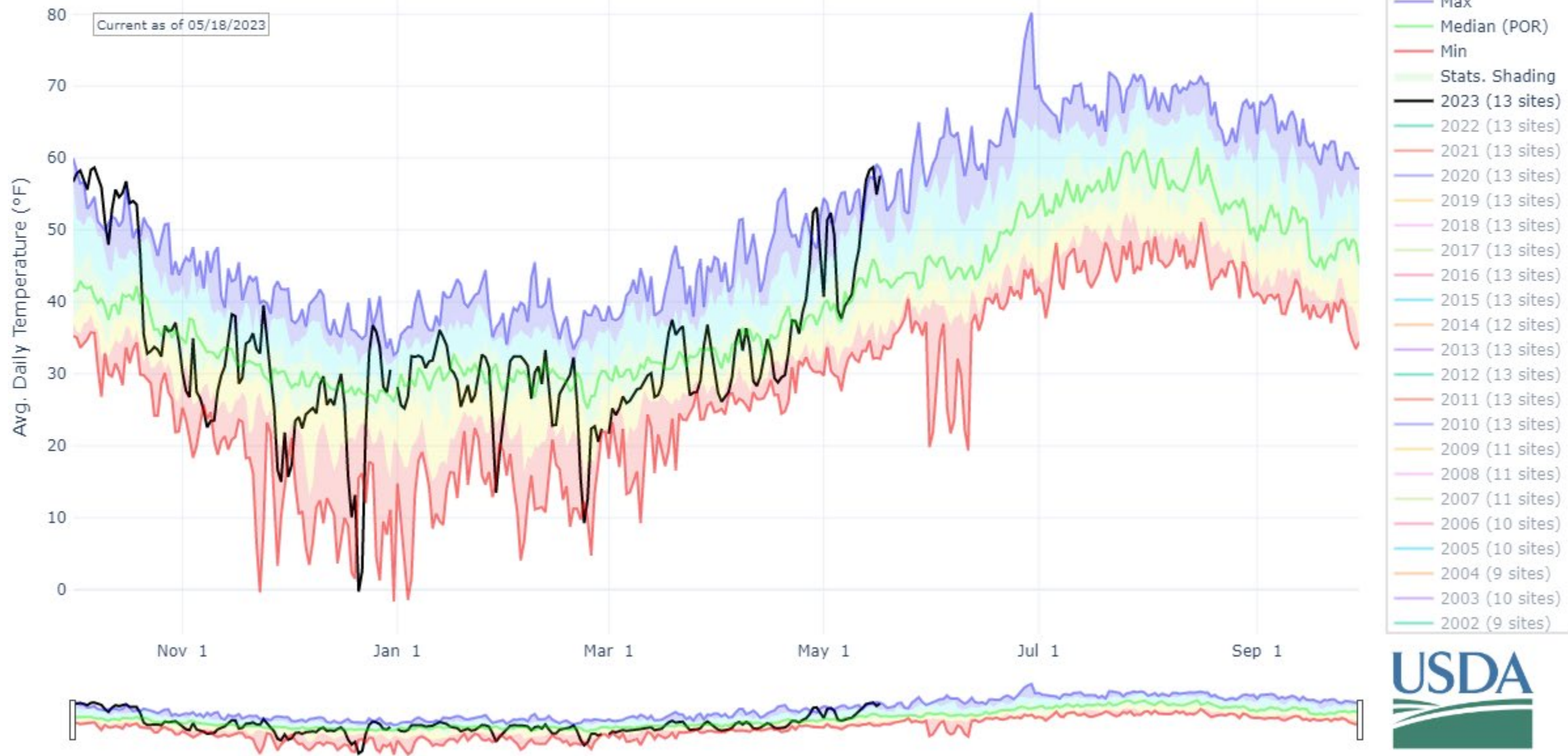


DAILY AVERAGE TEMPERATURE IN NORTH PUGET SOUND

Reset Range

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

Station List

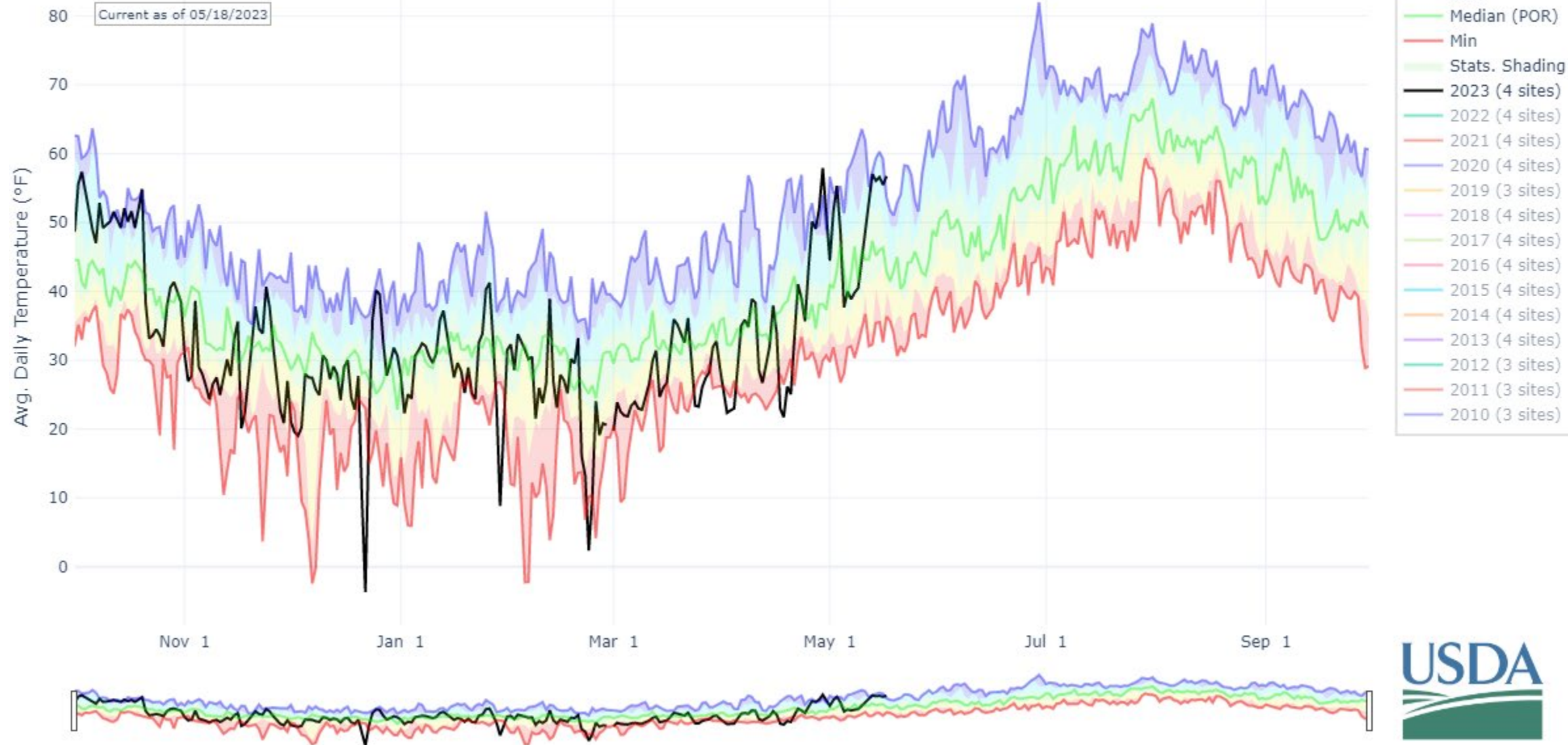


DAILY AVERAGE TEMPERATURE IN LOWER YAKIMA

Reset Range

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

Station List



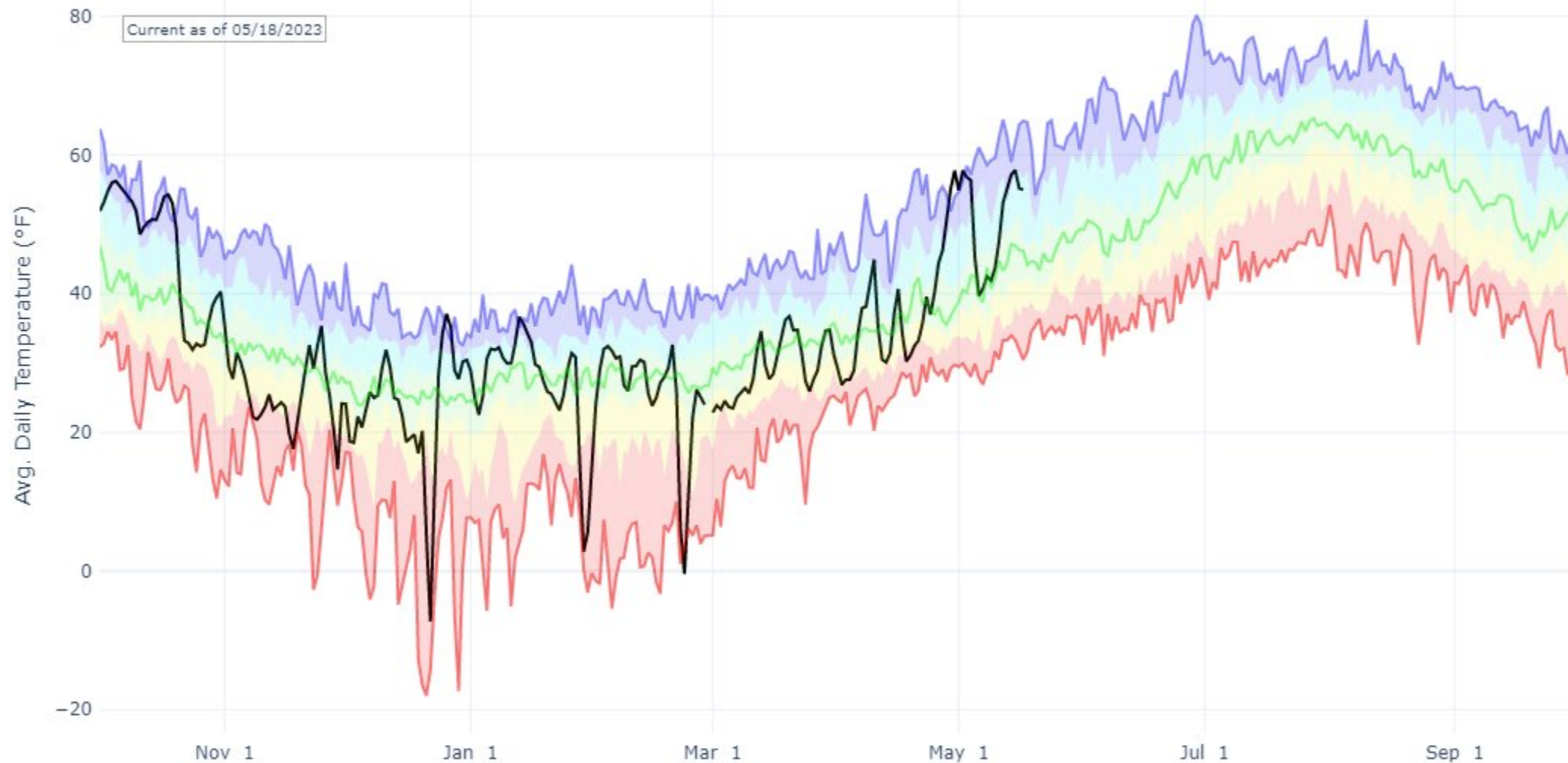
DAILY AVERAGE TEMPERATURE IN SPOKANE

Reset Range

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

Station List

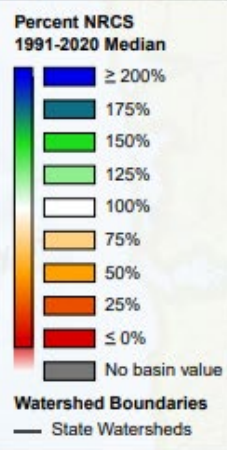
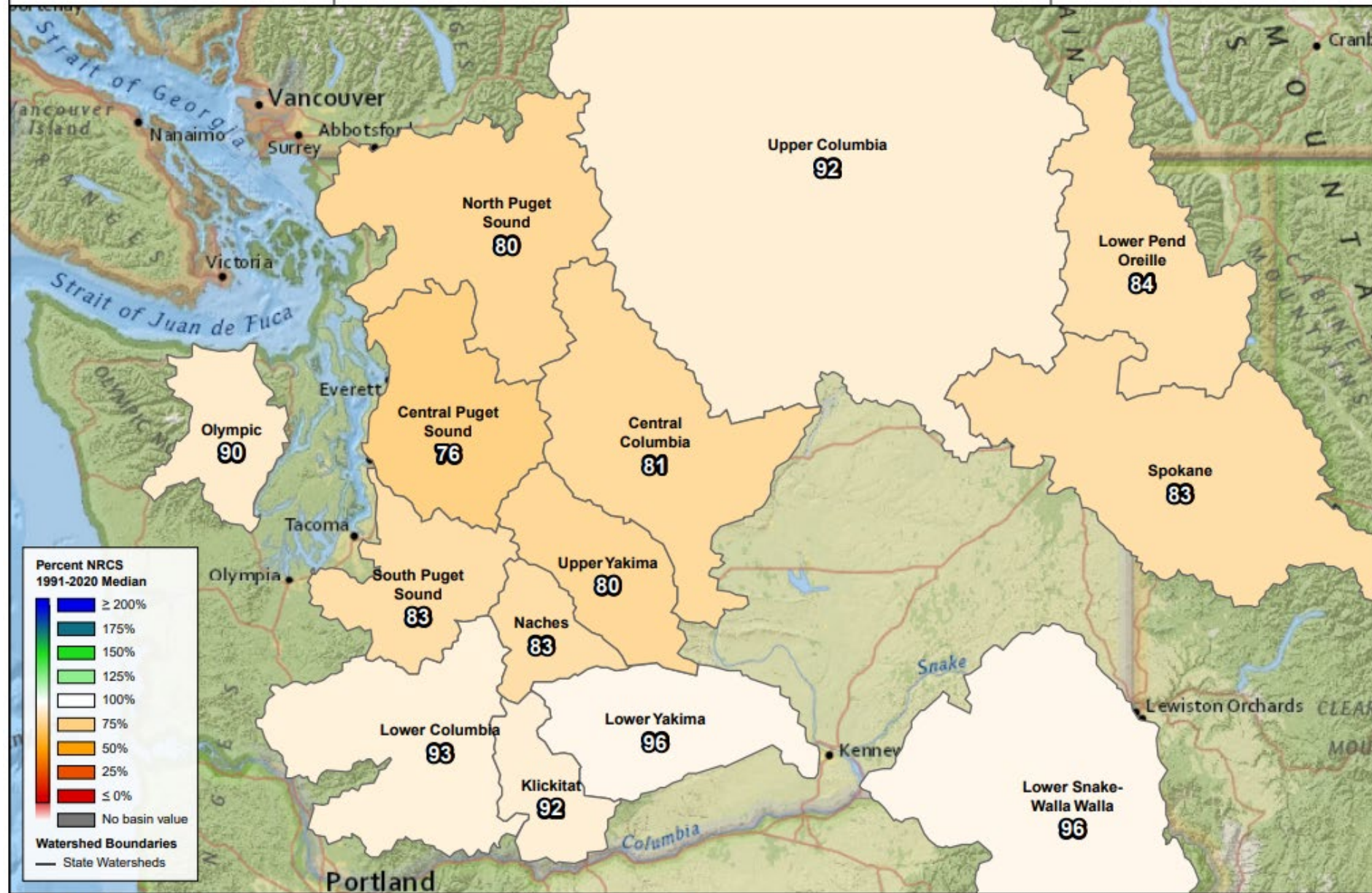
- Max
- Median (POR)
- Min
- Stats. Shading
- 2023 (10 sites)
- 2022 (10 sites)
- 2021 (10 sites)
- 2020 (10 sites)
- 2019 (10 sites)
- 2018 (10 sites)
- 2017 (10 sites)
- 2016 (10 sites)
- 2015 (10 sites)
- 2014 (10 sites)
- 2013 (10 sites)
- 2012 (10 sites)
- 2011 (10 sites)
- 2010 (10 sites)
- 2009 (10 sites)
- 2008 (10 sites)
- 2007 (10 sites)
- 2006 (9 sites)
- 2005 (9 sites)
- 2004 (9 sites)
- 2003 (9 sites)
- 2002 (9 sites)



Water Year to Date Precipitation

Percent NRCS 1991-2020 Median

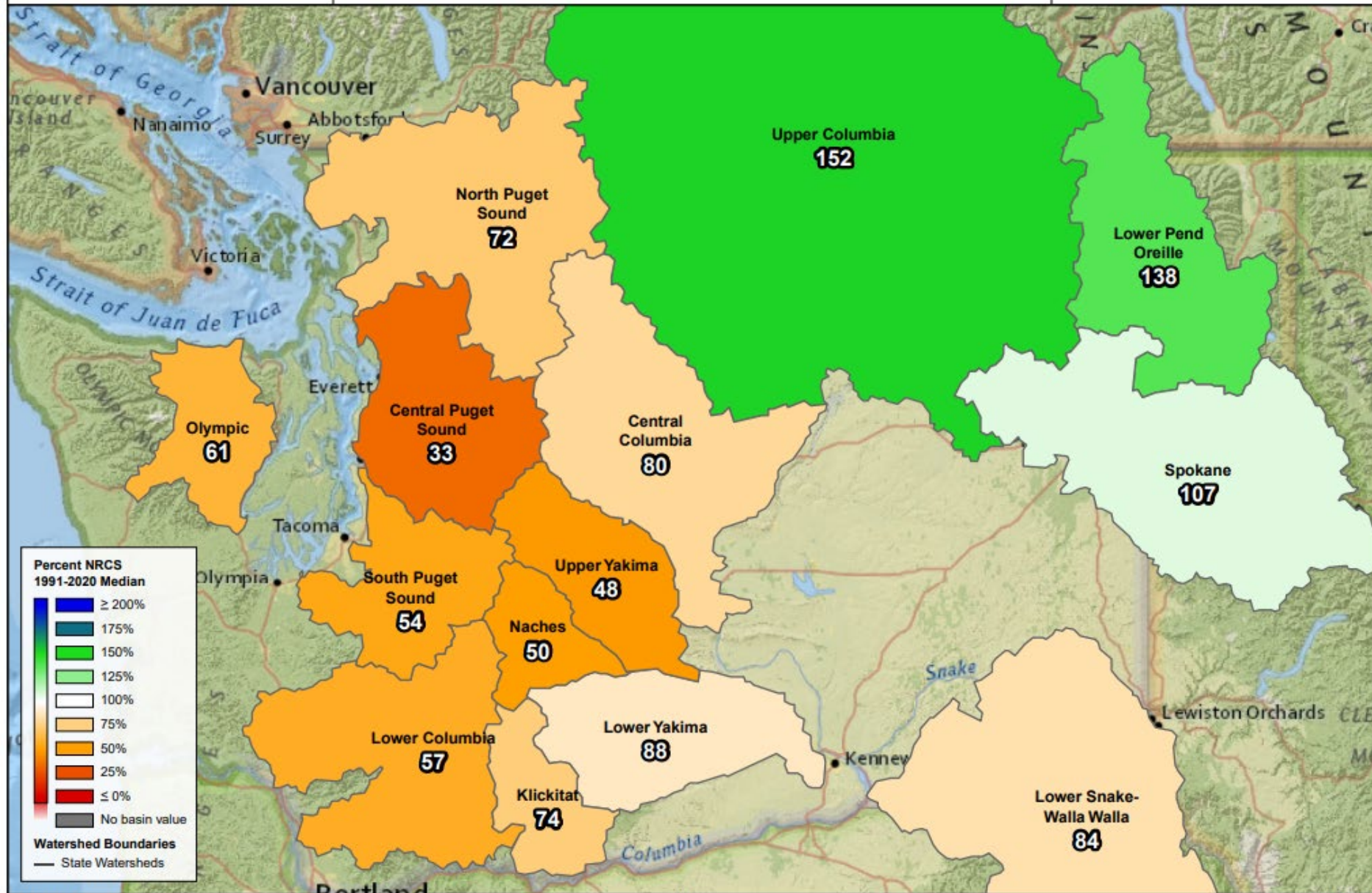
October 1, 2022 - May 17, 2023



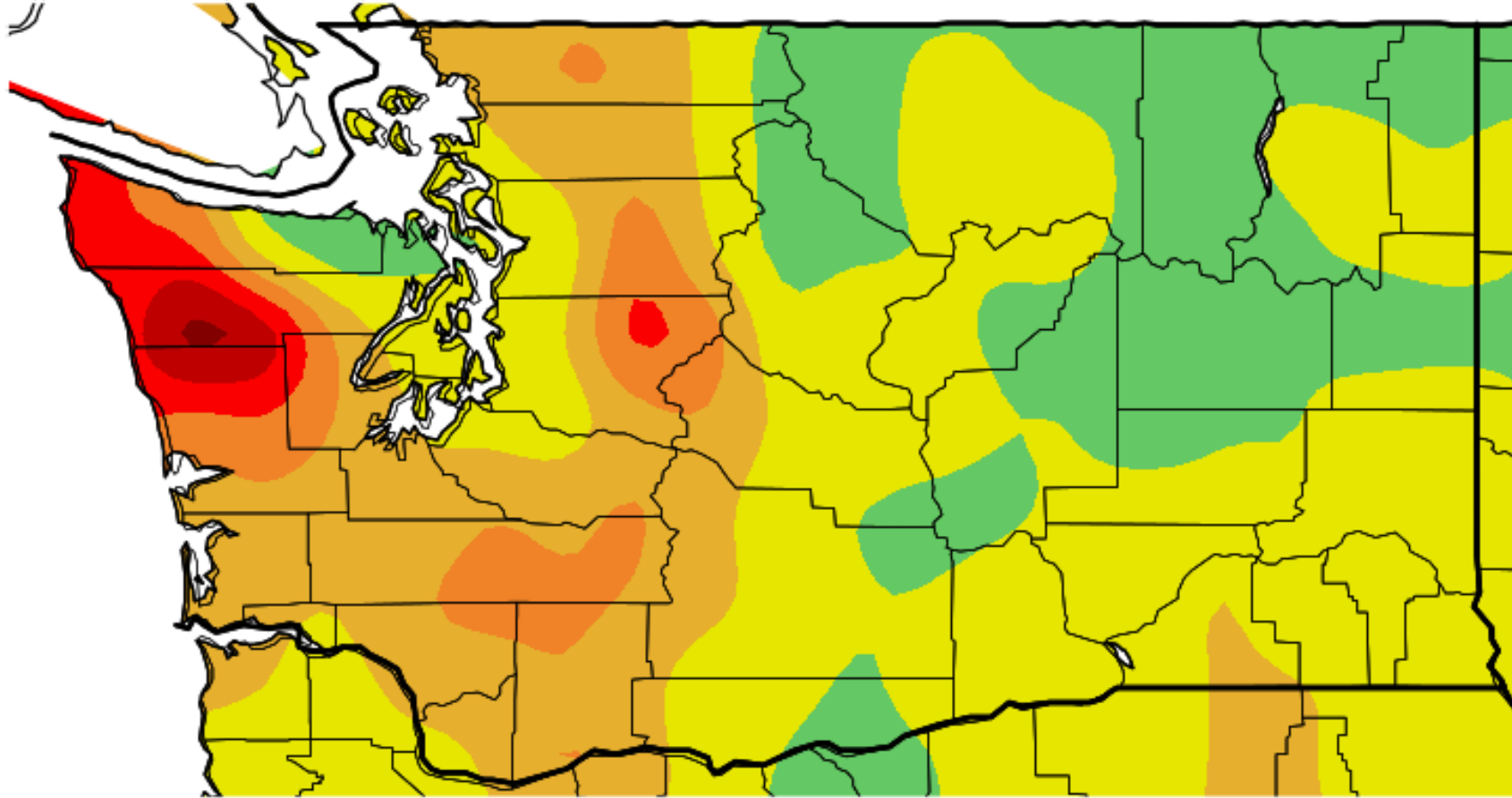
Month to Date Precipitation

Percent NRCS 1991-2020 Median

May 1, 2023 - May 17, 2023

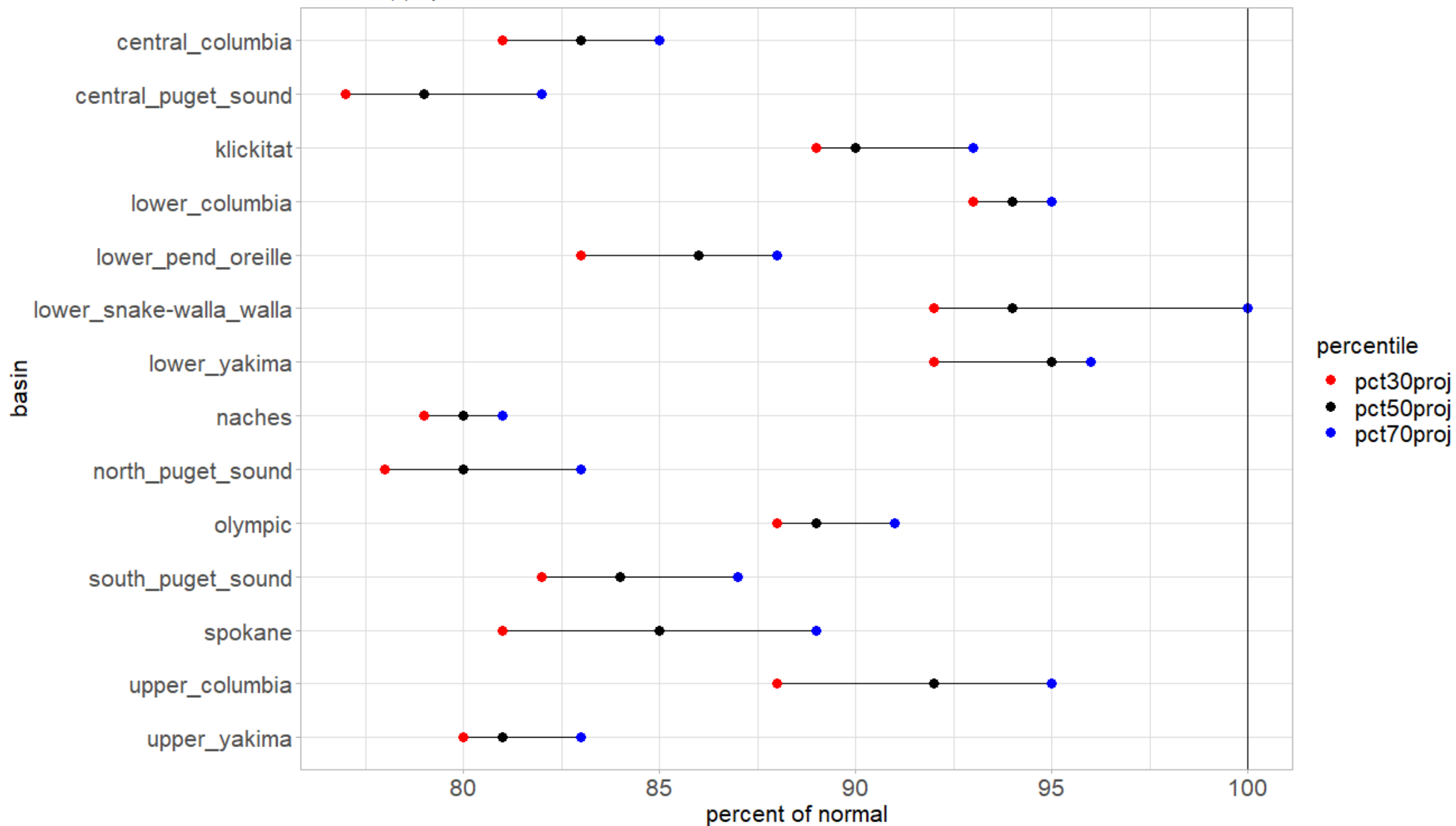


Precipitation Departure from Average (in.) 5/1/2023 – 5/17/2023



Generated 5/18/2023 at WRCC using provisional data.
NOAA Regional Climate Centers

basin accumulated precipitation projections to end of water year (Sept 30)
at low (30th percentile), medium (50th percentile), and high (70th percentile) levels of accumulation
NRCS Data | query date: 05-18

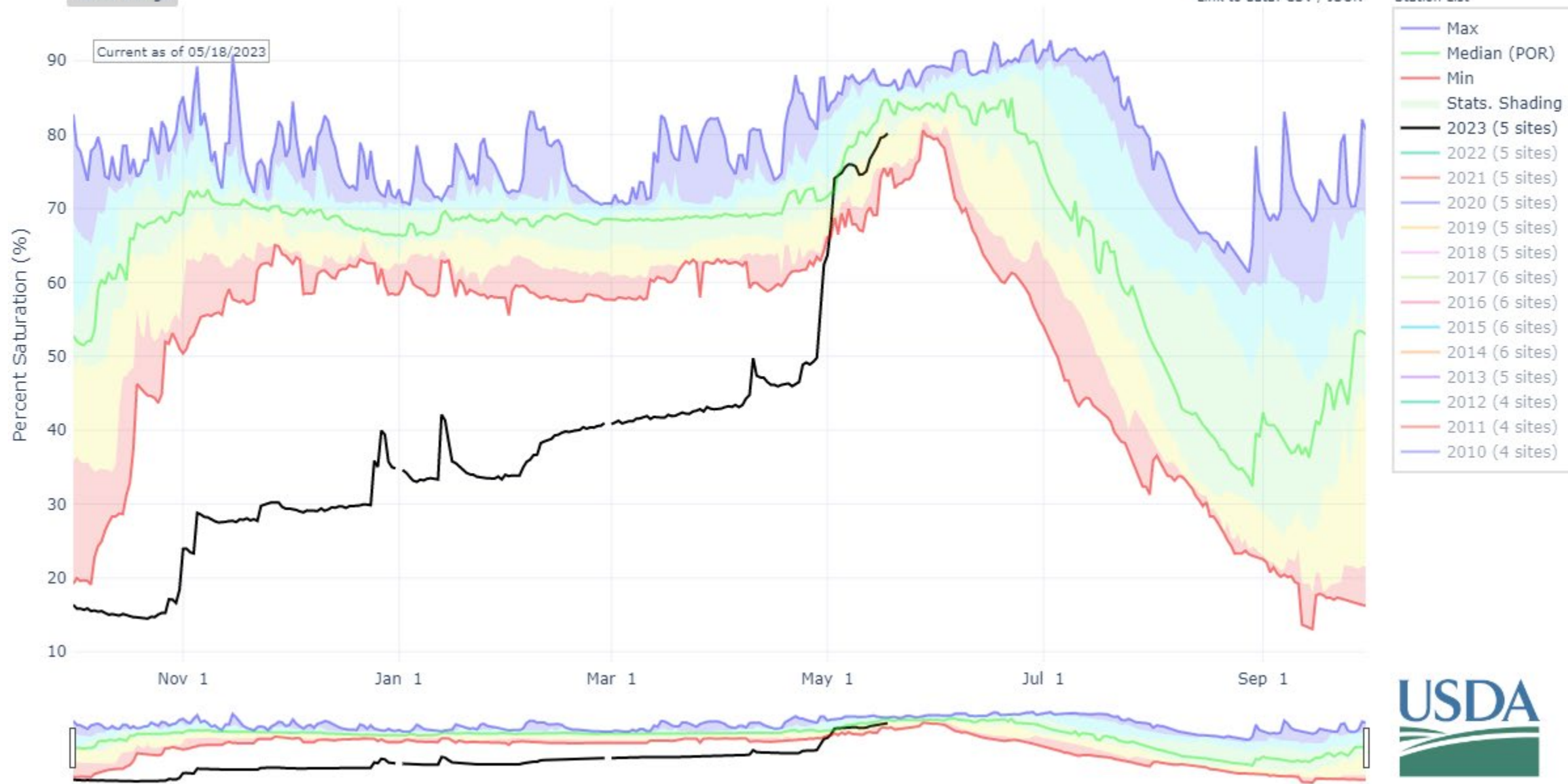


DEPTH AVERAGED SOIL SATURATION IN NORTH PUGET SOUND

Reset Range

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

Station List

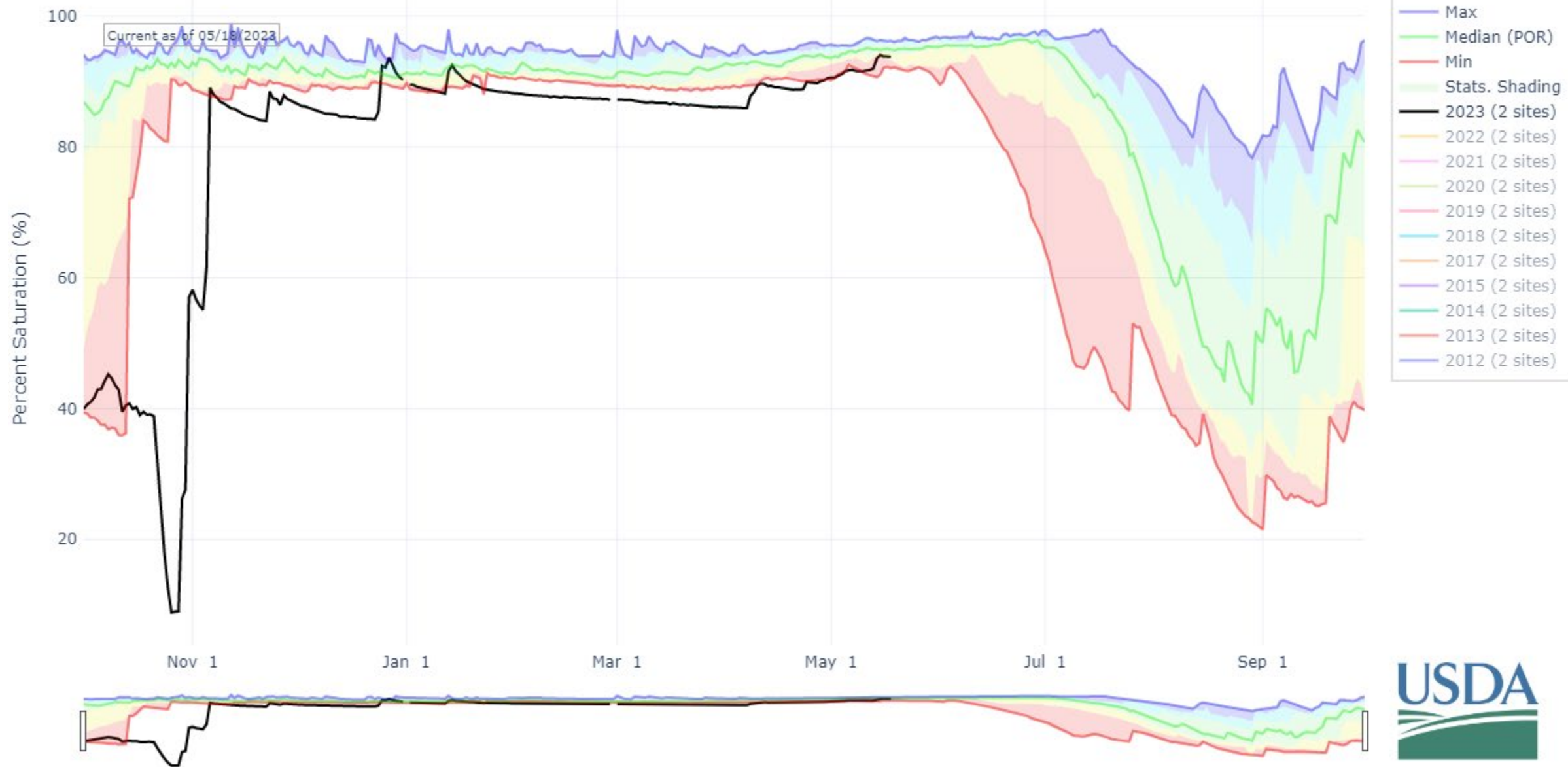


DEPTH AVERAGED SOIL SATURATION IN COWLITZ

Reset Range

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

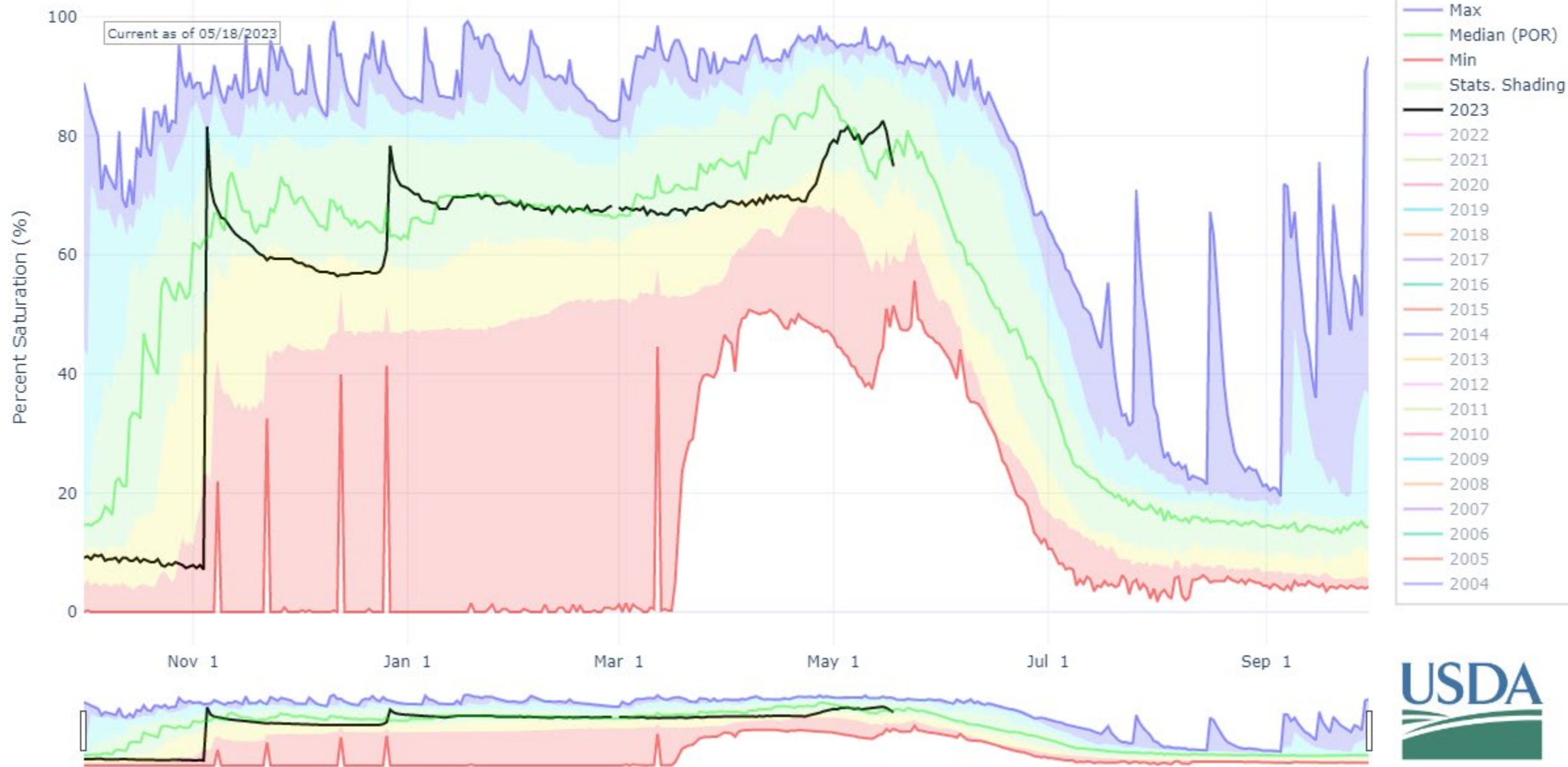
Station List



DEPTH AVERAGED SOIL SATURATION AT TROUGH

Reset Range

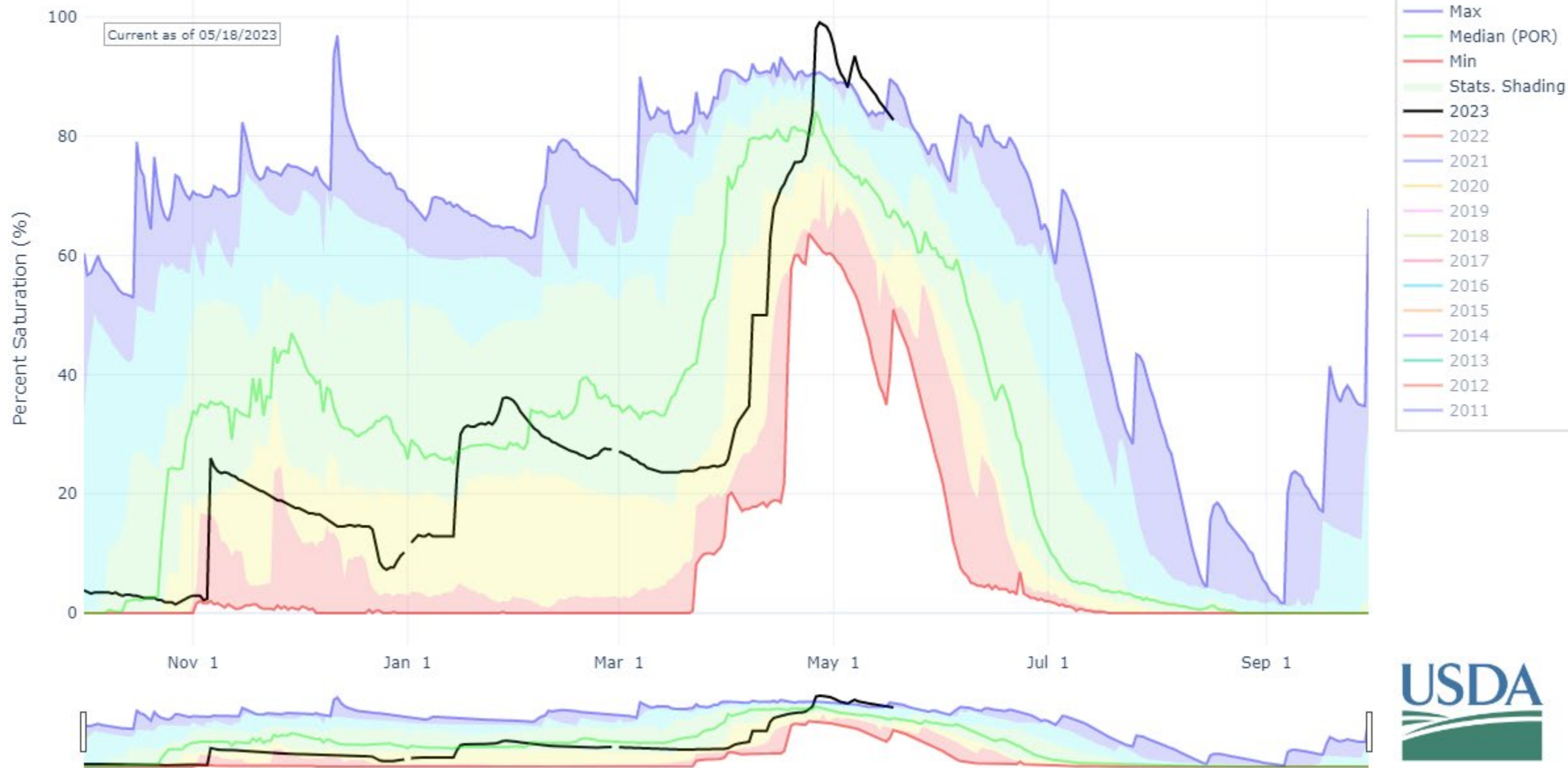
[Link to data: CSV / JSON](#)



DEPTH AVERAGED SOIL SATURATION AT SALMON MEADOWS

Reset Range

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



Muckamuck Burn Scar
North Fork Salmon Creek
January 2023

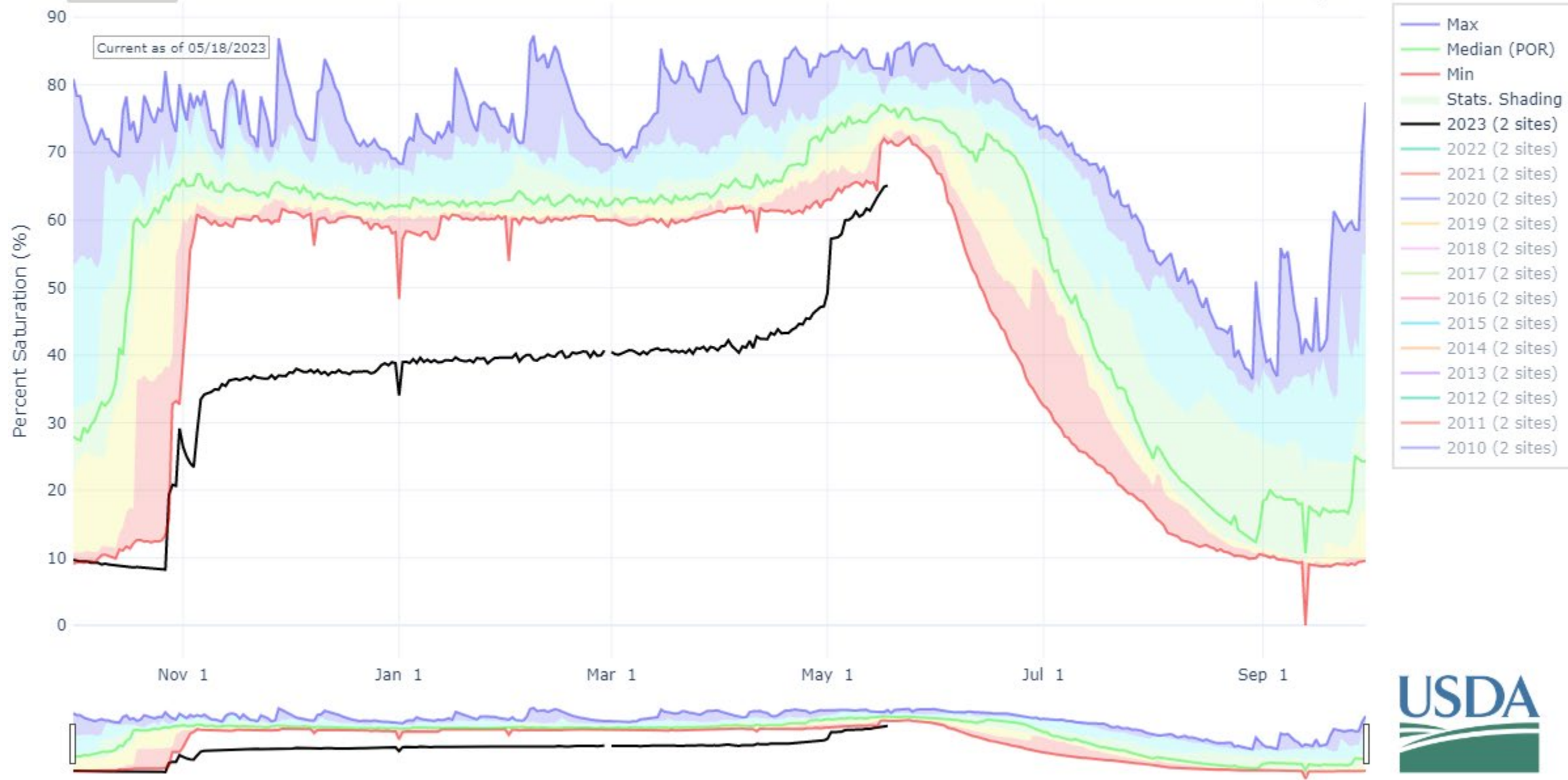


DEPTH AVERAGED SOIL SATURATION IN LAKE CHELAN

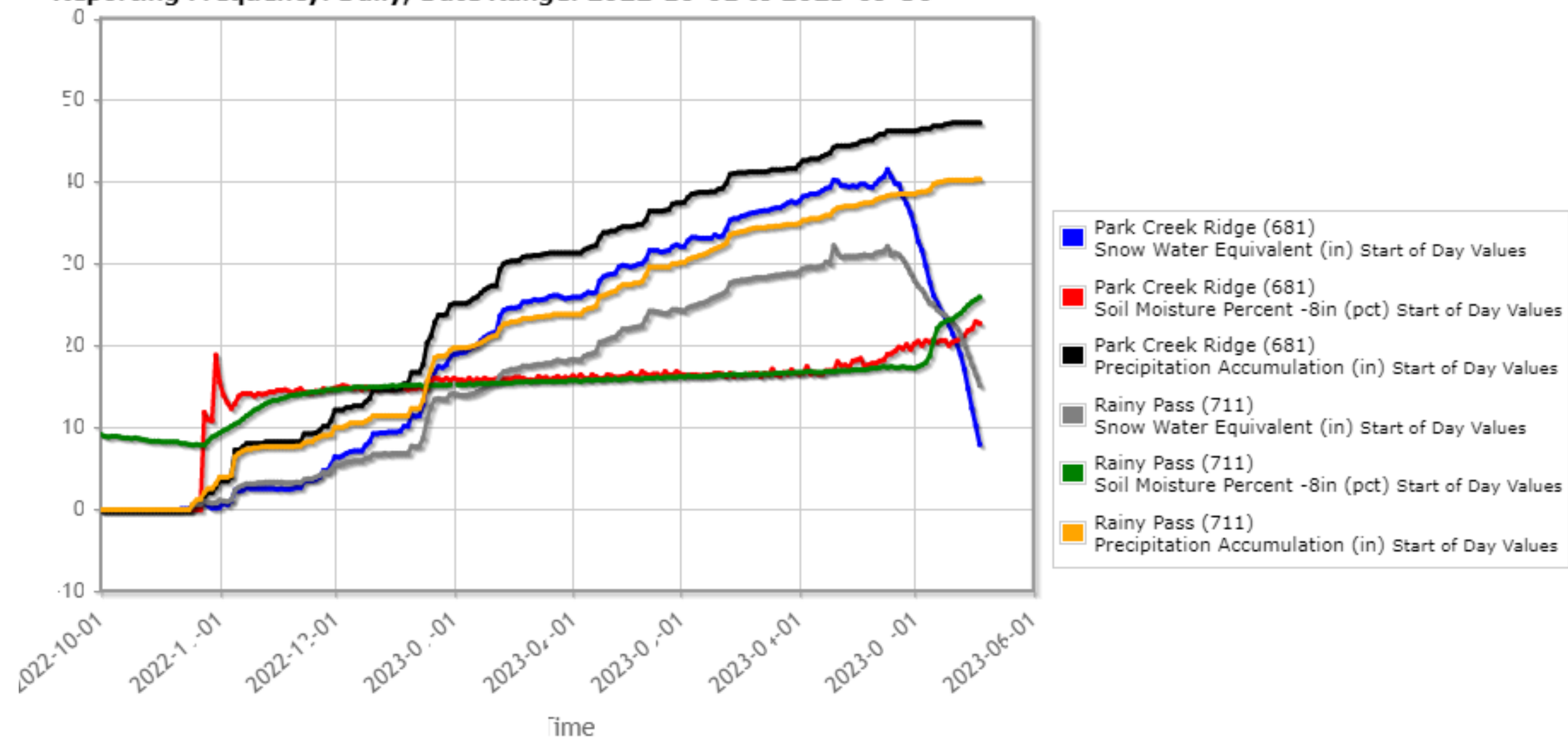
Reset Range

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

Station List

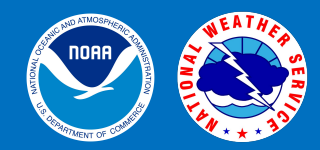


Reporting Frequency: Daily; Date Range: 2022-10-01 to 2023-09-30





Questions?



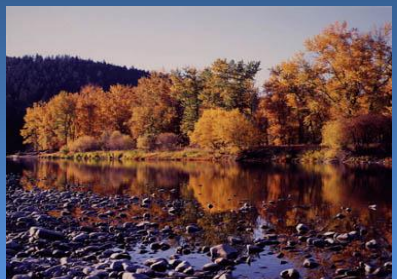
Northwest River Forecast Center



May 19, 2023 Washington Water Supply Availability Meeting



Amy Burke
NWRFC.watersupply@noaa.gov

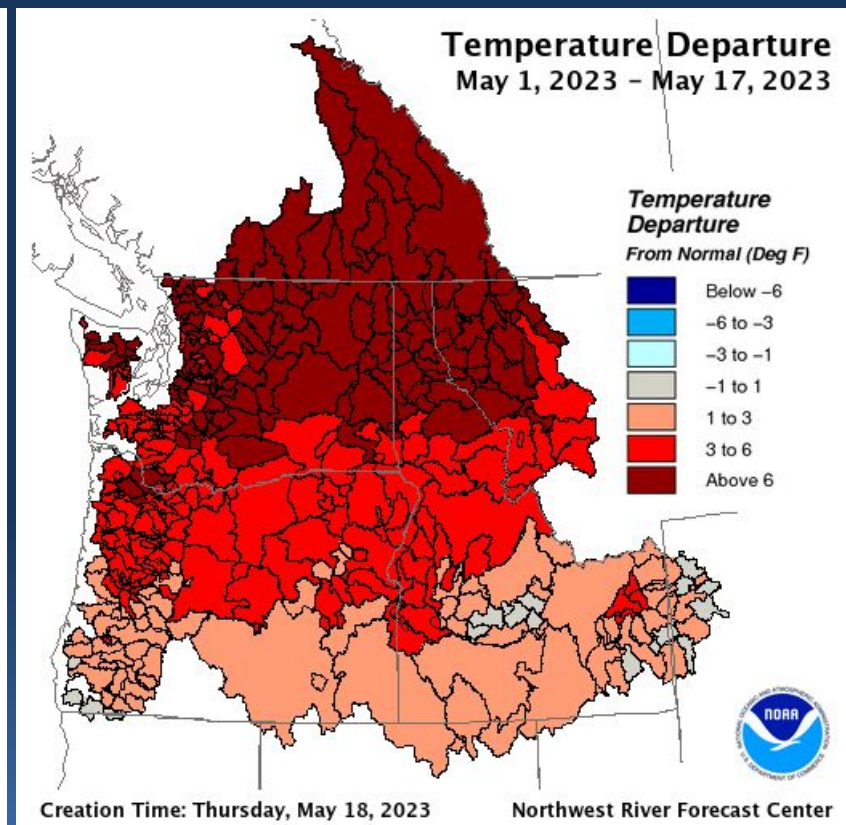
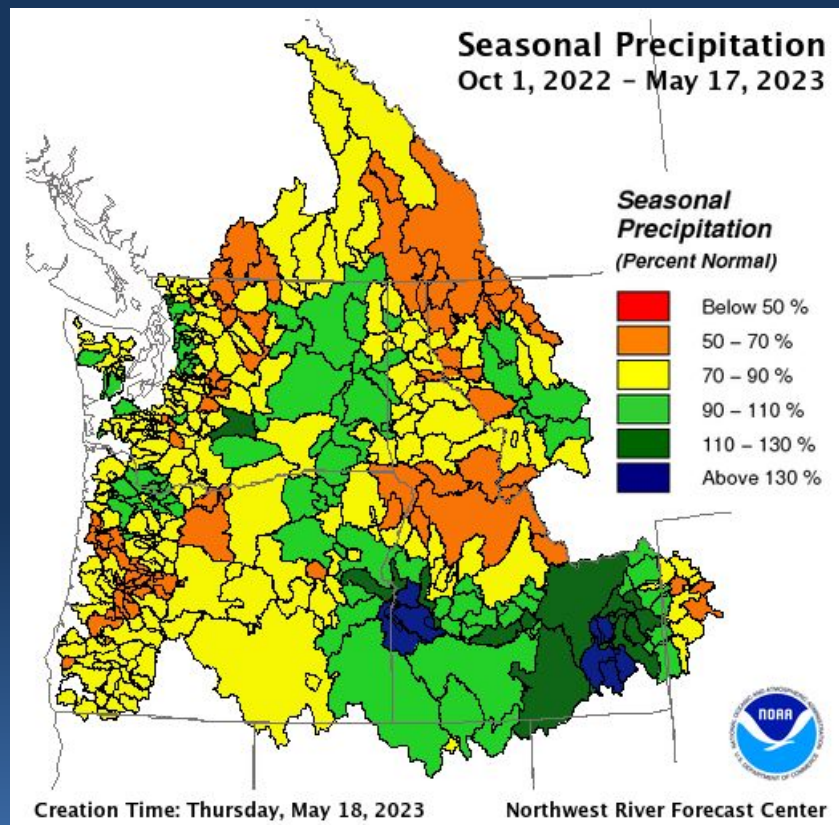
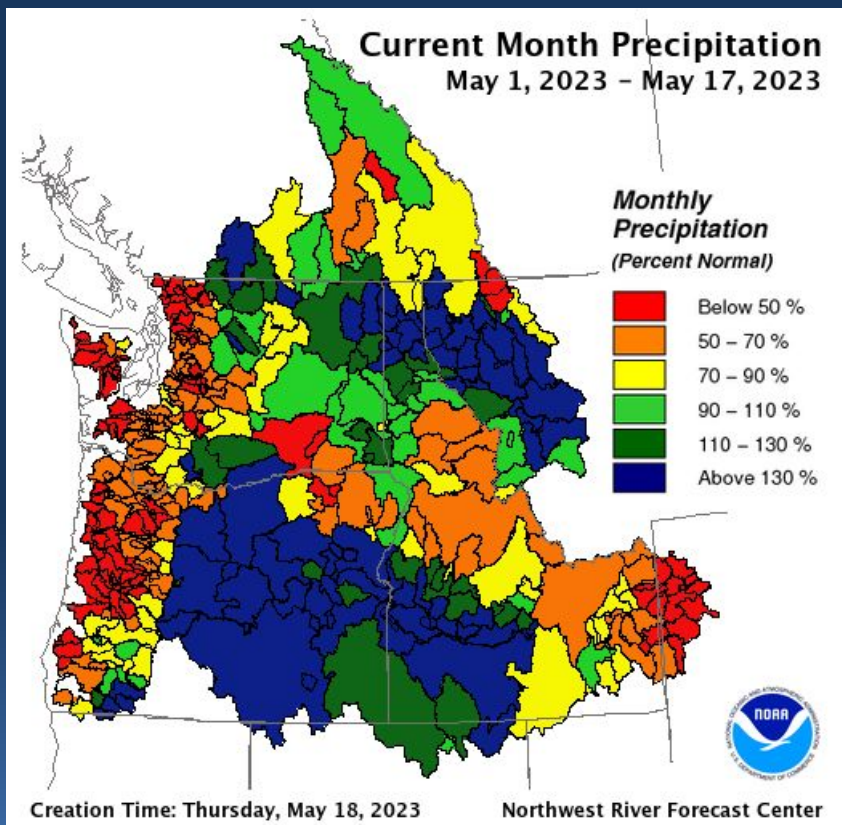


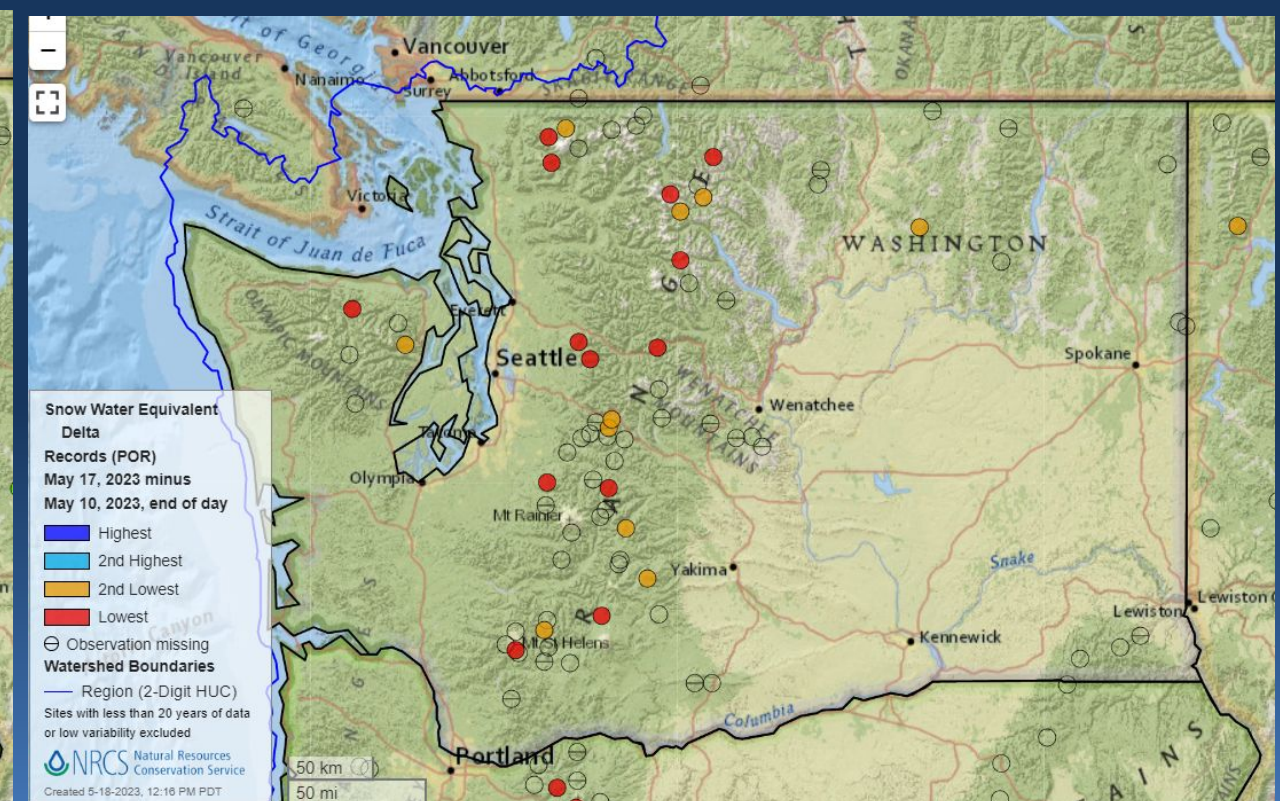
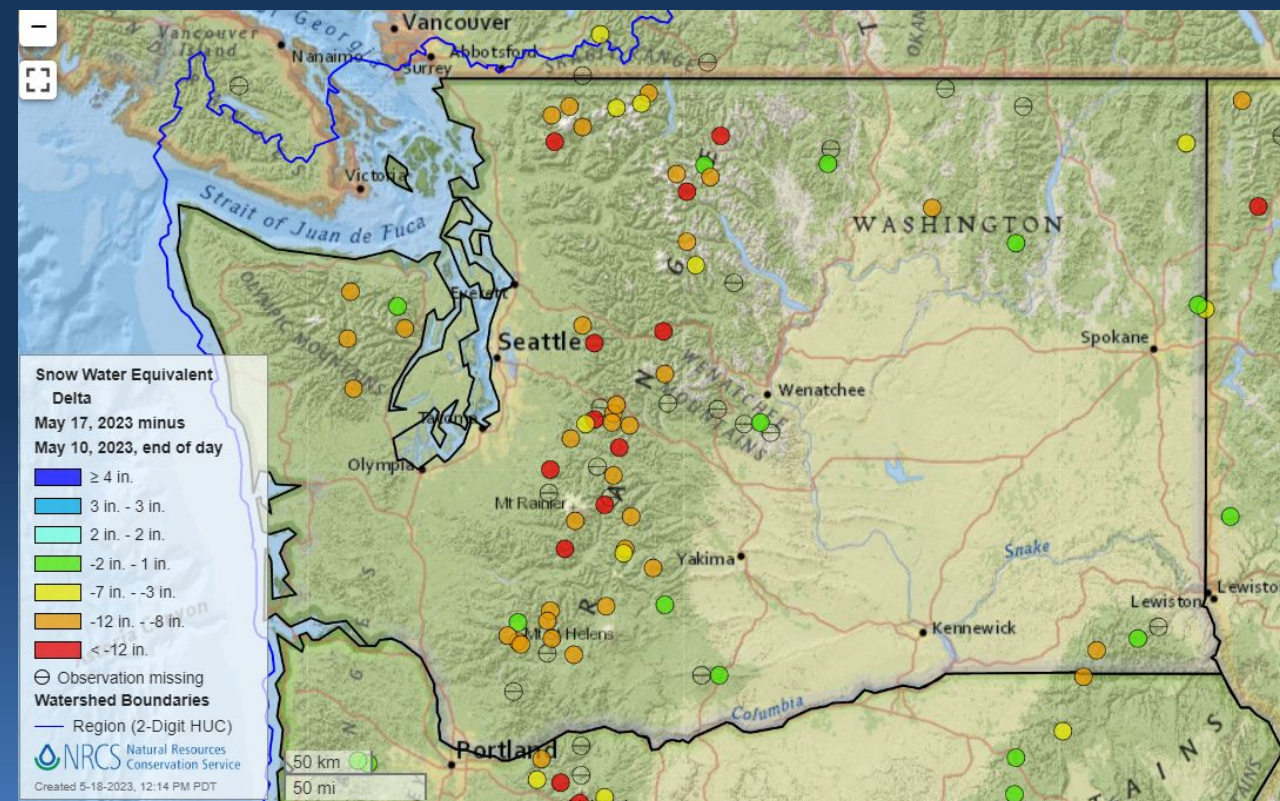


Take Home Messages

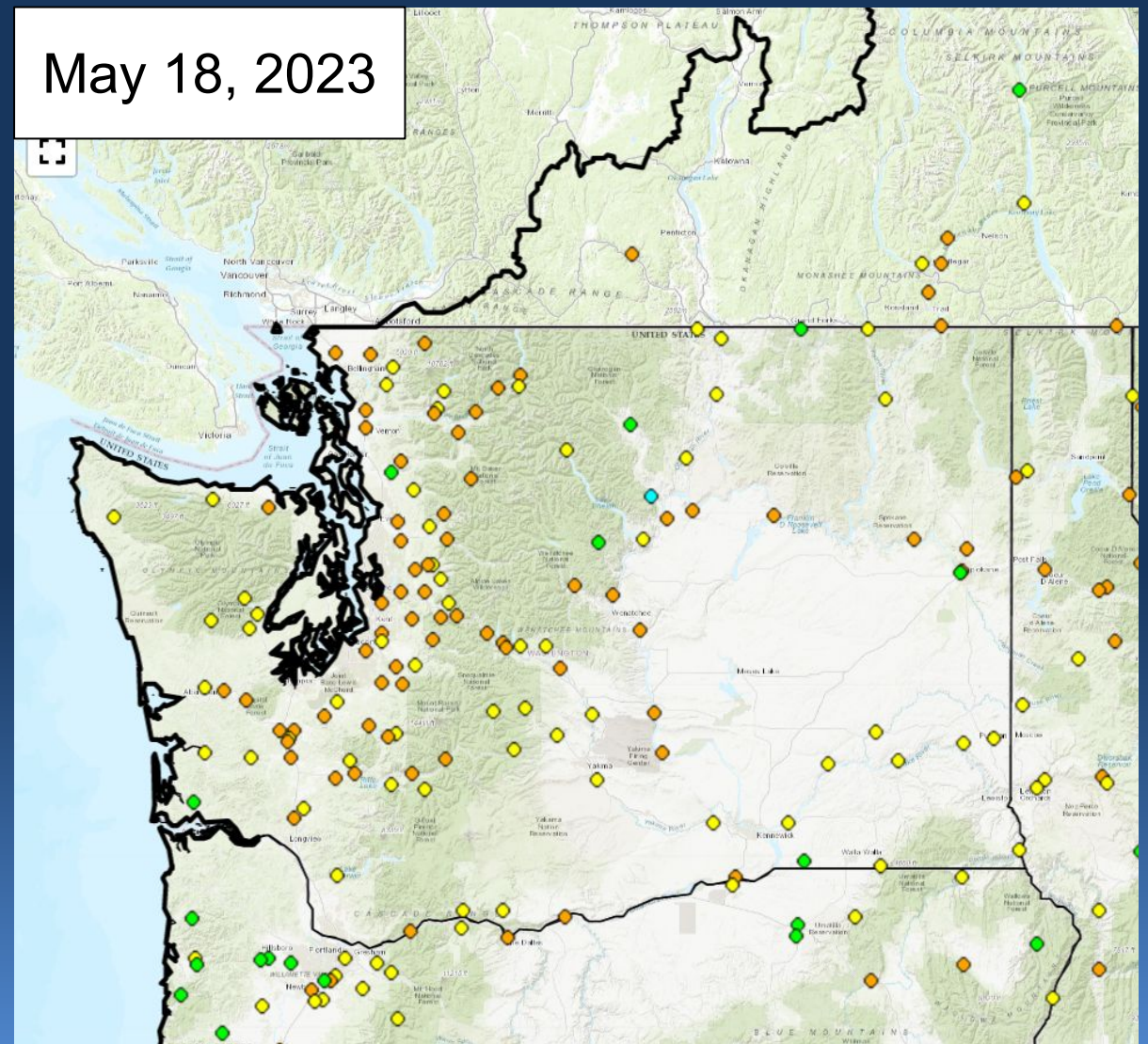
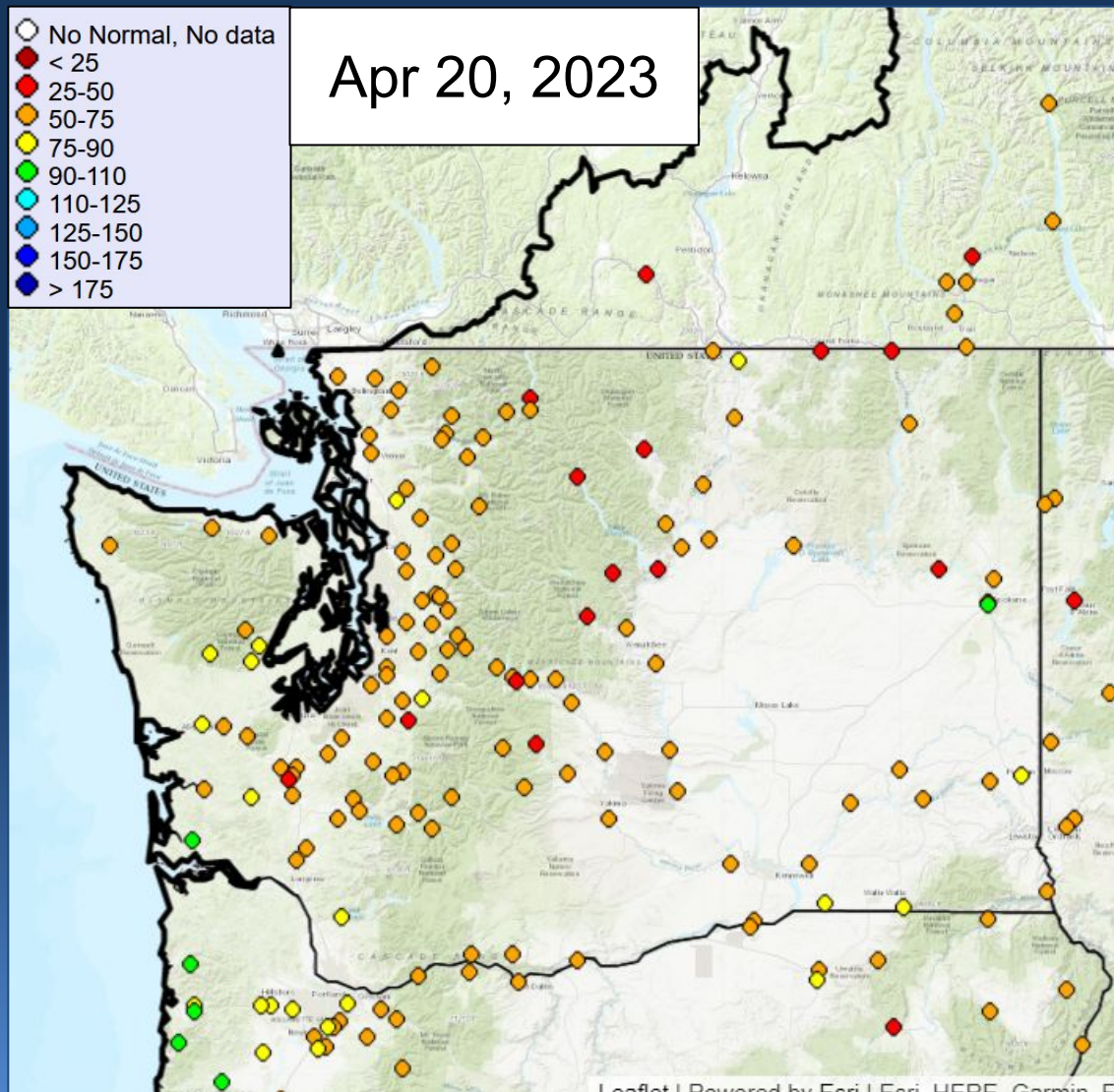
- May brought significant precipitation to some areas and warm temperature statewide
- Snow is melting very fast
- Adjusted runoff to date remains below normal
- Next 10 days precipitation forecast is below normal, temperatures should cool down
- ESP10 Natural Water Supply forecasts are a mix of normal and below normal
 - Forecasts indicate May will be the big runoff procedure this year
- Continued push and pull between low runoff and high snowpack

Precipitation and Temperature





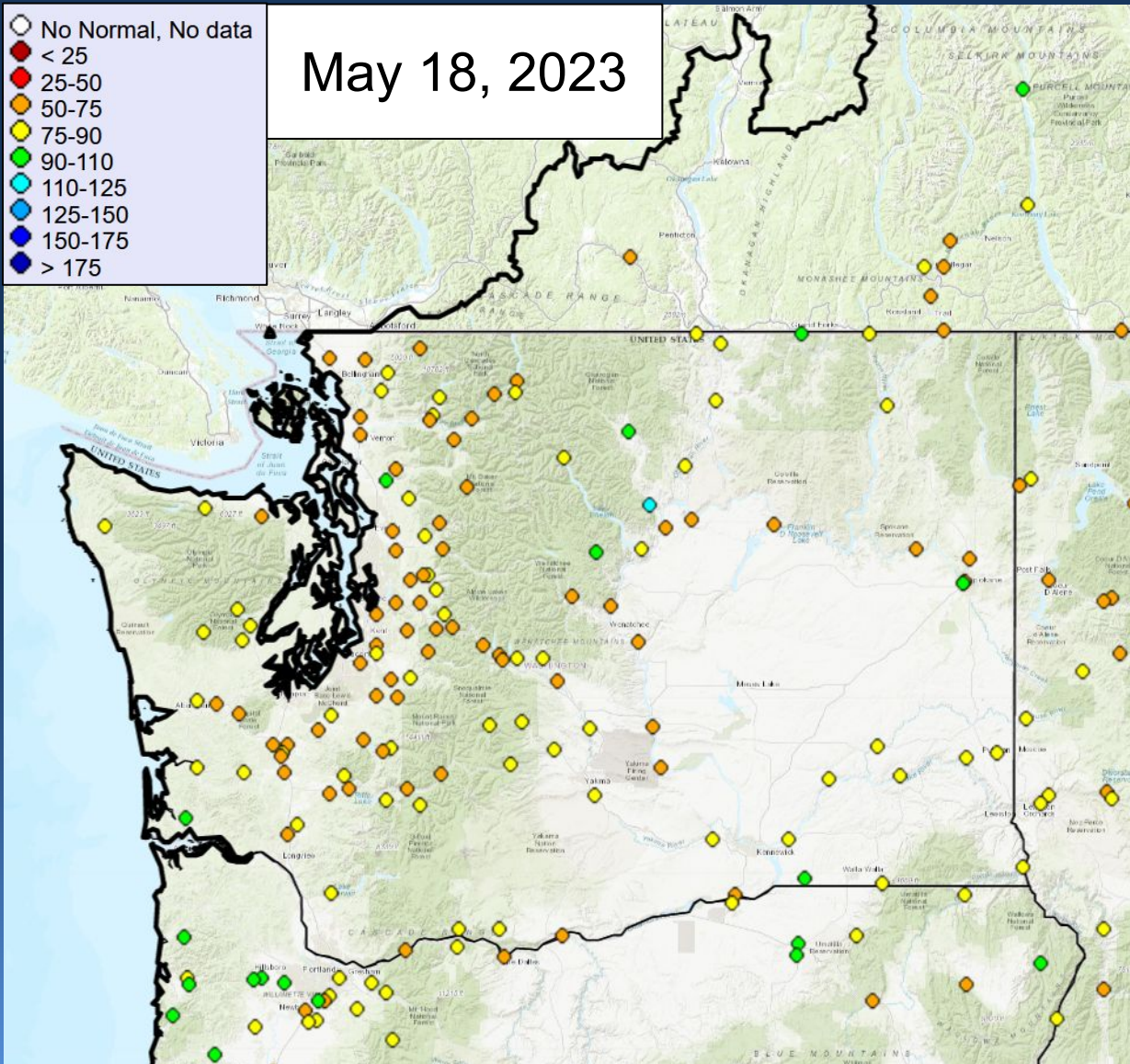
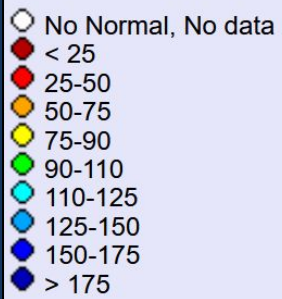
YTD Adjusted Natural Runoff





YTD Adjusted Natural Runoff

May 18, 2023



% Normal Runoff Oct 1st – May 18th

Washington



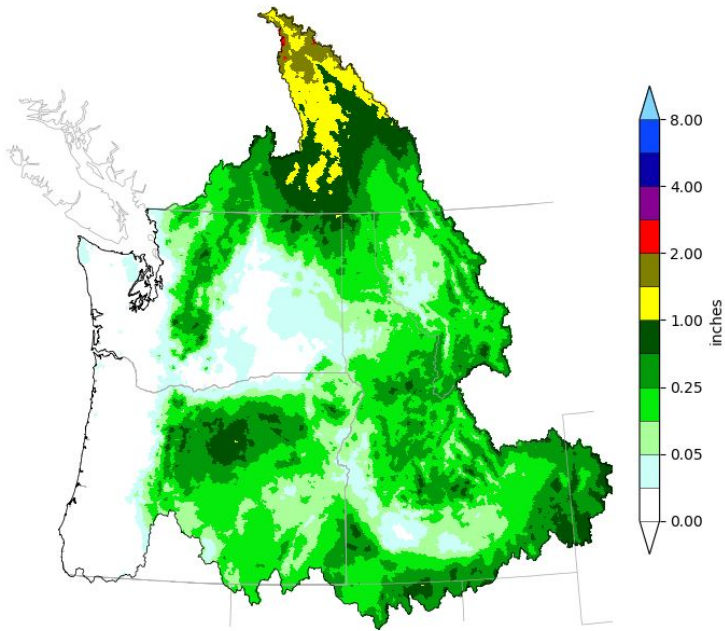
Skagit nr Mt Vernon	72	12
Dungeness nr Sequim	67	9
Chehalis at Porter	72	3
Okanogan at Malott	78	20
Methow nr Pateros	114	63
Yakima at Parker	82	21
Walla Walla nr Touchet	94	6



10 Day Precipitation Forecast



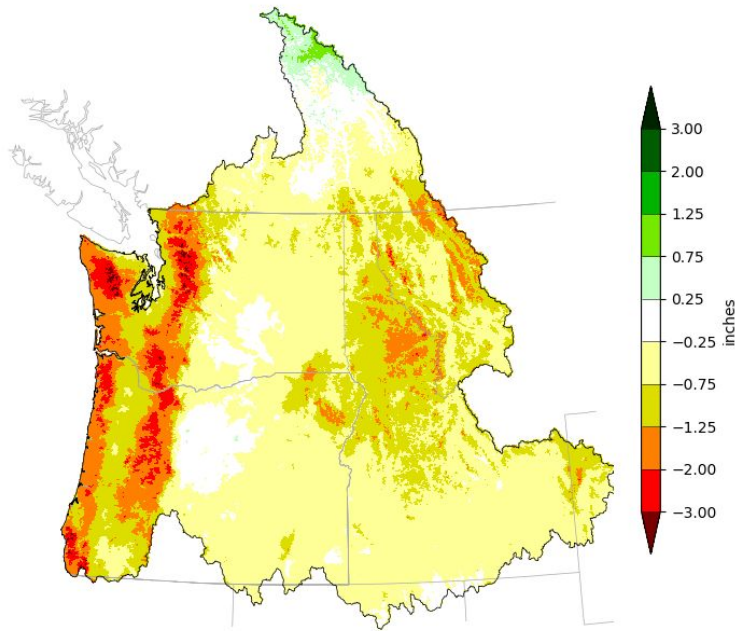
Northwest River Forecast Center
10 Day QPF, Ending 12Z, 05/28/23



Creation Time: Thu May 18 15:17:36 UTC 2023



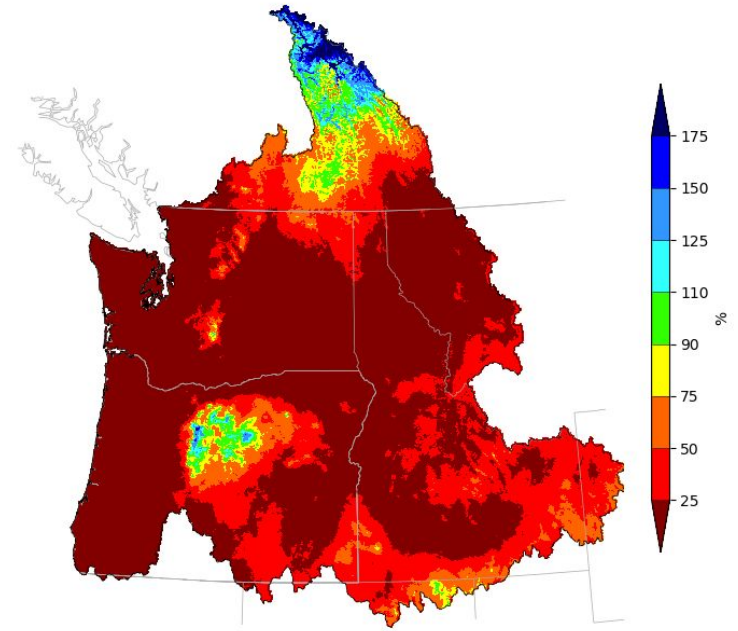
Northwest River Forecast Center
10 Day QPF (Deviation from Climatology), Ending 12Z, 05/28/23



Creation Time: Thu May 18 15:19:22 UTC 2023



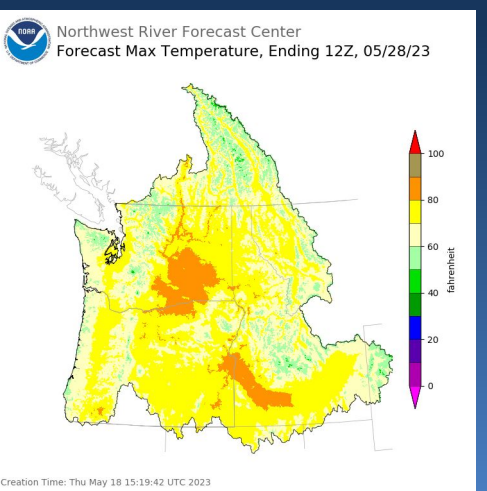
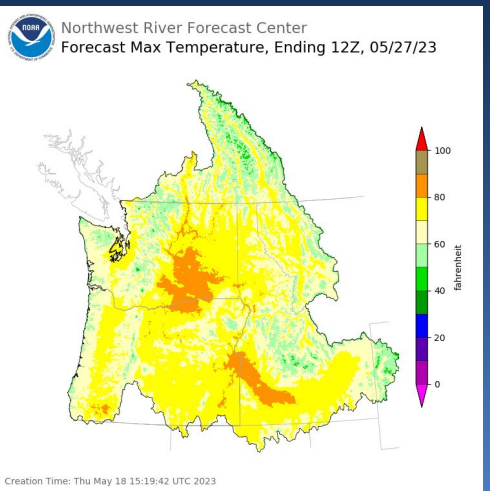
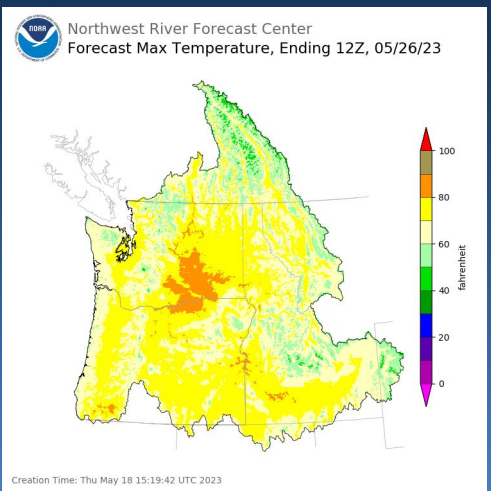
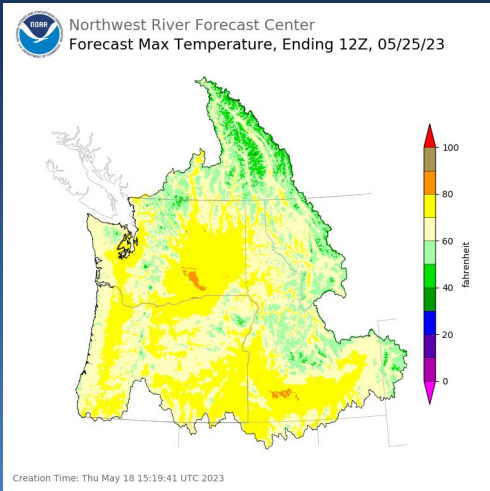
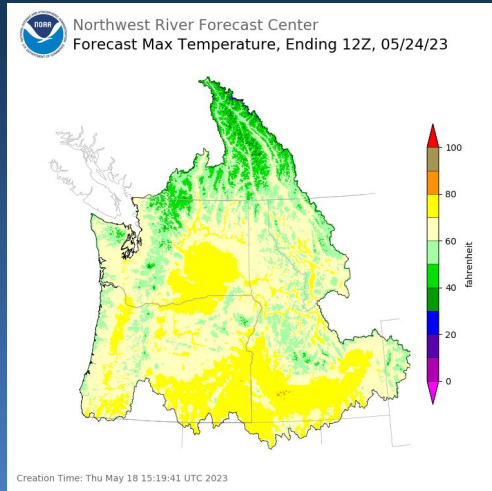
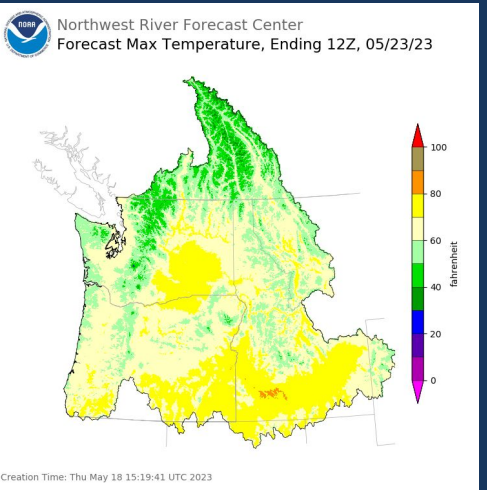
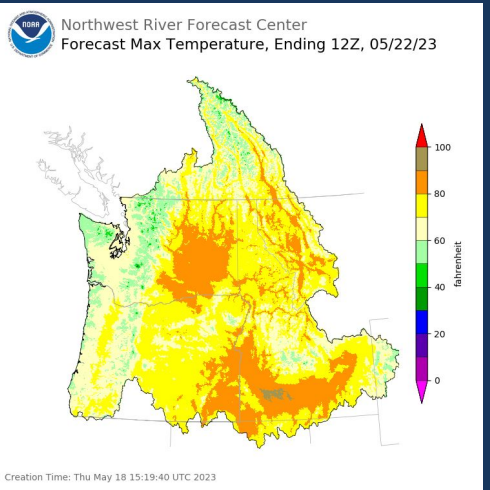
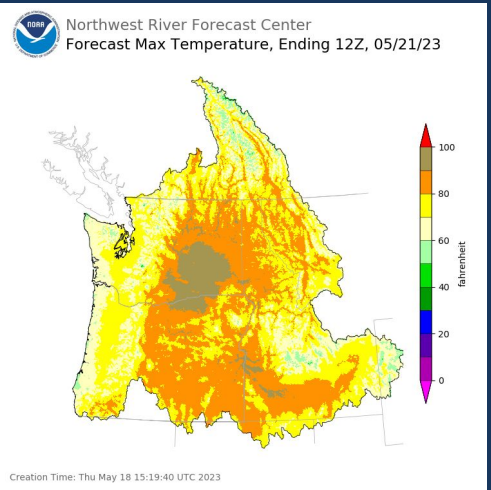
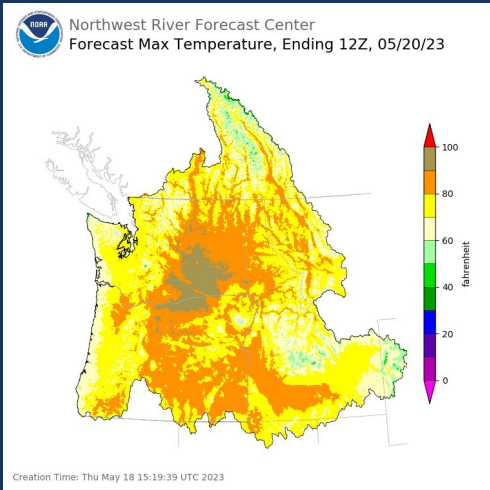
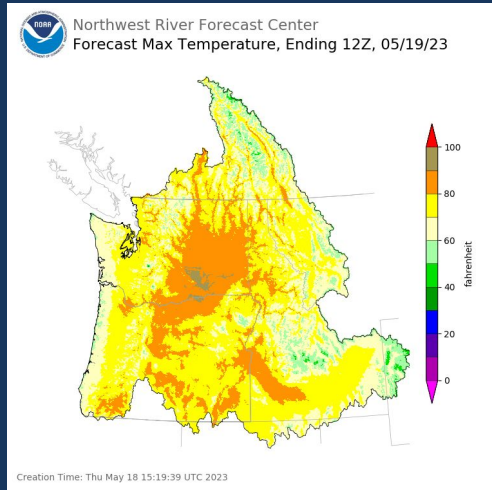
Northwest River Forecast Center
10 Day QPF (Percent of Climatology), Ending 12Z, 05/28/23

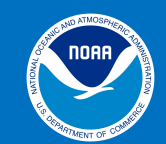


Creation Time: Thu May 18 15:18:47 UTC 2023

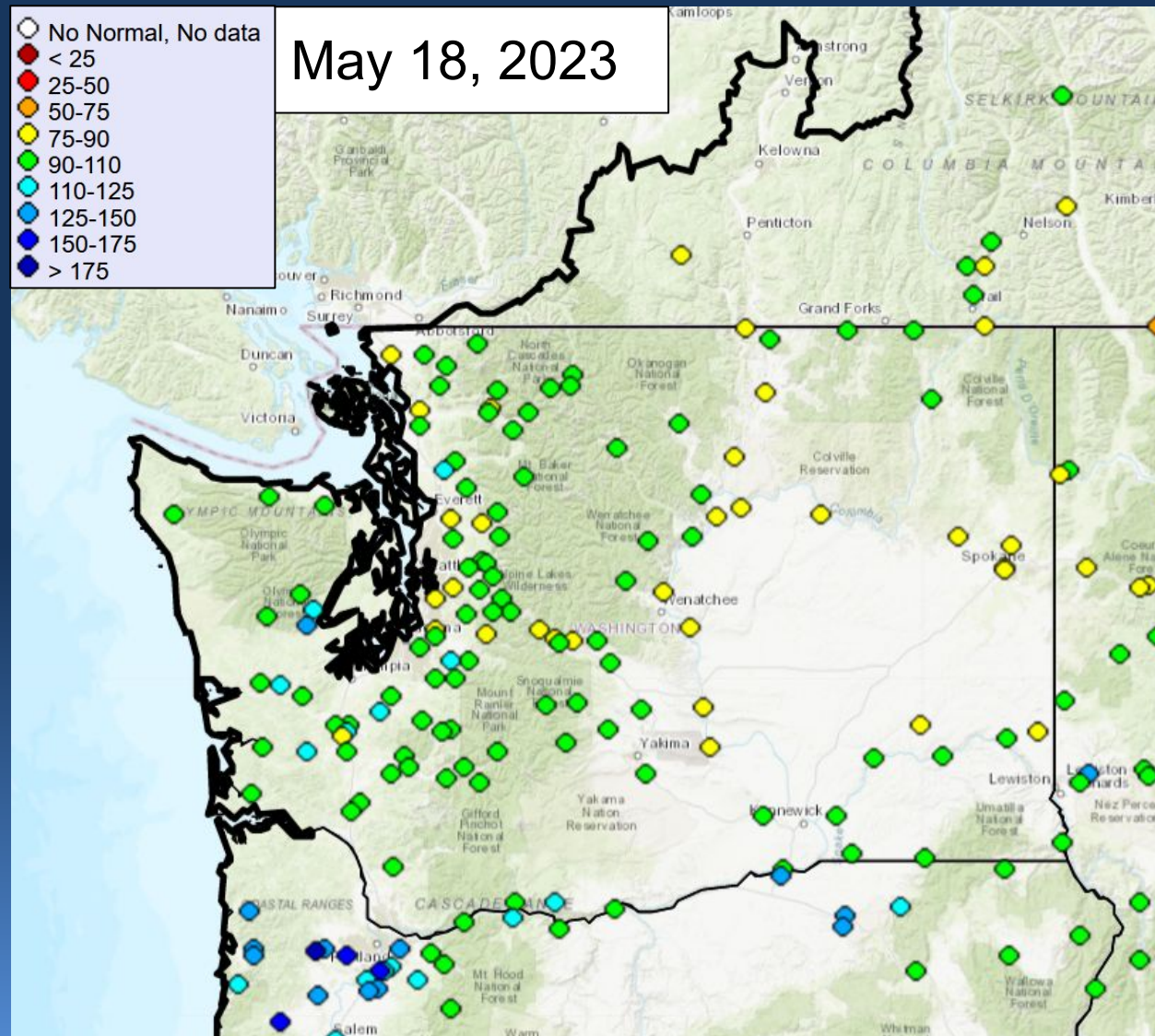


Temperature Forecast





ESP10 Natural Water Supply Forecasts



% Normal Apr -Sep Volume

Washington

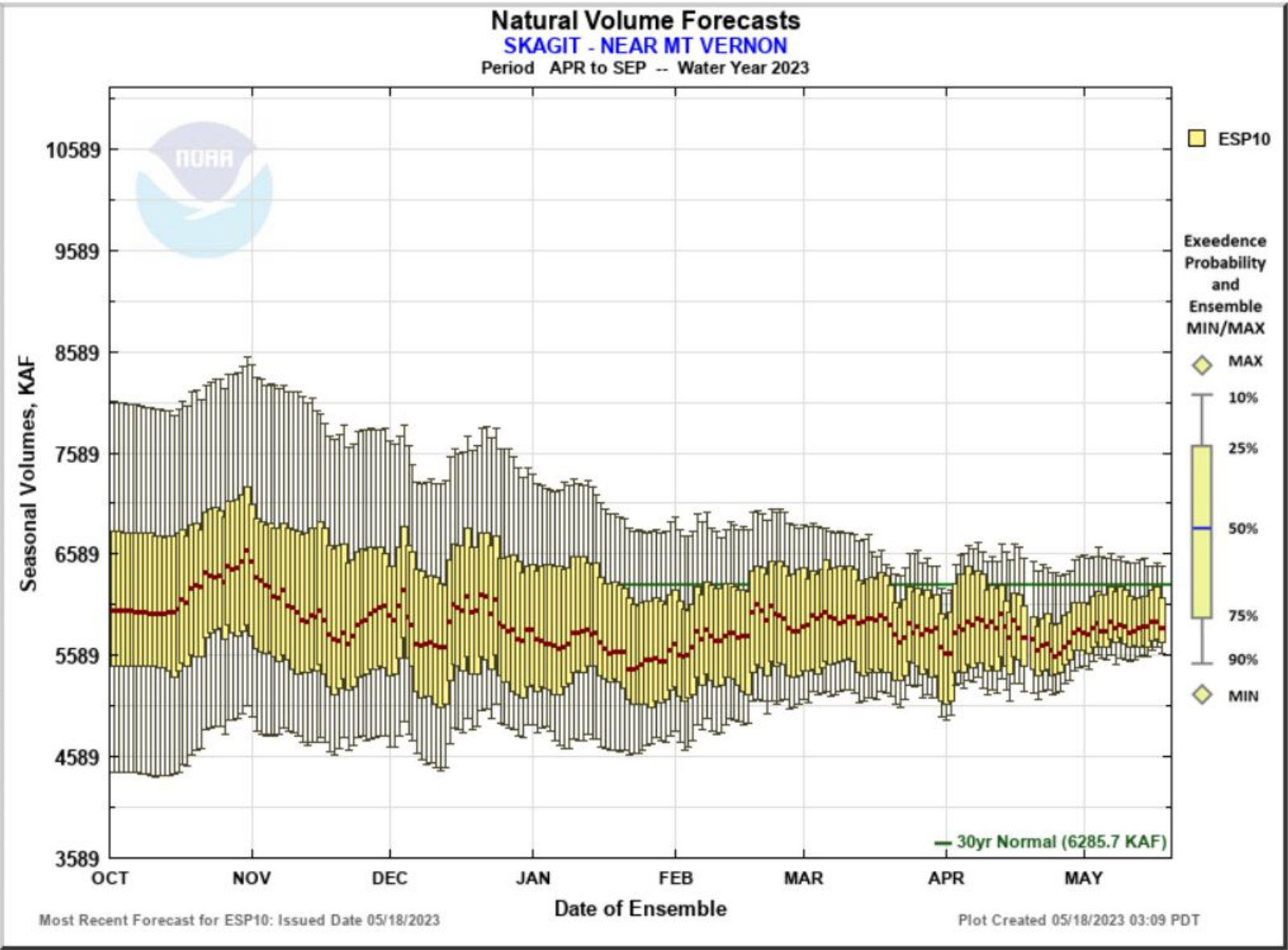


Skagit nr Mt Vernon	93	2
Dungeness nr Sequim	95	0
Chehalis at Porter	101	-10
Okanogan at Malott	79	5
Methow nr Pateros	109	34
Yakima at Parker	94	2
Walla Walla nr Touchet	109	4



ESP10 Natural Water Supply Forecasts

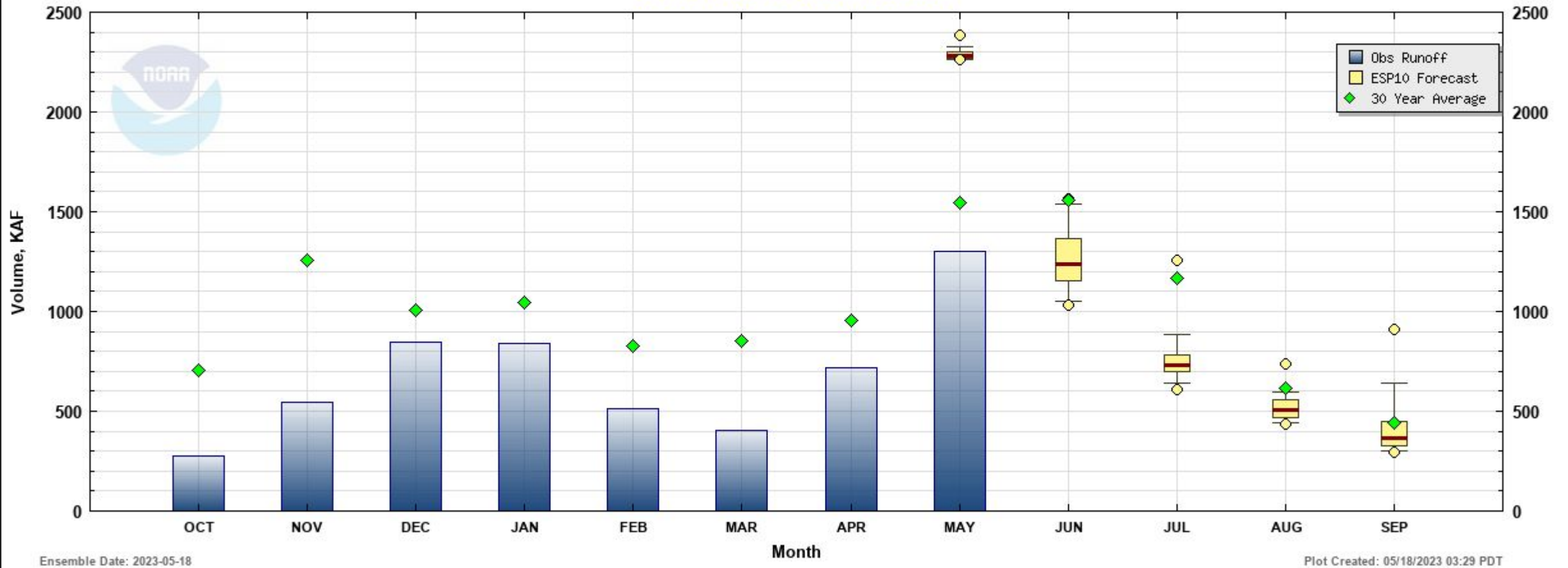
SKAGIT - NEAR MT VERNON (MVEW1) Forecasts for Water Year 2023					
Natural Forecast					
ESP with 10 Days QPF Ensemble: 2023-05-18 Issued: 2023-05-18					
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	5611	5859	93	6462	6286
APR-JUL	4744	4982	95	5382	5228
JAN-SEP	7356	7603	84	8206	9004
JAN-JUL	6488	6726	85	7127	7946
OCT-SEP	9035	9283	78	9886	11966
Experimental					
HEFS with 15 days EQPF Ensemble: 2023-05-18 Issued: 2023-05-18					
APR-SEP	5636	5884	94	6531	6286
APR-JUL	4768	5008	96	5437	5228
JAN-SEP	7380	7629	85	8275	9004
JAN-JUL	6513	6753	85	7181	7946
OCT-SEP	9060	9308	78	9955	11966
Reference					
ESP with 0 Days QPF Ensemble: 2023-05-18 Issued: 2023-05-18					
APR-SEP	5619	5979	95	6668	6286
APR-JUL	4730	5072	97	5575	5228
JAN-SEP	7364	7723	86	8412	9004
JAN-JUL	6474	6817	86	7319	7946
OCT-SEP	9043	9403	79	10092	11966
Move the mouse over the desired "Forecast Period" to display a graph.					





ESP10 Natural Water Supply Forecasts

Natural Volume Monthly Forecasts (ESP10) for Water Year 2023
(MVEW1) SKAGIT - NEAR MT VERNON





ESP10 Natural Water Supply Forecasts

OKANOGAN - AT MALOTT (OKMW1) Forecasts for Water Year 2023

Natural Forecast

ESP with 10 Days QPF Ensemble: 2023-05-18 Issued: 2023-05-18

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	Average	10 %	
APR-SEP	1301	1429	79	1610	1804
APR-JUL	1209	1299	79	1465	1643
JAN-SEP	1486	1614	78	1795	2070
JAN-JUL	1394	1483	78	1649	1908
OCT-SEP	1634	1762	76	1943	2318

Experimental

HEFS with 15 days EQPF Ensemble: 2023-05-18 Issued: 2023-05-18

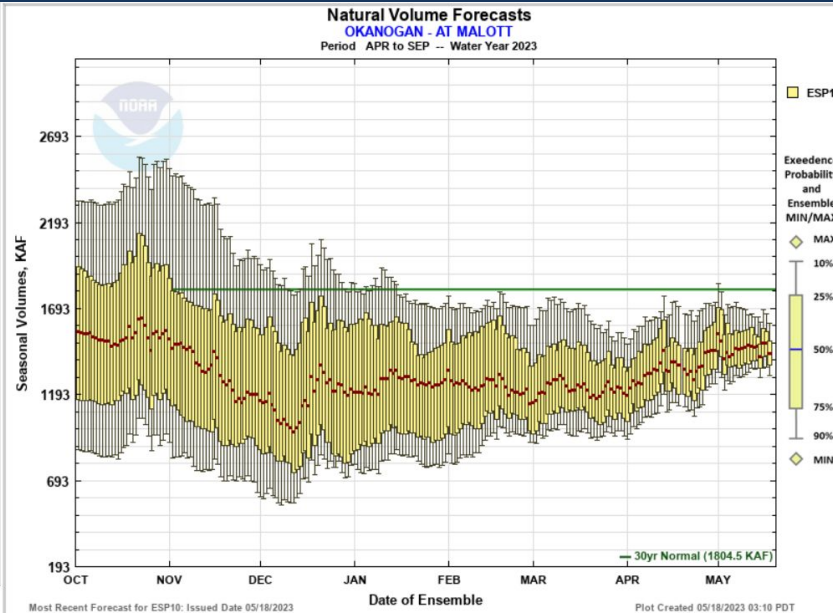
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	Average	10 %	
APR-SEP	1310	1446	80	1675	1804
APR-JUL	1221	1336	81	1502	1643
JAN-SEP	1495	1631	79	1860	2070
JAN-JUL	1406	1521	80	1686	1908
OCT-SEP	1643	1779	77	2008	2318

Reference

ESP with 0 Days QPF Ensemble: 2023-05-18 Issued: 2023-05-18

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	Average	10 %	
APR-SEP	1287	1468	81	1740	1804
APR-JUL	1203	1349	82	1602	1643
JAN-SEP	1472	1653	80	1924	2070
JAN-JUL	1388	1534	80	1787	1908
OCT-SEP	1620	1801	78	2073	2318

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



NEAR PARKER (PARW1) Forecasts for Water Year 2023

Natural Forecast

Ensemble: 2023-05-18 Issued: 2023-05-18

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	Average	10 %	
APR-SEP	2027	2132	97	2132	2081
APR-JUL	1862	1936	99	1936	1878
JAN-SEP	2526	2631	86	2631	2944
JAN-JUL	2361	2435	86	2435	2741
OCT-SEP	2940	3045	83	3045	3541

Experimental

Ensemble: 2023-05-18 Issued: 2023-05-18

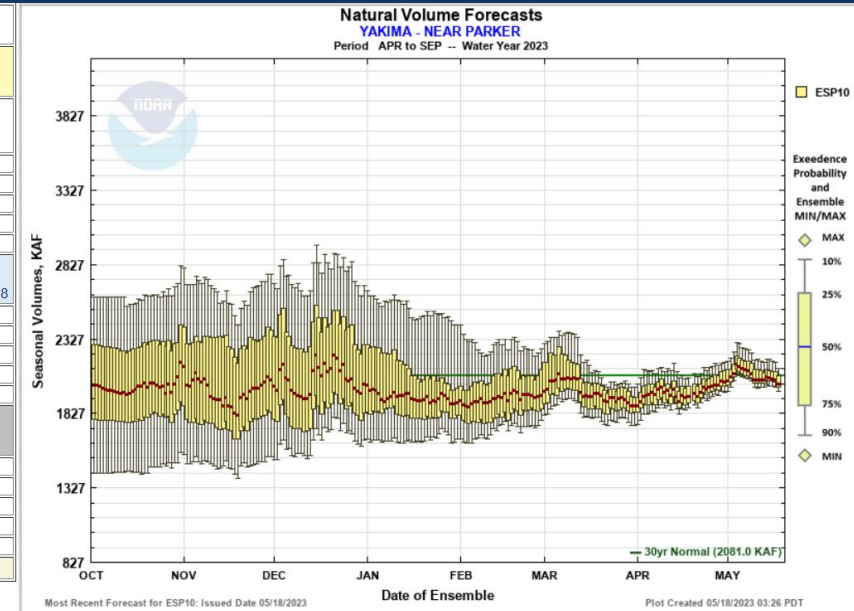
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	Average	10 %	
APR-SEP	2060	2176	99	2176	2081
APR-JUL	1885	1976	100	1976	1878
JAN-SEP	2559	2675	87	2675	2944
JAN-JUL	2385	2475	87	2475	2741
OCT-SEP	2973	3090	84	3090	3541

Reference

Ensemble: 2023-05-18 Issued: 2023-05-18

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	Average	10 %	
APR-SEP	2041	2177	98	2177	2081
APR-JUL	1859	1982	99	1982	1878
JAN-SEP	2540	2676	86	2676	2944
JAN-JUL	2358	2482	86	2482	2741
OCT-SEP	2954	3090	83	3090	3541

desired "Forecast Period" to display a graph.



METHOW - NEAR PATEROS (PATW1) Forecasts for Water Year 2023

Natural Forecast

ESP with 10 Days QPF Ensemble: 2023-05-18 Issued: 2023-05-18

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	Average	10 %	
APR-SEP	1023	1052	109	1097	967
APR-JUL	975	1007	111	1045	905
JAN-SEP	1084	1113	105	1158	1063
JAN-JUL	1036	1068	107	1106	1002
OCT-SEP	1142	1172	101	1216	1163

Experimental

HEFS with 15 days EQPF Ensemble: 2023-05-18 Issued: 2023-05-18

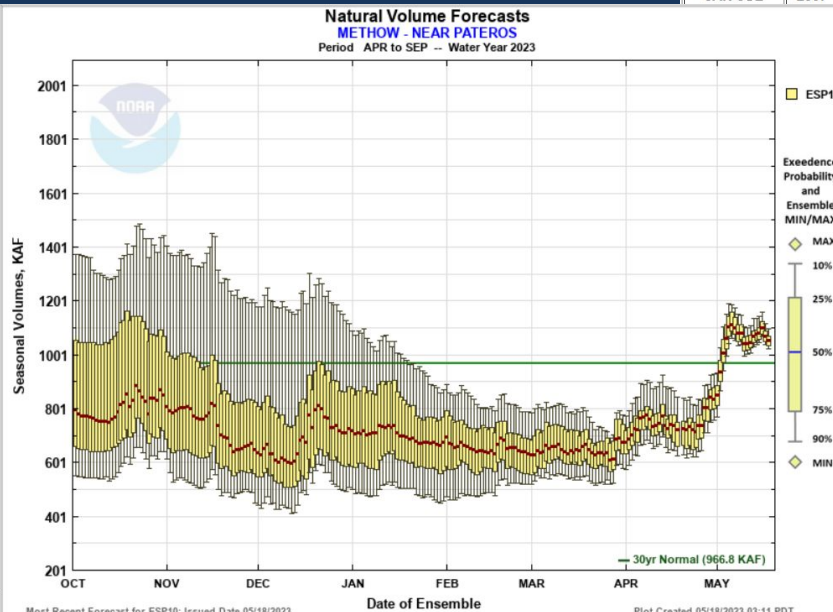
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	Average	10 %	
APR-SEP	1022	1052	109	1105	967
APR-JUL	970	1007	111	1053	905
JAN-SEP	1083	1114	105	1166	1063
JAN-JUL	1032	1068	107	1114	1002
OCT-SEP	1141	1172	101	1224	1163

Reference

ESP with 0 Days QPF Ensemble: 2023-05-18 Issued: 2023-05-18

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	Average	10 %	
APR-SEP	997	1043	108	1122	967
APR-JUL	951	998	110	1067	905
JAN-SEP	1059	1104	104	1183	1063
JAN-JUL	1012	1059	106	1128	1002
OCT-SEP	1117	1162	100	1241	1163

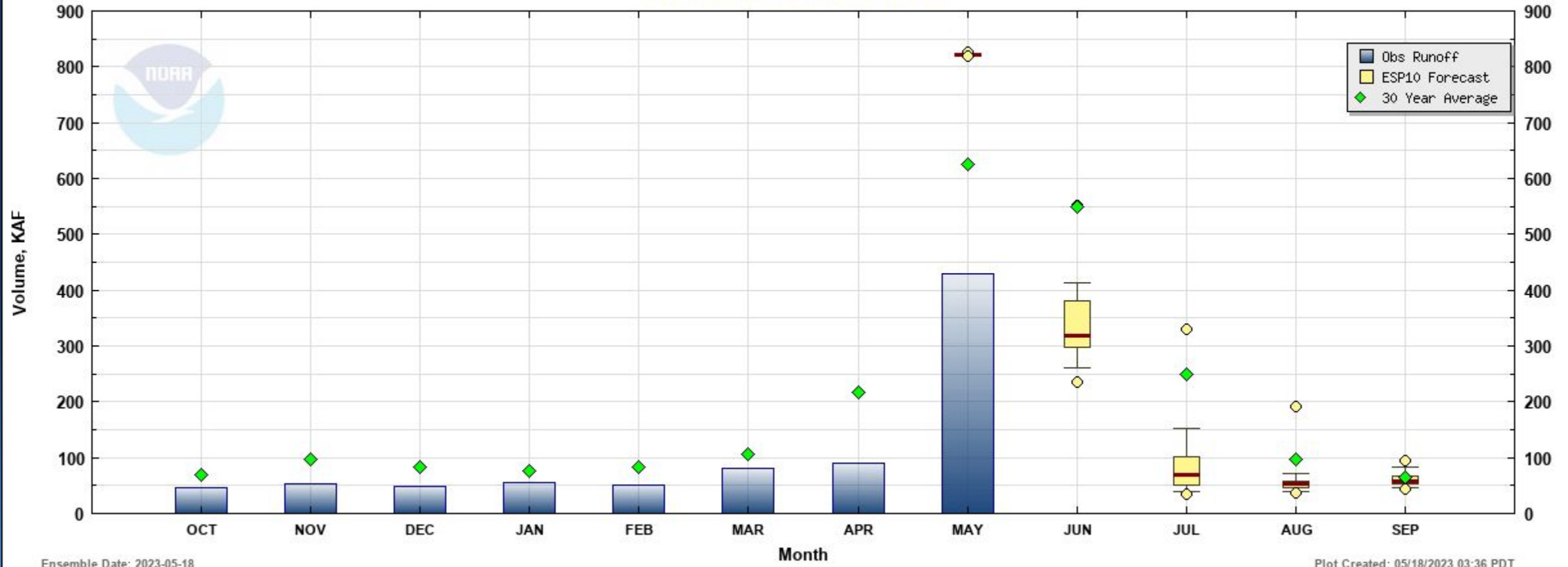
Move the mouse over the desired "Forecast Period" to display a graph.





ESP10 Natural Water Supply Forecasts

Natural Volume Monthly Forecasts (ESP10) for Water Year 2023
(OKMW1) OKANOGAN - AT MALOTT



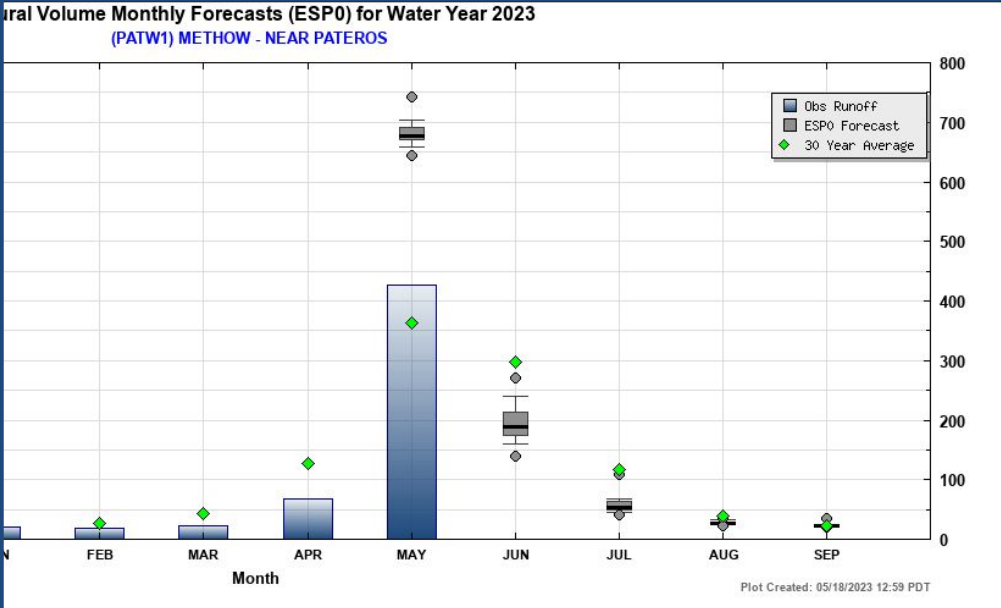
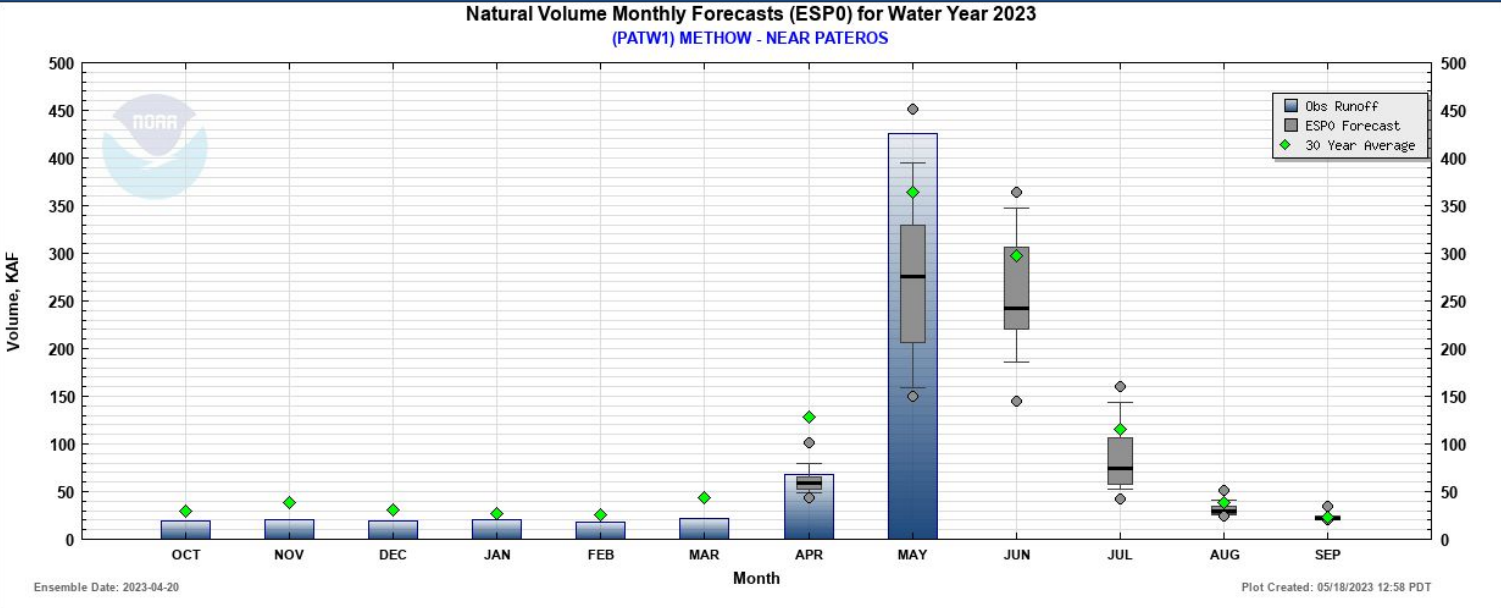
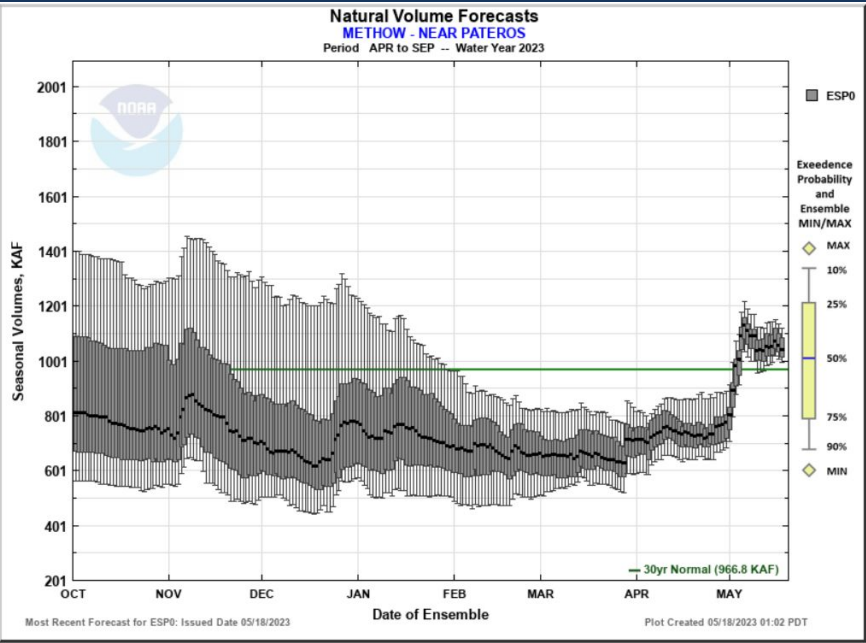
Ensemble Date: 2023-05-18

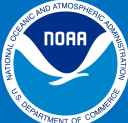
Plot Created: 05/18/2023 03:36 PDT



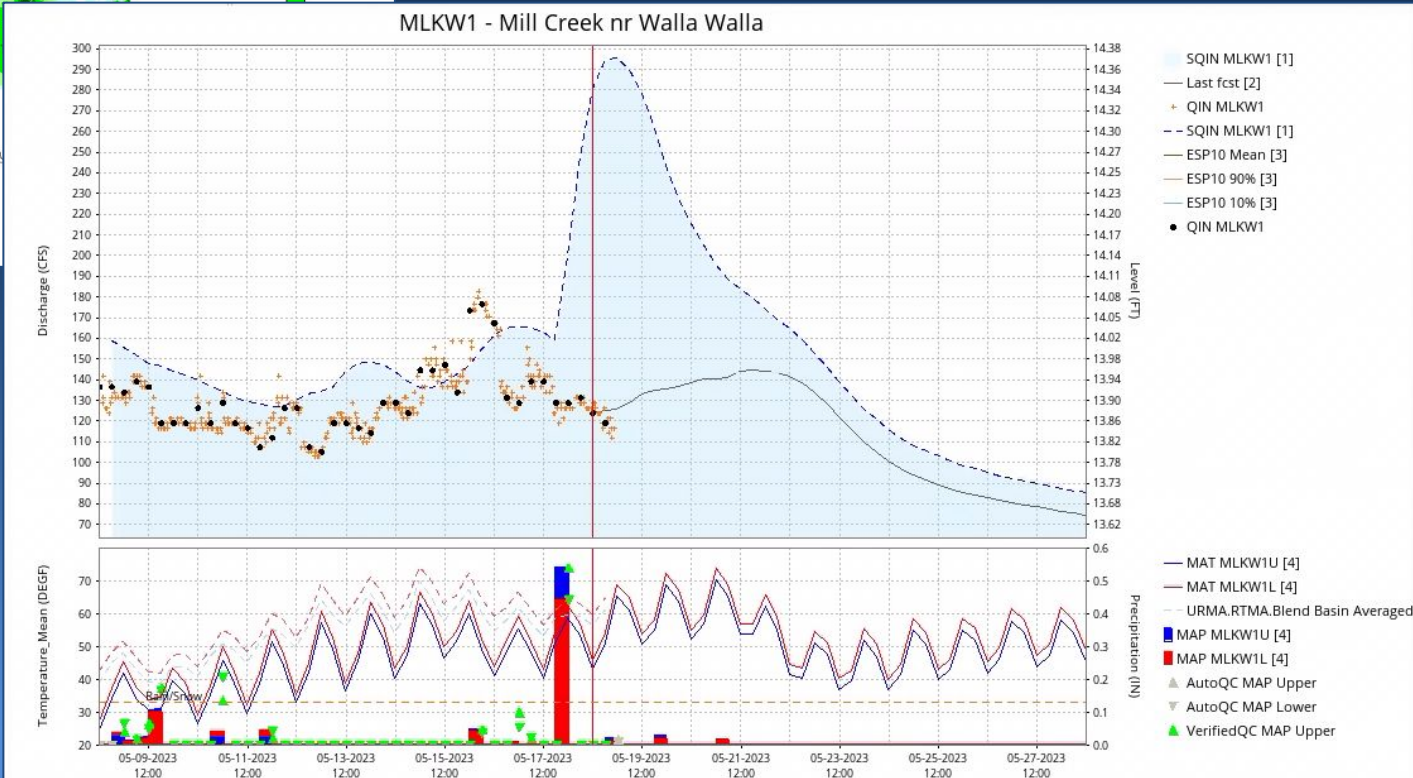
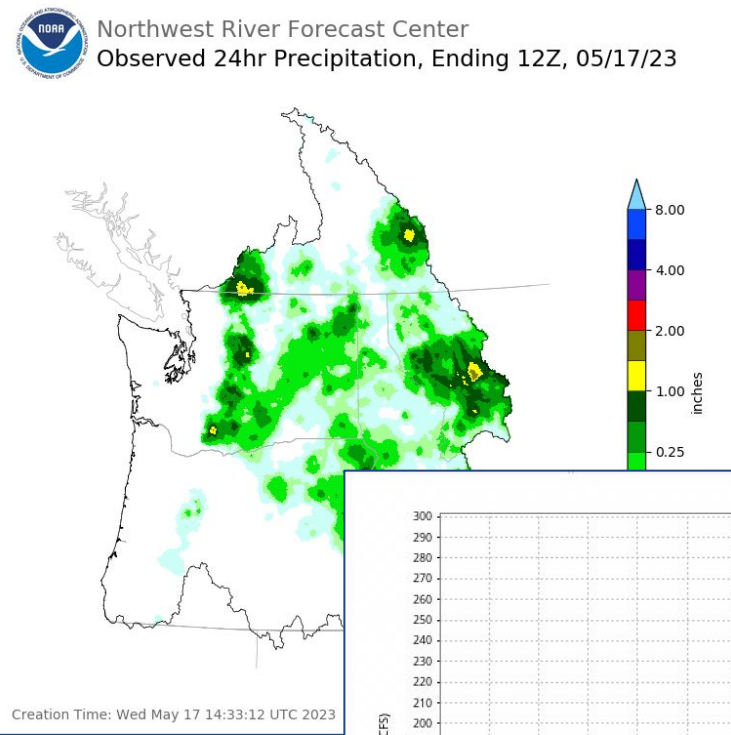
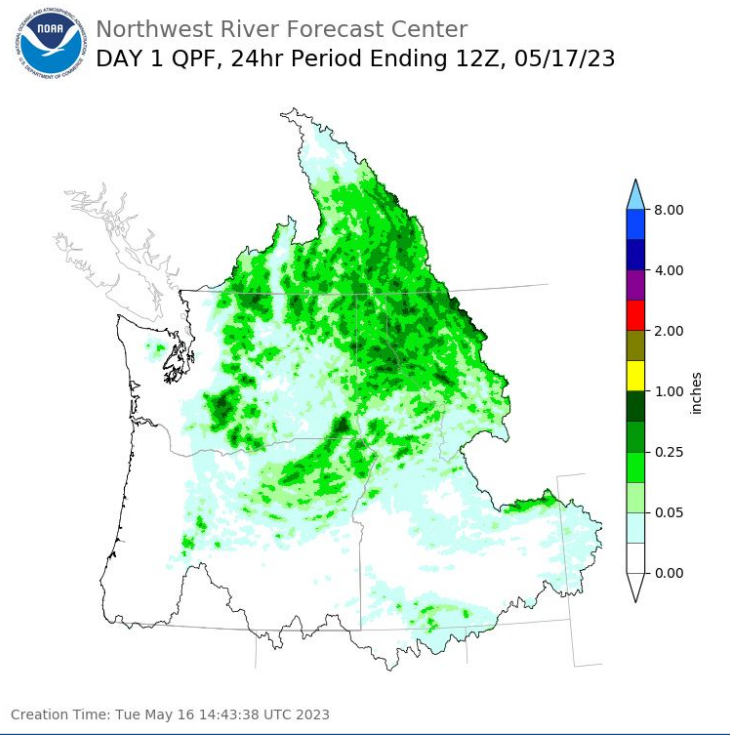
ESP10 Natural Water Supply Forecasts

METHOW - NEAR PATEROS (PATW1) Forecasts for Water Year 2023					
Natural Forecast					
ESP with 10 Days QPF Ensemble: 2023-05-17 Issued: 2023-05-17					
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	1039	1070	111	1117	967
APR-JUL	991	1025	113	1065	905
JAN-SEP	1100	1131	106	1178	1063
JAN-JUL	1053	1086	108	1127	1002
OCT-SEP	1168	1189	102	1236	1163
Experimental					
HEFS with 15 days EQPF Ensemble: 2023-05-17 Issued: 2023-05-17					
APR-SEP	1038	1073	111	1127	967
APR-JUL	993	1027	113	1074	905
JAN-SEP	1099	1134	107	1188	1063
JAN-JUL	1054	1088	109	1136	1002
OCT-SEP	1157	1192	103	1246	1163
Reference					
ESP with 0 Days QPF Ensemble: 2023-05-18 Issued: 2023-05-18					
APR-SEP	997	1043	108	1122	967
APR-JUL	951	998	110	1067	905
JAN-SEP	1059	1104	104	1183	1063
JAN-JUL	1012	1059	106	1128	1002
OCT-SEP	1117	1162	100	1241	1163
Move the mouse over the desired "Forecast Period" to display a graph.					





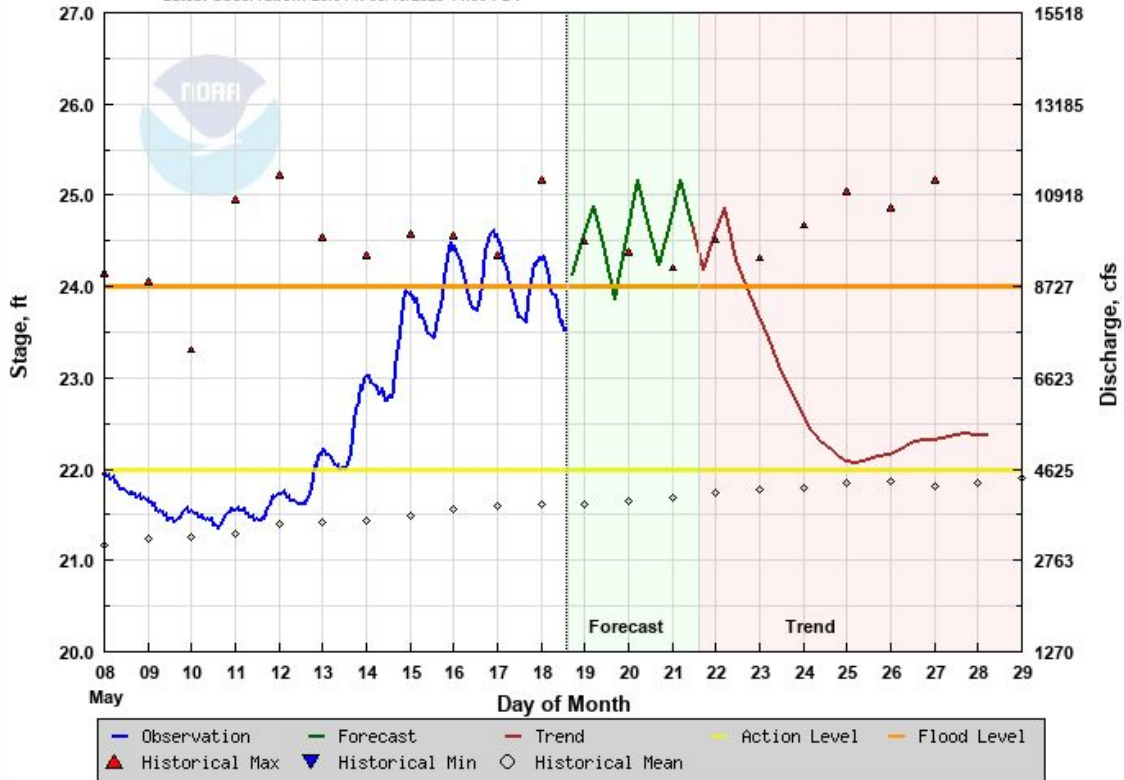
Convective Precipitation



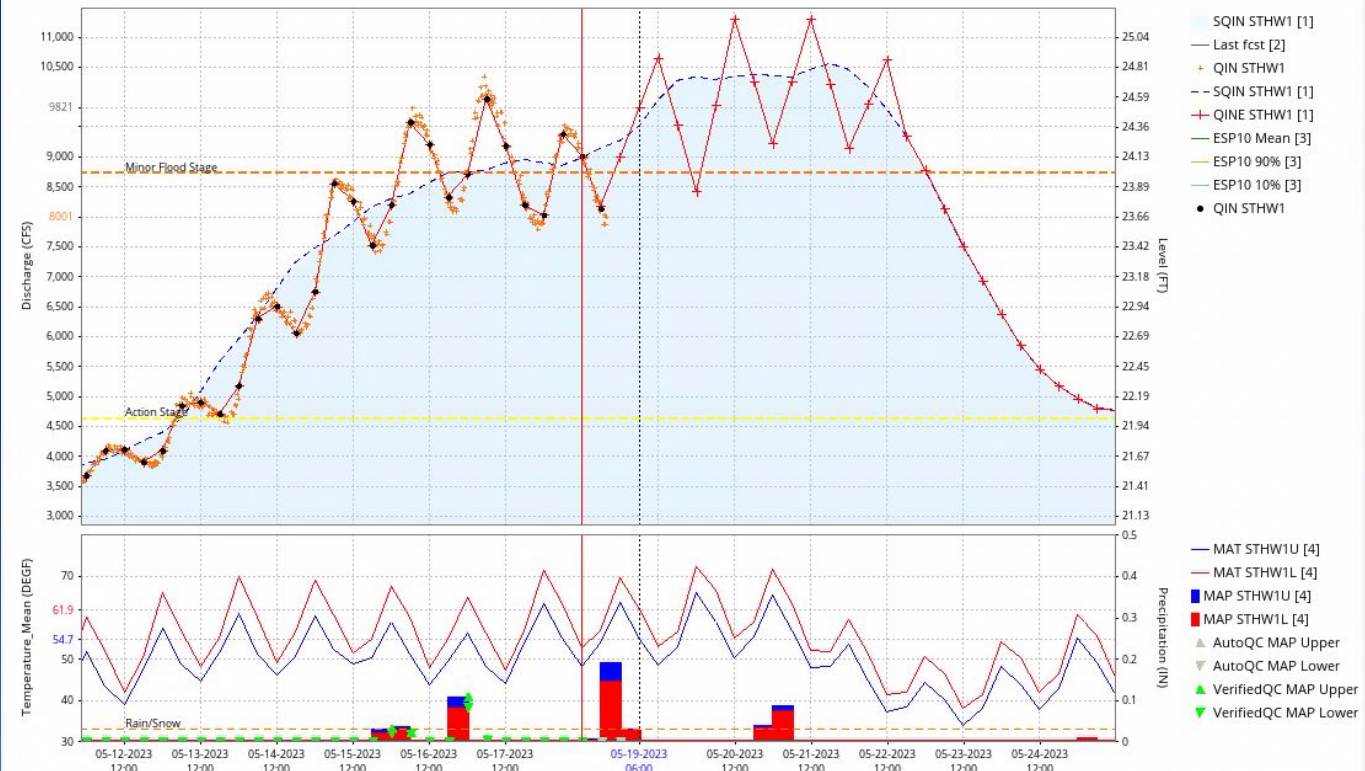
Diurnal Streamflow Flux

STEHEKIN - AT STEHEKIN (STHW1)

Latest Observation: 23.54 ft 05/18/2023 14:30 PDT



STHW1 - Stehekin R at Stehekin





Take Home Messages

- May brought significant precipitation to some areas and warm temperature statewide
- Snow is melting very fast
- Adjusted runoff to date remains below normal
- Next 10 days precipitation forecast is below normal, temperatures should cool down
- ESP10 Natural Water Supply forecasts are a mix of normal and below normal
 - Forecasts indicate May will be the big runoff procedure this year
- Continued push and pull between low runoff and high snowpack



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
19 May 2023

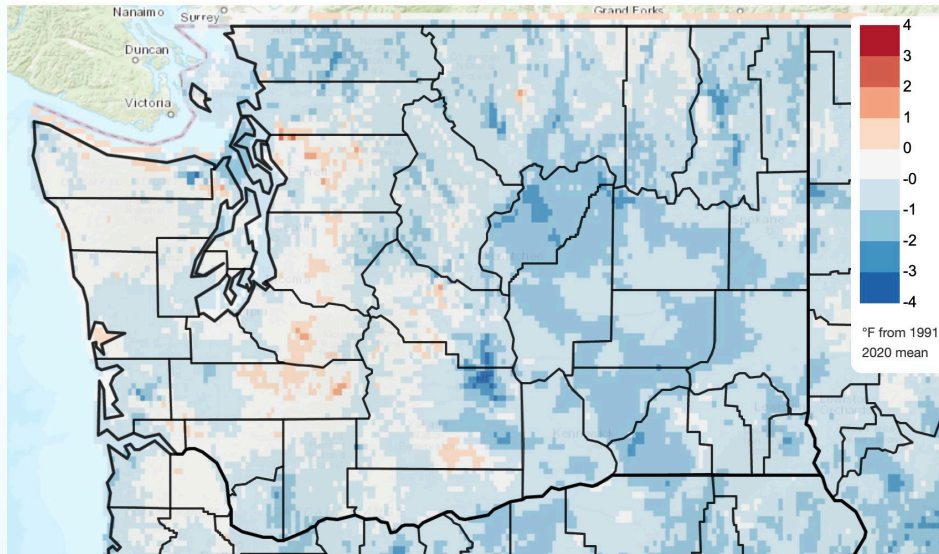
Water Year 2023

Temperature

Precipitation

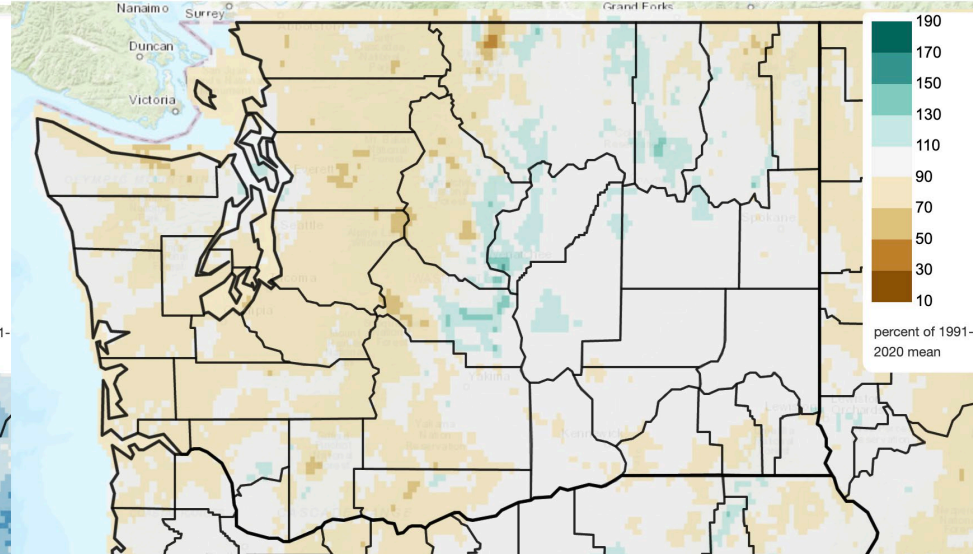
Mean Daily Temperature Anomaly, Since Oct 1st

2022/10/01 - 2023/05/15



Total Precipitation Anomaly, Since Oct 1st

2022/10/01 - 2023/05/15



Climate Toolbox

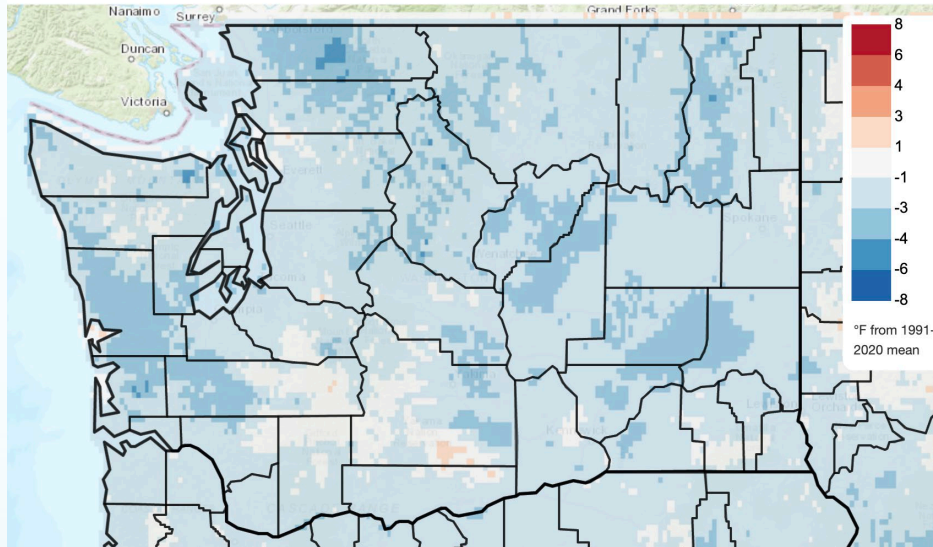
- Averaged statewide, Oct-Apr temperatures were below normal (-1.3°F), ranking as 48th coldest*
- Averaged statewide, Oct-Apr precipitation ranks as the 41st driest ($-4.58''$)*, with 87% of normal

*Records since 1895; 1991-2020 normal

April 2023

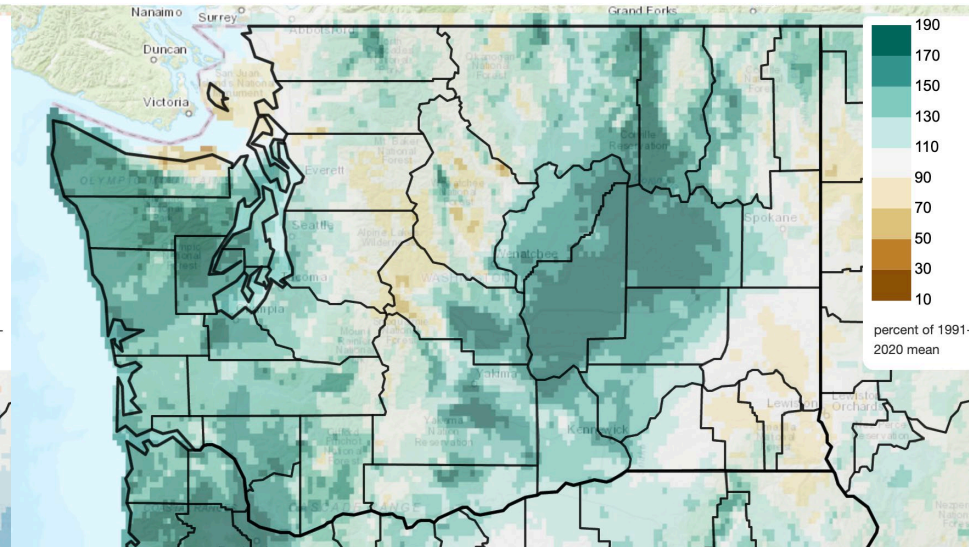
Temperature

Mean Daily Temperature Anomaly, Last Full Month
2023/04/01 - 2023/04/30



Precipitation

Total Precipitation Anomaly, Last Full Month
2023/04/01 - 2023/04/30



Climate Toolbox

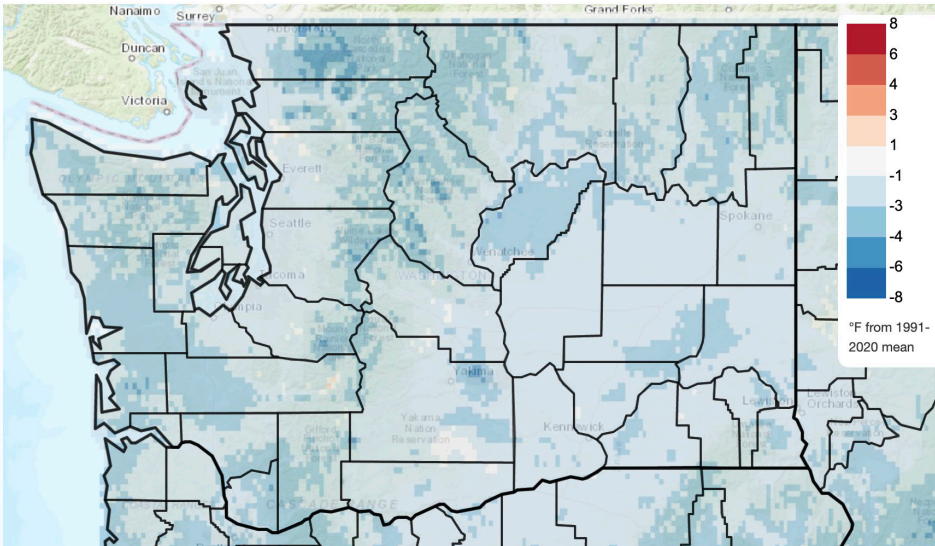
- Averaged statewide, April was the 30th coldest on record (-2.2°F)*
- Averaged statewide, April was the 15th wettest ($+0.90''$) on record, with 125% of normal precipitation*

*Records since 1895; 1991-2020 normal

February-April 2023

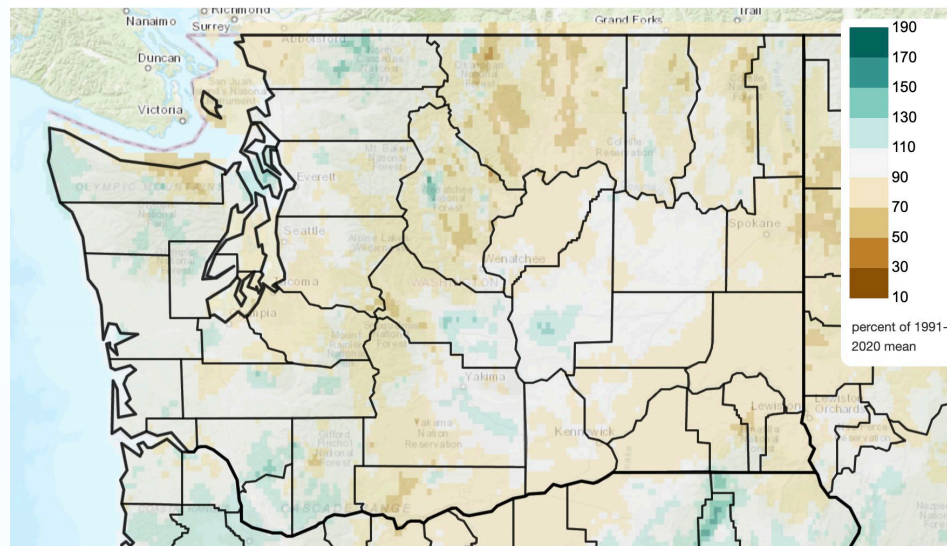
Temperature

Mean Daily Temperature Anomaly, Last 3 Full Months
2023/02/01 - 2023/04/30



Precipitation

Total Precipitation Anomaly, Last 3 Full Months
2023/02/01 - 2023/04/30



Climate Toolbox

- Averaged statewide, Feb-Apr was the 25th coldest on record (-2.4°F)*
- Even with the wet April, late winter/early spring is still slightly drier than normal for most of the state

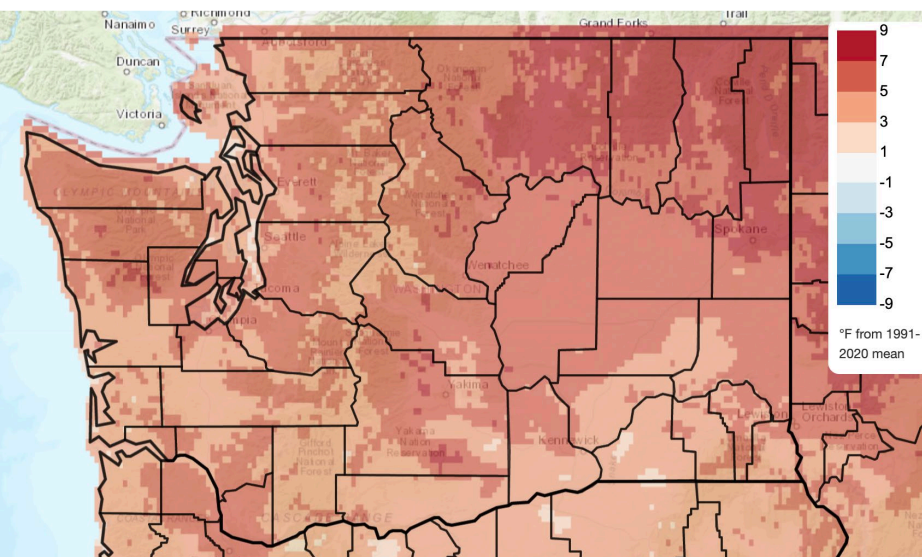
*Records since 1895; 1991-2020 normal

May 2023 so far

Temperature

Mean Daily Temperature Anomaly, Last 15 Days

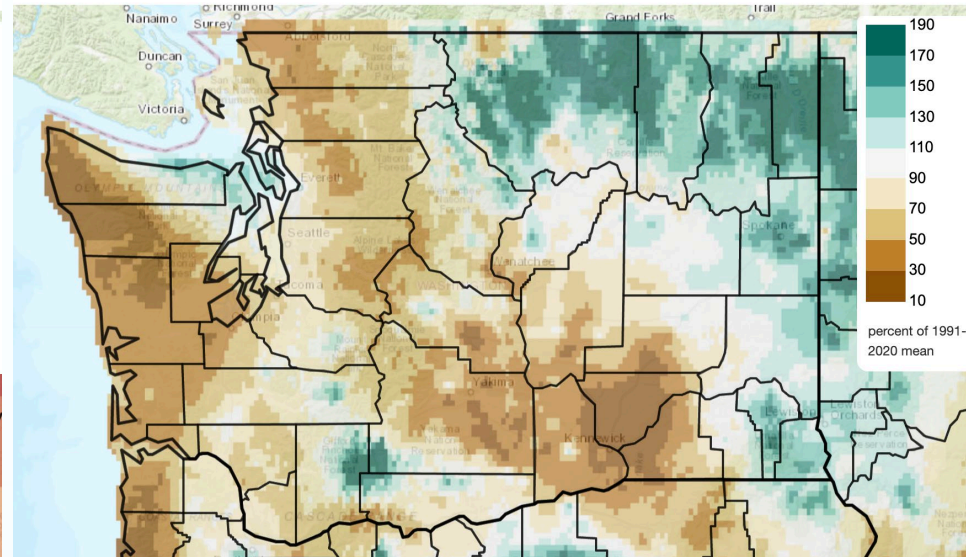
2023/05/01 - 2023/05/15



Precipitation

Total Precipitation Anomaly, Last 15 Days

2023/05/01 - 2023/05/15



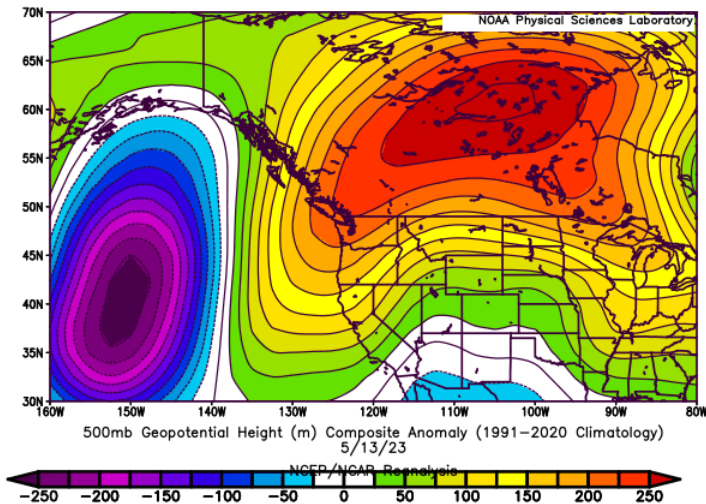
Climate Toolbox

May heat

Maximum 3-Day Mean Max Temperature for Washington

Click column heading to sort ascending, click again to sort descending.

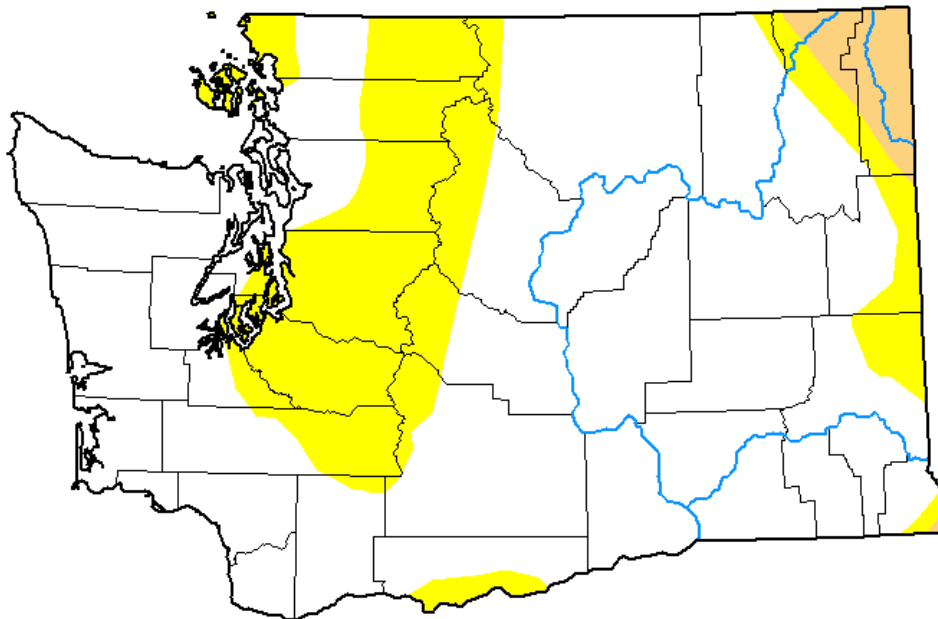
Name	Station Type	Value	Ending Date	Missing Days	Valid Date Range
DARRINGTON 21 NNE	WBAN	91.0	2023-05-16+	0	2003-04-04 to 2023-05-17
MAYFIELD POWER PLANT	COOP	94.3	2023-05-16	0	1980-03-01 to 2023-05-16
EVERETT	COOP	84.0	2023-05-16	0	1894-08-24 to 2023-05-17
LONGVIEW	COOP	92.3	2023-05-15+	0	1925-07-01 to 2023-05-16
SHELTON AP	WBAN	90.3	2023-05-15	0	1998-05-22 to 2023-05-16
TACOMA NARROWS AP	WBAN	86.7	2023-05-15	0	1999-01-09 to 2023-05-16
BREMERTON	WBAN	89.3	2023-05-15	0	2017-04-28 to 2023-05-15
RENTON MUNICIPAL AP	WBAN	89.3	2023-05-15	0	1998-10-08 to 2023-05-16
EVERETT SNOHOMISH COUNTY AP	WBAN	83.3	2023-05-15	0	1948-01-01 to 2023-05-16
PORT ANGELES FAIRCHILD INTL AP	WBAN	83.3	2023-05-15	0	1998-10-14 to 2023-05-16
QUILLAYUTE AP	WBAN	89.3	2023-05-15	0	1966-08-01 to 2023-05-16
FORKS 1 E	COOP	91.3	2023-05-15	0	1907-11-01 to 2023-05-16
BELLINGHAM INTL AP	WBAN	84.7	2023-05-15	0	1949-01-01 to 2023-05-16
ARLINGTON MUNICIPAL AIRPORT	WBAN	84.7	2023-05-15	0	2017-06-20 to 2023-05-15
OLYMPIA AP	WBAN	90.3	2023-05-15	0	1941-05-13 to 2023-05-16
Olympia Area	ThreadEx	90.3	2023-05-15	0	1948-01-01 to 2023-05-16
Quillayute Area	ThreadEx	89.3	2023-05-15	0	1966-08-01 to 2023-05-16
ABERNATHY MOUNTAIN WASHINGTON	RAWS	83.3	2023-05-15	0	1995-04-17 to 2023-05-15
CASTLE ROCK WASHINGTON	RAWS	92.3	2023-05-15	0	2003-06-03 to 2023-05-15
COUGAR MOUNTAIN WASHINGTON	RAWS	83.0	2023-05-15	0	1985-01-12 to 2023-05-15
FIRE TRAINING ACADEMY WASHINGT	RAWS	87.3	2023-05-15	0	2001-07-19 to 2023-05-15
BLACK KNOB WASHINGTON	RAWS	86.3	2023-05-14+	0	2003-03-28 to 2023-05-15
HOQUIAM BOWERMAN AP	WBAN	86.0	2023-05-14	0	1953-05-12 to 2023-05-16
QUINULT 4 NE	WBAN	87.7	2023-05-14	0	2006-09-10 to 2023-05-17









U.S. Drought Monitor

U.S. Drought Monitor Washington

May 16, 2023
(Released Thursday, May. 18, 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>

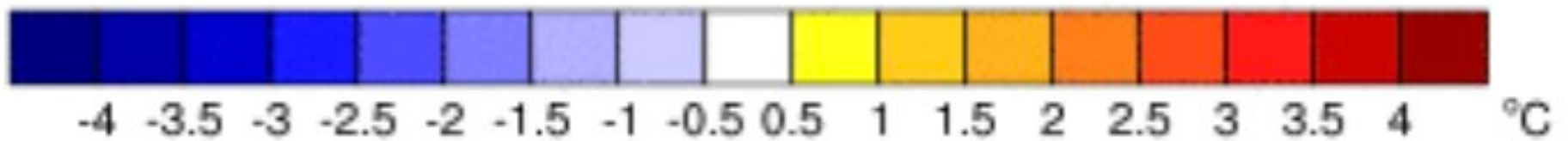
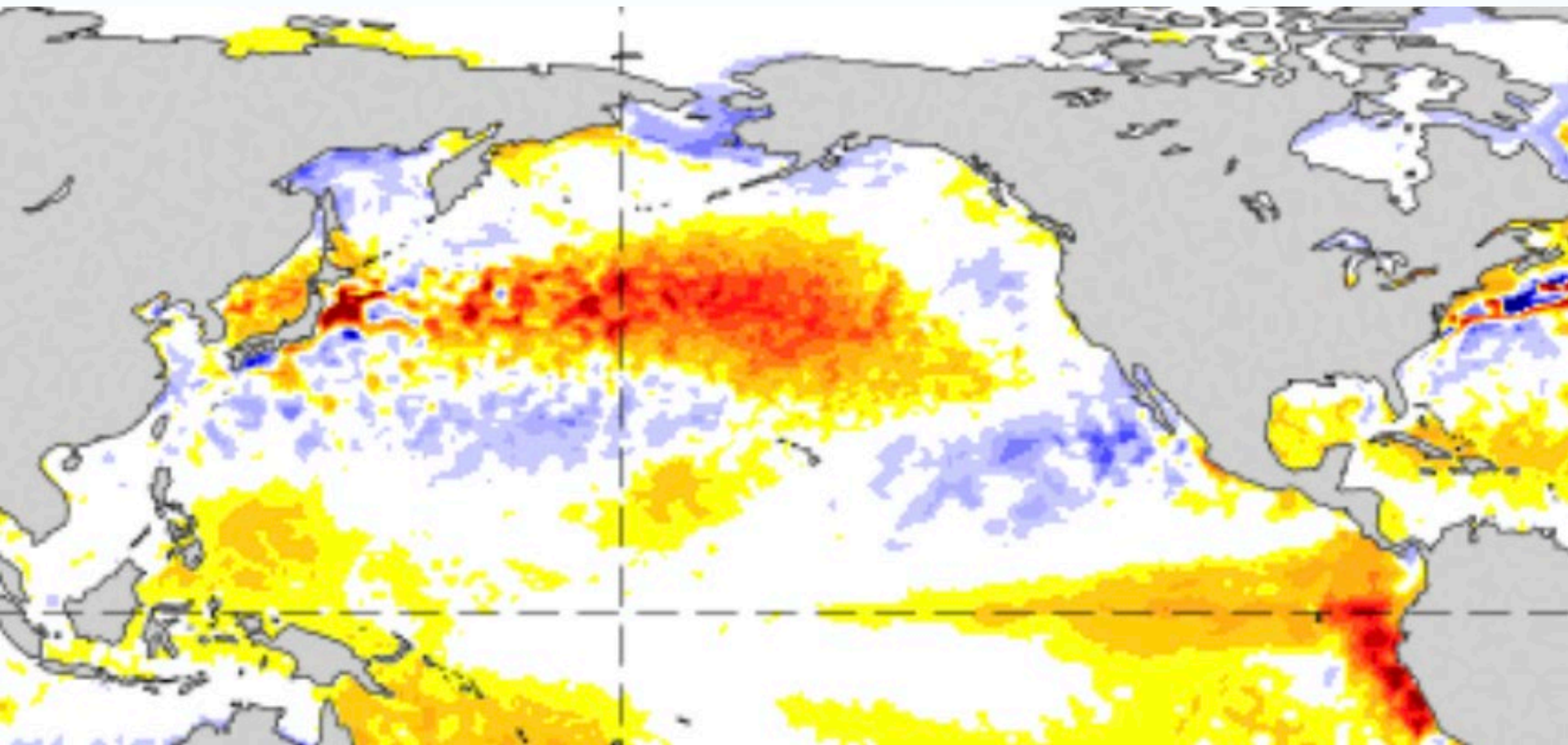
Author:

Brad Rippey
U.S. Department of Agriculture



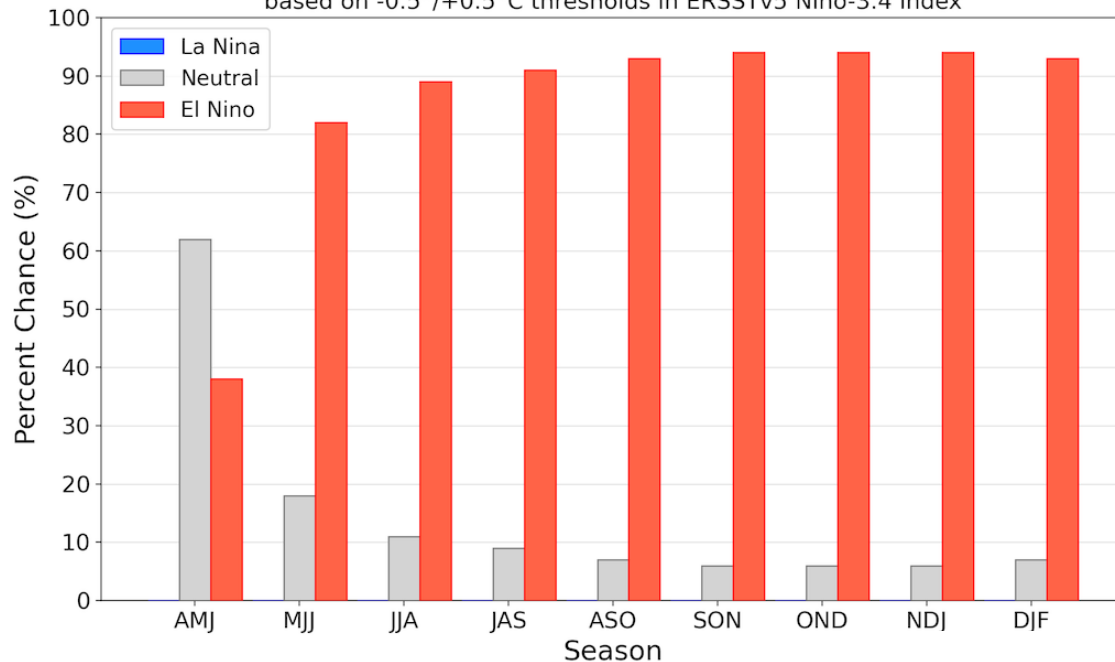
droughtmonitor.unl.edu

Sea Surface Temperature Anomalies: 7-13 May 2023

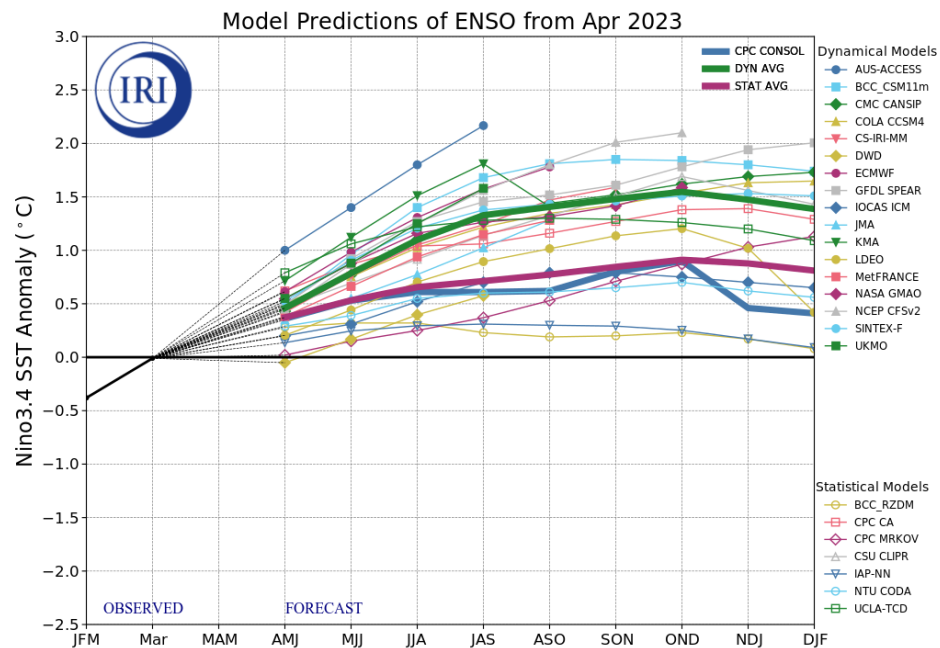


Official NOAA CPC ENSO Probabilities (issued May 2023)

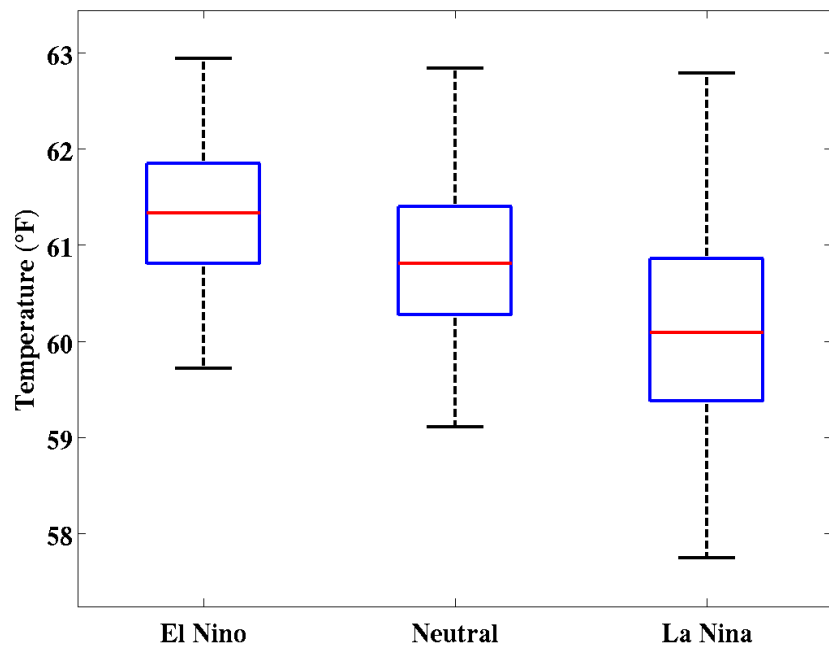
based on $-0.5^{\circ}/+0.5^{\circ}\text{C}$ thresholds in ERSSTv5 Niño-3.4 index



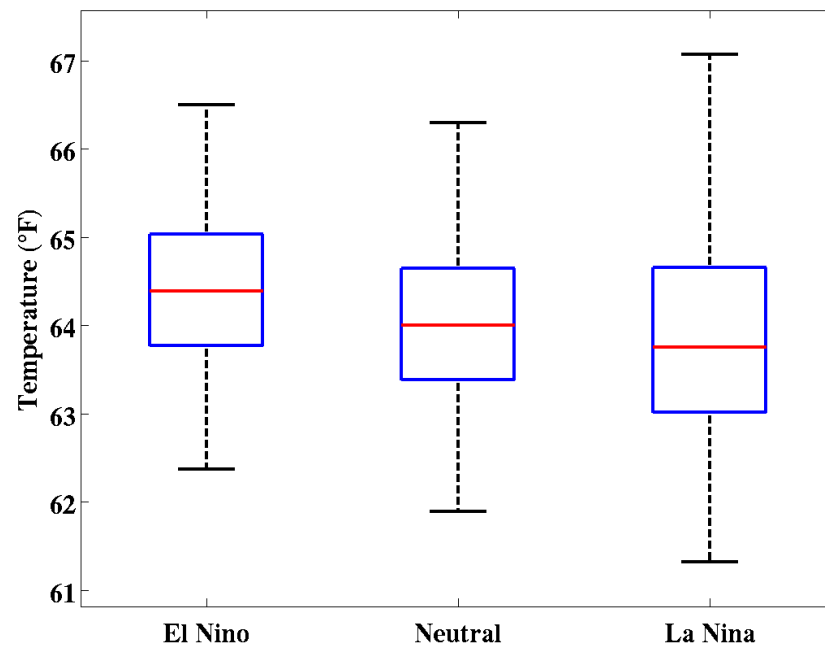
Latest ENSO predictions indicate that El Niño is a lead-pipe cinch. But how strong?



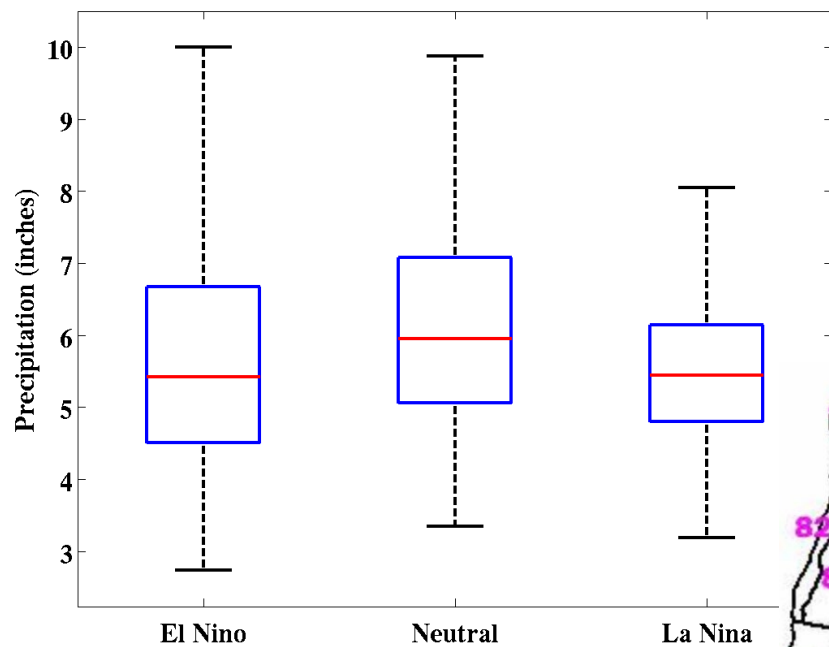
JAS Temperature Distribution for Climate Div. #075



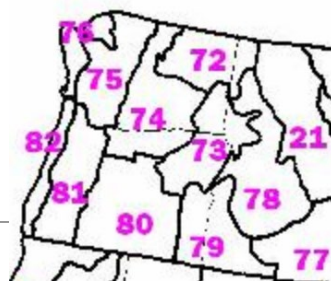
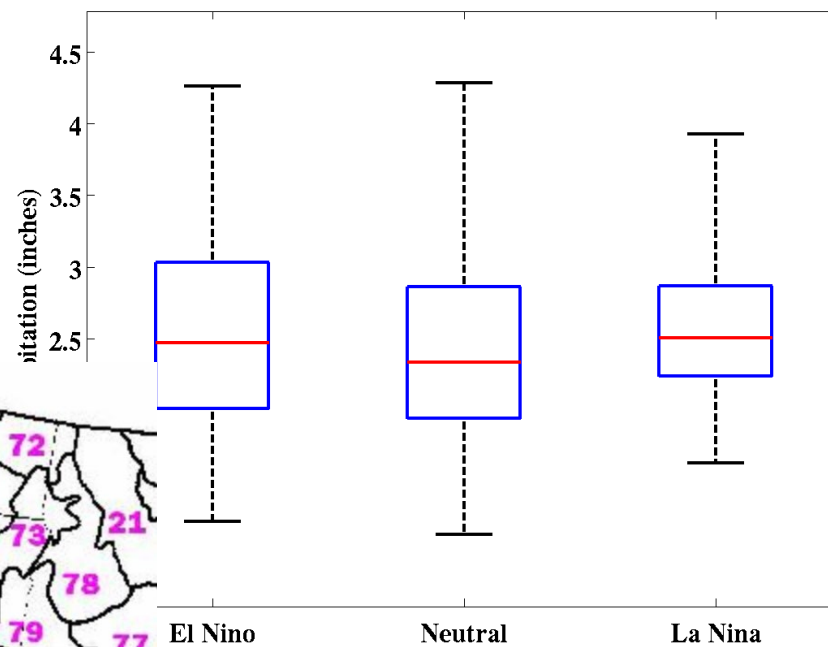
JAS Temperature Distribution for Climate Div. #072



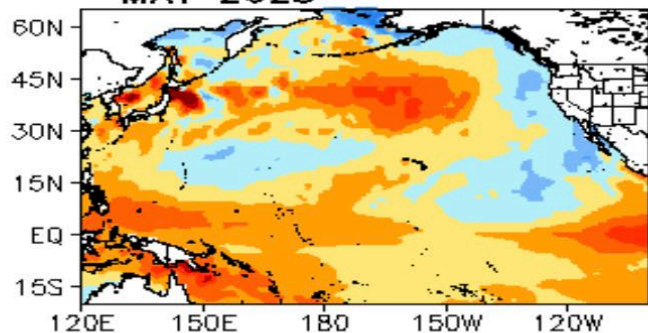
JAS Precipitation Distribution for Climate Div. #075



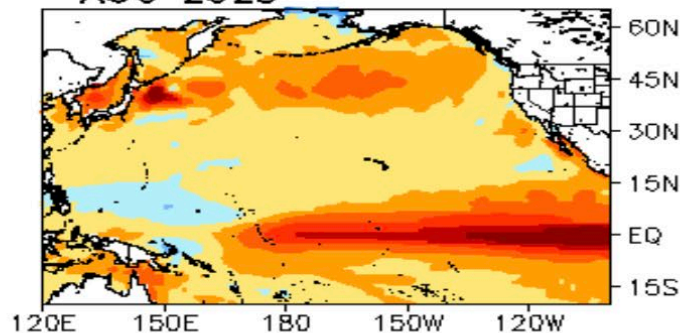
JAS Precipitation Distribution for Climate Div. #072



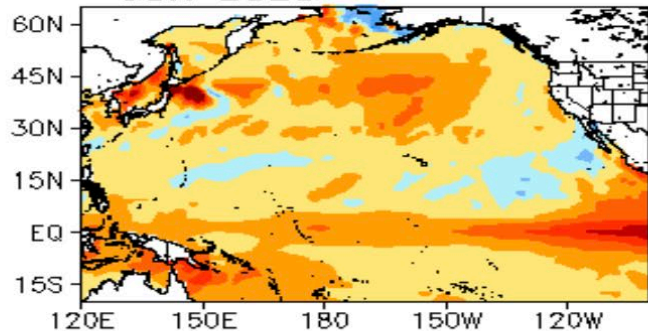
CFSv2 Predicted SST Anomaly (40 Member Mean; °C)
MAY 2023



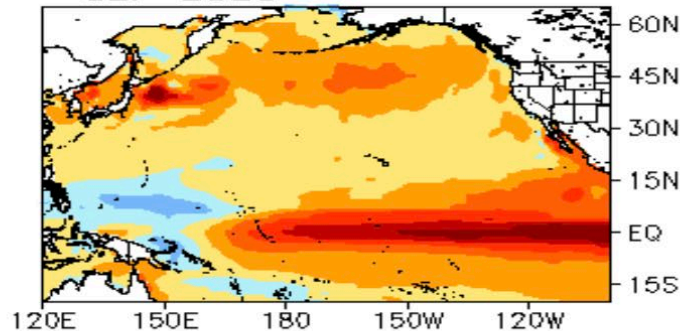
AUG 2023



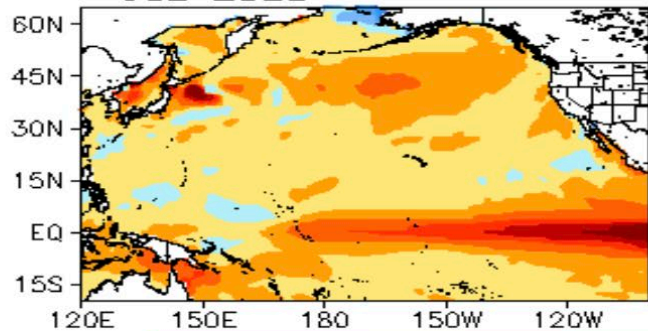
JUN 2023



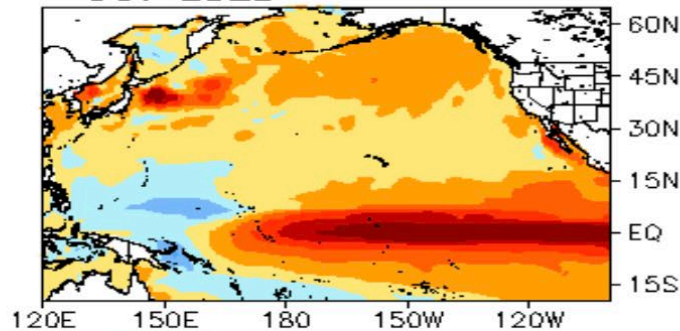
SEP 2023



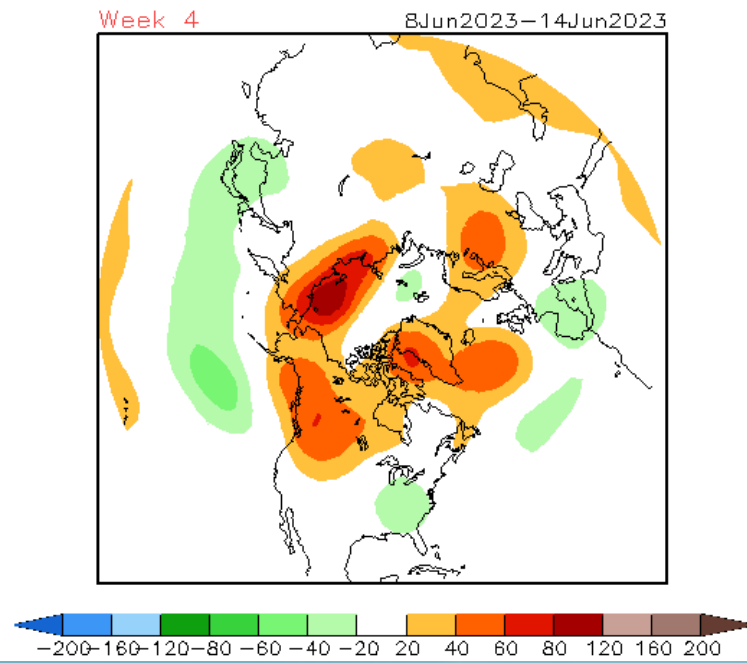
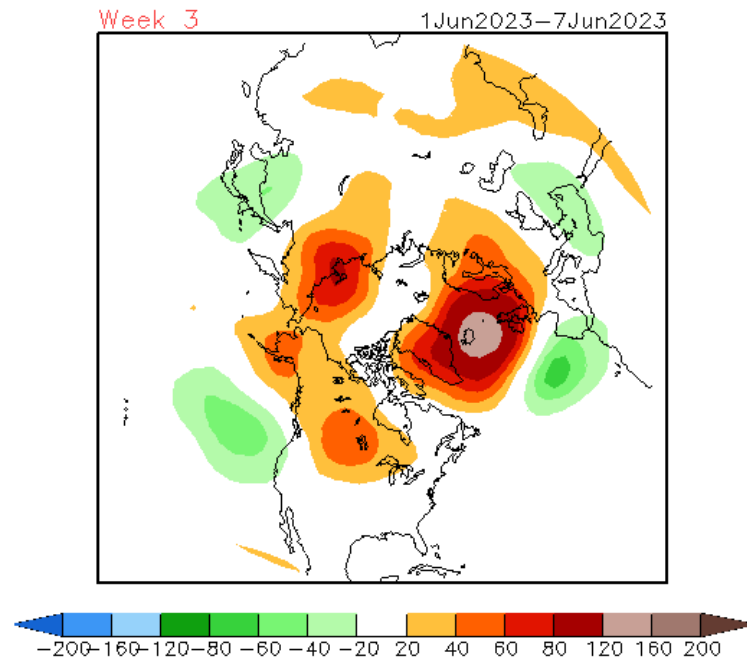
JUL 2023



OCT 2023

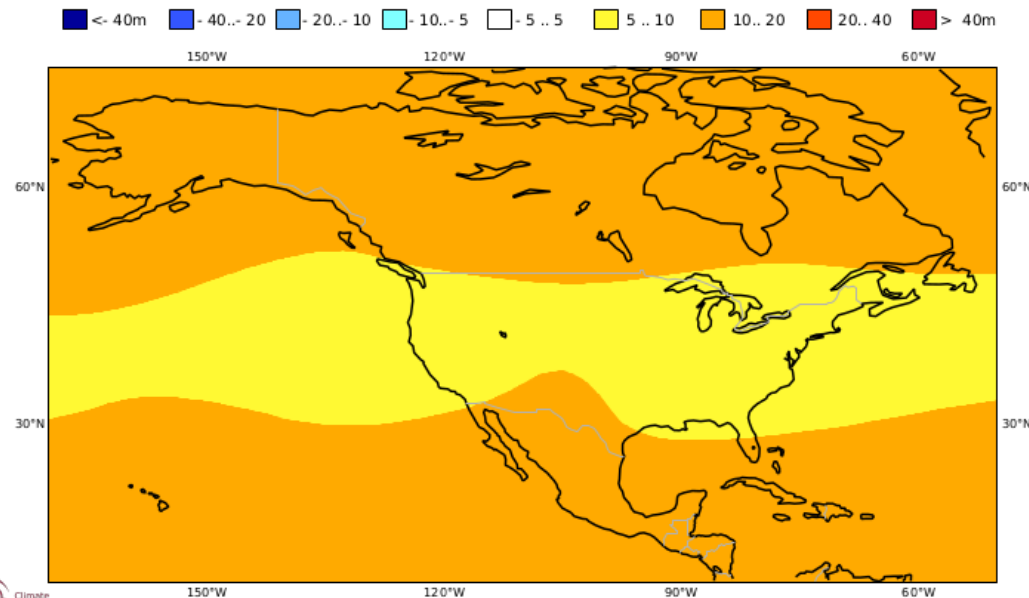


- The CFSv2 predicts above normal SSTs in the N. Pacific during spring – autumn 2023.



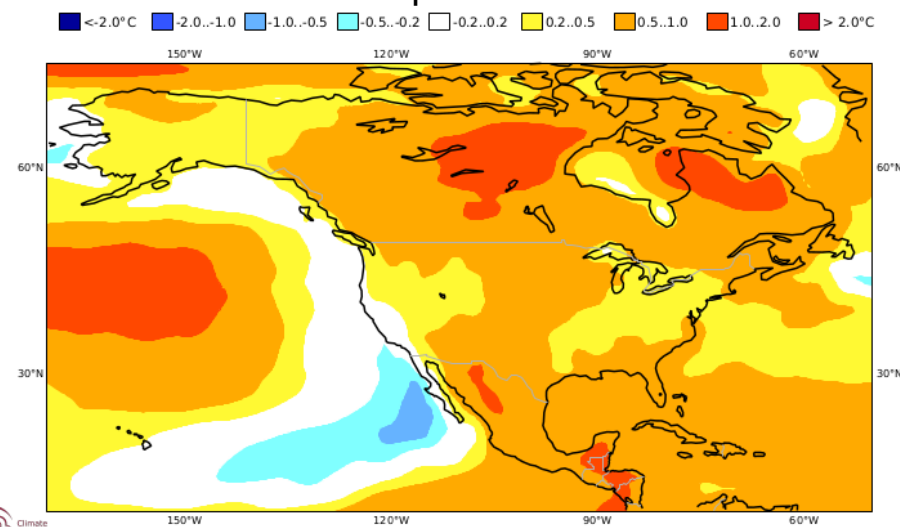
**CFS 3 & 4 Week 500 hPa
Model Projections:
Ridging to the north and
troughing to the southwest
implies some rains early;
southward expansion of
ridge may result in
warming late**

500 hPa Z

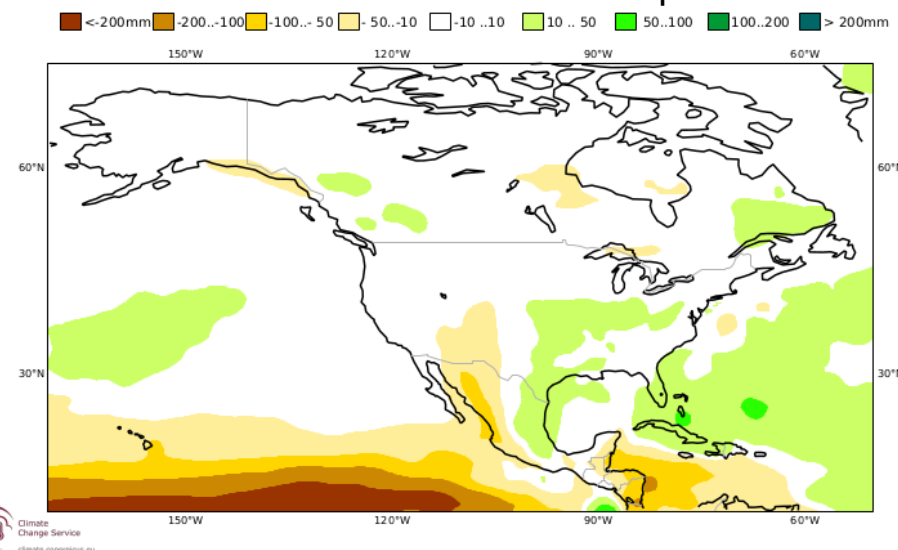


**IMME Projections
for Jun-Aug:
Higher 500 hPa Z
and warmer
temperatures aloft;
summer still
expected to be warm**

Temperature at 2 meters



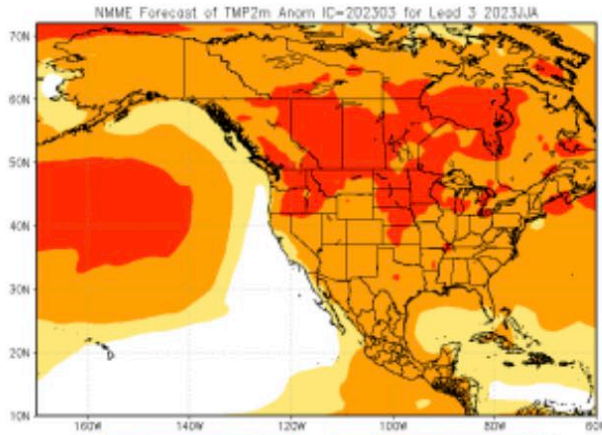
Precipitation



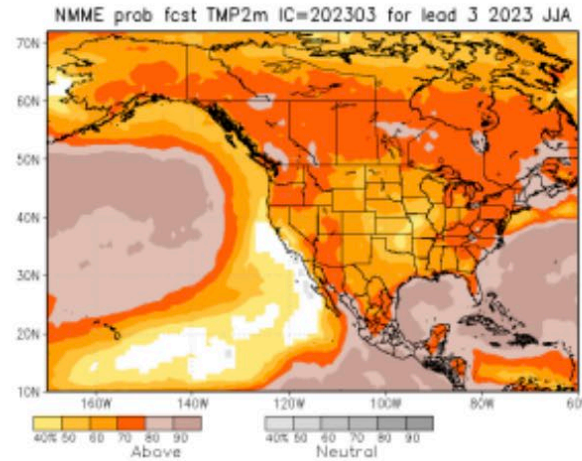
NMME Temperature Projections for Summer (JJA) 2023

From Mar 2023

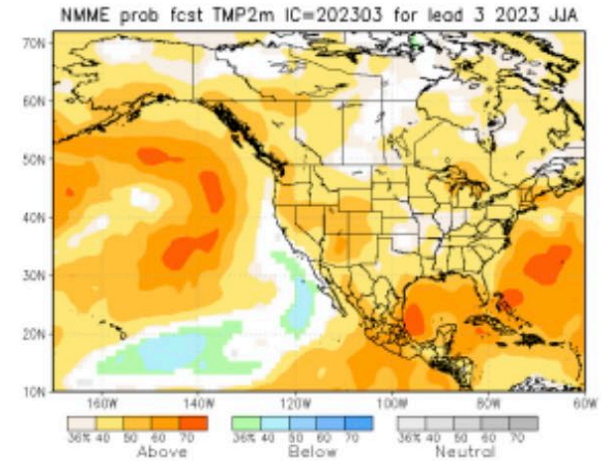
NMME



Prob fct

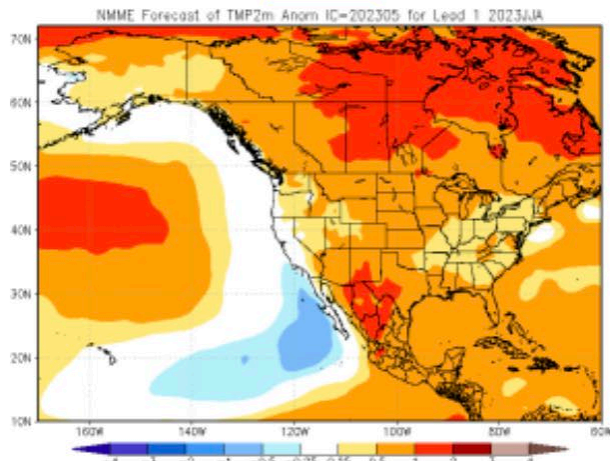


PAC calib. prob fct

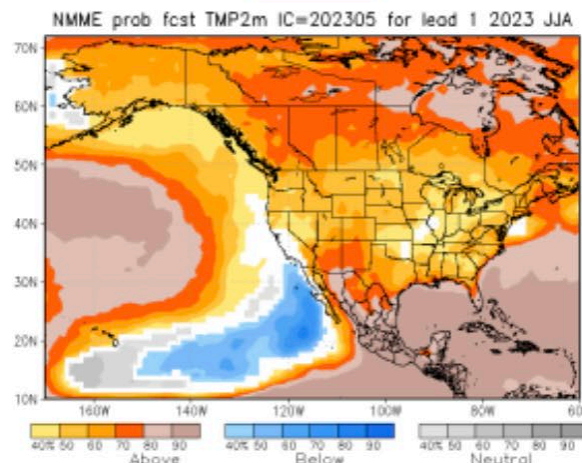


From May 2023

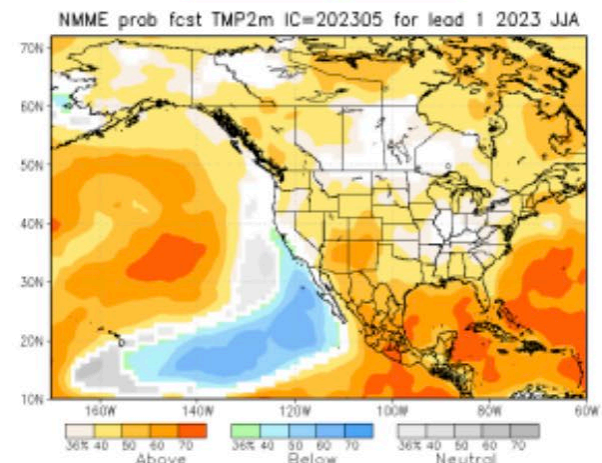
NMME



Prob fct



PAC calib. prob fct





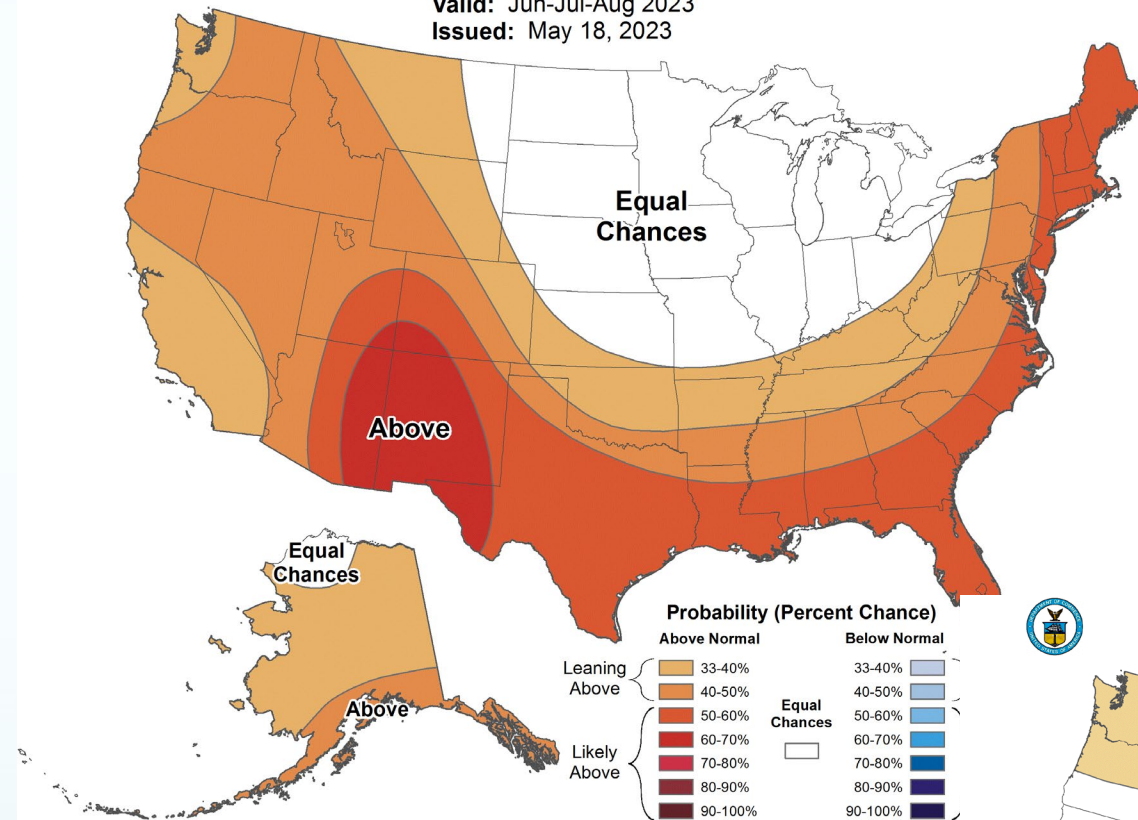
Seasonal Temperature Outlook



Valid: Jun-Jul-Aug 2023

Issued: May 18, 2023

NOAA/CPC Forecasts for Jun-Aug 2023

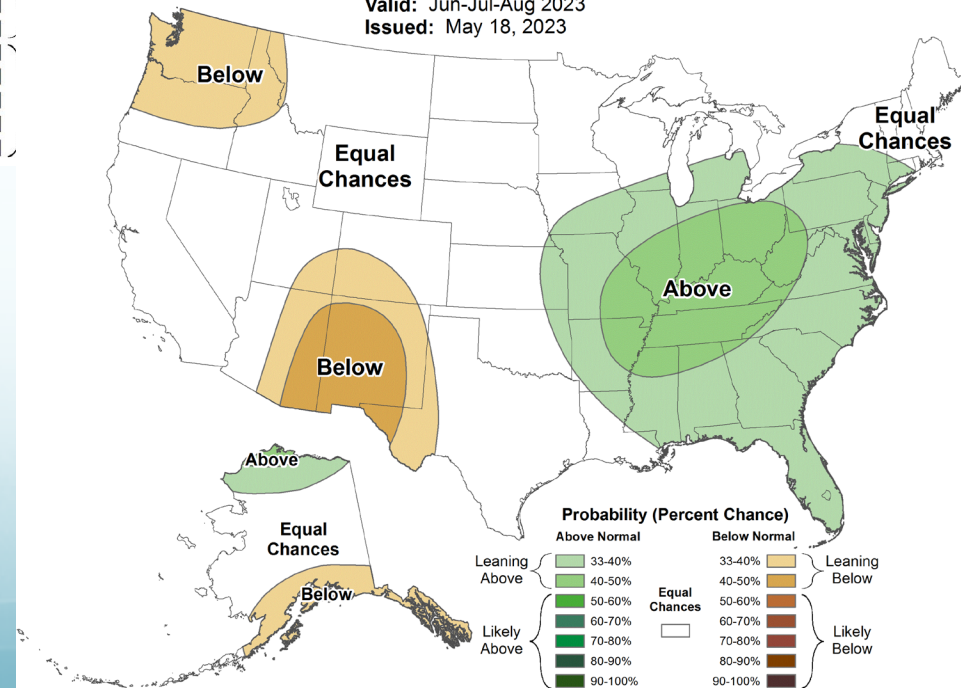


Seasonal Precipitation Outlook



Valid: Jun-Jul-Aug 2023

Issued: May 18, 2023



Summary

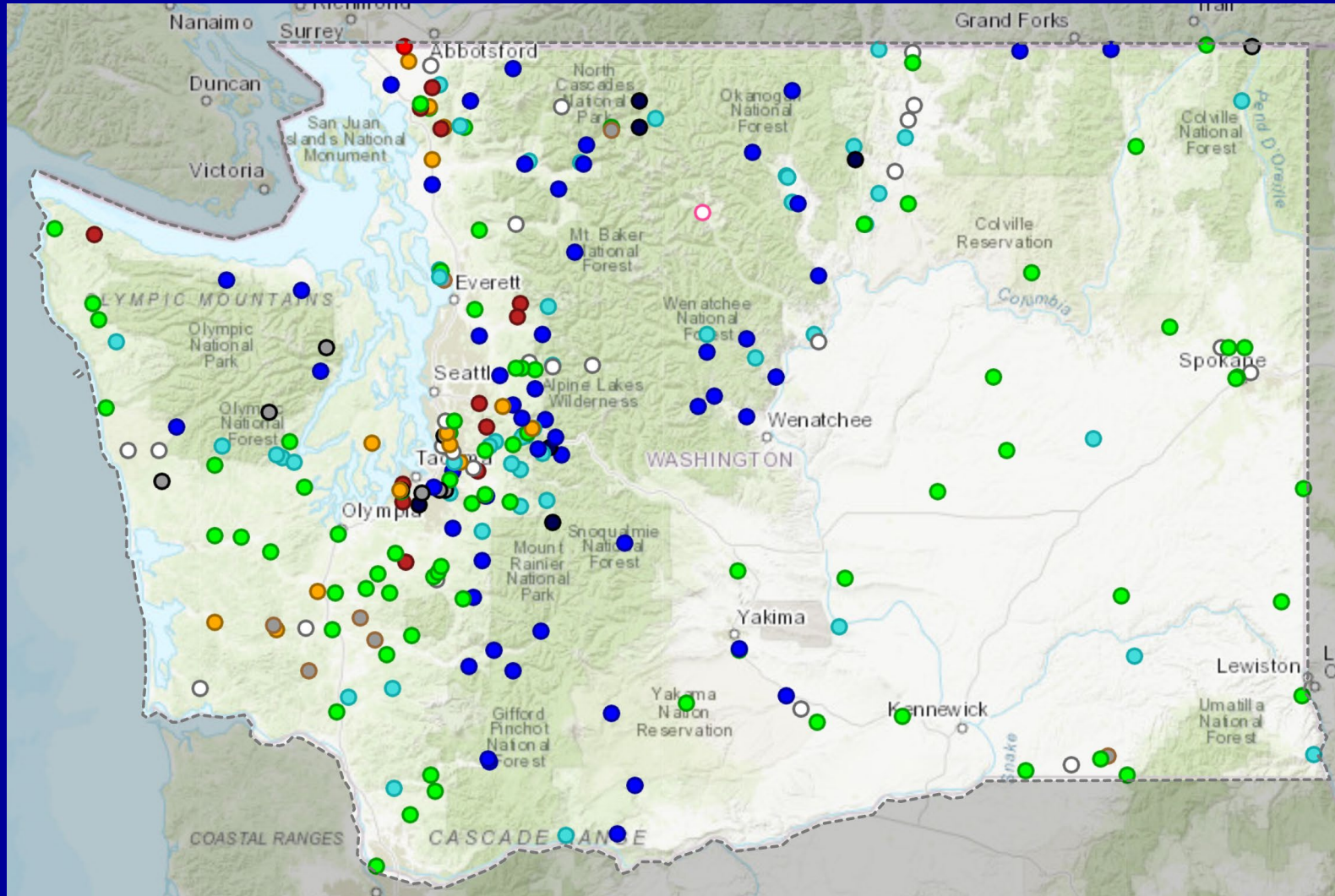
- The water year has been colder than normal statewide. Water year precipitation has generally been below normal in western WA and near-normal in eastern WA
- April was wetter than normal for most of the state, but not enough to completely offset the drier than normal Feb-Mar conditions.
- Early May heatwave broke some records in western WA
- Summer should be on the warm side, but little reason to think it will necessarily be to an extreme
- I am going to start to worry about El Niño during the fall

Streamflow & Groundwater Conditions in Washington State as of 19 May 2023

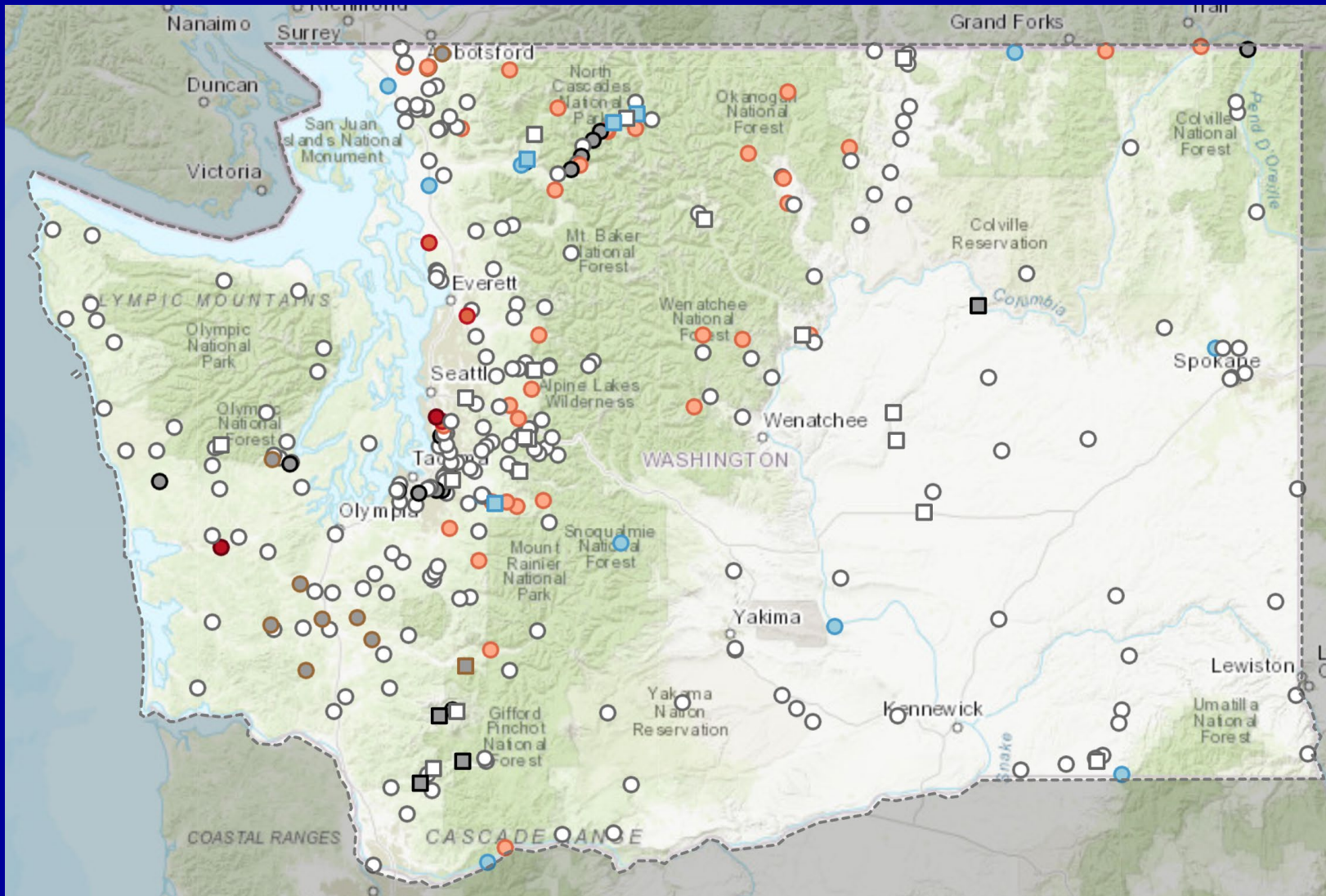


Presented to
The Washington State Water Supply Availability Committee
on 19 May 2023
by Nicholas Sutfin, USGS Washington Water Science Center

WA Current Streamflow Conditions, 19 May 2023



Rising and Falling conditions of WA streams on 19 May 2023



Surface-Water Levels: Rising and falling

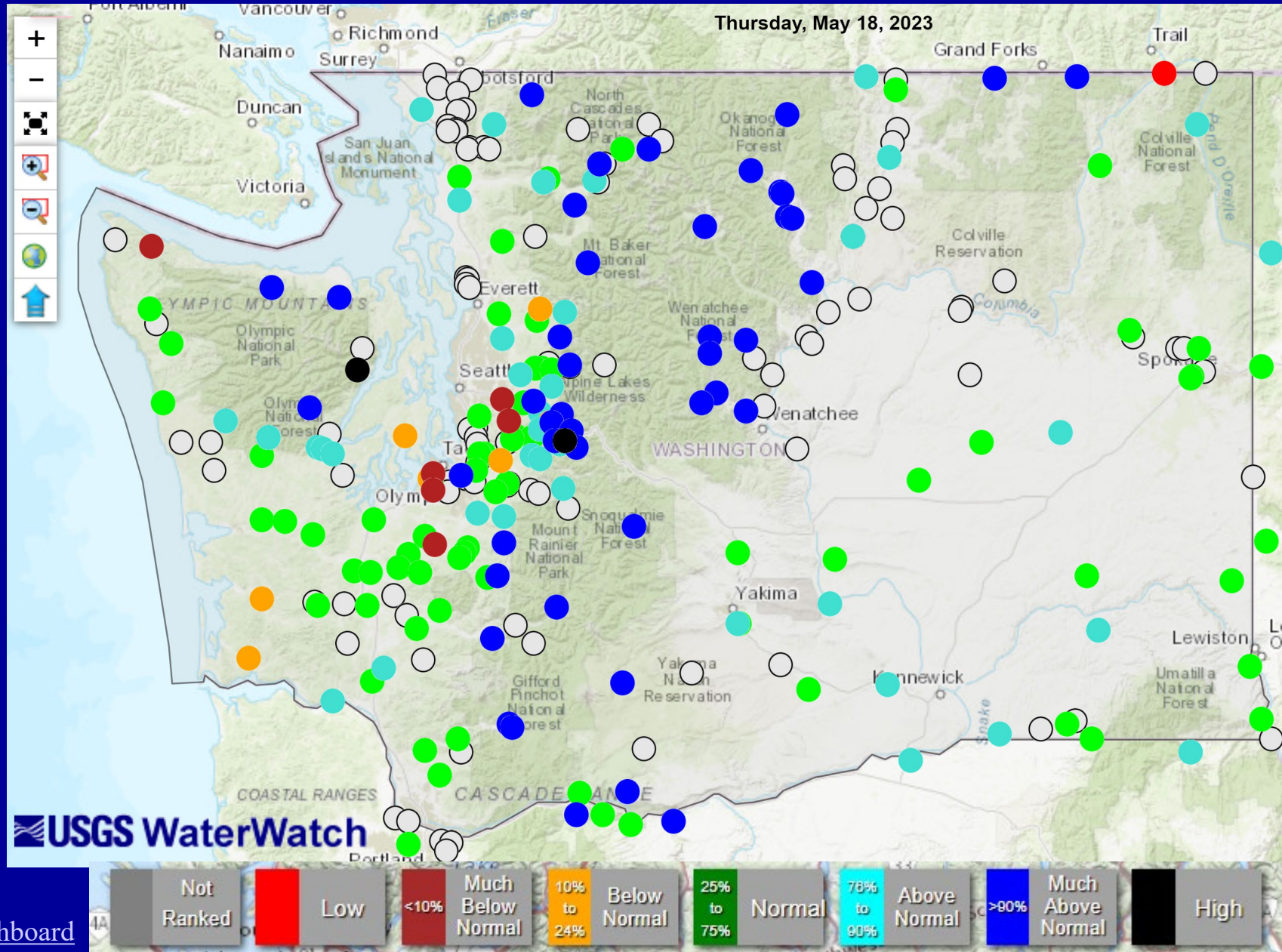
COLOR – CHANGE

- 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

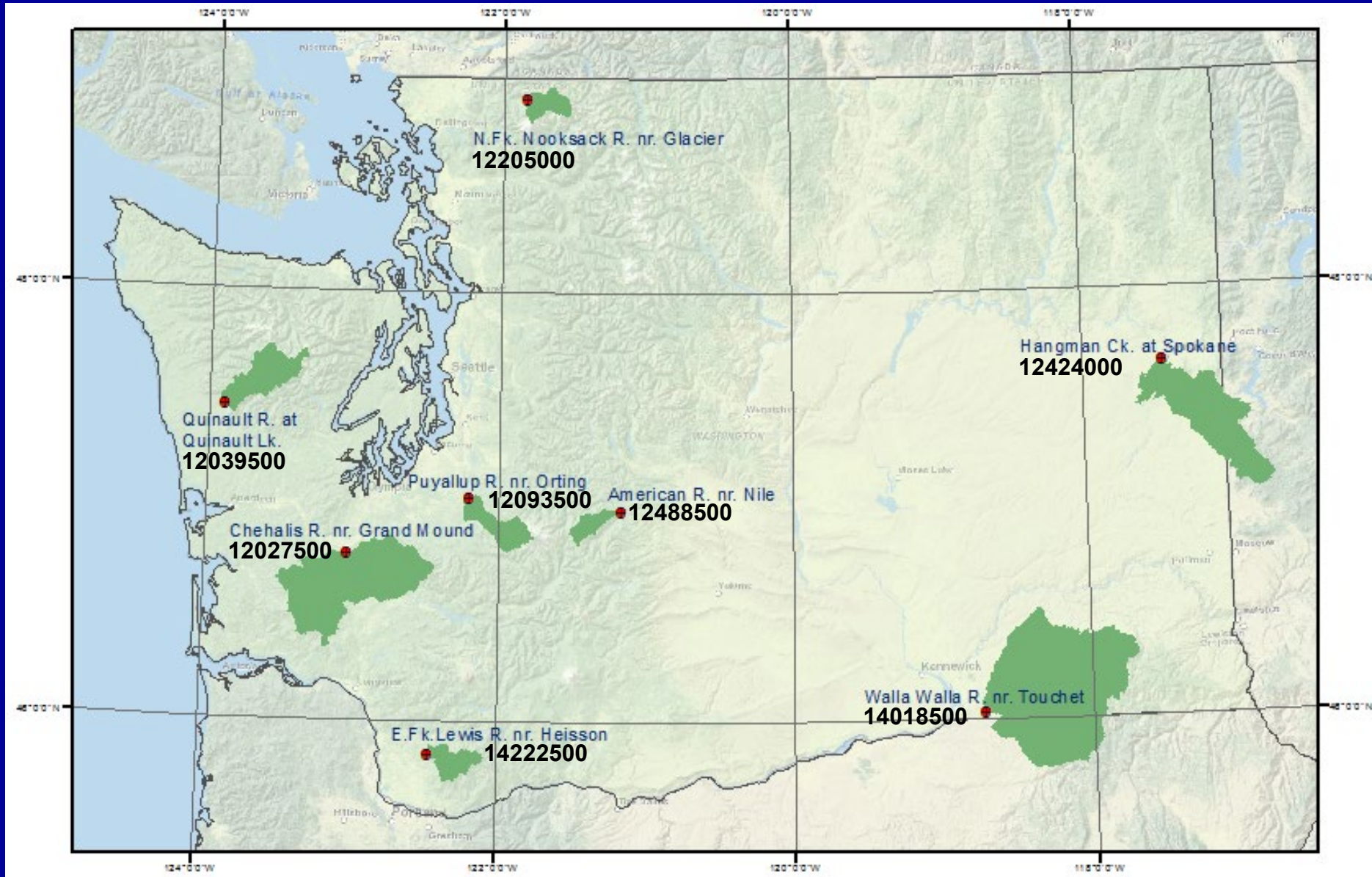
- Stream
- Lake
- Wetland
- Estuary
- Coastal

WA 7-day Average Streamflow Conditions as of 19 May 2023

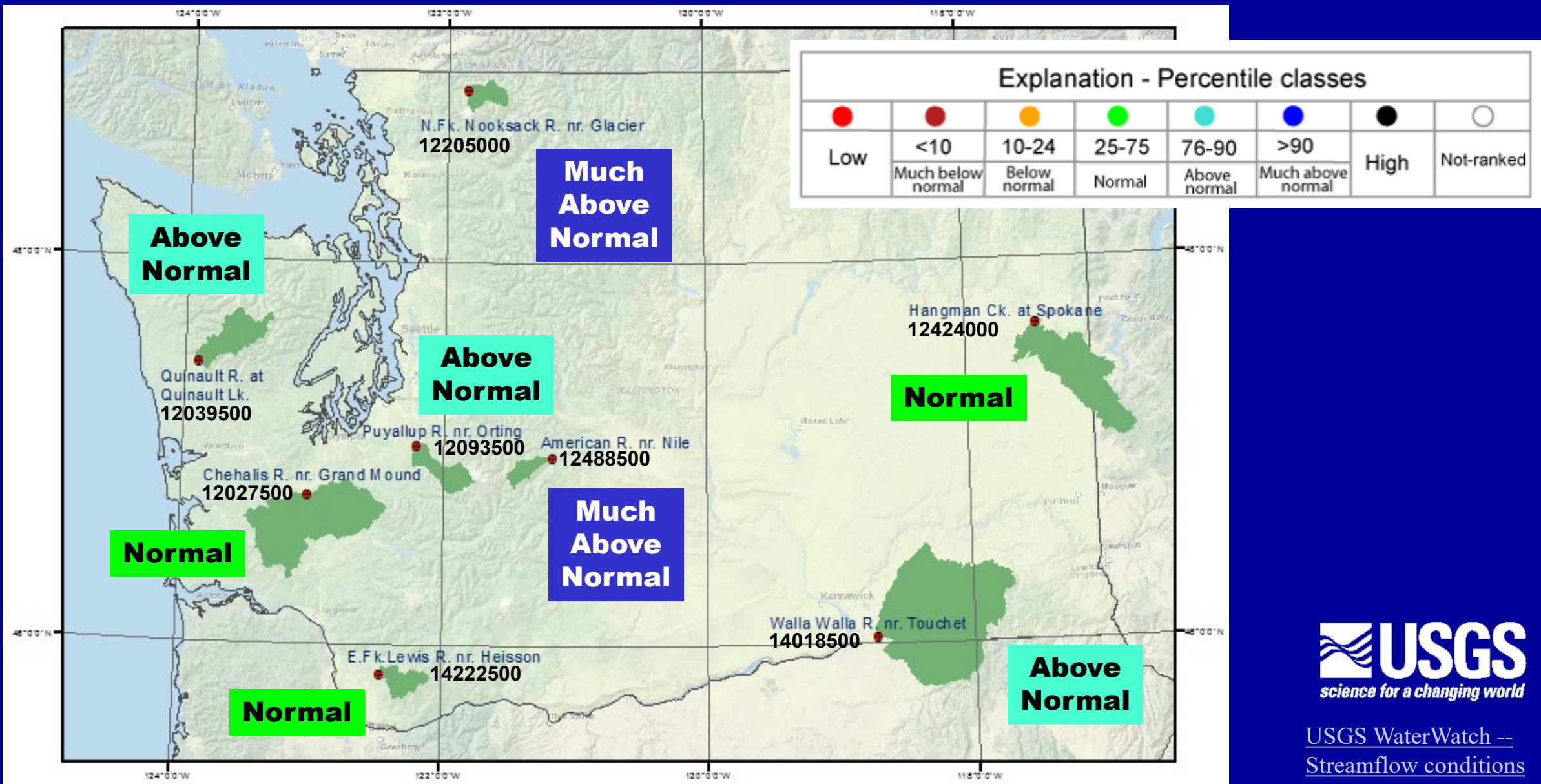


Index Gaging Stations

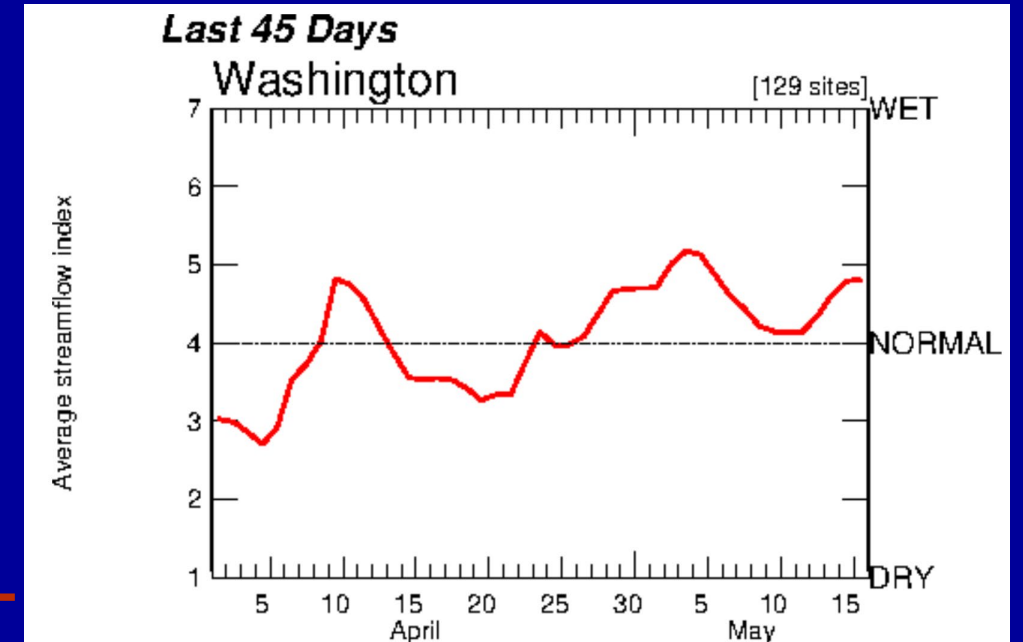
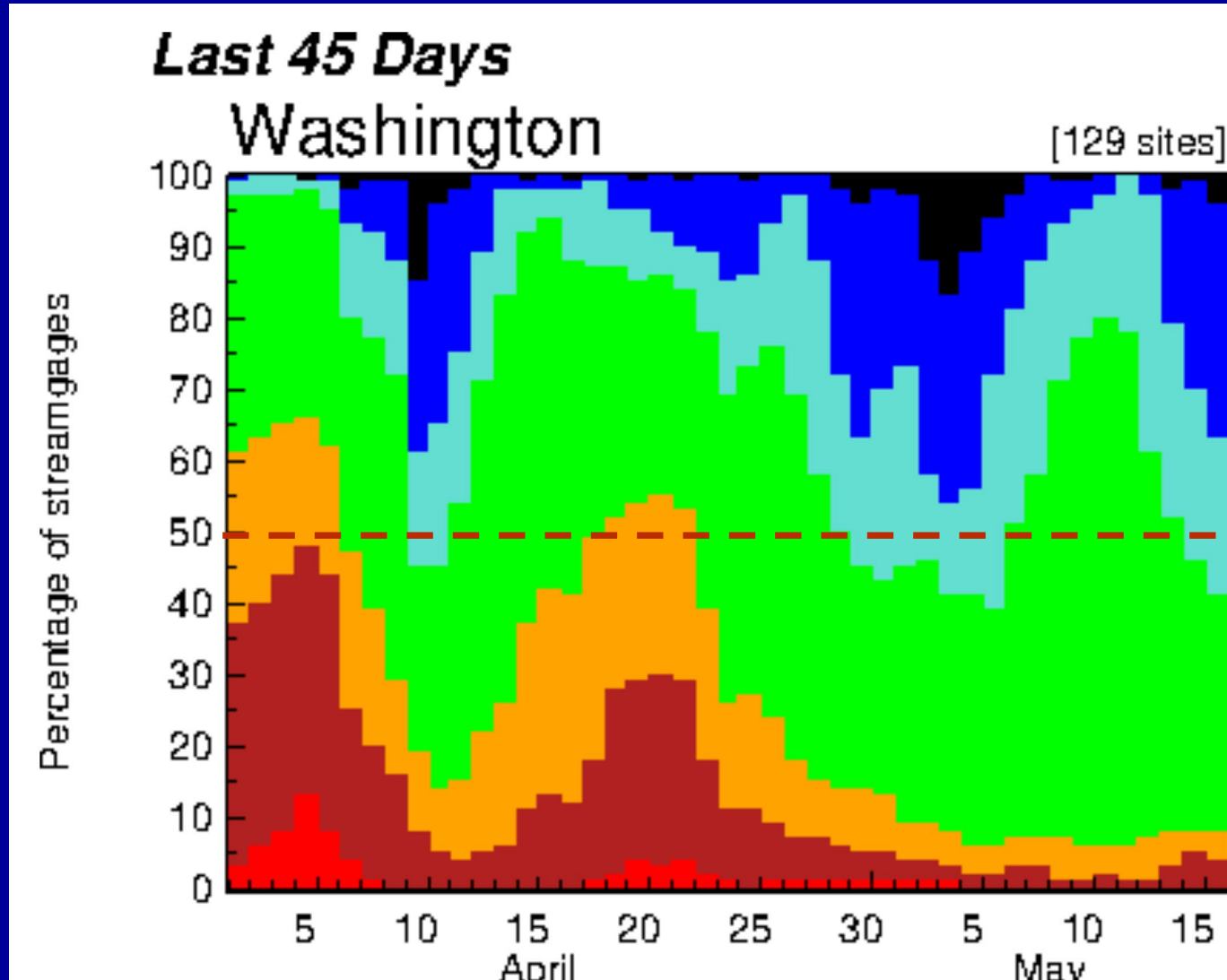
(Stations that measure natural or near-natural streamflow)



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



7-day average streamflow in Washington Rivers compared to historical streamflow, April 2023 to May 2023

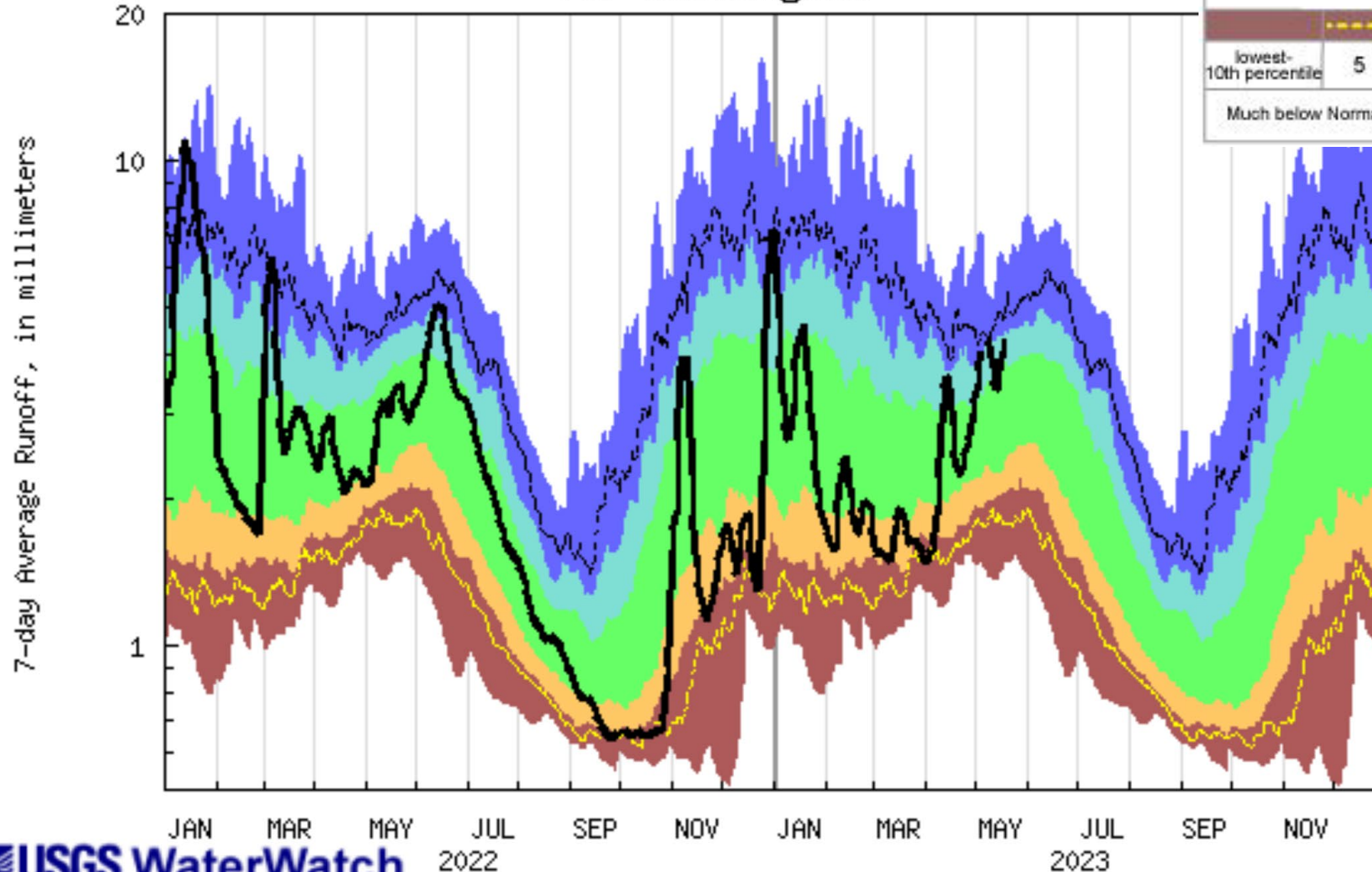


Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

Duration Hydrograph, Washington State

7-day Average Streamflow (as of 19 May 2023) is below normal

Duration hydrograph of 7-day average runoff for Washington



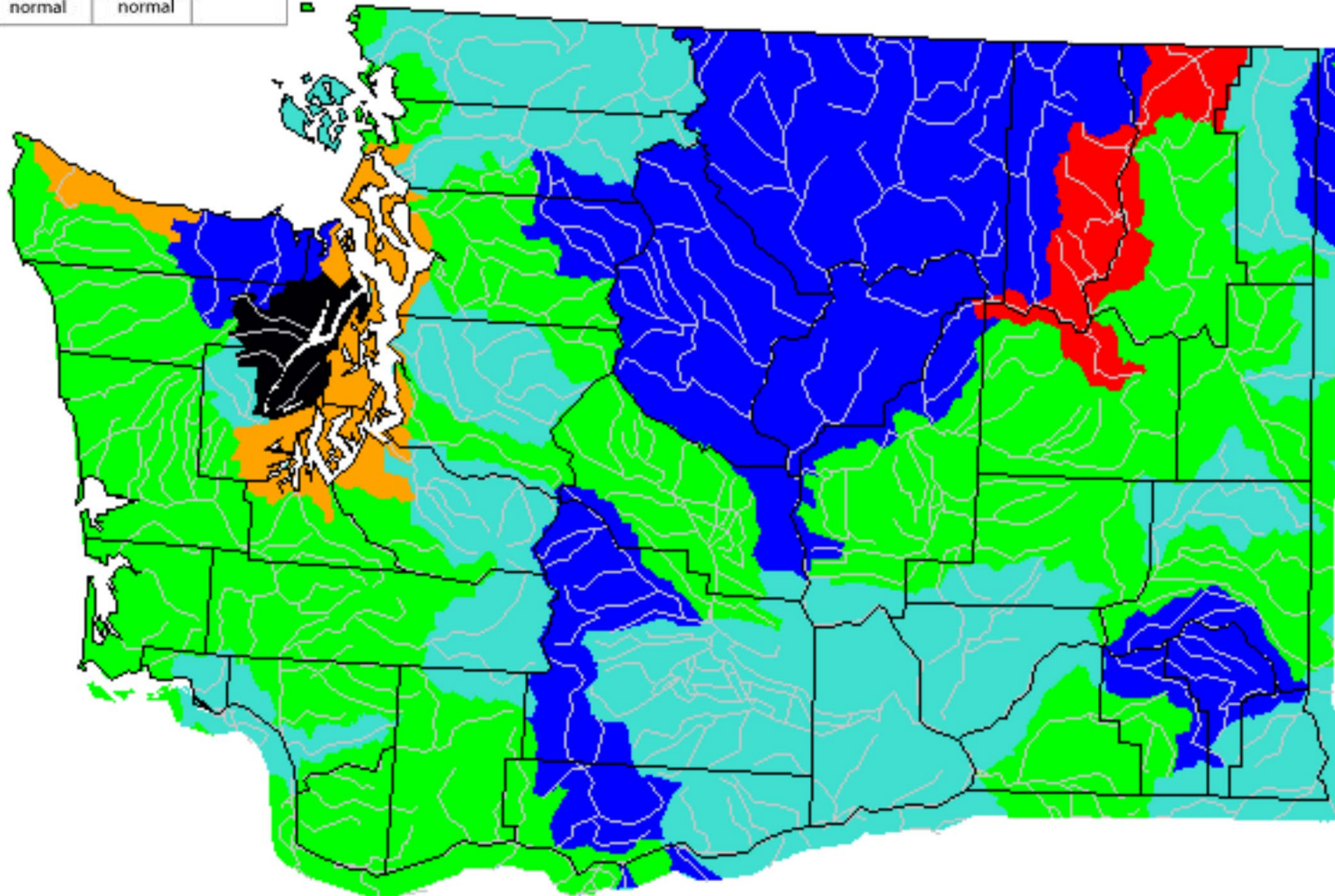
Explanation - Percentile classes							Flow
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest	
Much below Normal	Below normal	Normal	Above normal	Much above normal			

WA 14-day average streamflow compared to historical flow

As of 18 May 2023

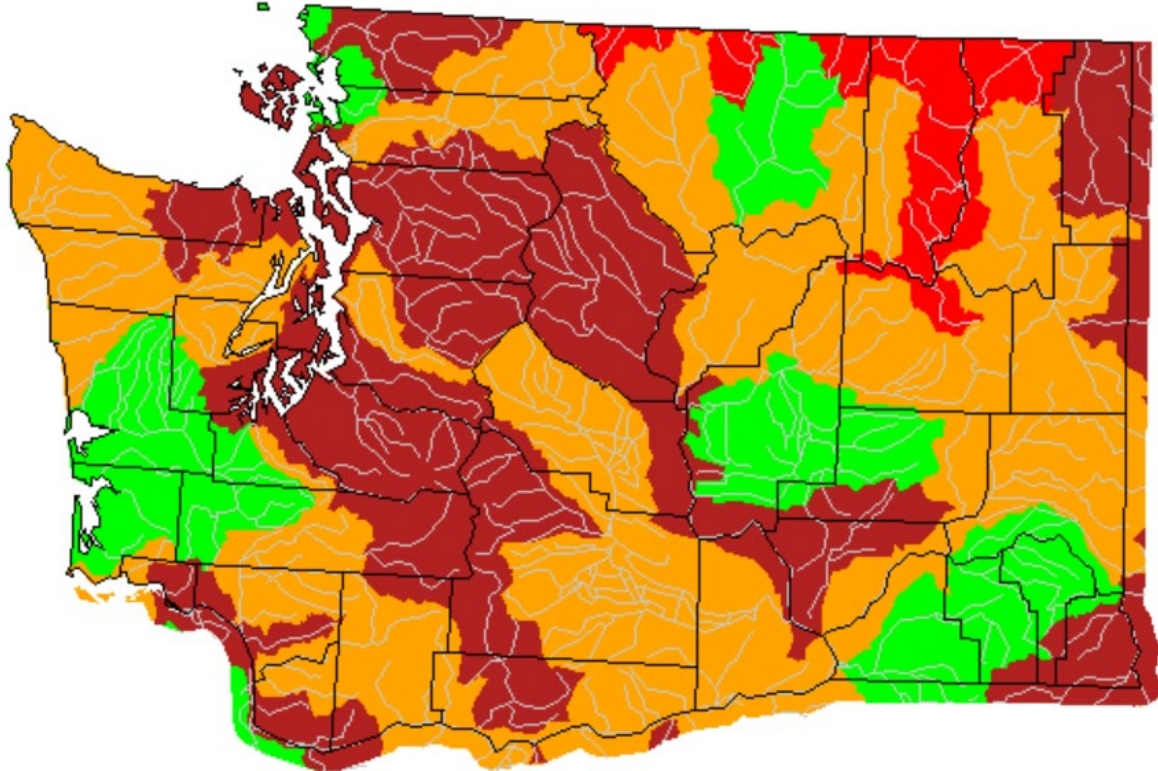
Explanation - Percentile classes

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

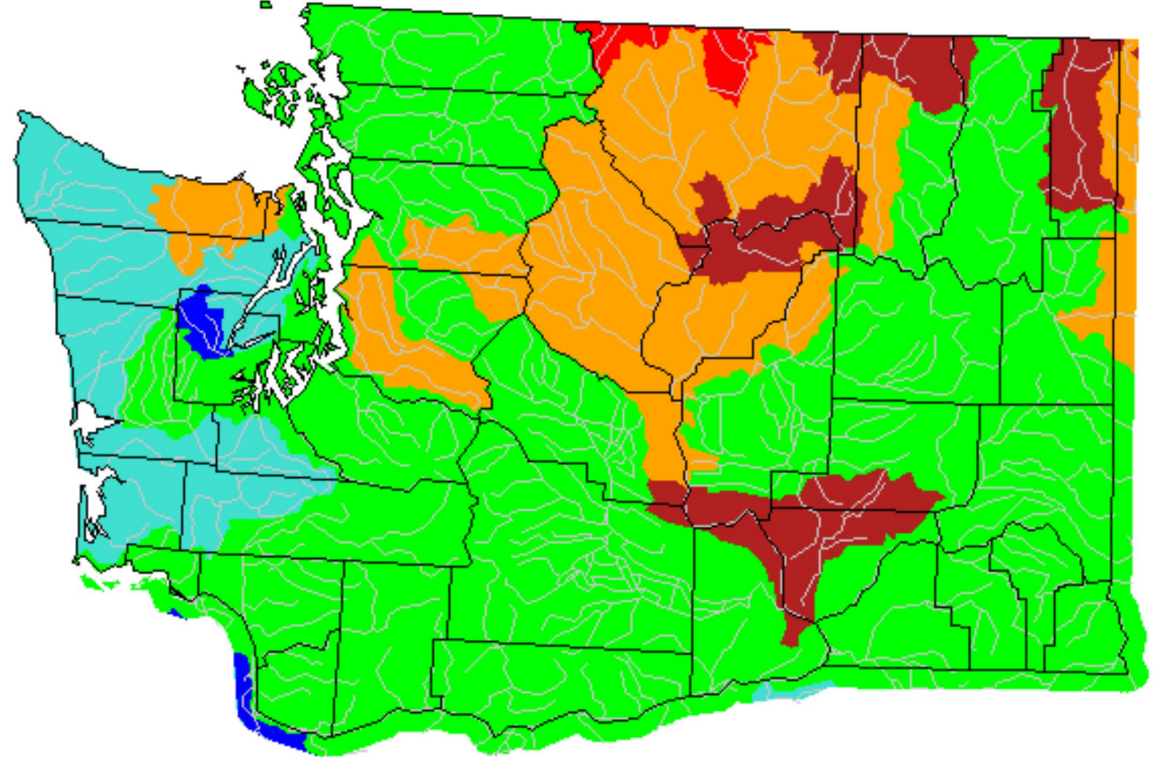



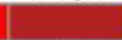




Monthly average streamflow compared to historical

March 2023



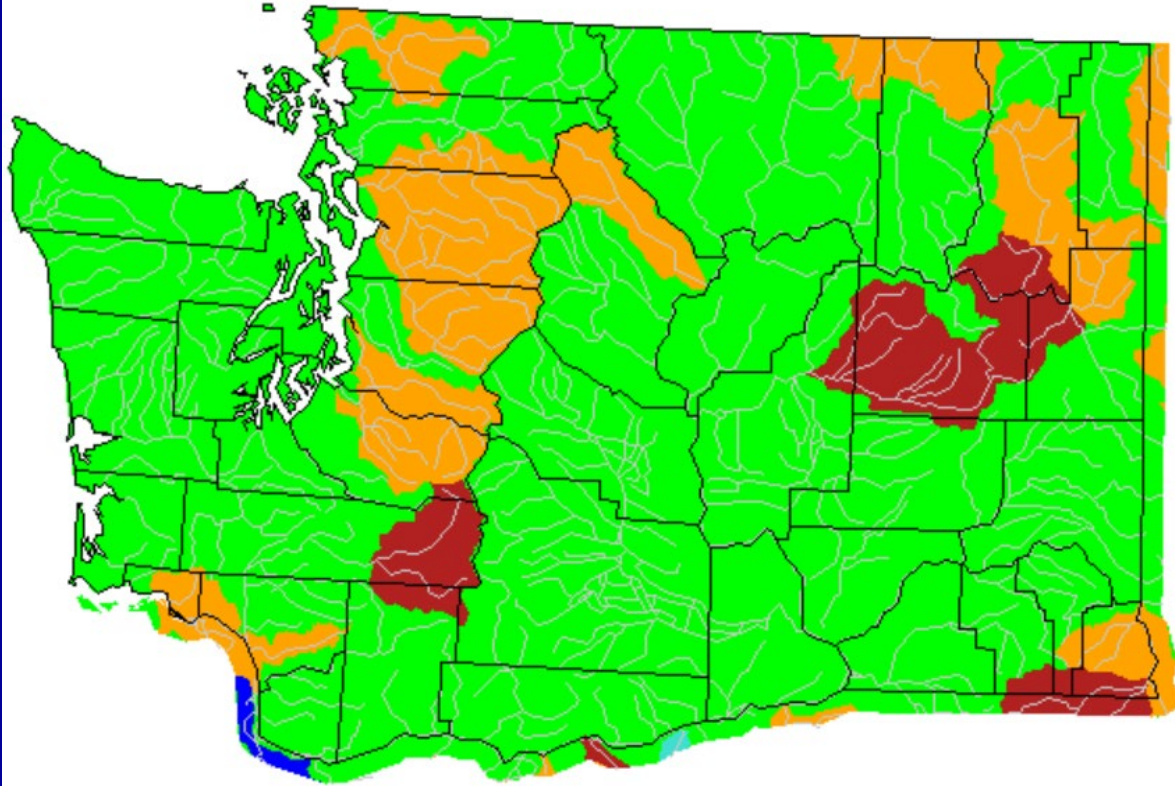
April 2023



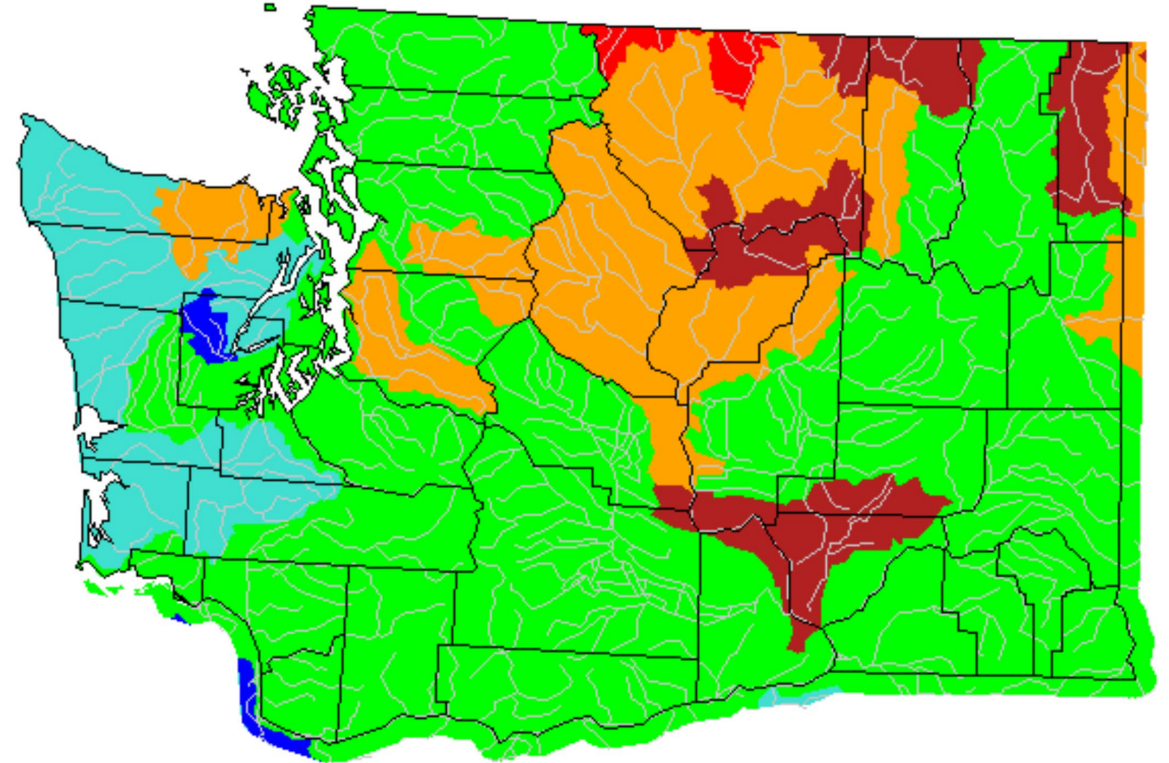
Explanation - Percentile classes						
						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

Monthly average streamflow compared to historical

April 2022



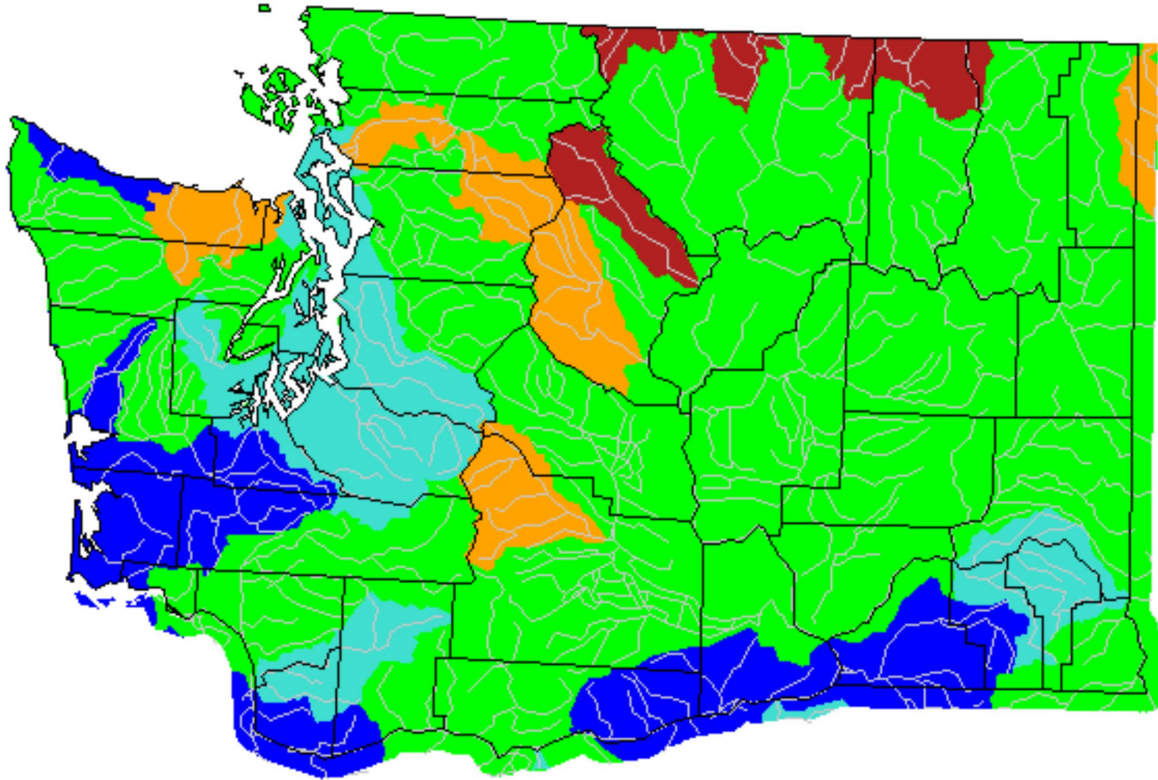
April 2023



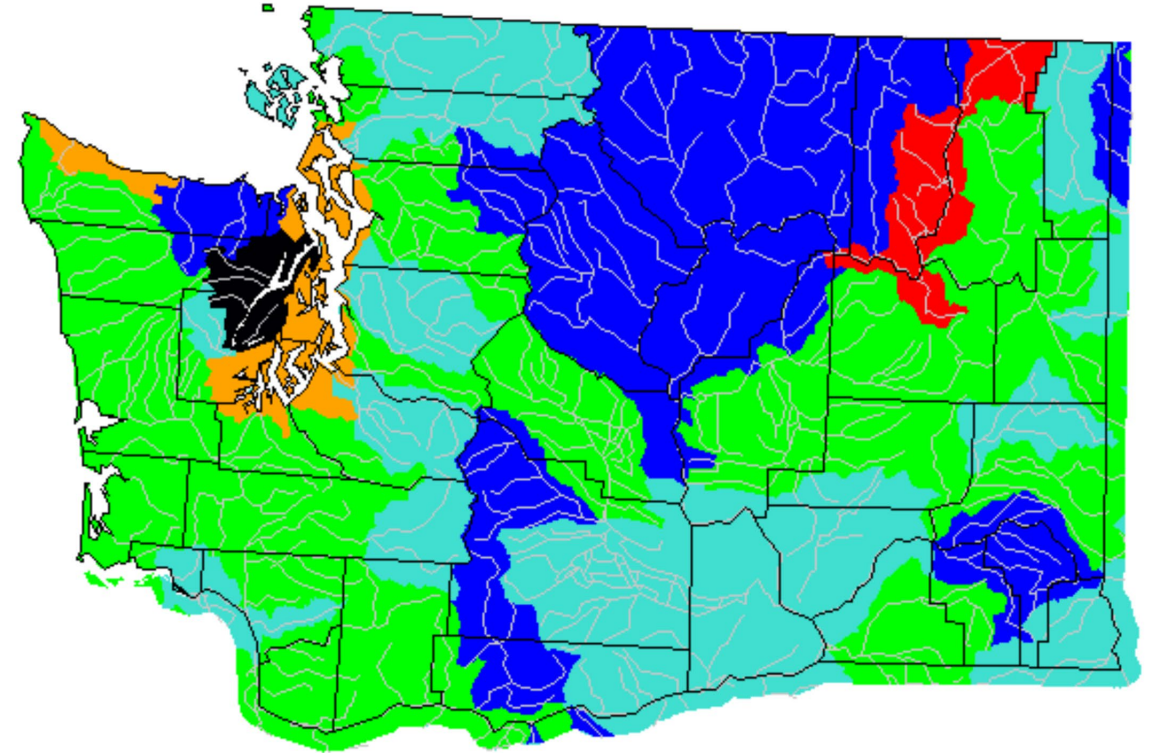
Explanation - Percentile classes						
	<10	10-24	25-75	76-90	>90	
Low	Much below normal	Below normal	Normal	Above normal	Much above normal	High

Monthly average streamflow compared to historical

May 2022



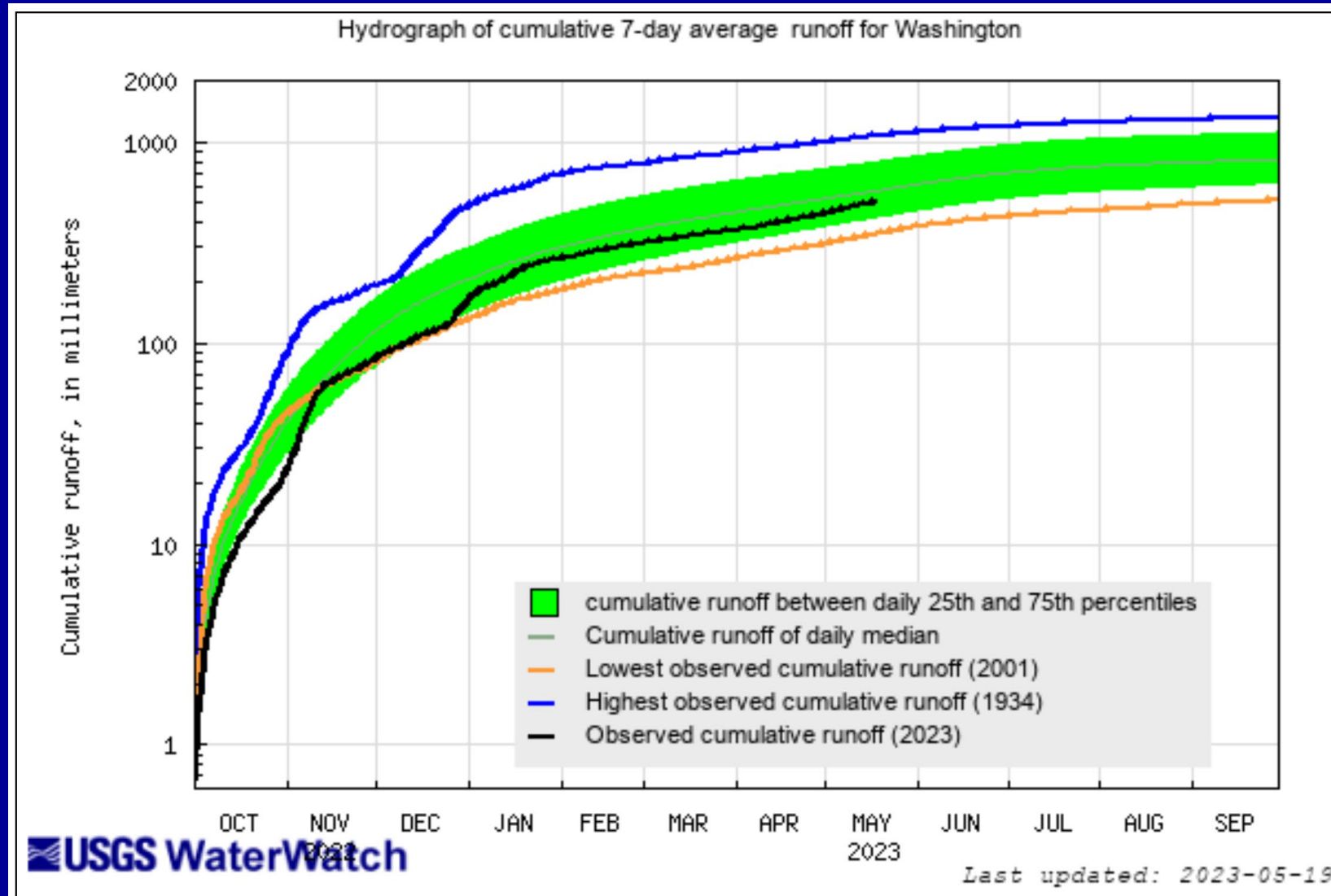
Last 14 days as of May 18th, 2023



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

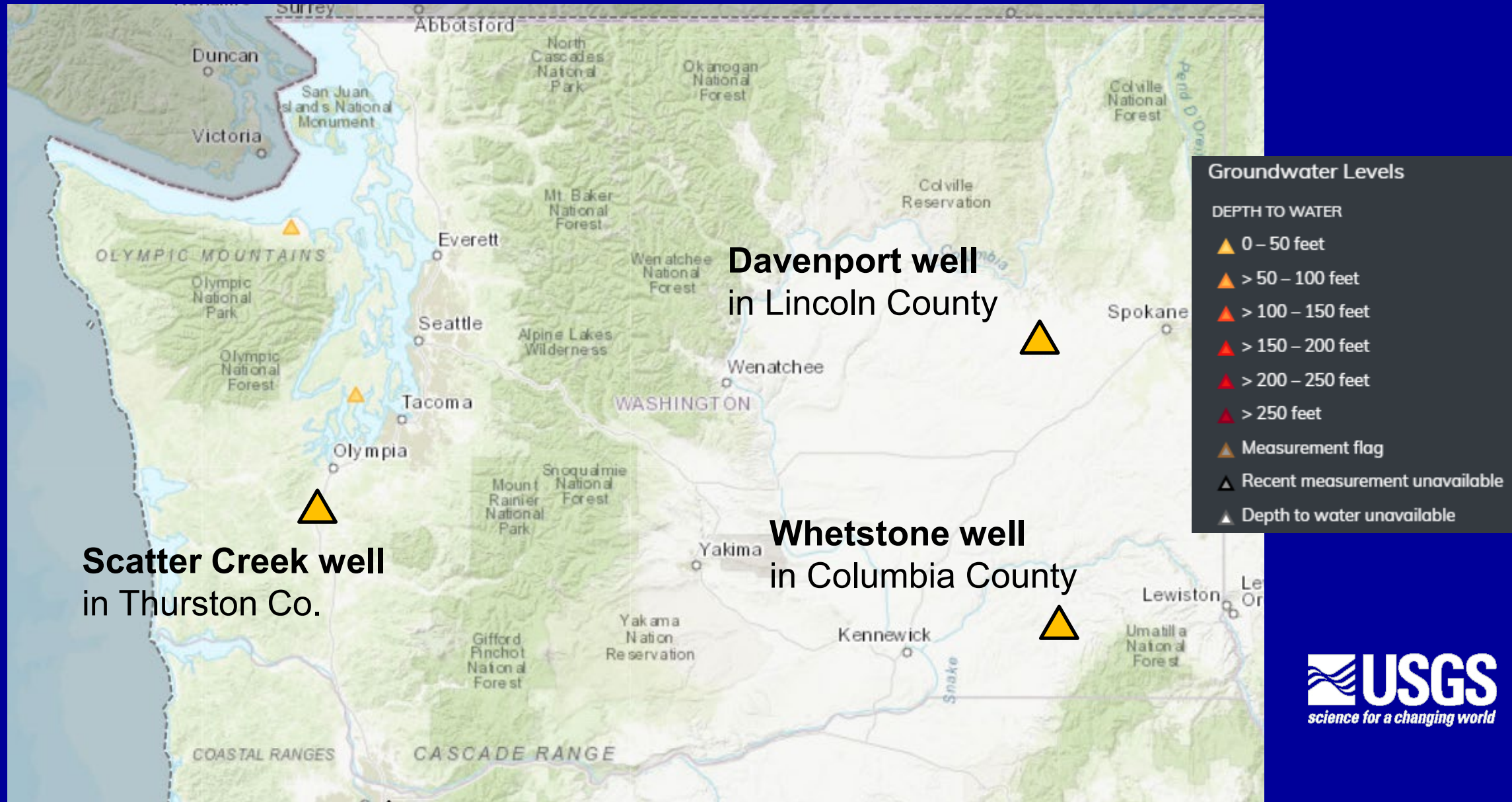
Hydrograph of cumulative 7-day average Area-based Hydrograph, Washington State

2023 Water year (as of 19 May 2023) is normal



USGS WaterWatch --
[Streamflow conditions](#)

Three reference groundwater wells in Washington



Scatter Creek Well Groundwater Conditions

16N/02W-29L02P2 - 465033122570202

May 19, 2022 - May 19, 2023

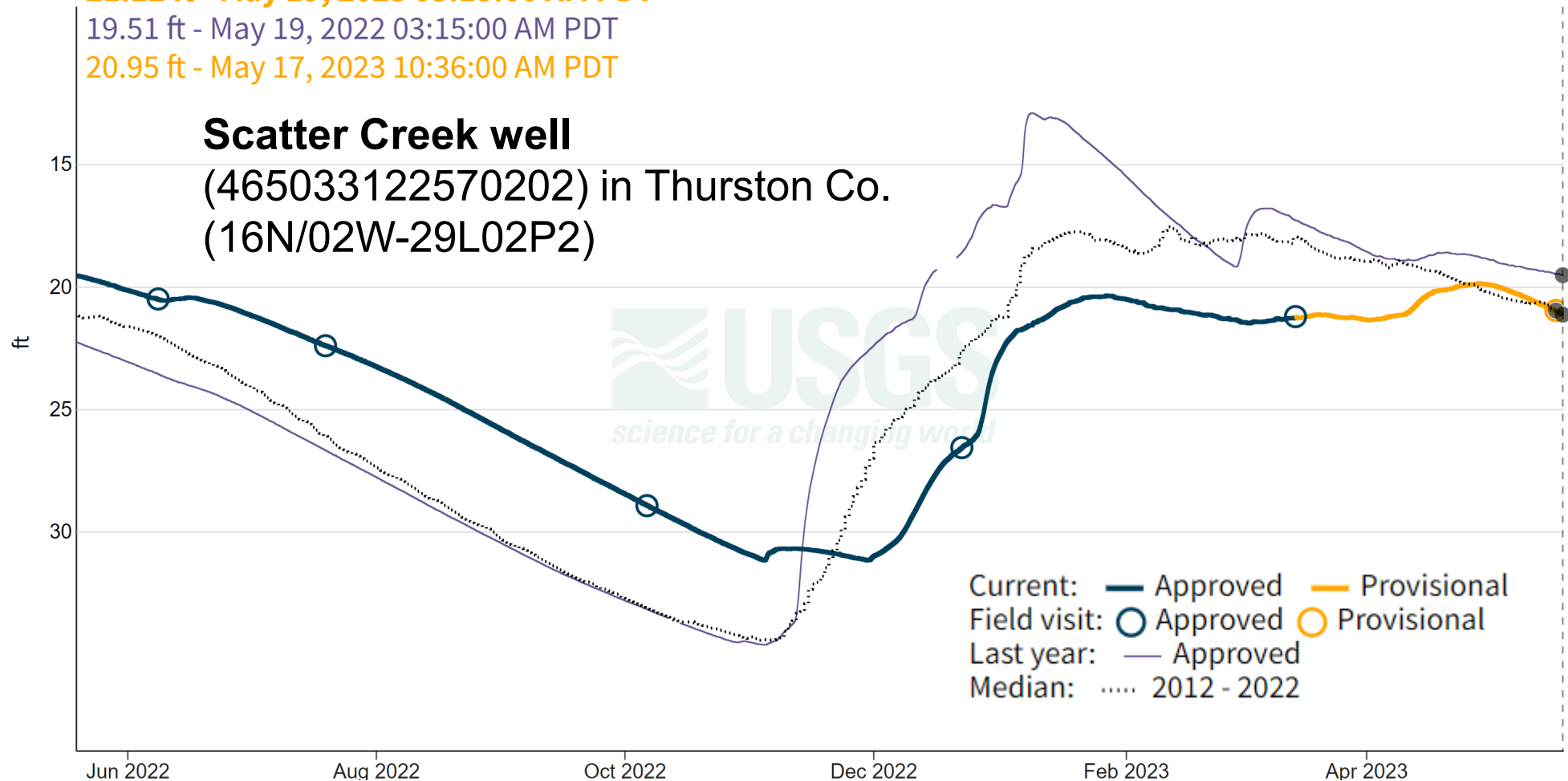
Depth to water level, ft below land surface ⓘ

21.12 ft - May 19, 2023 03:15:00 AM PDT

19.51 ft - May 19, 2022 03:15:00 AM PDT

20.95 ft - May 17, 2023 10:36:00 AM PDT

Scatter Creek well
(465033122570202) in Thurston Co.
(16N/02W-29L02P2)

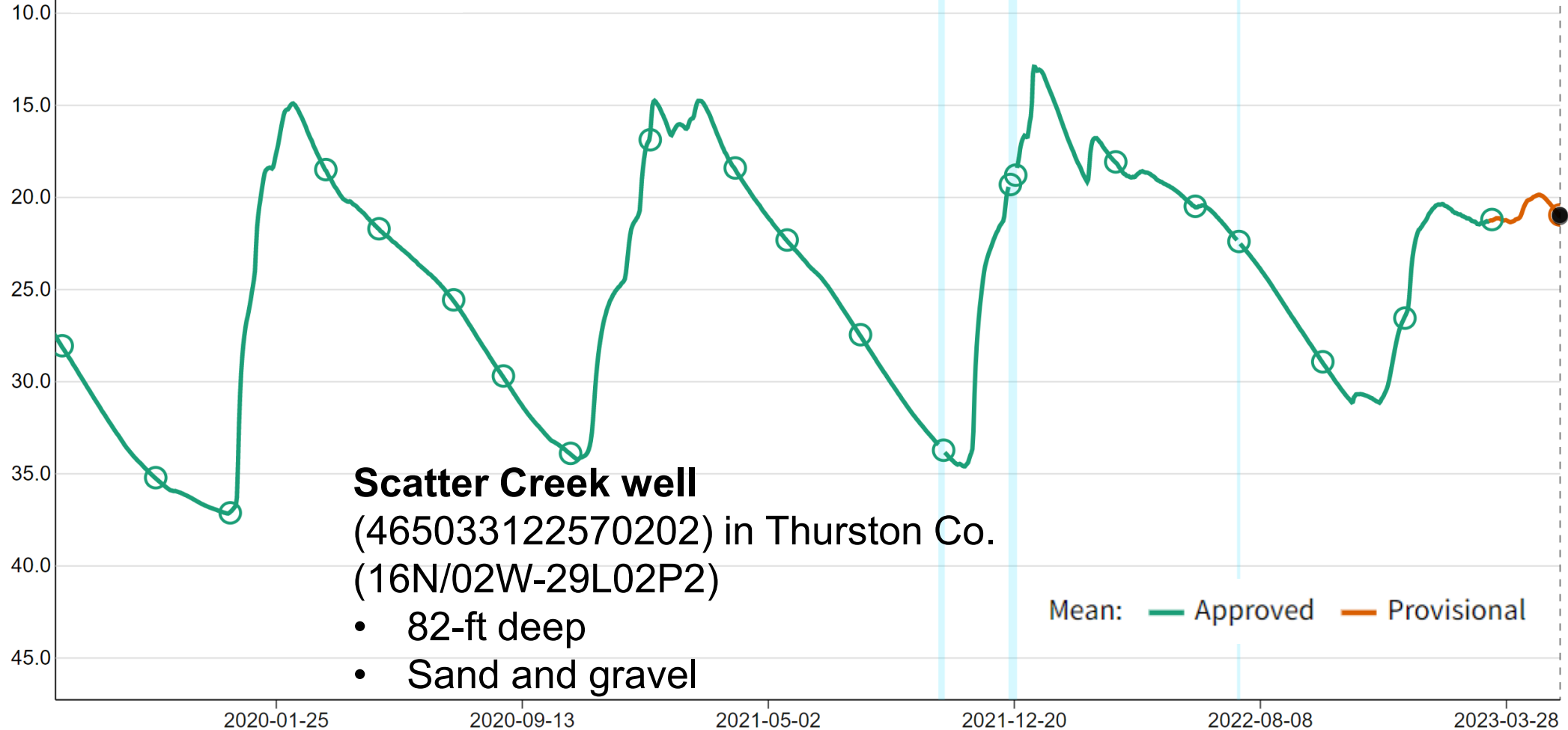


Scatter Creek Well Groundwater Conditions

Depth to water level, ft below land surface, ft

Mean 21.06 ft - 2023-05-18

Visit 20.95 ft - 2023-05-17



Davenport Well Groundwater Conditions

24N/36E-16A01 - 473442118162201

May 19, 2022 - May 19, 2023

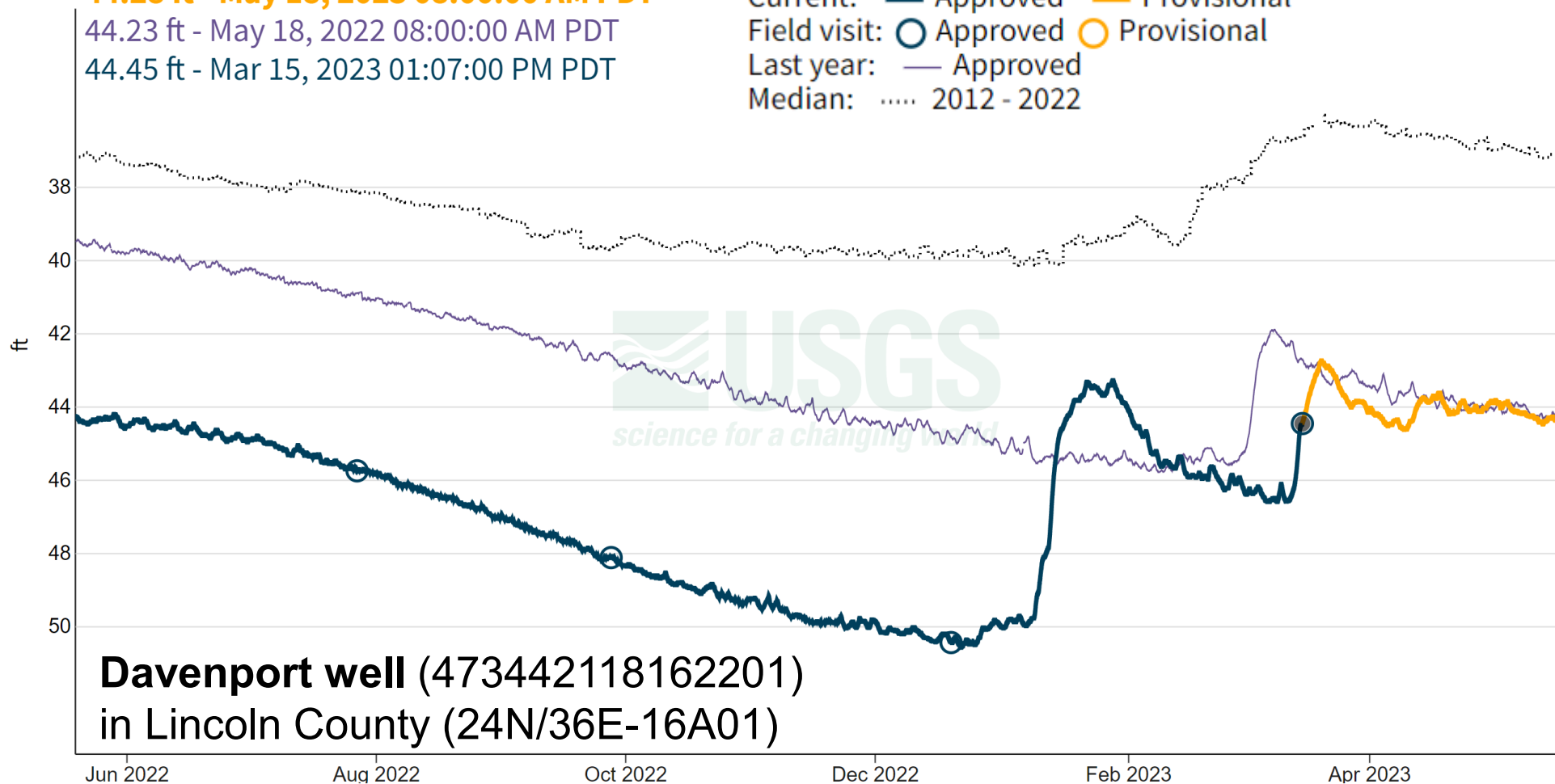
Depth to water level, ft below land surface ⓘ

44.28 ft - May 18, 2023 08:00:00 AM PDT

44.23 ft - May 18, 2022 08:00:00 AM PDT

44.45 ft - Mar 15, 2023 01:07:00 PM PDT

Current: — Approved — Provisional
Field visit: ○ Approved ○ Provisional
Last year: — Approved
Median: 2012 - 2022

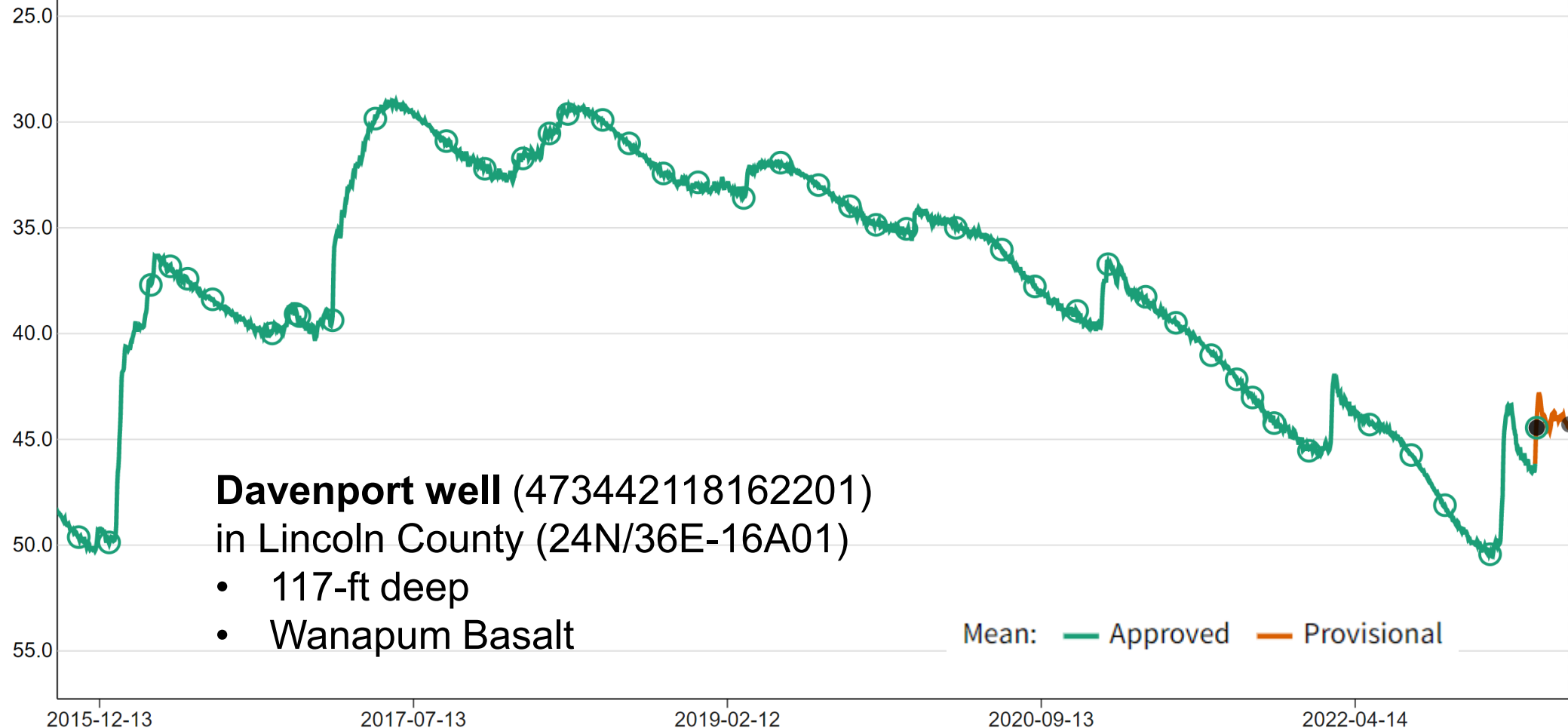


Davenport Well Groundwater Conditions

Depth to water level, ft below land surface, ft

Mean 44.29 ft - 2023-05-15

Visit 44.45 ft - 2023-03-15



Whetstone Well Groundwater Conditions

10N/37E-23R01 - 461935118081501

May 19, 2022 - May 19, 2023

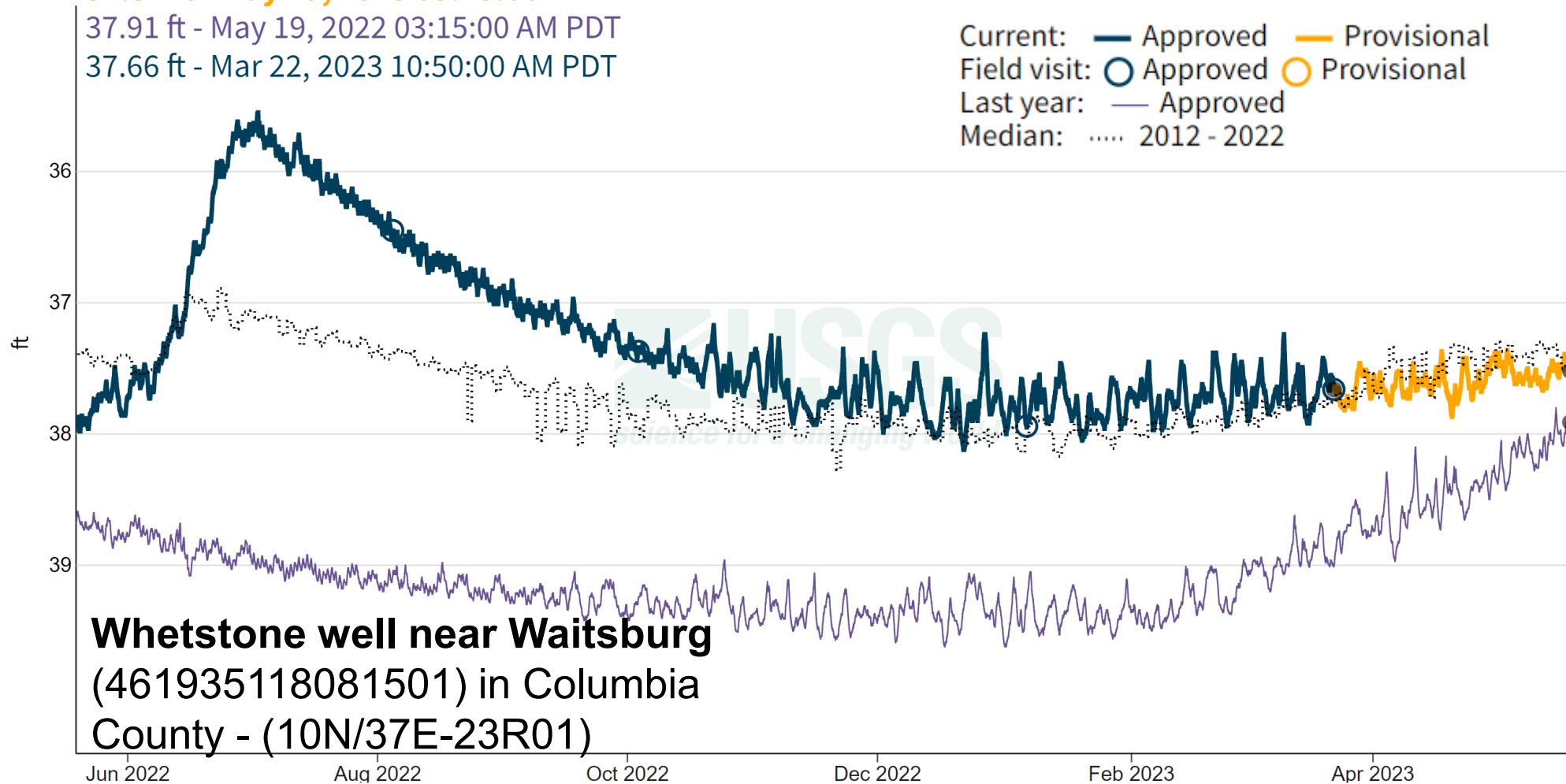
Depth to water level, ft below land surface ⓘ

37.52 ft - May 19, 2023 03:15:00 AM PDT

37.91 ft - May 19, 2022 03:15:00 AM PDT

37.66 ft - Mar 22, 2023 10:50:00 AM PDT

Current: — Approved — Provisional
Field visit: ○ Approved ○ Provisional
Last year: — Approved
Median: 2012 - 2022



Whetstone well near Waitsburg
(461935118081501) in Columbia
County - (10N/37E-23R01)

Whetstone Well Groundwater Conditions

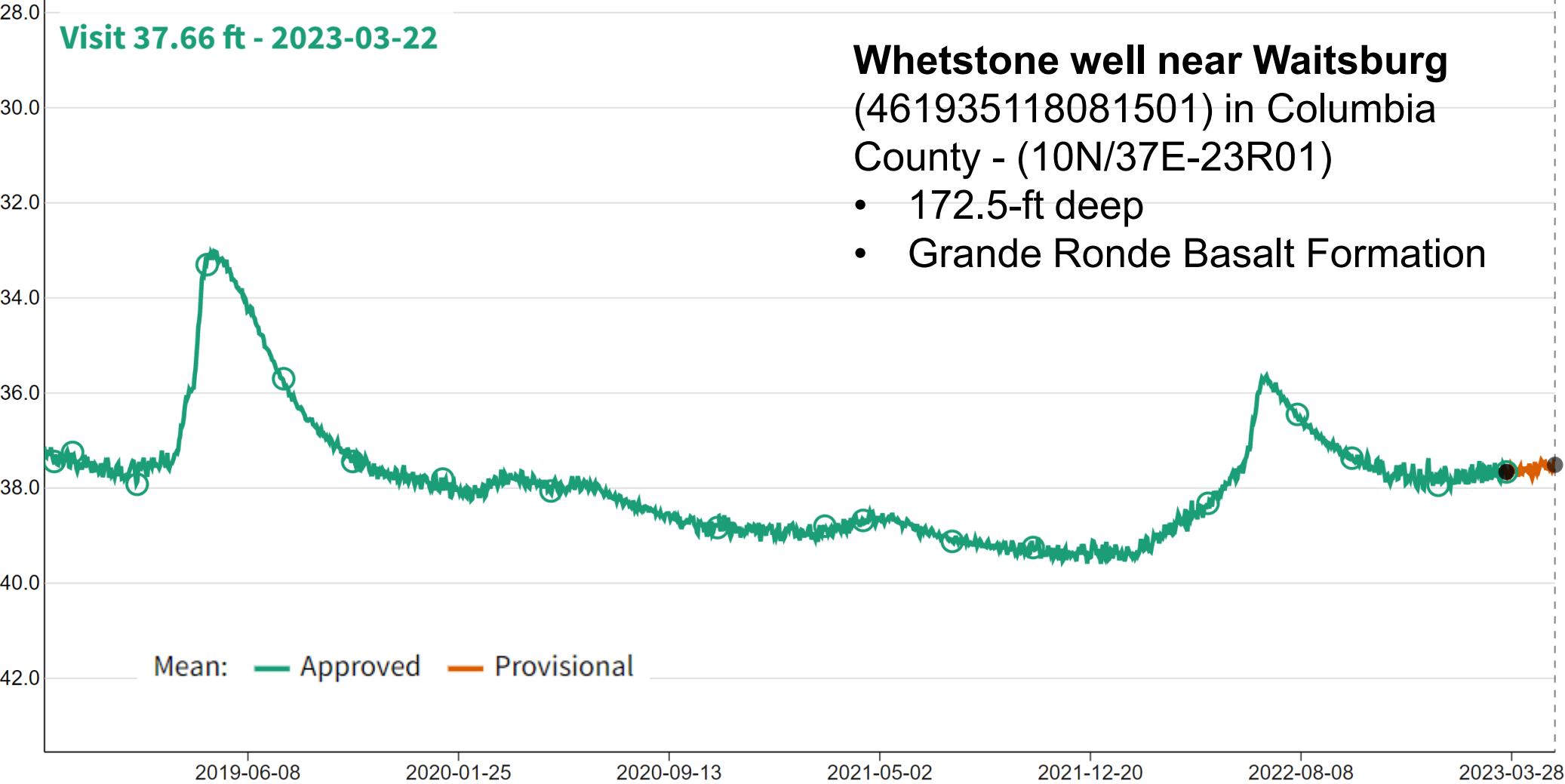
Depth to water level, ft below land surface, ft

Mean 37.51 ft - 2023-05-15

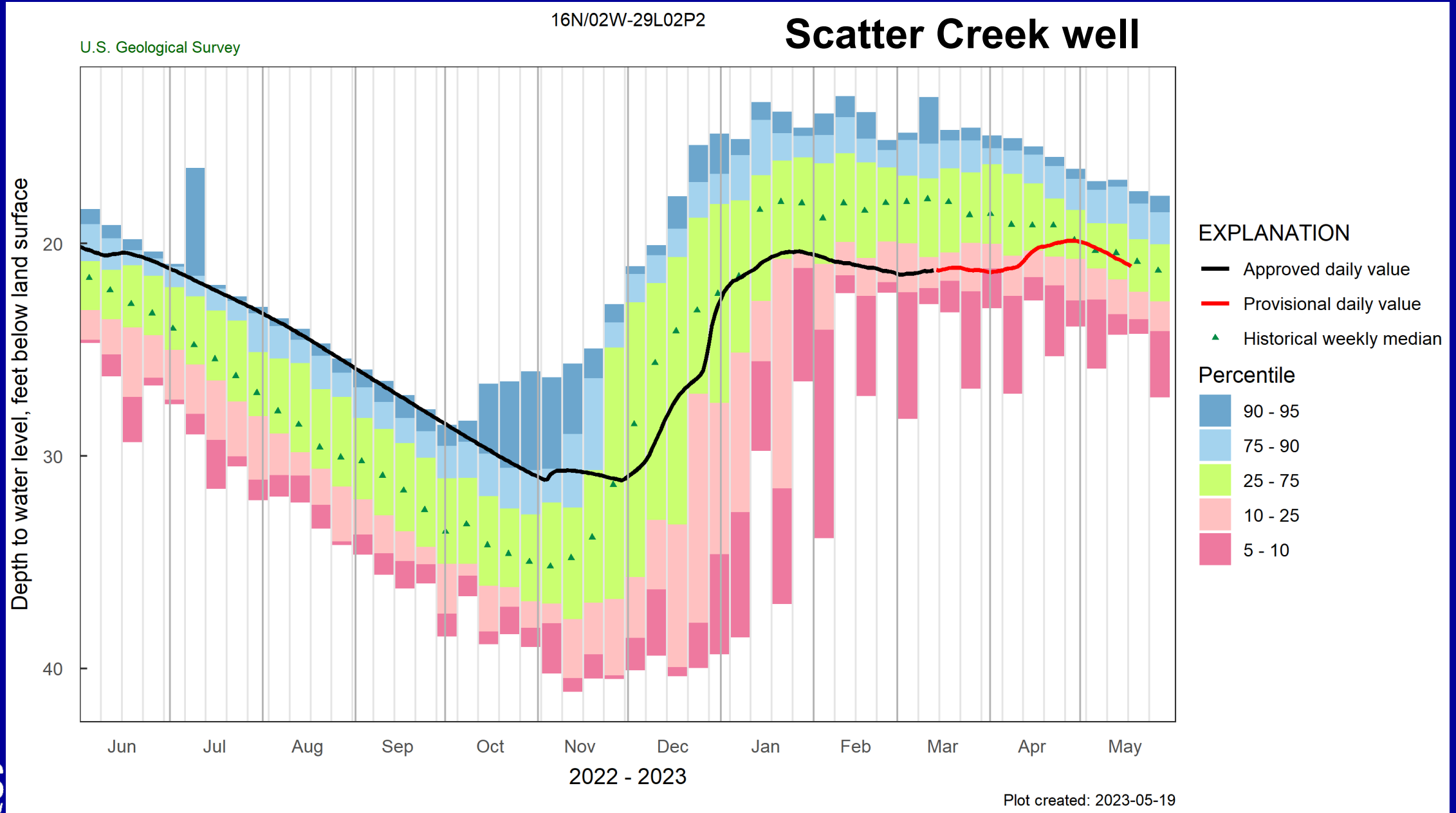
Visit 37.66 ft - 2023-03-22

Whetstone well near Waitsburg
(461935118081501) in Columbia
County - (10N/37E-23R01)

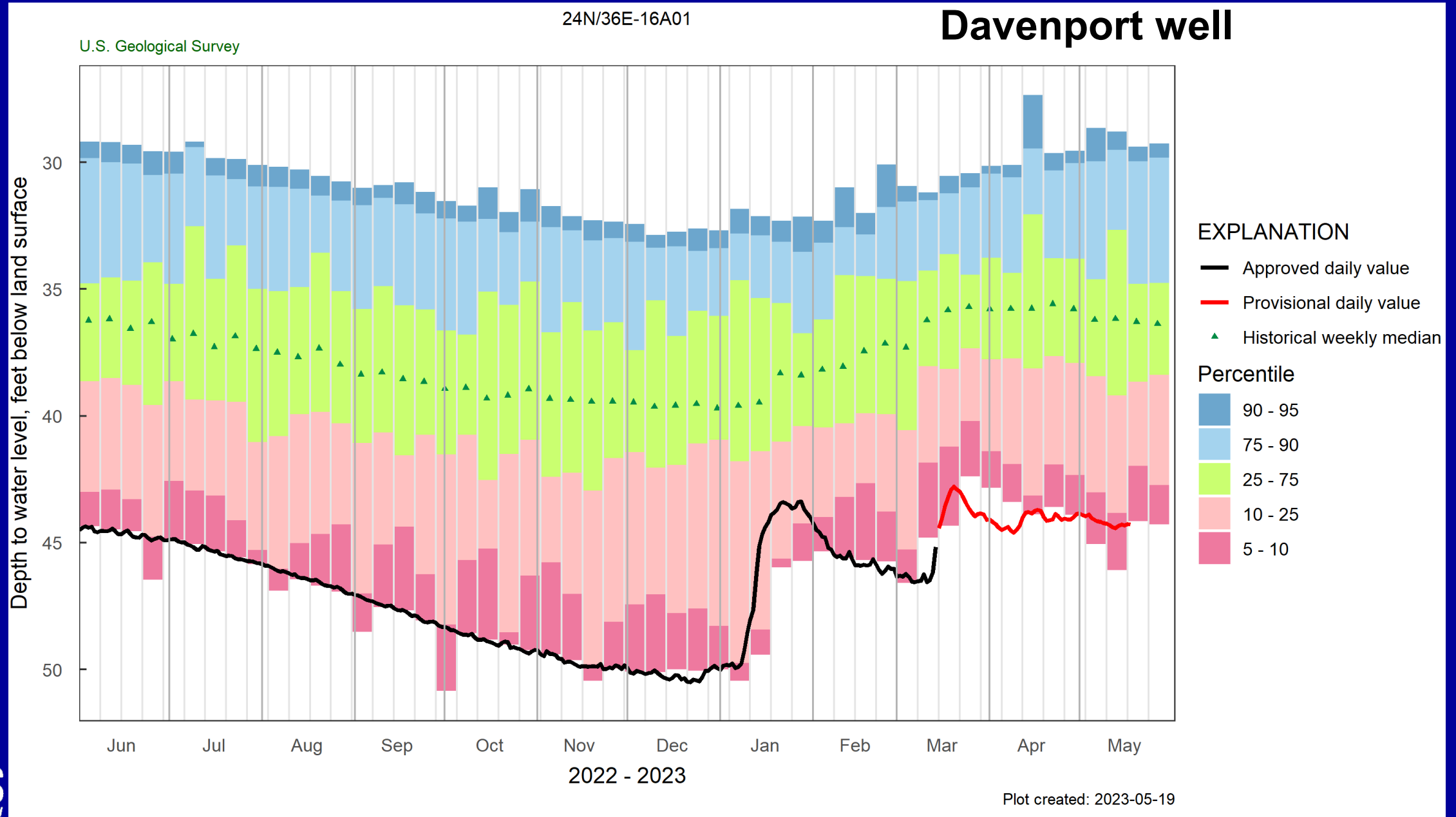
- 172.5-ft deep
- Grande Ronde Basalt Formation



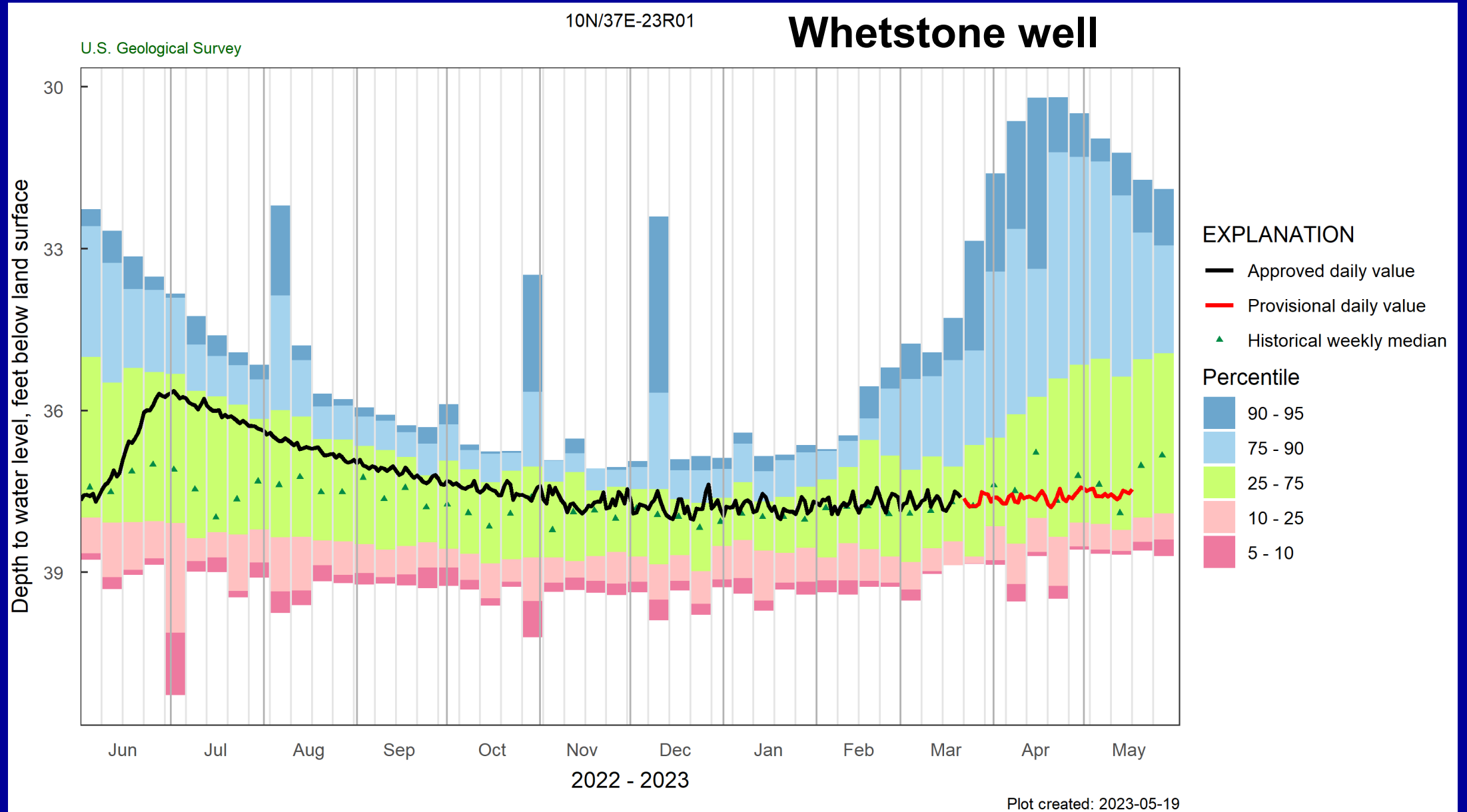
WA Current Groundwater Conditions (19 May 2023)



WA Current Groundwater Conditions (19 May 2023)



WA Current Groundwater Conditions (19 May 2023)



Summary of Washington Streamflow & GW conditions as of 19 May 2023

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

Southwestern WA

- Chehalis River nr. Grand Mound – Normal
- EF Lewis River – Normal

Northwestern Cascades:

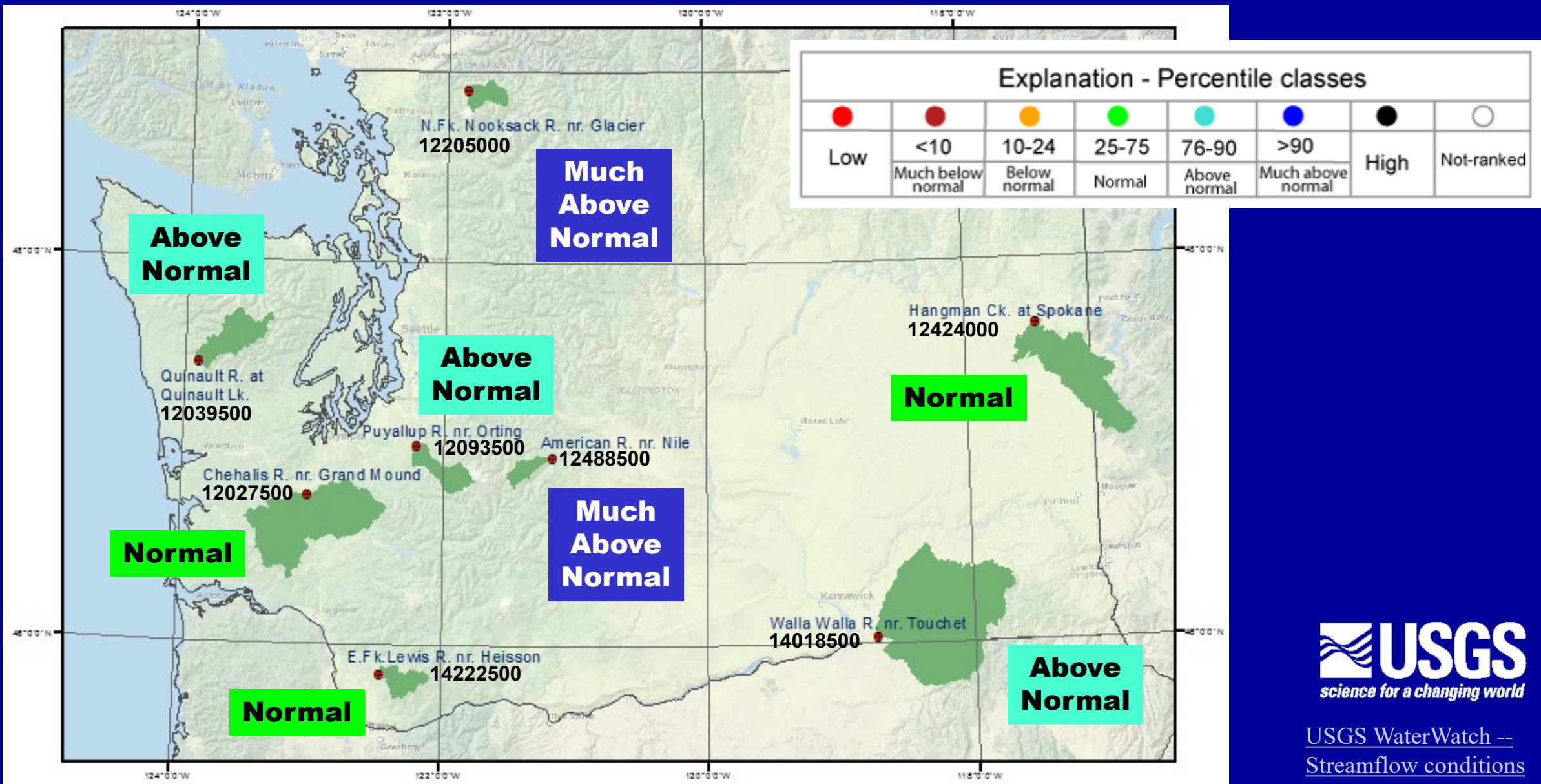
- NF Nooksack River – Much above Normal
- American River - Much above Normal
- Quinault River – Above Normal
- Puyallup River nr. Orting – Normal

Eastern WA

- Walla Walla River – Above Normal
- Hangman Creek – Normal

- Reference groundwater sites: (below normal)
 - Scatter Creek well (west) – Normal
 - Davenport well (east) – Much Below normal
 - Whetstone well (southeast) - Normal

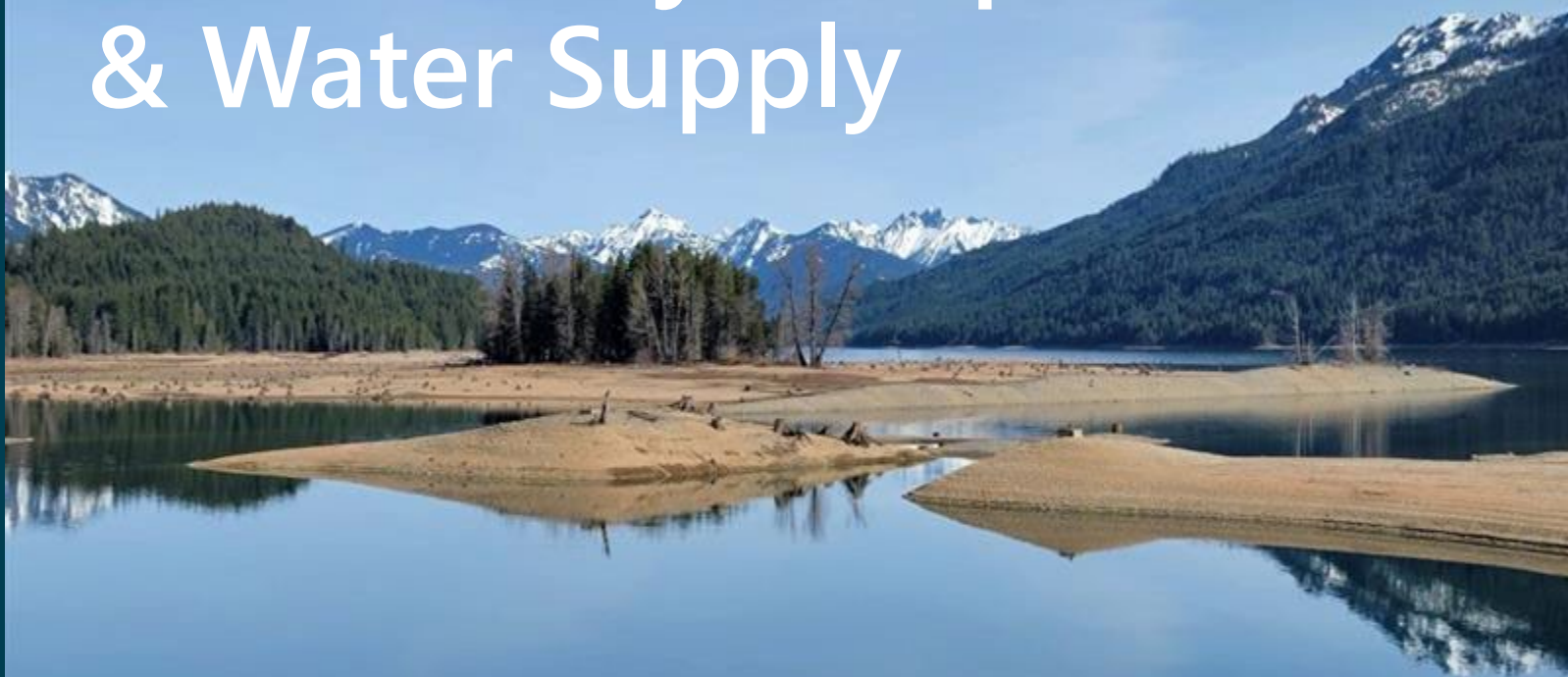
Index Gaging Stations, 7-day average streamflow (as of 19 May 2023)





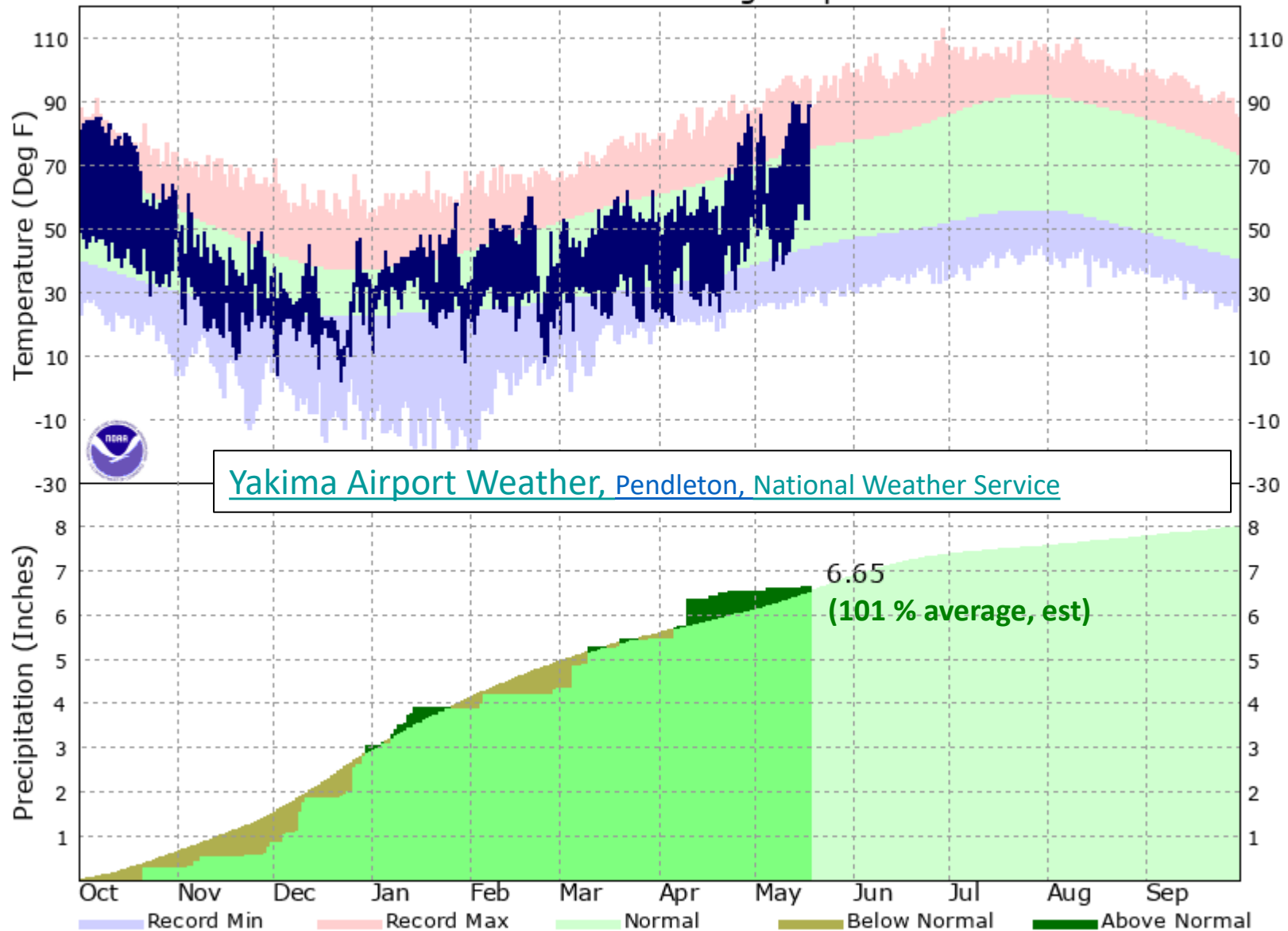
— BUREAU OF —
RECLAMATION

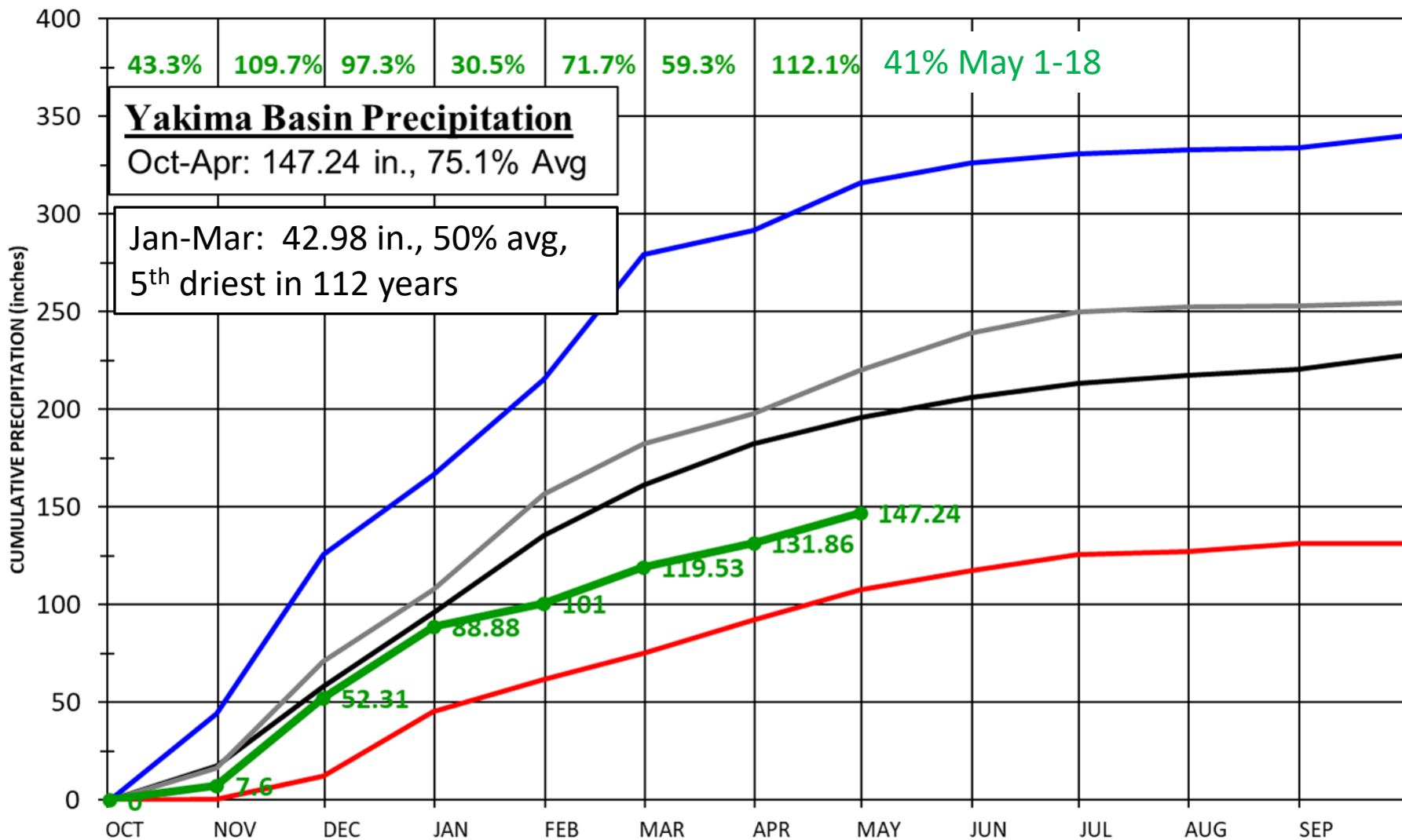
WaWSAC Yakima Project Operations & Water Supply



Yakima Basin, Washington
May 19, 2023, WY 2023

KYKM - Oct 2022 Through Sep 2023

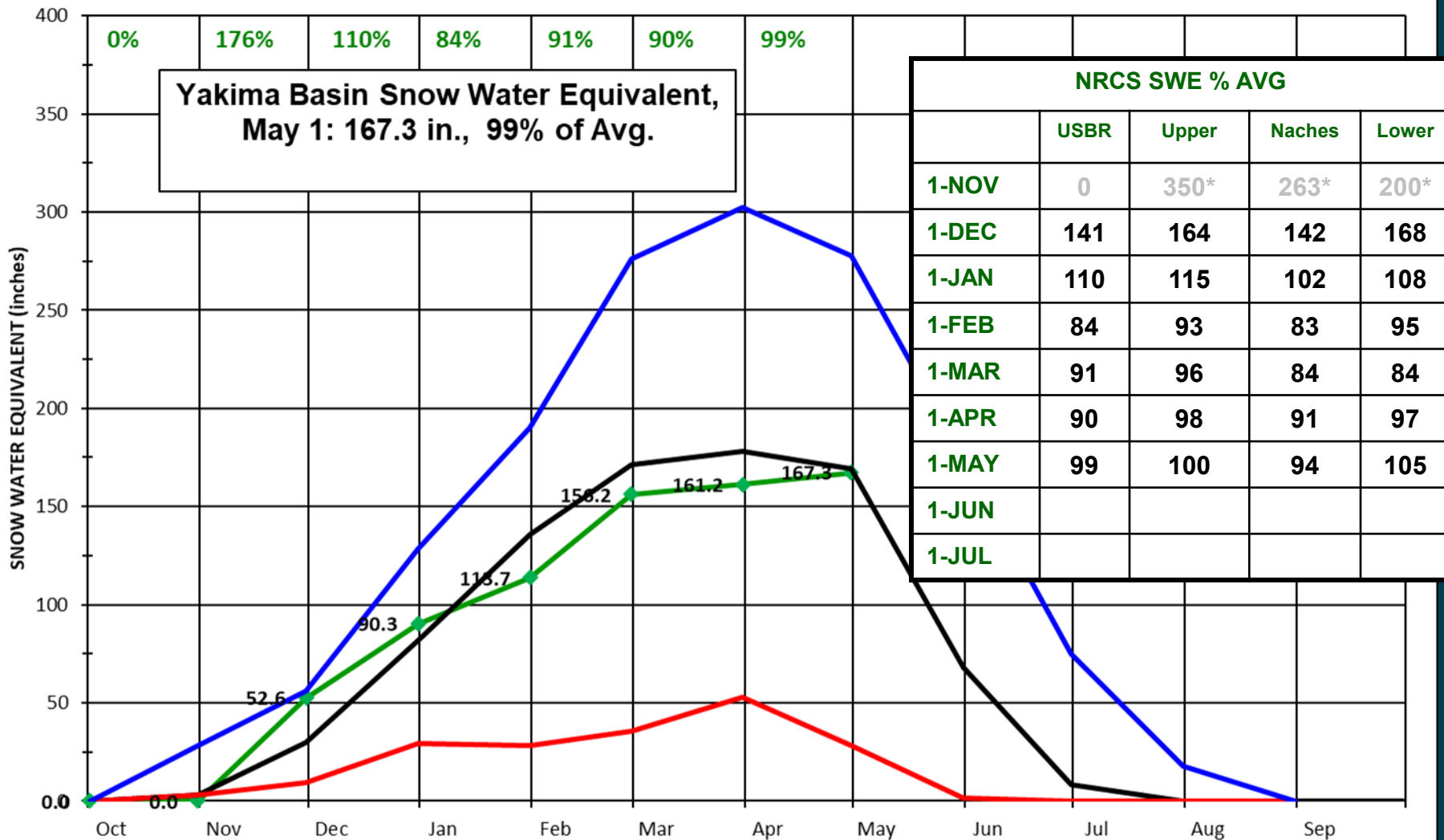




— Maximum — Average
 — Minimum — WY2022
 ● WY 2023

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

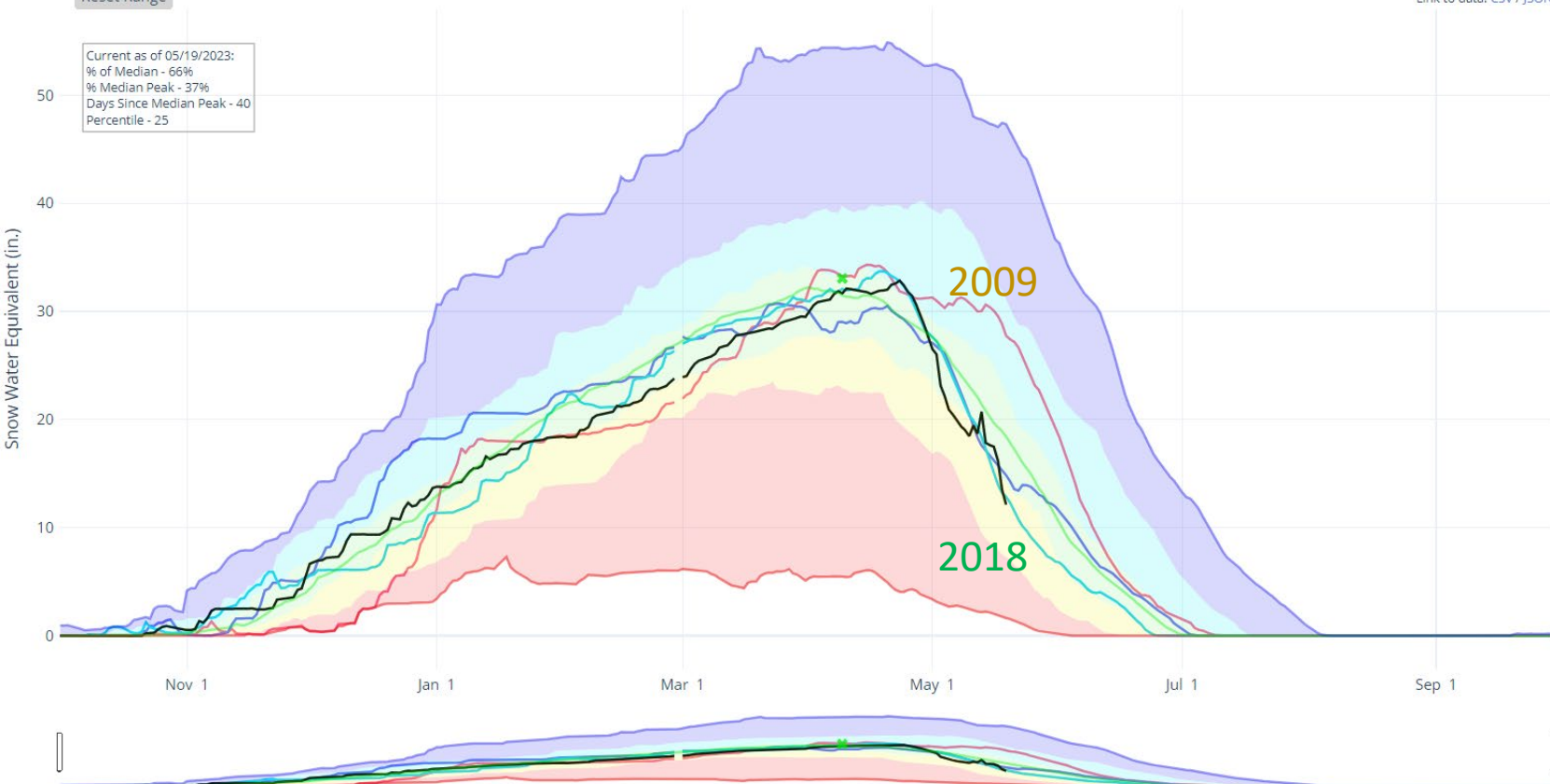
Reset Range

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

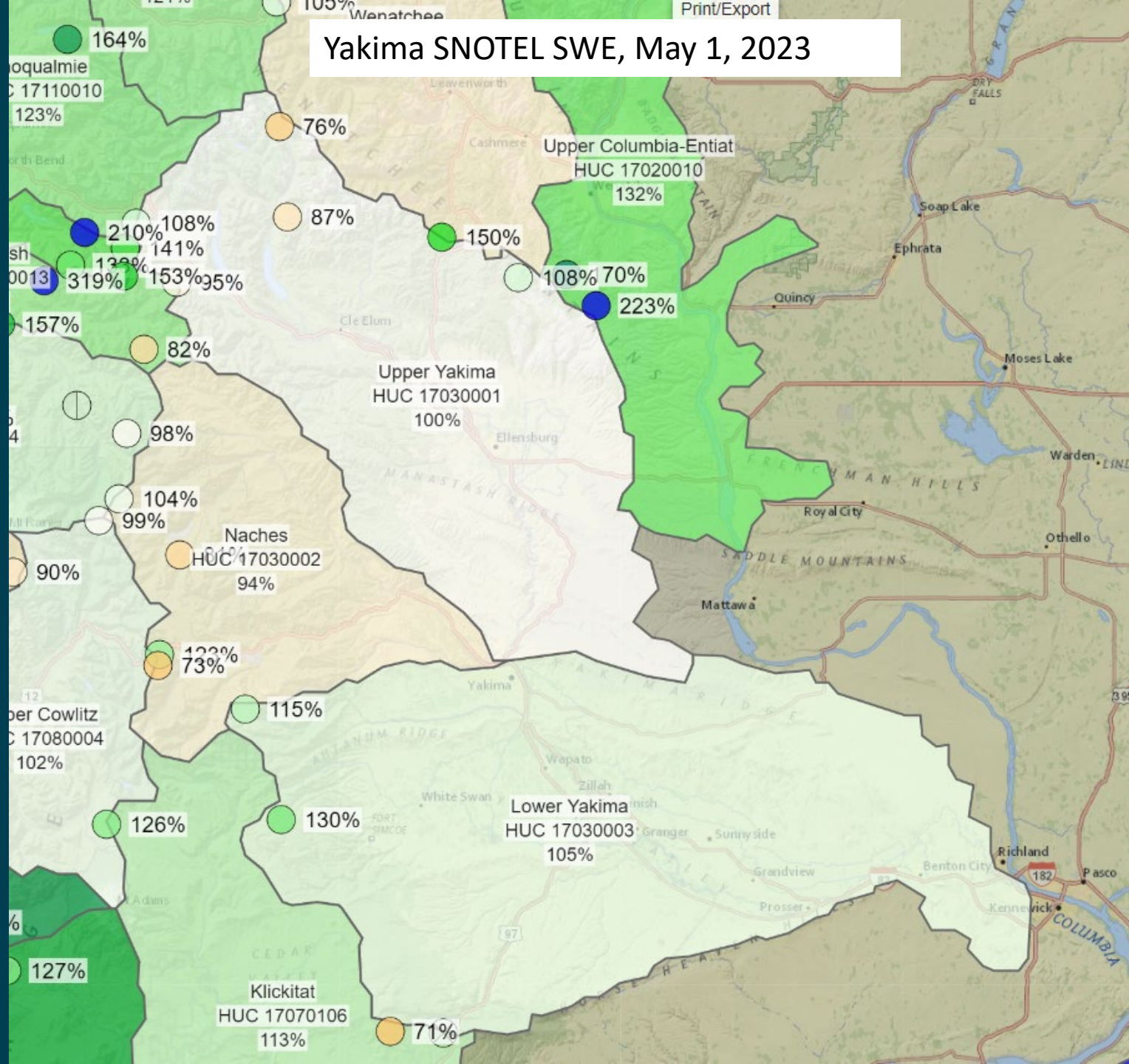
[Station List](#)

Current as of 05/19/2023:
% of Median - 66%
% Median Peak - 37%
Days Since Median Peak - 40
Percentile - 25

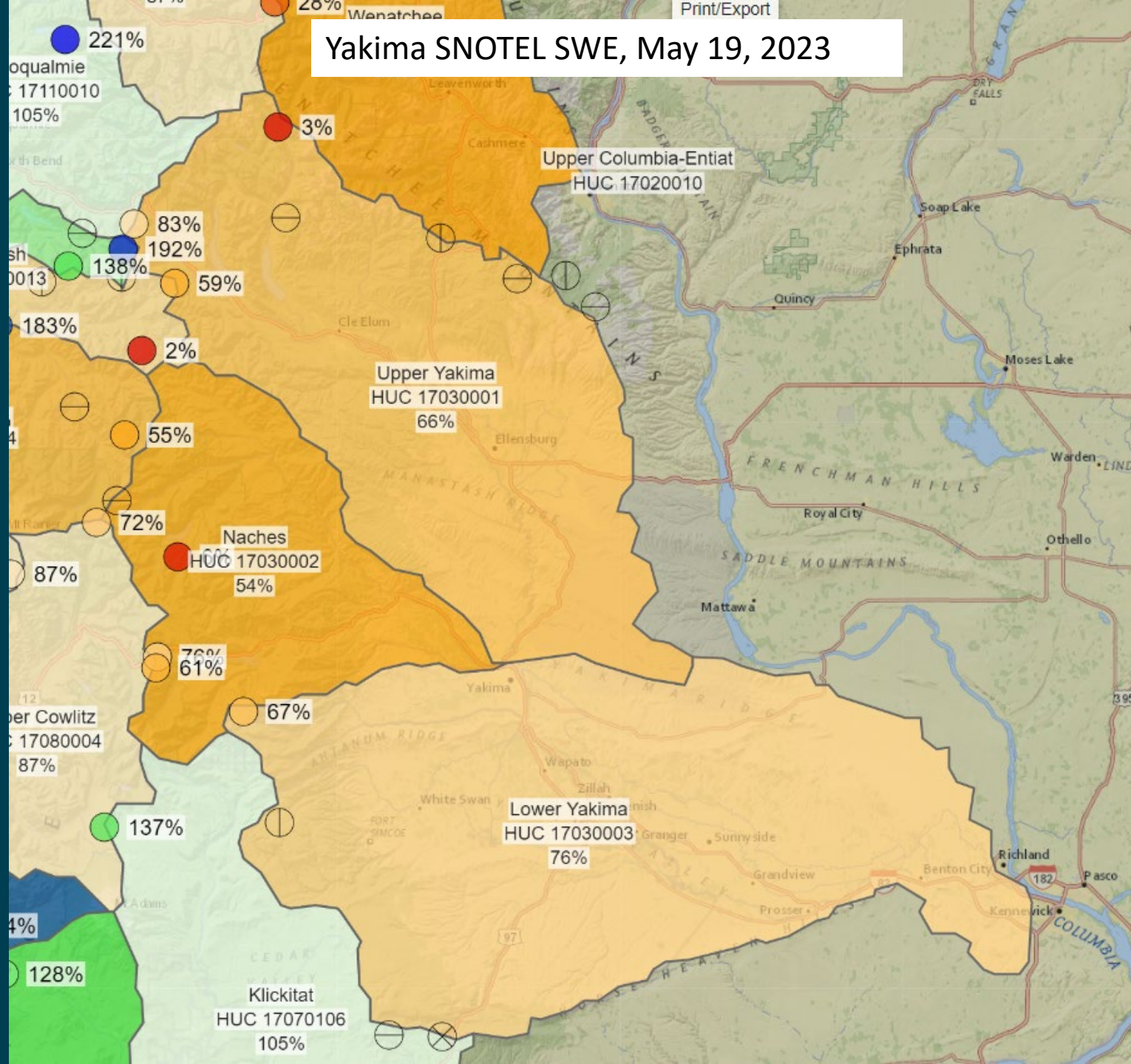
- ✱ Median Peak SWE
- Max
- Median (POR)
- Median ('91-'20)
- Min
- Stats. Shading
- 2023 (17 sites)
- 2022 (17 sites)
- 2021 (16 sites)
- 2020 (17 sites)
- 2019 (17 sites)
- 2018 (16 sites)
- 2017 (17 sites)
- 2016 (17 sites)
- 2015 (17 sites)
- 2014 (17 sites)
- 2013 (17 sites)
- 2012 (17 sites)
- 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)

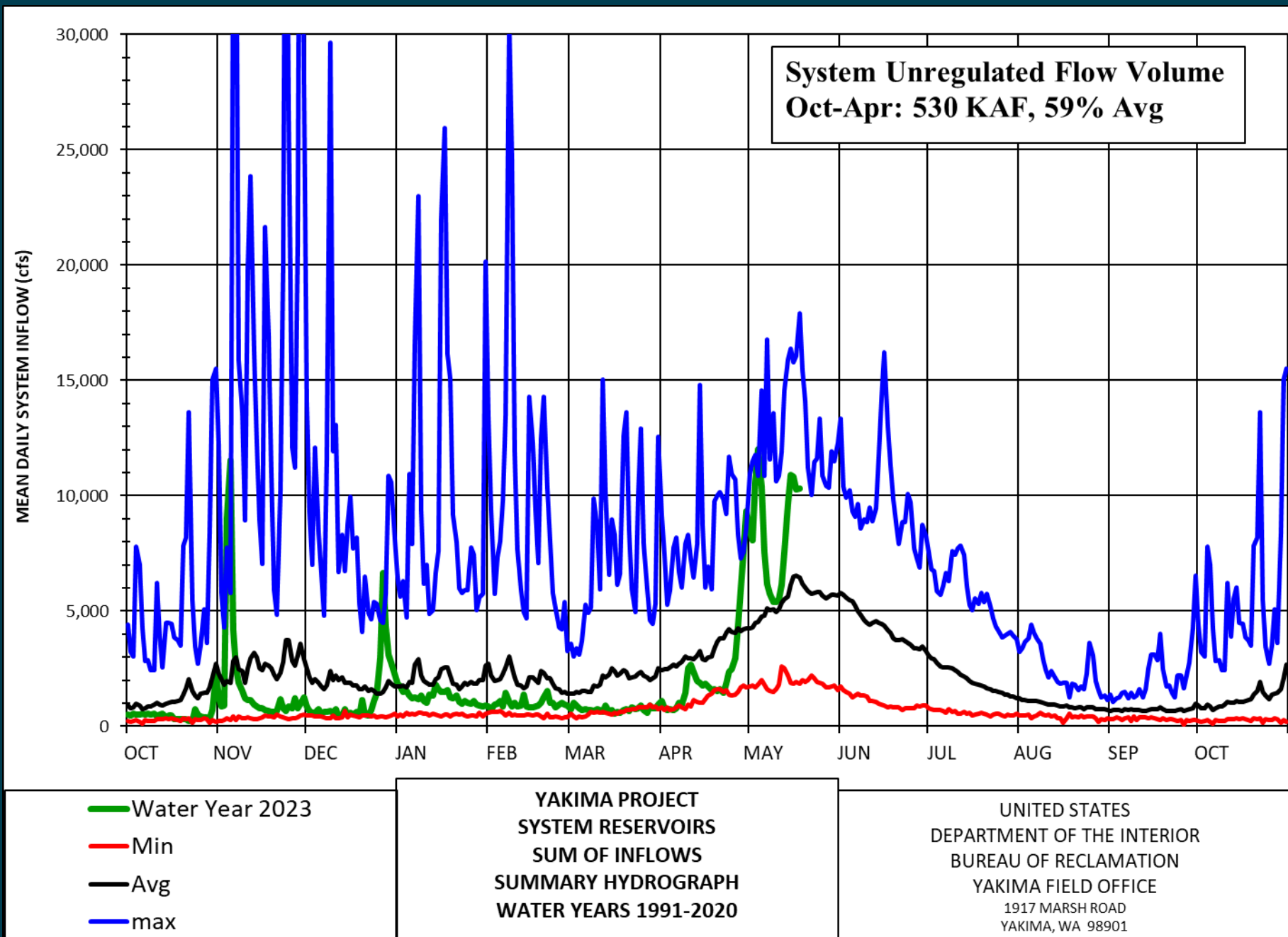


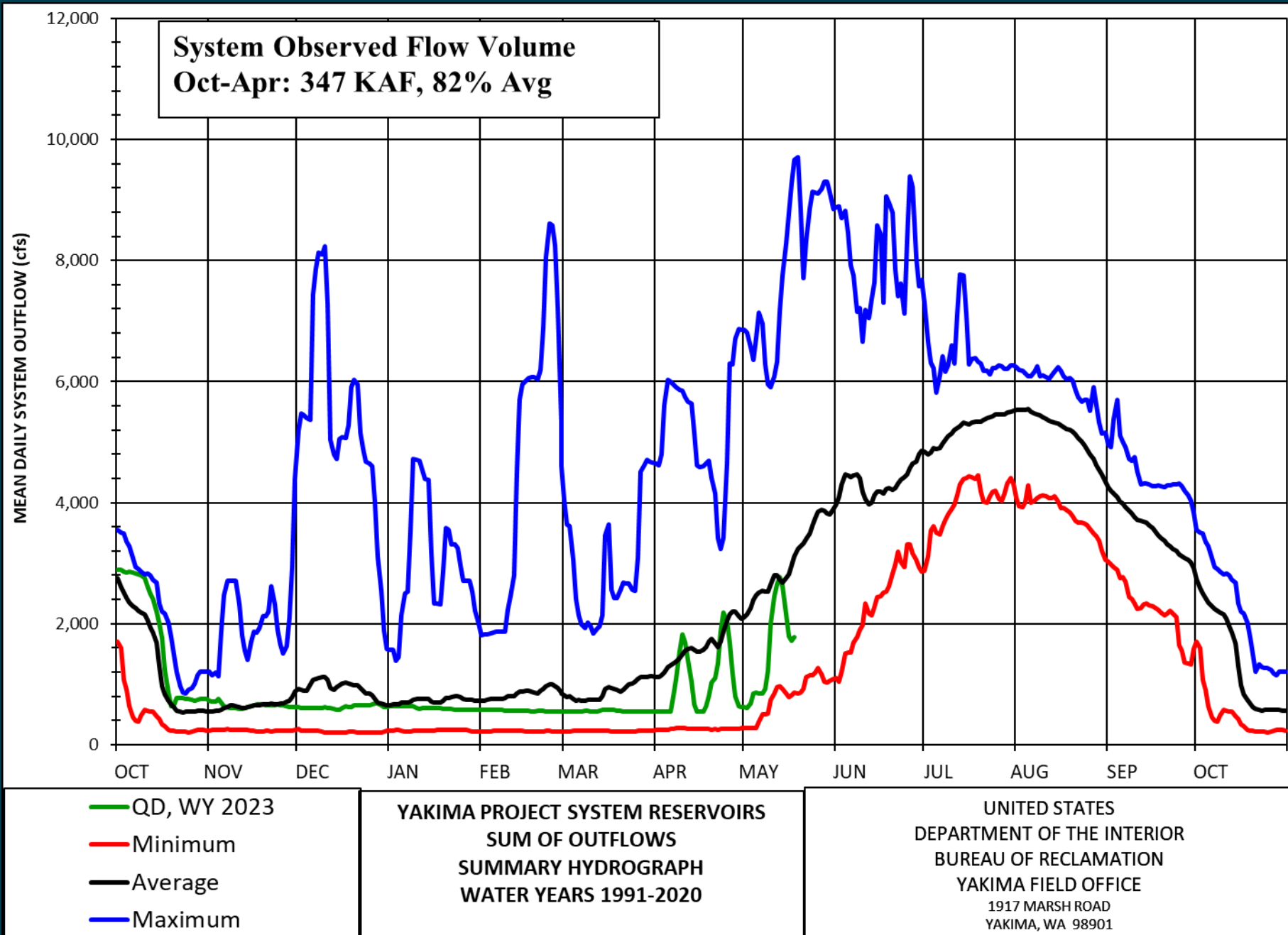
Yakima SNOTEL SWE, May 1, 2023

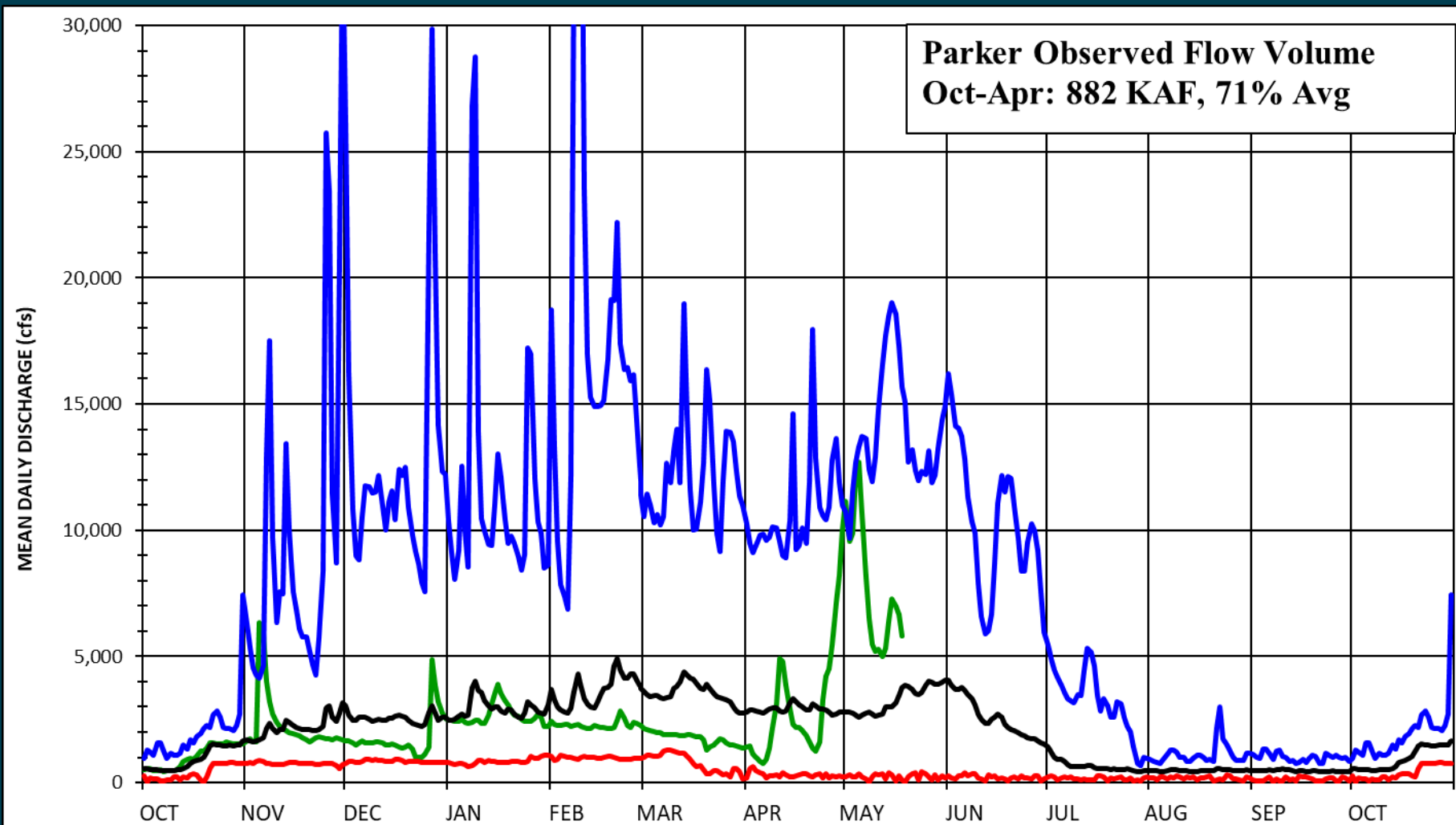


Yakima SNOTEL SWE, May 19, 2023





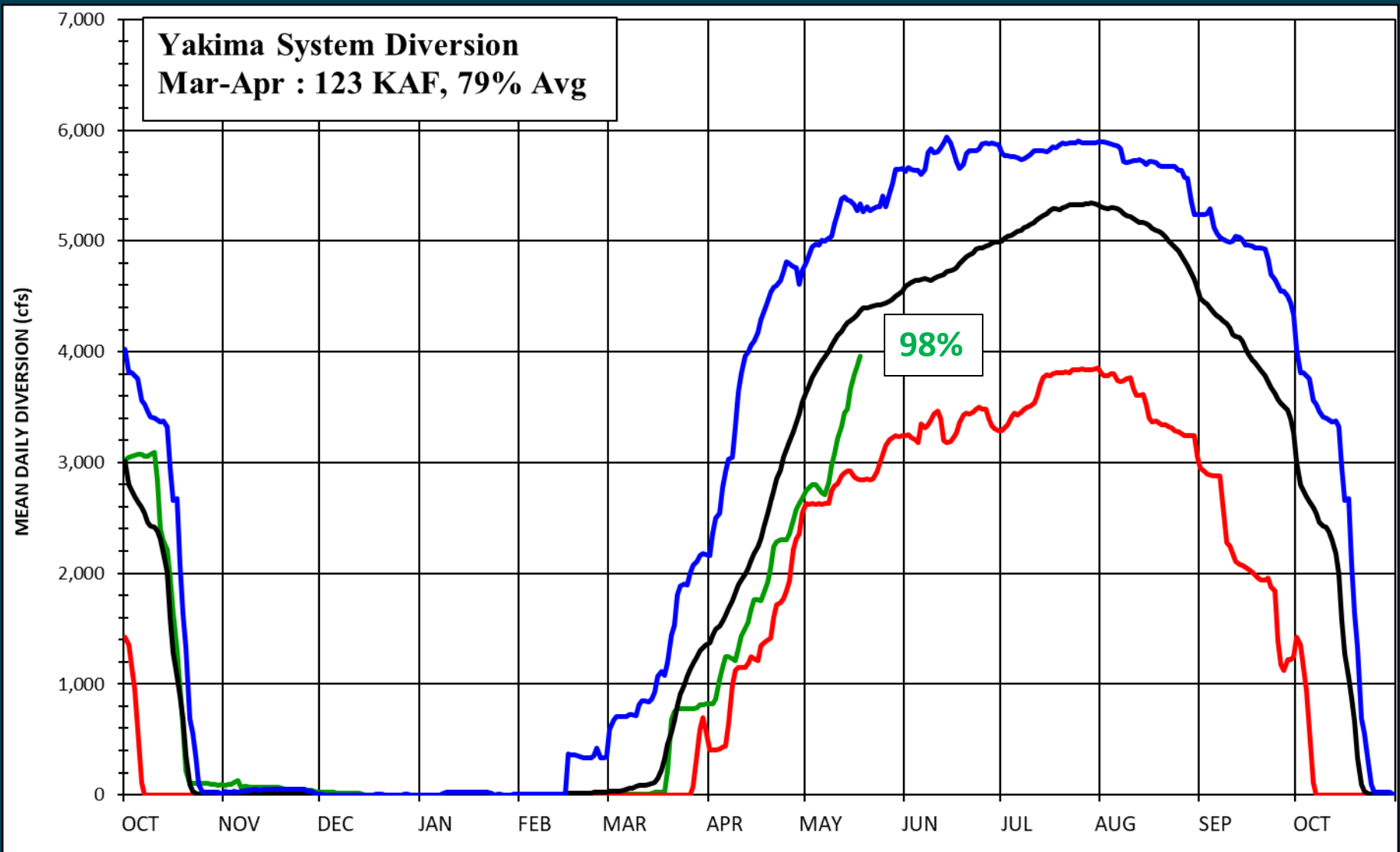




— Water Year 2023
— Minimum
— Average
— Maximum

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

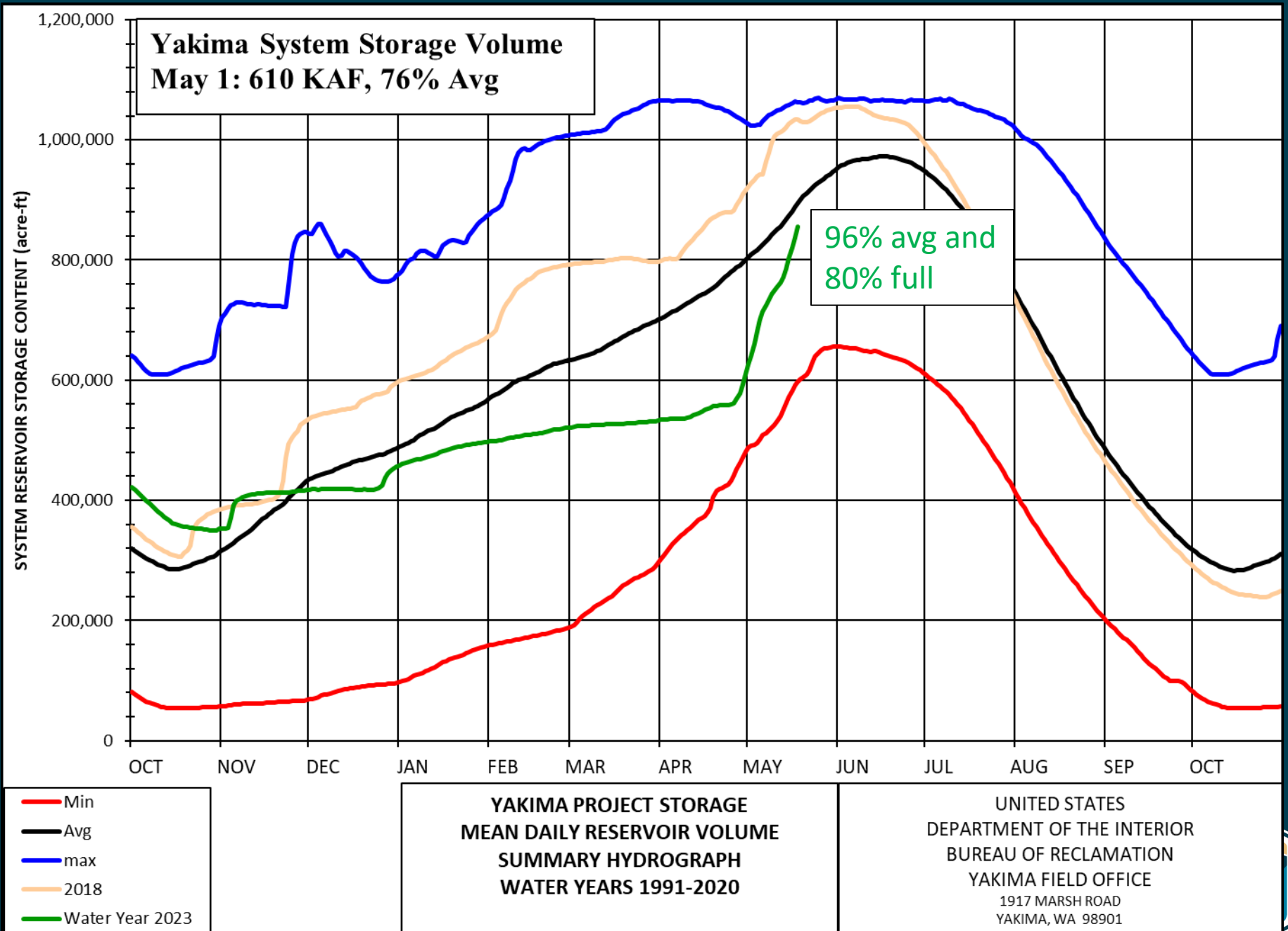
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
YAKIMA FIELD OFFICE
1917 MARSH ROAD
YAKIMA, WA 98901



— Water Year 2023 — Minimum
— Average — Maximum

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

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



Yakima Subbasin forecasts

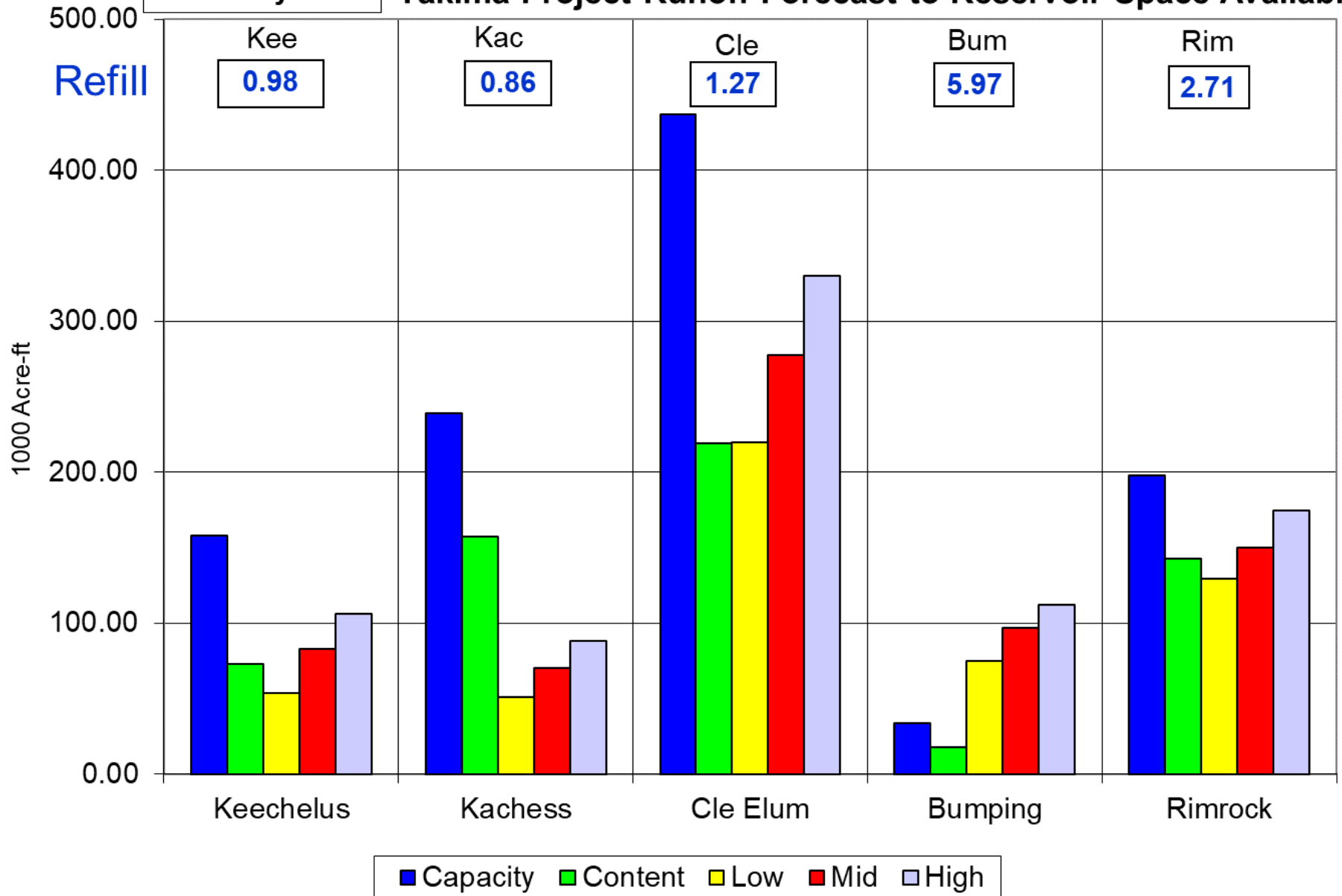
Yakima Basin Forecasts, May-Jul, AF

May, 2023	Low	Adopted	High	Low	Adopted	High
Parw	950000	1206554	1431629	77%	98%	117%
kee	54000	83127	106024	63%	98%	125%
kac	51000	70203	88234	67%	92%	116%
cle	219768	277336	330043	72%	90%	108%
bum	75000	97194	111871	80%	104%	119%
rim	129363	150310	174473	85%	99%	115%
Yumw	399188	512099	620156	70%	90%	109%
Nacw	415000	523249	639209	77%	97%	118%



May

Yakima Project Runoff Forecast to Reservoir Space Available



Reservoir Refill (May 1 and May 19, 2023 outlook)

- Cle spillway+2': 78% chance but not until after May 24 but likely in June. Will reach it by May 22.
- Cle: 8% chance of filling . About a 30% chance.
- Kee: unlikely to fill
- Kac: unlikely to fill
- Bum: 100%+ chance of filling. Will fill.
- Rim: 65%+ chance of filling. Will fill.



May 1, 2023 TWSA ESTIMATE

May 1 - September 30

Parameter*	+/-/=	Low	Adopted	High
May 1-Sep 30 Natural Flow at Parker est.	+	1065	1338	1577
Return Flow Estimate	+	290	300	310
May 1, Reservoir Content	+	610	610	610
TWSA	=	1965	2248	2497
SEP 30 EST RESERVOIR CONTENT	-	76	76	76
FLOW OVER SUNNYSIDE DAM	-	184	275	402
TWSA FOR IRRIGATION	=	1706	1897	2019
NONPRORATABLE ENTITLEMENT	-	909	909	909
REMAINING TWSA	=	797	988	1110
PRORATABLE ENTITLEMENT		1145	1145	1145
% RATIO= REMAINING TWSA/PRORATABLE ENTITLEMENT		70%	86%	97%
TITLE 12 FLOW REQUIREMENTS, cfs	May	300	300	400
Flow available to Title 12, cfs ***		165	170	173
Non-storeable Portion of added flow, cfs		60	60	60
Storable portion of added flow, cfs		105	110	114
BA May Pulse Flow Volume		Low-BA	Mid-BA	Mid-BA

*Values are in 1,000 ac-ft unless otherwise specified.

*** State & YRBWEP Trust, Acquisition, & Conservation additions to Title XII flow are subject to change



May 1, 2023 TWSA Comparison

Month - September 30

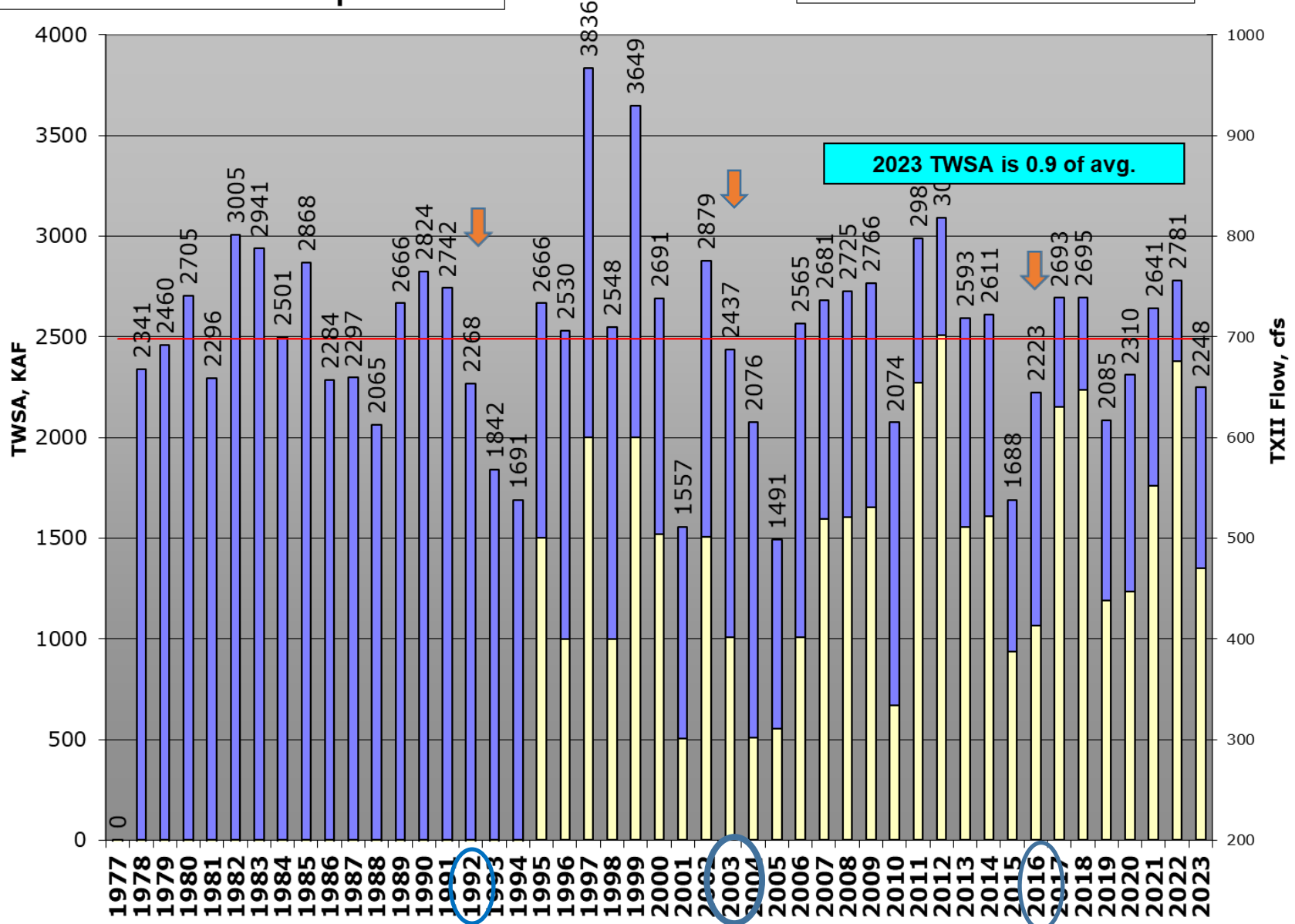
Parameter	"+/-/="	May 2022	May 2023	Apr 2023
Month-Sep 30 Natural Flow at Parker est.	+	1540	1338	1672
Return Flow Estimate	+	315	300	335
May 1, Reservoir Content	+	926	610	533
TWSA	=	2781	2248	2540
SEP 30 EST RESERVOIR CONTENT*	-	149	76	76
FLOW OVER SUNNYSIDE DAM	-	578	275	378
TWSA FOR IRRIGATION	=	2054	1897	2086
NONPRORATABLE ENTITLEMENT	-	909	909	1070
REMAINING TWSA	=	1145	988	1016
PRORATABLE ENTITLEMENT		1145	1145	1239
% RATIO= REMAINING TWSA/PRORATABLE ENTITLEMENT		100%	86%	82%
TITLE XII FLOW REQUIREMENTS, cfs	May	500	300	300
TOTAL FLOW AVAILABLE AT PARKER, cfs ***		676	470	448
BA Monthly Pulse Flow		High-BA	Mid-BA	Mid-BA

*Values are in 1,000 ac-ft unless otherwise specified.

*** State & YRBWEP Trust, Acquisition, & Conservation additions to Title XII flow are subject to change



Yakima Basin TWSA Historical Comparison



Yakima Basin Outmigration Flows

Table 2-14. Minimum volume of water (acre-feet) that will be available in April and May during years when water prorationing levels are equal to or greater than 70% to provide outmigration flows. Outmigration flows are measured at Tieton Dam (RIM), Cle Elum Dam (CLE), and Yakima River at Easton gage (EASW).

	Monthly Min. acre-feet for Outmigration Flows		
April TWSA (MAF)	< 2.36	2.36 - 3.13	> 3.13
May TWSA (MAF)	< 2.20	2.20 – 2.61	> 2.61
RIM	4,500	8,400	14,800
CLE	4,200	9,900	18,800
EASW	3,700	4,800	9,900

WY23 Apr TWSA=2.540 MAF

WY23 May TWSA=2.248 MAF

Easton (EASW) can be met from unregulated local inflow below Kee and Kac.

Hydrologic Summary

- .
- Snowpack is melting and is falling steeply.
- System storage has climbed steeply. Is 96% avg
- Natural stream flows have been 140 to 150% avg.
- Adopted forecasts are 90 to 100% avg.
- May TWSA is 2.248 MAF or 90% of average
- Title XII is 300 +170 or +60 cfs
- Prorationing: 86% up from 82%
- Movable conservation est (Jun20-Oct18): 26 KAF