Jeff Marti is inviting you to a scheduled Zoom meeting:

Washington Water Supply Availability Committee Meeting (WSAC)

The Water Supply Availability Committee meets periodically to review water supply and drought conditions and forecasts for Washington State.

Join Zoom Meeting
https://waecy-wa-gov.zoom.us/j/82791289848?pwd=U3RVWEhmMWRQWlVCVjZzWWs2V3hkdz09

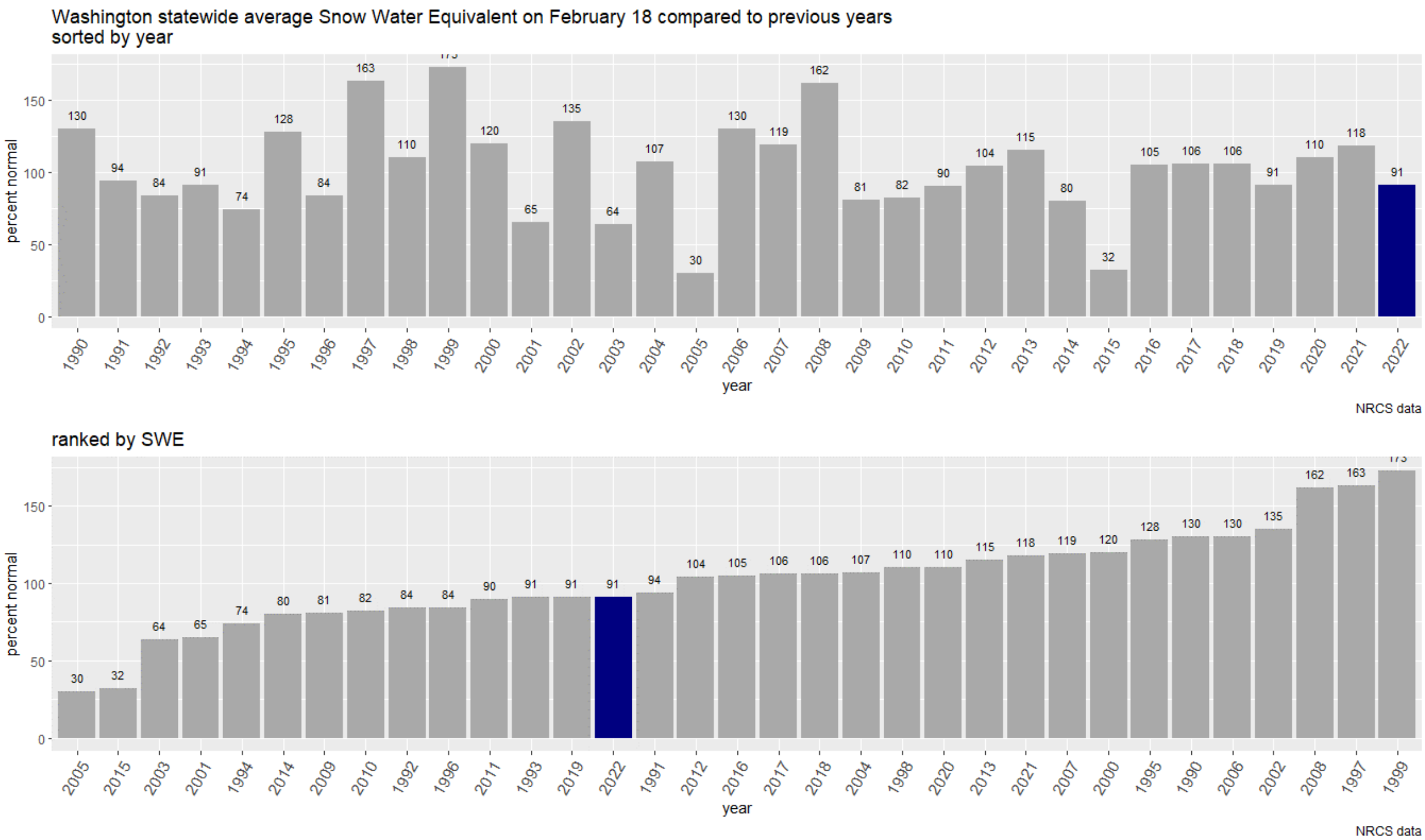
Meeting ID: 827 9128 9848
Passcode: Snow2022
One tap mobile
+12532158782,,82791289848#,,,,*24453770# US (Tacoma)
+13462487799,,82791289848#,,,,*24453770# US (Houston)

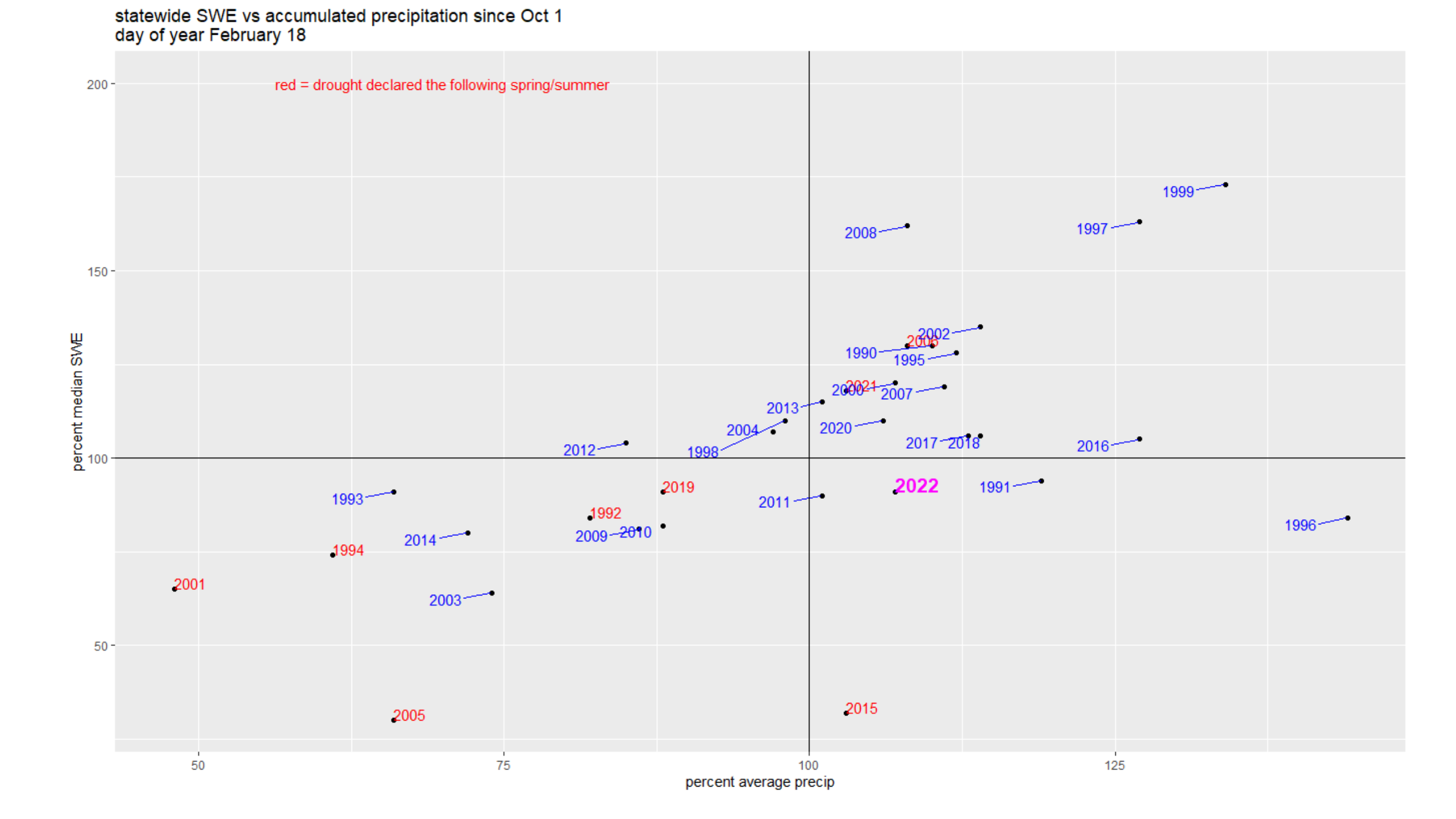
Dial by your location
- +1 253 215 8782 US (Tacoma)
- +1 346 248 7799 US (Houston)
- +1 669 900 6833 US (San Jose)
- +1 301 715 8592 US (Washington DC)
- +1 312 626 6799 US (Chicago)
- +1 929 205 6099 US (New York)

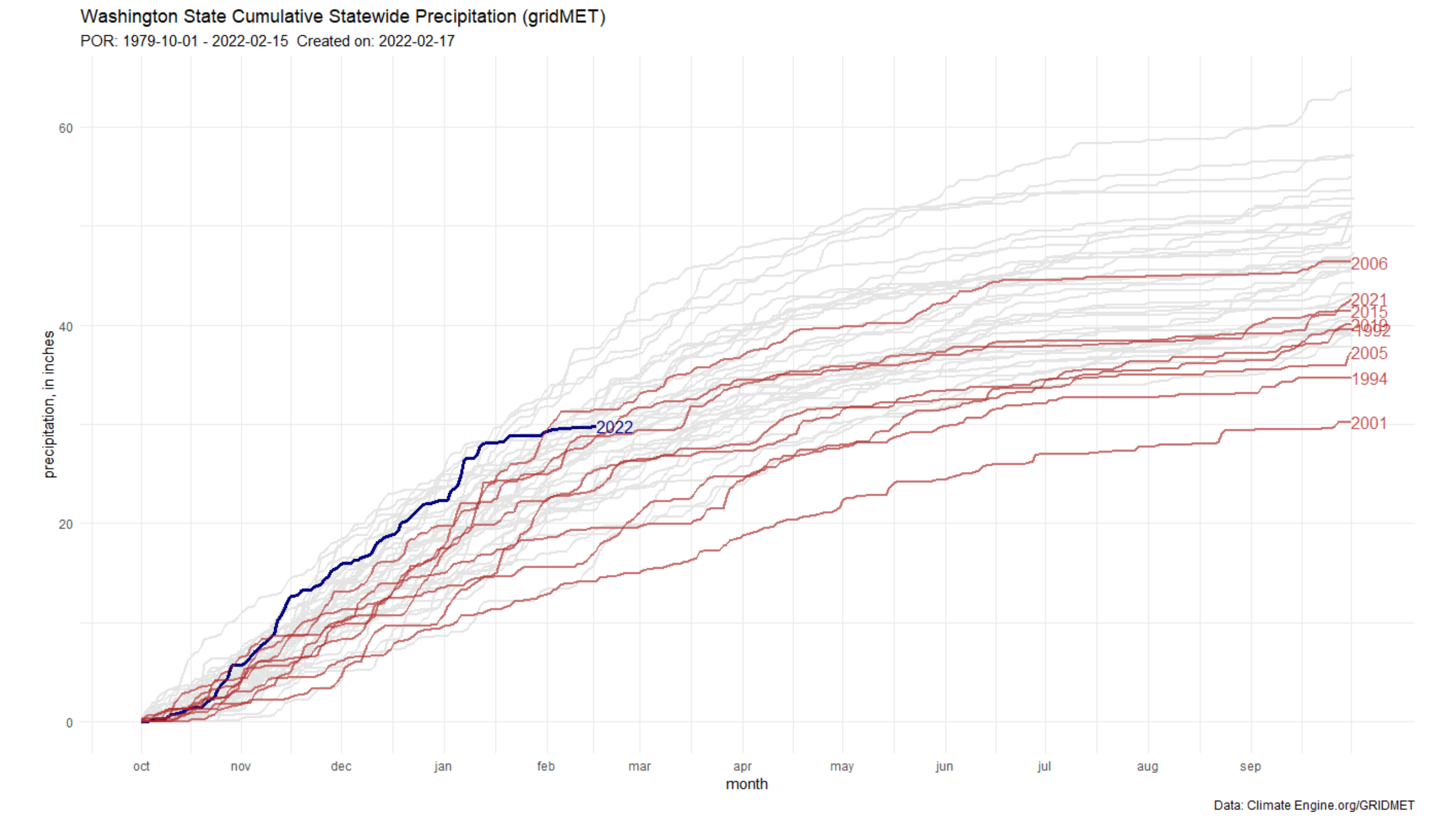
Meeting ID: 827 9128 9848
Passcode: 24453770
Find your local number: https://waecy-wa-gov.zoom.us/u/kckrDYGcMX

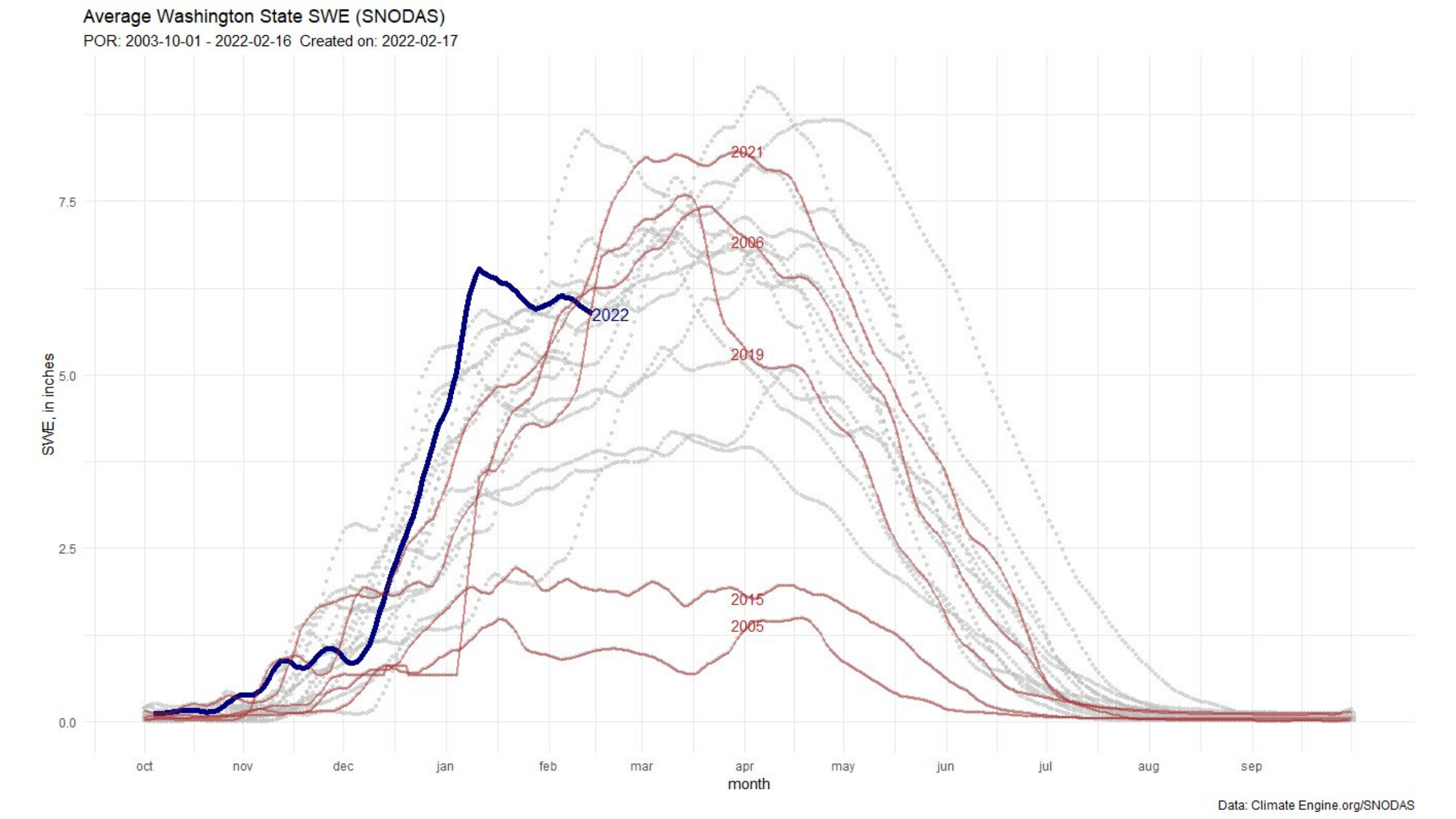
Washington Water Supply Availability Committee Meeting (WSAC)
Meeting ID: 827 9128 9848
Passcode: Snow2022
One tap mobile
+12532158782,,82791289848#,,,,*24453770# US (Tacoma)
Friday, February 18th, 2022

Start Time	End Time	Duration, min	Description	Presenter
10:00	10:15	15	Welcome & Introductions	Jeff Marti
10:15	10:30	15	Streamflow Conditions	Nick Sutfin, USGS
10:30	10:45	15	Mountain Report Streamflow Forecasts	Scott Pattee, NRCS
10:45	11:00	15	Regional Climate Perspective Recent precipitation and temperature Seasonal Forecasts/ENSO	Karin Bumbaco/Nick Bond, OWSC
11:00	11:15	15	Streamflow Forecasting	Amy Burke, NWRFC Brent Bower, NWS Robin Fox, NWS
11:15	11:30	15	Yakima Project	Chris Lynch, BOR
11:30	11:40	10	Input from Other Attendees	All
11:40	11:45	5	NEXT MEETING: FRIDAY, MARCH 18th	
	Total	1.75		


Washington statewide average Snow Water Equivalent on February 18 compared to previous years
sorted by year
percent normal
year
1990 130
1991 94
1992 84
1993 91
1994 74
1995 128
1996 84
1997 163
1998 110
1999 173
2000 120
2001 65
2002 135
2003 64
2004 107
2005 30
2006 130
2007 119
2008 162
2009 81
2010 82
2011 90
2012 104
2013 115
2014 80
2015 32
2016 105
2017 106
2018 106
2019 91
2020 110
2021 118
2022 91
NRCS data
ranked by SWE
percent normal
year
2005 30
2015 32
2003 64
2001 65
1994 74
2014 80
2009 81
2010 82
1992 84
1996 84
2011 90
1993 91
2019 91
2022 91
1991 94
2012 104
2016 105
2017 106
2018 106
2004 107
1998 110
2020 110
2013 115
2021 118
2007 119
2000 120
1995 128
1990 130
2006 130
2002 135
2008 162
1997 163
1999 173
NRCS data

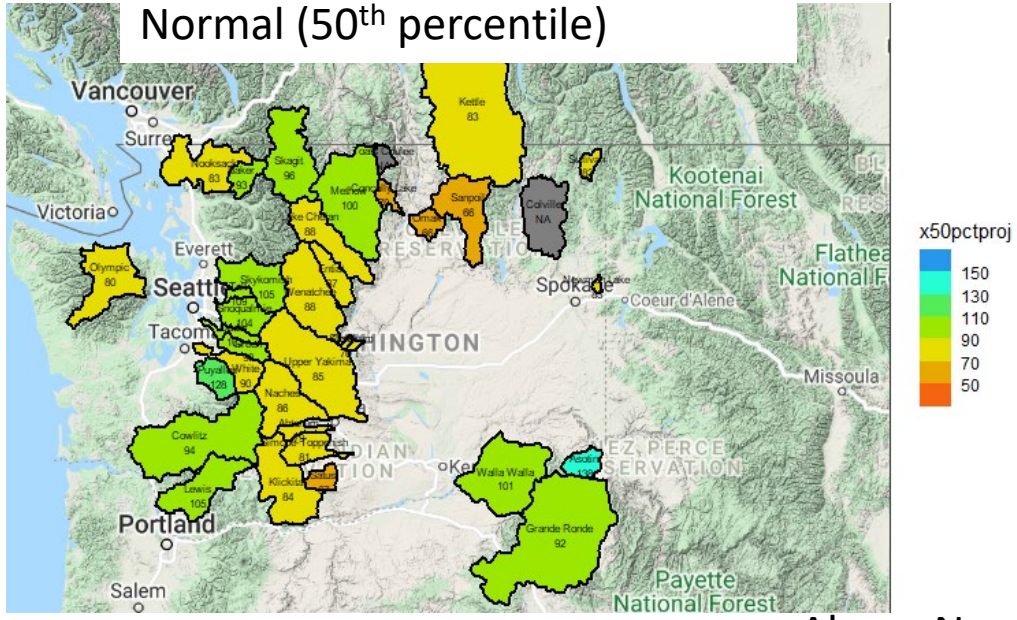

statewide SWE vs accumulated precipitation since Oct 1
day of year February 18
red = drought declared the following spring/summer
percent median SWE
percent average precip
200
150
100
50
50
75
100
125
1999
1997
2008
2002
2006
1990
1995
2000
2021
2007
2013
2004
2020
2012
1998
2017
2018
2016
1993
2019
2022
1991
2011
1992
2009
2010
2014
1996
1994
2001
2003
2005
2015


Washington State Cumulative Statewide Precipitation (gridMET)
POR: 1979-10-01 - 2022-02-15 Created on: 2022-02-17
precipitation, in inches
60
40
20
0
oct
nov
dec
jan
feb
mar
apr
may
jun
jul
aug
sep
month
2022
2006
2021
2015
2019
1992
2005
1994
2001
Data: Climate Engine.org/GRIDMET

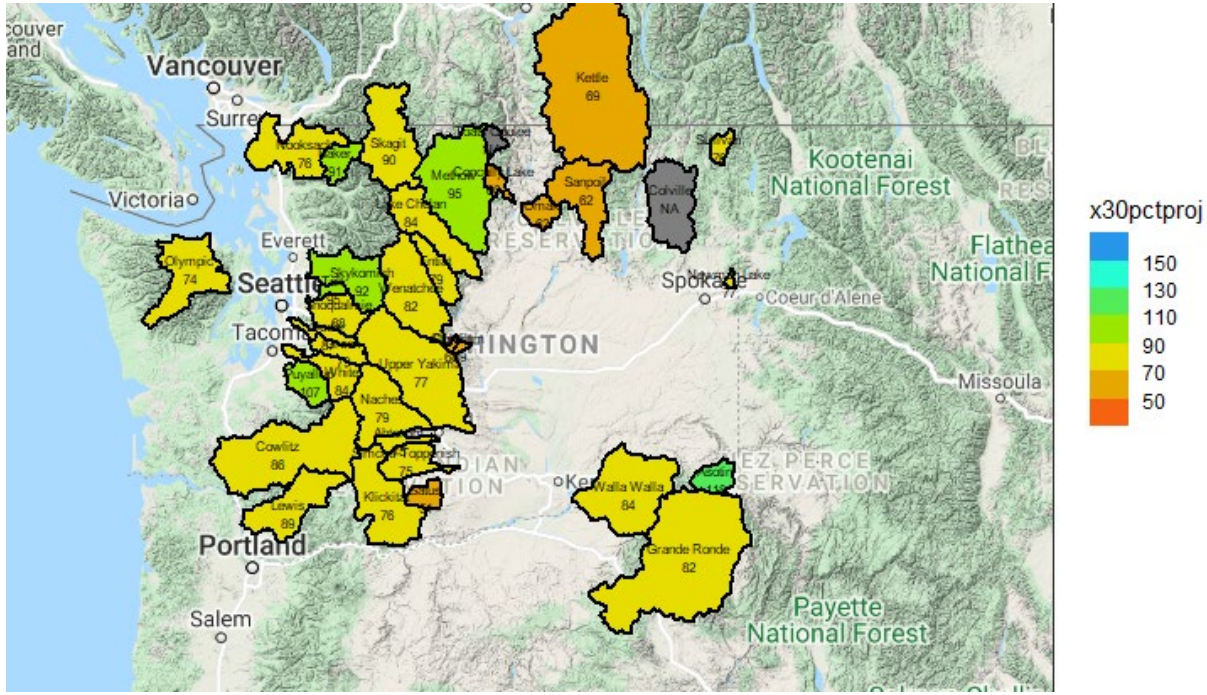

Average Washington State SWE (SNODAS)
POR: 2003-10-01 - 2022-02-16 Created on: 2022-02-17
SWE, in inches
7.5
5.0
2.5
0.0
2021
2006
2022
2019
2015
2005
oct
nov
dec
jan
feb
mar
apr
may
jun
jul
aug
sep
month
Data: Climate Engine.org/SNODAS

Basins/Projection Periods			Current	Percentile Projections						
subbasins	queryDate	projectionDate	todaySWE	Minpctproj	x10pctproj	x30pctproj	x50pctproj	x70pctproj	x90pctproj	Maxpctproj
Ahtanum	02-18	04-01	73	54	67	75	79	87	96	134
Asotin	02-18	04-01	150	0	85	118	138	164	191	238
Baker	02-18	04-01	96	75	78	91	93	96	107	120
Cedar	02-18	04-01	94	56	72	87	103	111	126	146
Colckum	02-18	04-01	65	19	44	59	71	83	107	157
Concully Lake	02-18	04-01	60	21	48	60	70	78	98	140
Cowlitz	02-18	04-01	95	67	78	86	94	101	112	140
Entiat	02-18	04-01	91	19	71	79	87	97	119	131
Grande Ronde	02-18	04-01	91	49	71	82	92	98	106	123
Green	02-18	04-01	87	42	70	79	98	109	120	136
Kettle	02-18	04-01	86	42	62	69	83	92	127	127
Klickitat	02-18	04-01	78	56	66	76	84	88	100	138
Lake Chelan	02-18	04-01	89	69	76	84	88	92	102	118
Lewis	02-18	04-01	107	60	70	89	105	115	126	162
Methow	02-18	04-01	100	70	86	95	100	105	115	126
Naches	02-18	04-01	85	61	75	79	86	91	102	124
Newman Lake	02-18	04-01	79	35	59	77	83	93	108	139
Nooksack	02-18	04-01	86	58	64	76	83	92	103	124
Olympic	02-18	04-01	81	60	63	74	80	87	95	133
Omak	02-18	04-01	60	22	56	62	66	73	97	117
Puyallup	02-18	04-01	123	69	95	107	128	134	172	209
Sanpoil	02-18	04-01	60	22	56	62	66	73	97	117
Satus	02-18	04-01	51	31	42	51	67	73	107	121
Simcoe-Toppenish	02-18	04-01	75	23	61	75	81	88	98	133
Skagit	02-18	04-01	103	79	84	90	96	99	119	125
Skykomish	02-18	04-01	102	70	82	92	105	110	123	145
Snoqualmie	02-18	04-01	100	70	78	88	104	115	128	150
Stemilt	02-18	04-01	71	22	62	68	76	83	98	108
Sullivan	02-18	04-01	82	64	72	76	83	90	99	120
Tolt	02-18	04-01	105	81	84	95	109	113	128	152
Upper Yakima	02-18	04-01	82	48	65	77	85	90	104	125
Walla Walla	02-18	04-01	100	66	70	84	101	104	116	135
Wenatchee	02-18	04-01	89	57	77	82	88	96	106	122
White	02-18	04-01	90	65	77	84	90	97	108	126

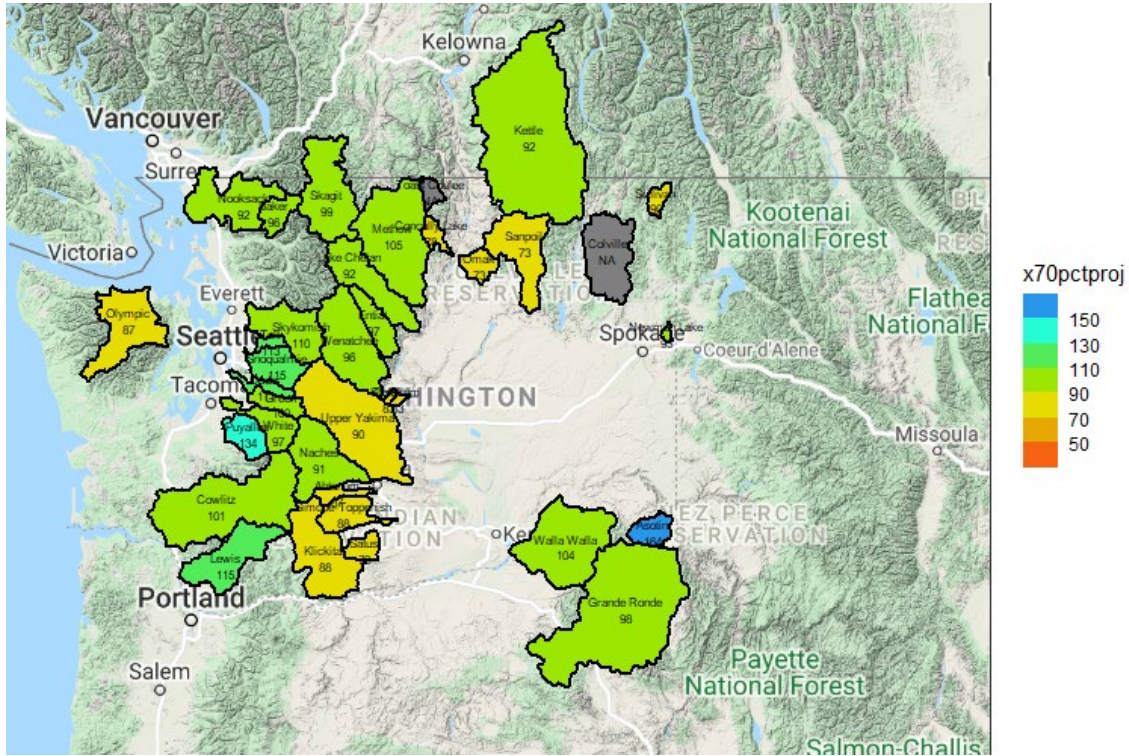
Normal (50th percentile)



Below Normal (30th percentile)



Above Normal (70th percentile)

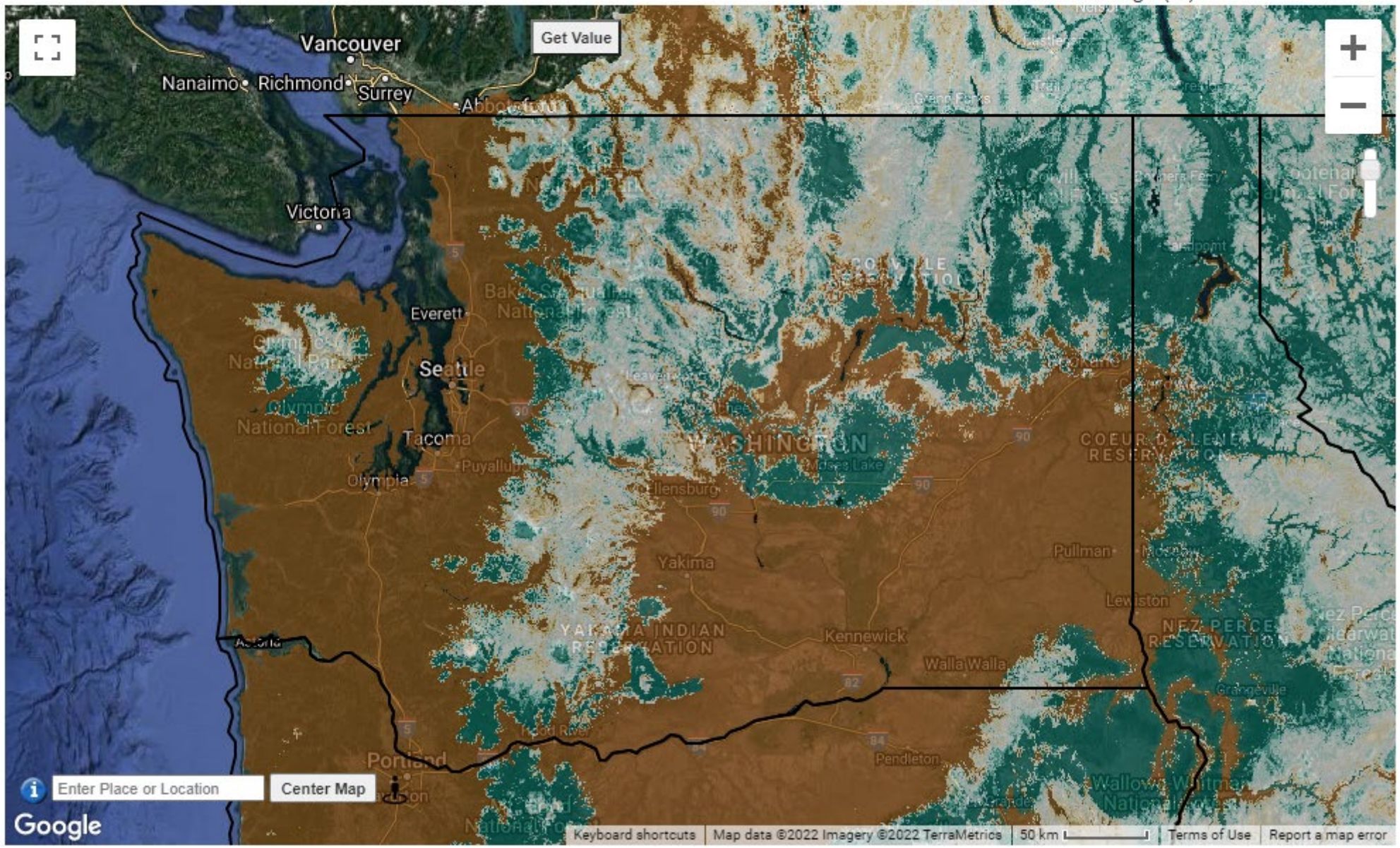


SWE Percent Of Average (SNODAS)

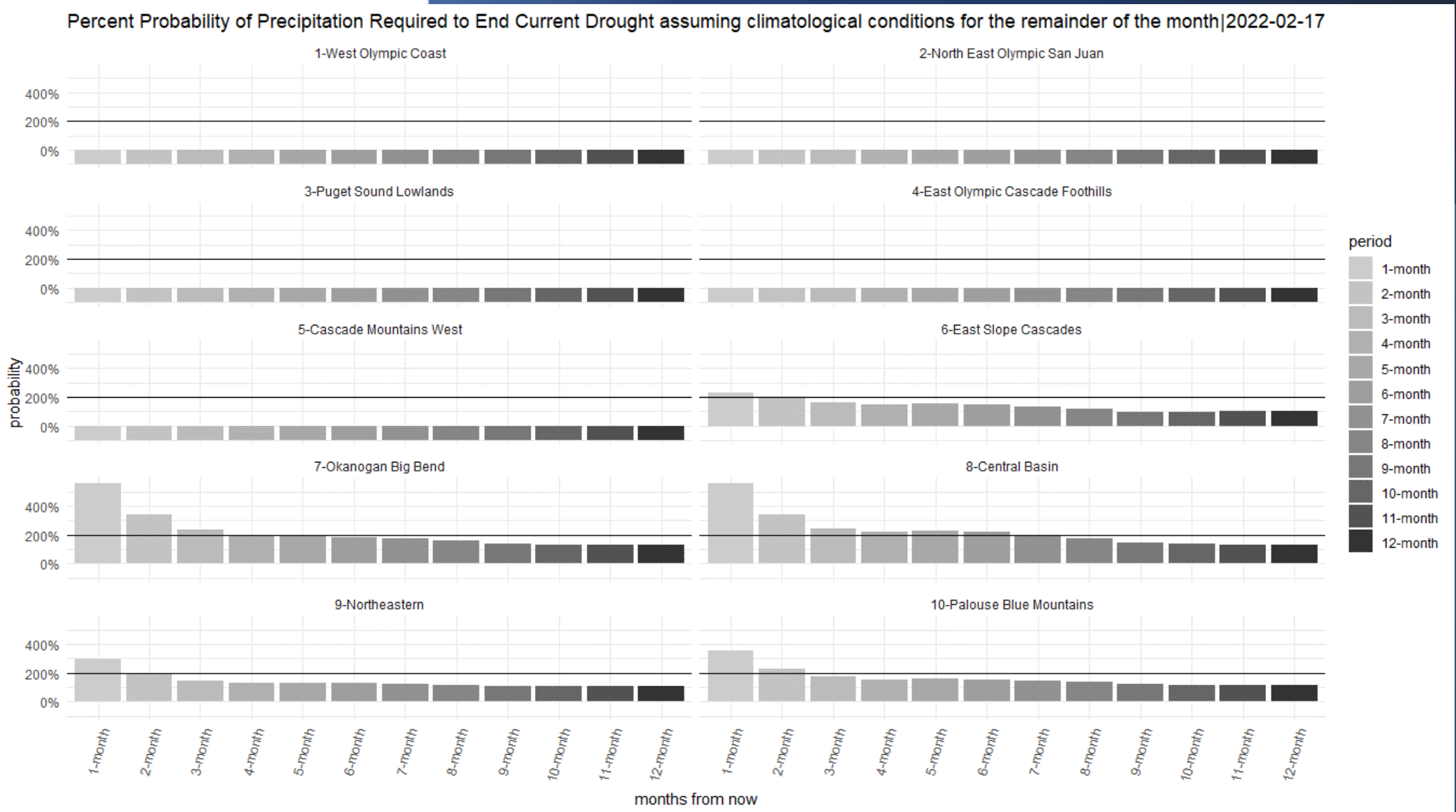
2022-02-16 to 2022-02-16, Mean, vs. 2004 - 2022

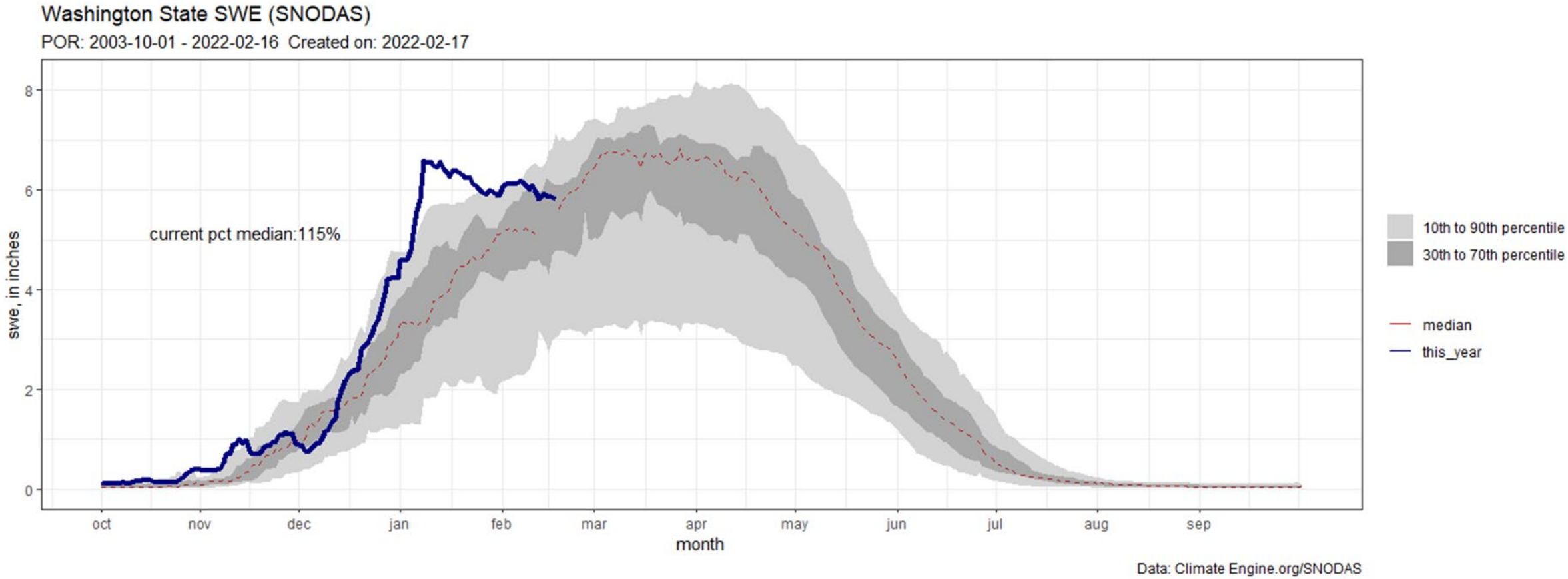
0 50 70 90 110 130 150 200

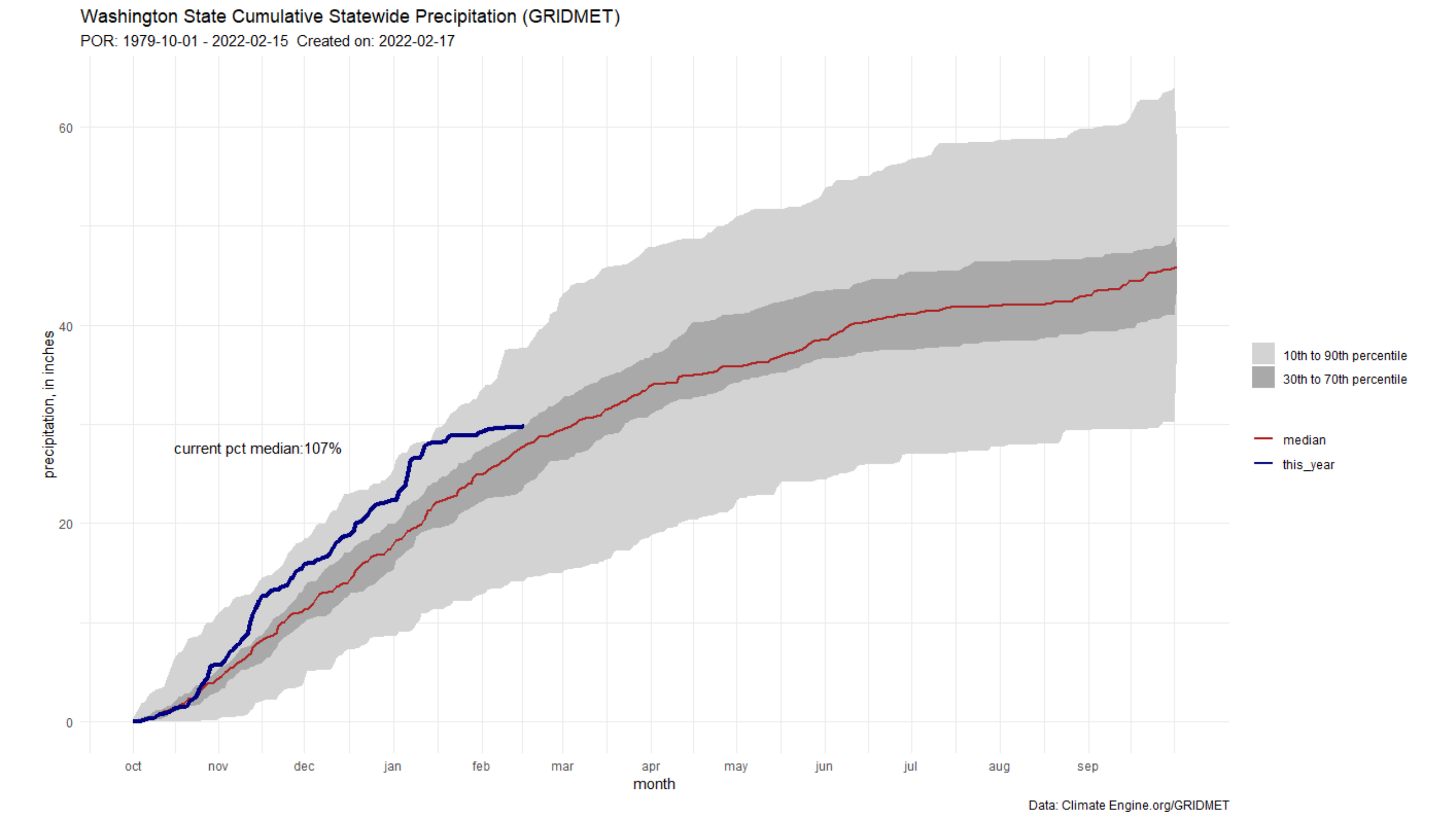
SWE Percent of Average (%)



BASIN SWE PROJECTIONS										
Basins/Projection Periods			Current	Percentile Projections						
basin	queryDate	projectionDate	todaySWE	Minpctproj	x10pctproj	x30pctproj	x50pctproj	x70pctproj	x90pctproj	Maxpctproj
Olympic	02-18	04-01	81	60	63	74	80	87	95	133
North Puget Sound	02-18	04-01	99	76	80	87	94	97	113	124
Central Puget Sound	02-18	04-01	97	64	76	87	103	109	122	146
South Puget Sound	02-18	04-01	91	67	79	86	93	102	118	129
Lower Columbia	02-18	04-01	99	65	78	90	97	106	113	144
Klickitat	02-18	04-01	78	56	66	76	84	88	100	138
Central Columbia	02-18	04-01	88	56	75	81	88	93	105	121
Upper Columbia	02-18	04-01	94	62	81	87	98	102	116	128
Upper Yakima	02-18	04-01	82	48	65	77	85	90	104	125
Naches	02-18	04-01	85	61	75	79	86	91	102	124
Lower Yakima	02-18	04-01	63	48	60	68	72	80	88	129
Lower Pend Oreille	02-18	04-01	86	63	76	84	88	95	104	131
Spokane	02-18	04-01	94	66	83	91	99	104	118	133
Lower Snake-Walla Walla	02-18	04-01	90	50	71	84	94	97	105	122


Percent Probability of Precipitation Required to End Current Drought assuming climatological conditions for the remainder of the month|2022-02-17
1-West Olympic Coast
2-North East Olympic San Juan
3-Puget Sound Lowlands
4-East Olympic Cascade Foothills
5-Cascade Mountains West
6-East Slope Cascades
7-Okanogan Big Bend
8-Central Basin
9-Northeastern
10-Palouse Blue Mountains
probability
400%
200%
0%
1-month
2-month
3-month
4-month
5-month
6-month
7-month
8-month
9-month
10-month
11-month
12-month
months from now
period
NOAA Drought Termination Tool
A drought is considered to be ameliorated when the PHDI is raised to -2.0, and ended when above -0.5.


Washington State SWE (SNODAS)
POR: 2003-10-01 - 2022-02-16 Created on: 2022-02-17
current pct median:115%
swe, in inches
0
2
4
6
8
oct
nov
dec
jan
feb
mar
apr
may
jun
jul
aug
sep
month
10th to 90th percentile
30th to 70th percentile
median
this_year
Data: Climate Engine.org/SNODAS


Washington State Cumulative Statewide Precipitation (GRIDMET)
POR: 1979-10-01 - 2022-02-15 Created on: 2022-02-17
precipitation, in inches
0
20
40
60
current pct median:107%
oct
nov
dec
jan
feb
mar
apr
may
jun
jul
aug
sep
month
10th to 90th percentile
30th to 70th percentile
median
this_year
Data: Climate Engine.org/GRIDMET

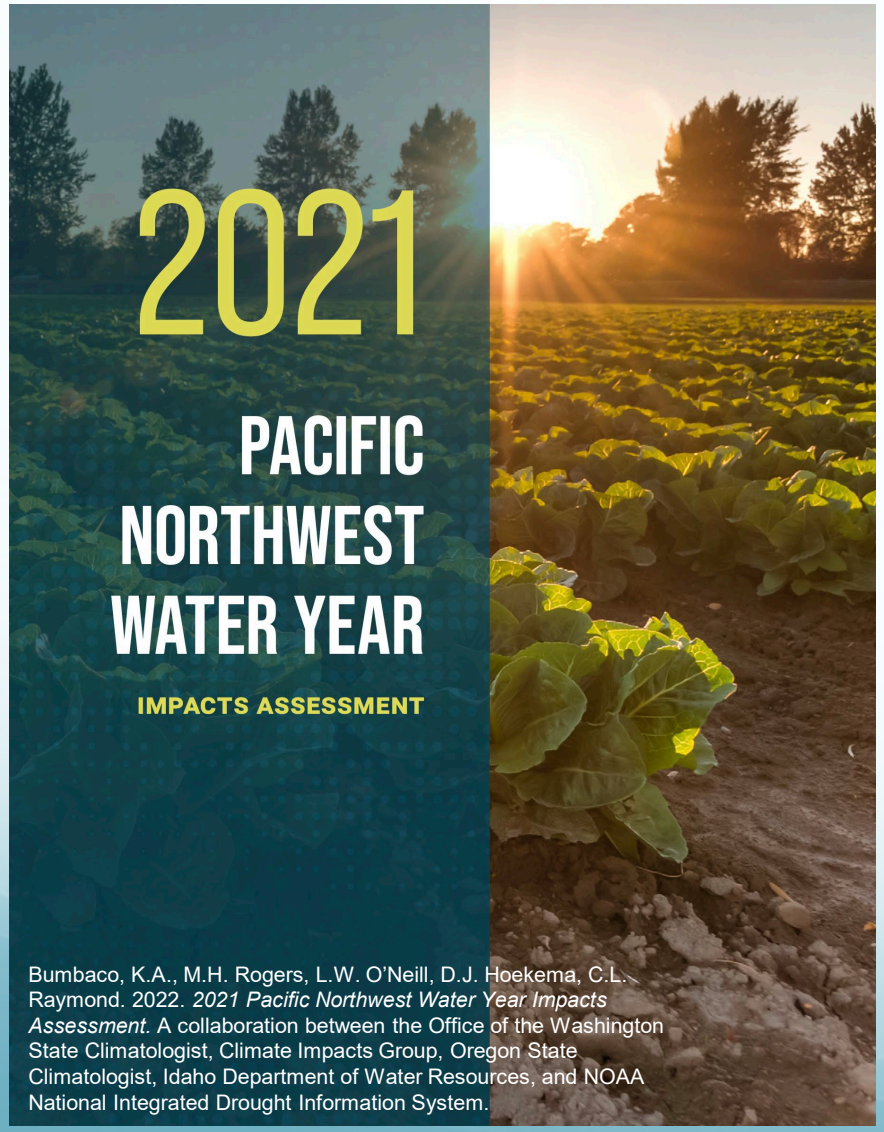
Office of the Washington State Climatologist

Cooperative Institute for CLIMATE, OCEAN & ECOSYSTEM STUDIES

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
18 February 2022

PNW 2021 Water Year Impacts Assessment



Bumbaco, K.A., M.H. Rogers, L.W. O'Neill, D.J. Hoekema, C.L. Raymond. 2022. *2021 Pacific Northwest Water Year Impacts Assessment*. A collaboration between the Office of the Washington State Climatologist, Climate Impacts Group, Oregon State Climatologist, Idaho Department of Water Resources, and NOAA National Integrated Drought Information System.

- The purpose of the *2021 Pacific Northwest Water Year Impacts Assessment* is to summarize the water year conditions and sector impacts as a resource for future management of drought and other climate extremes.
- https://www.drought.gov/documents/2021-pacific-northwest-water-year-impacts-assessment

Multi-Year Drought

Lesson 1.3: Multiple-year impacts of drought are possible and warrant planning.
The PNW, particularly Washington, rarely experiences multi-year drought because precipitation in fall and winter usually is sufficient for recovery. The 24-month precipitation deficits ending in September 2021 in some regions of the PNW are a reminder of the potential for multi-year impacts. The severity of the drought in the 2021 water year means that complete recovery is unlikely during the 2022 water year, setting up more of the region for a multi-year event.

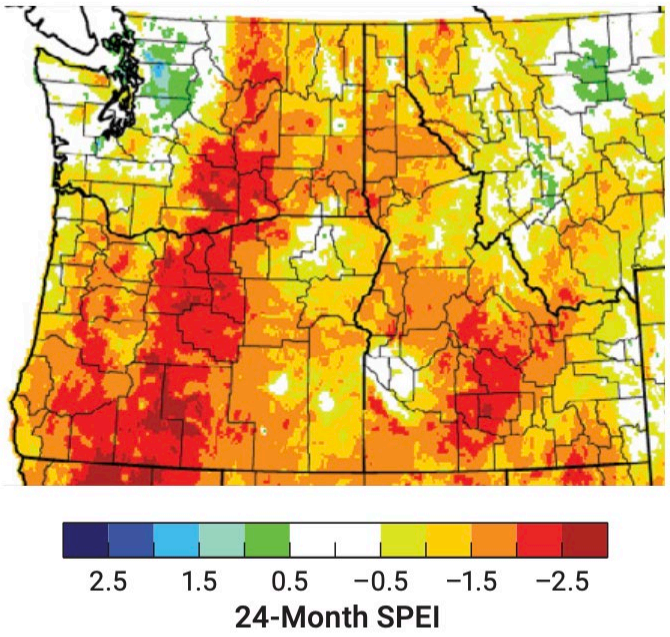
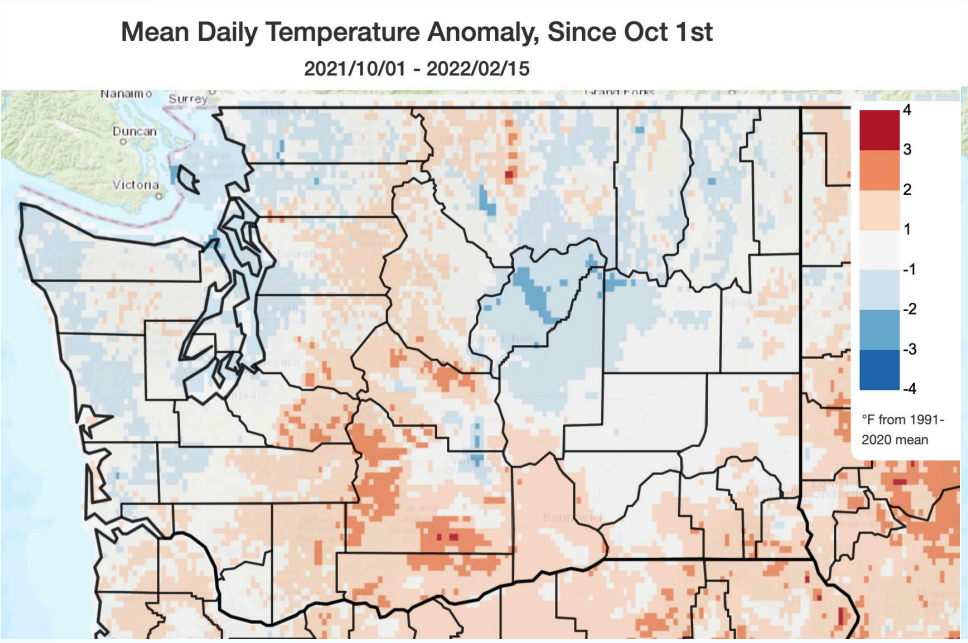
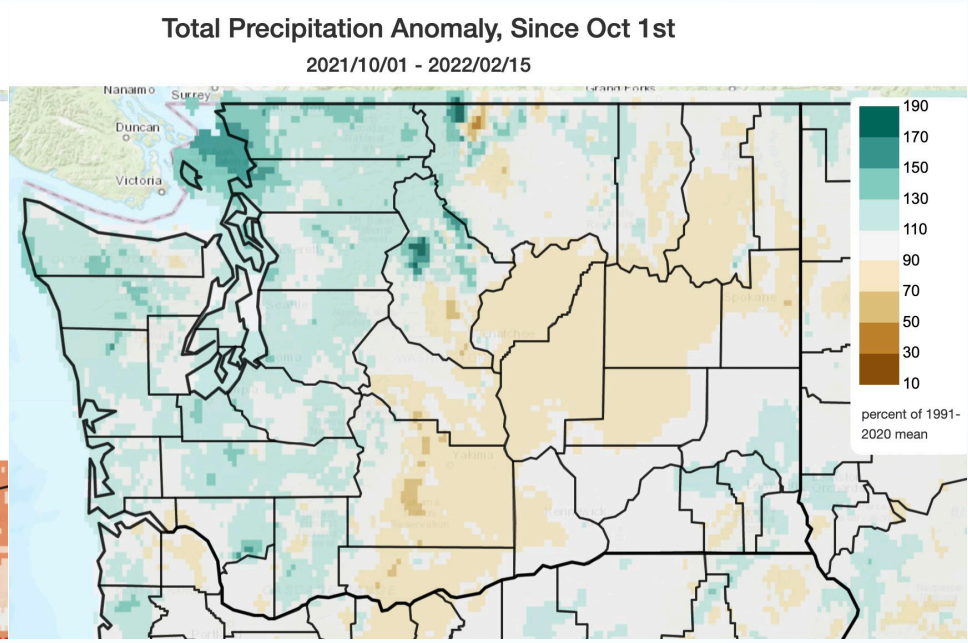


Figure 13: 24-month Standardized Precipitation Evapotranspiration Index (SPEI) for the period ending September 30, 2021. Source: *WestWide Drought Tracker*, using provisional PRISM data.

(PNW 2021 Water Year Impacts Assessment, pages 8 and 24)

Water Year 2022



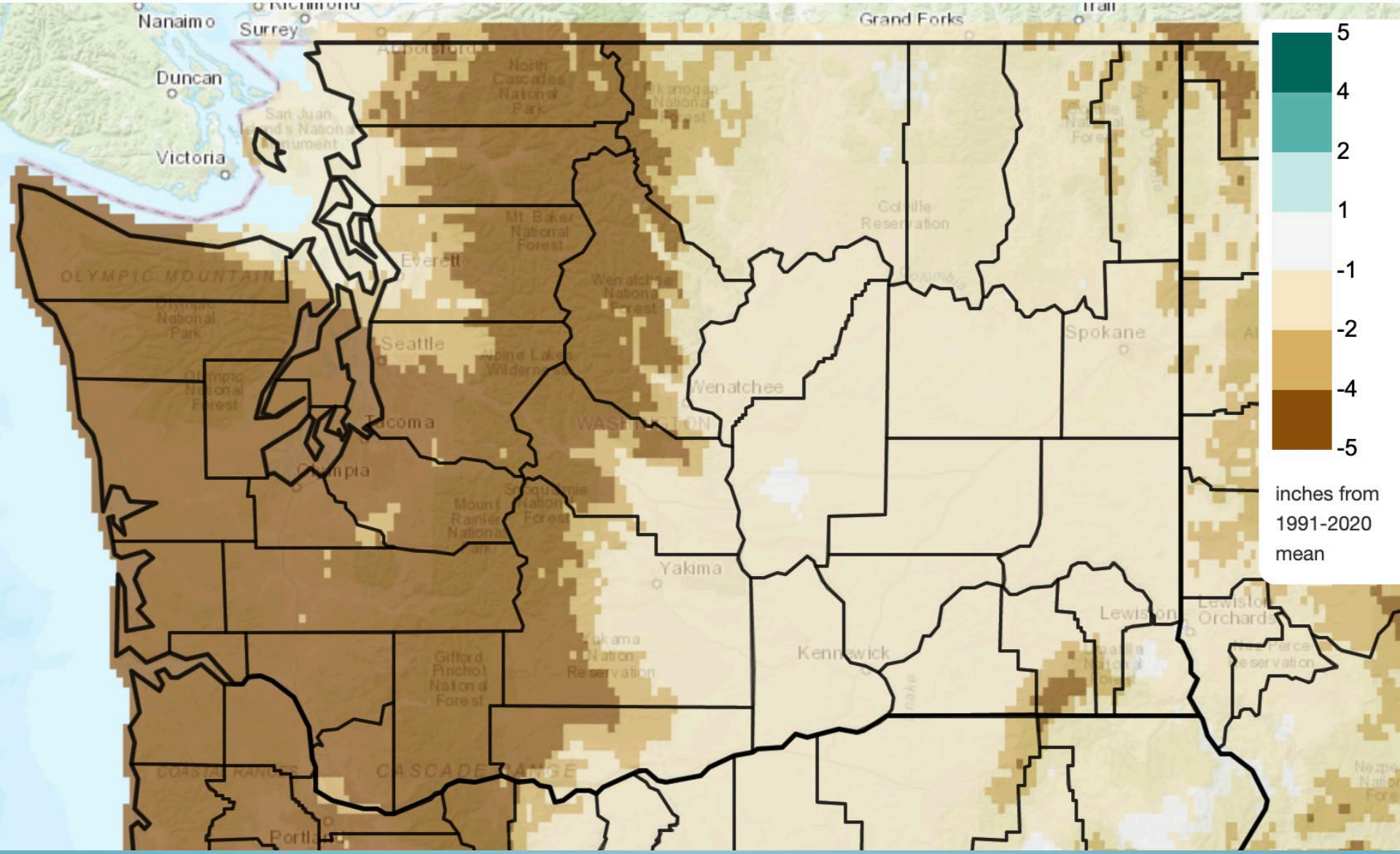


- Average WA Oct-Jan temperatures near-normal* (-0.3ºF)
- Average WA Oct-Jan precipitation above normal (+4.03”), ranking as the 16th wettest

*1991-2020 normal

Total Precipitation Anomaly, Last 30 Days

2022/01/17 - 2022/02/15



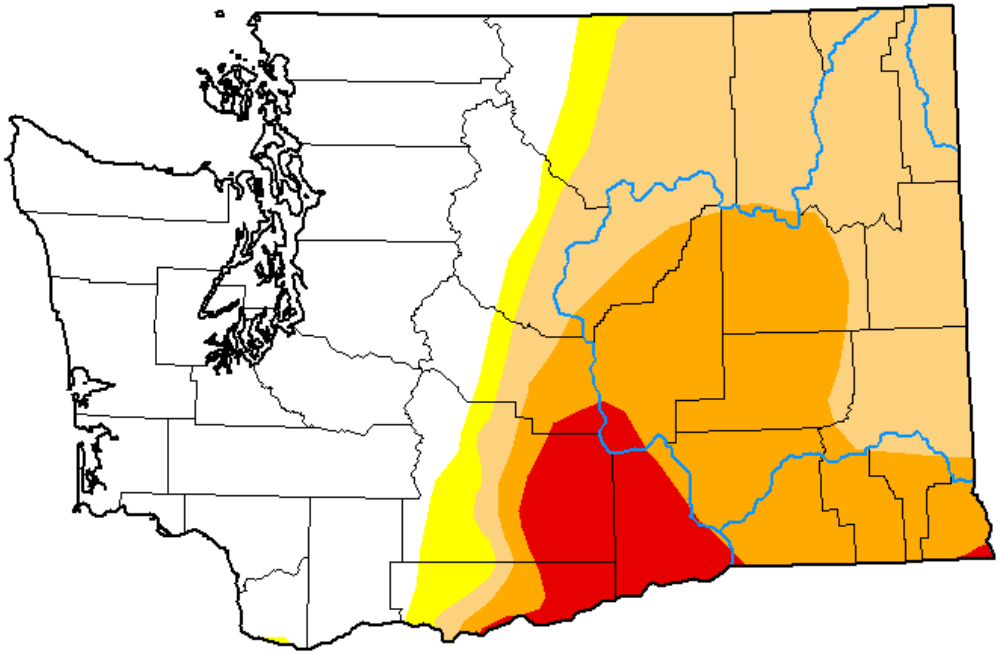
U.S. Drought Monitor

Washington

February 15, 2022

(Released Thursday, Feb. 17, 2022)

Valid 7 a.m. EST



Intensity:

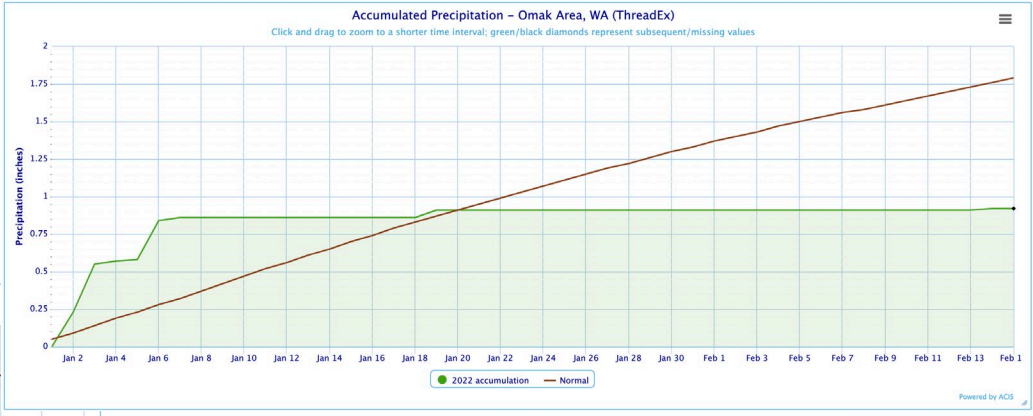
- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

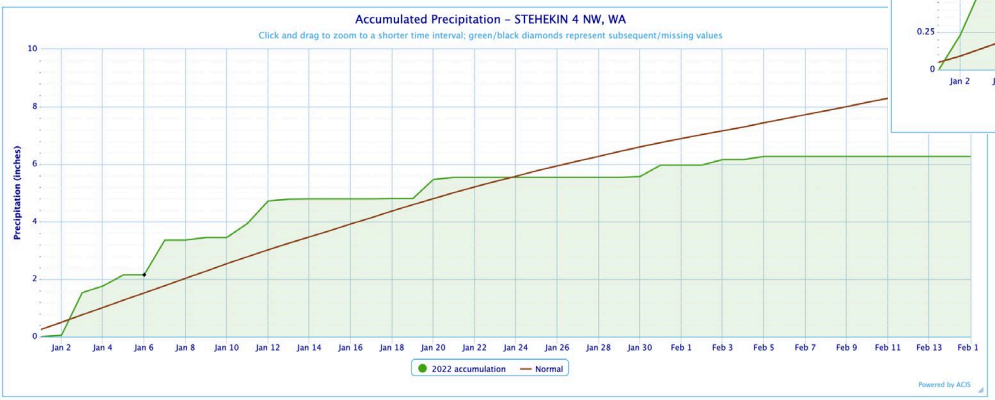
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

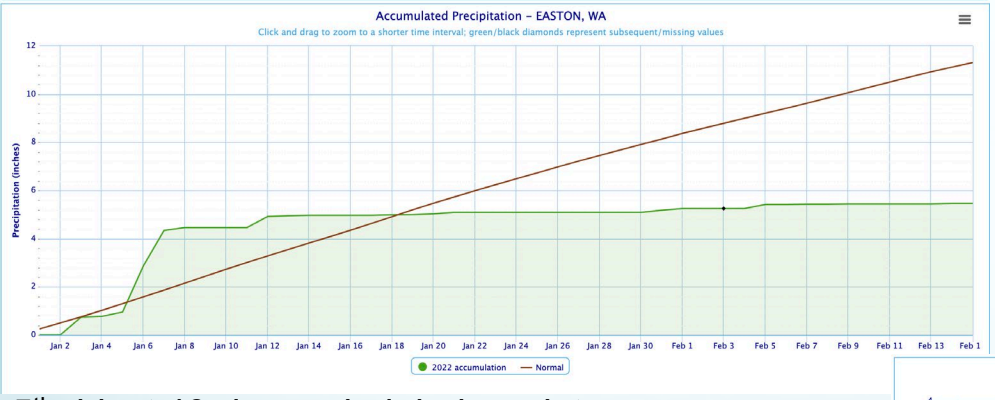
Author:

Brad Pugh
CPC/NOAA

droughtmonitor.unl.edu

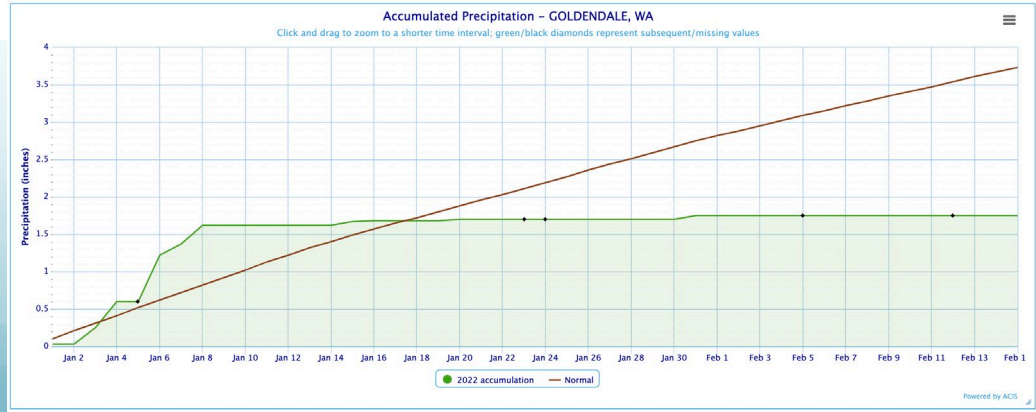




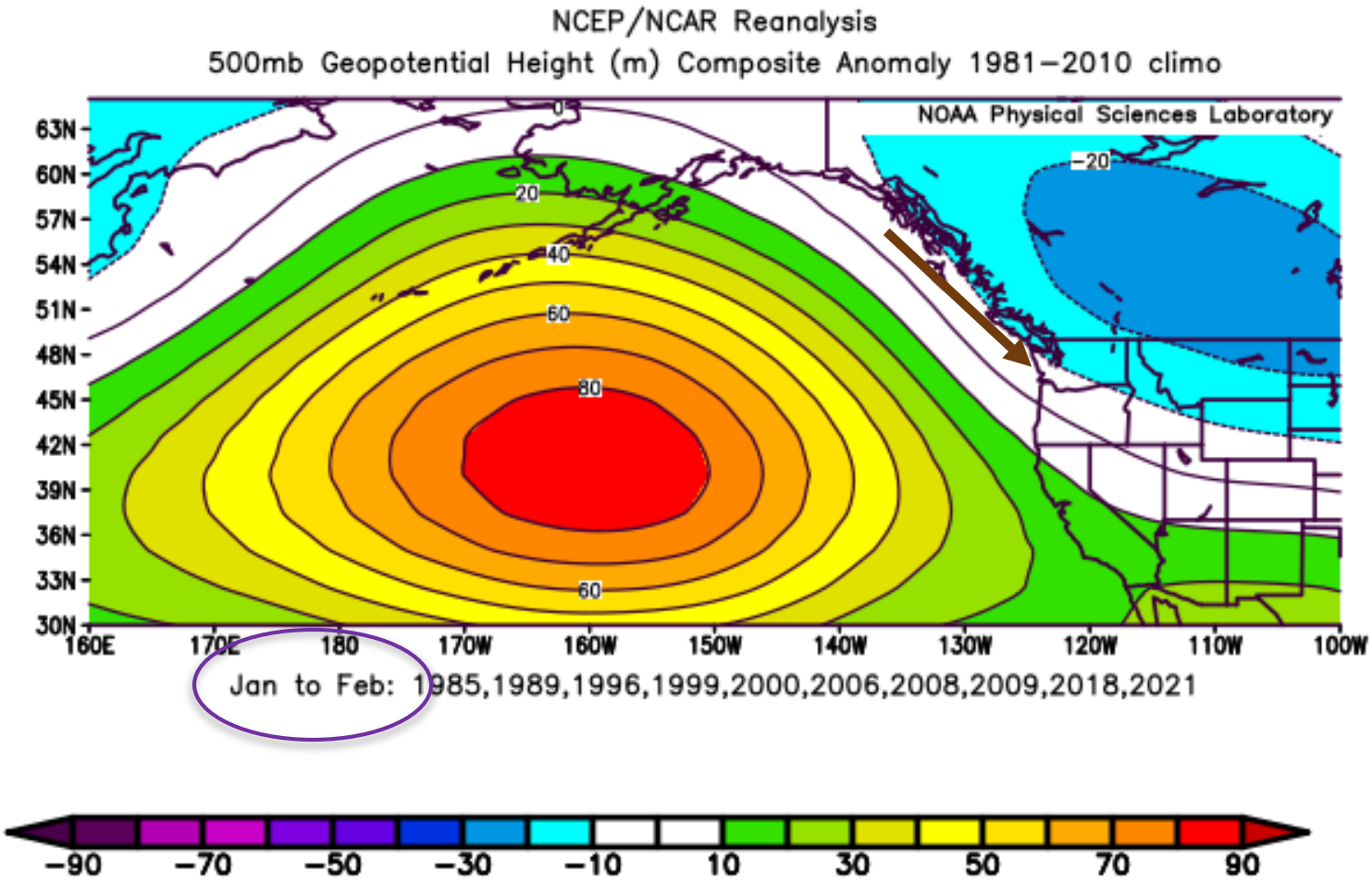


Accumulated Precipitation (1 Jan through 15 Feb) vs. Climatology for 4 Eastern Cascade Locations

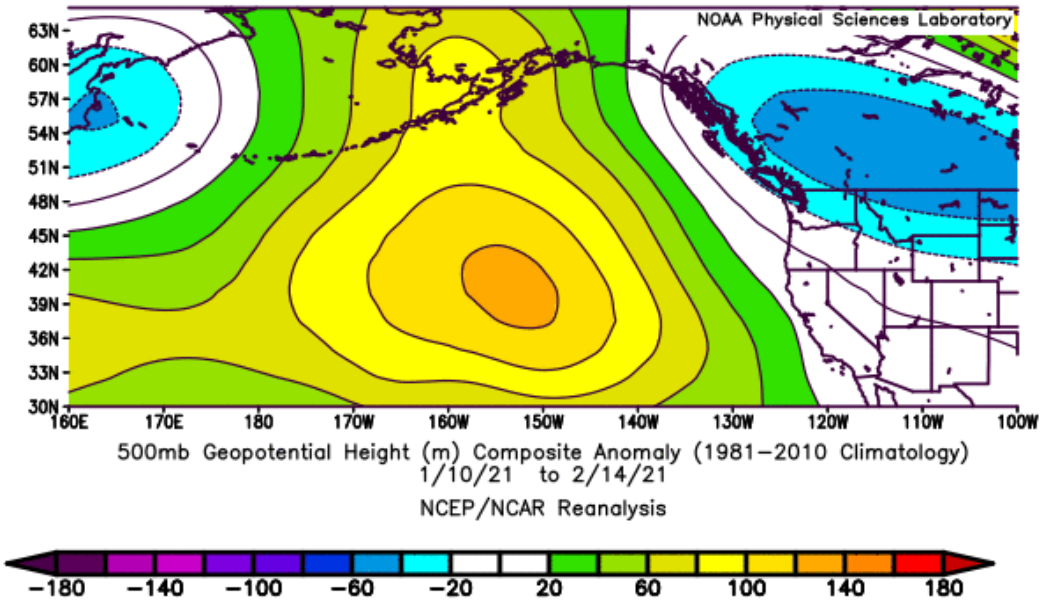
5th driest 40-day period during winter



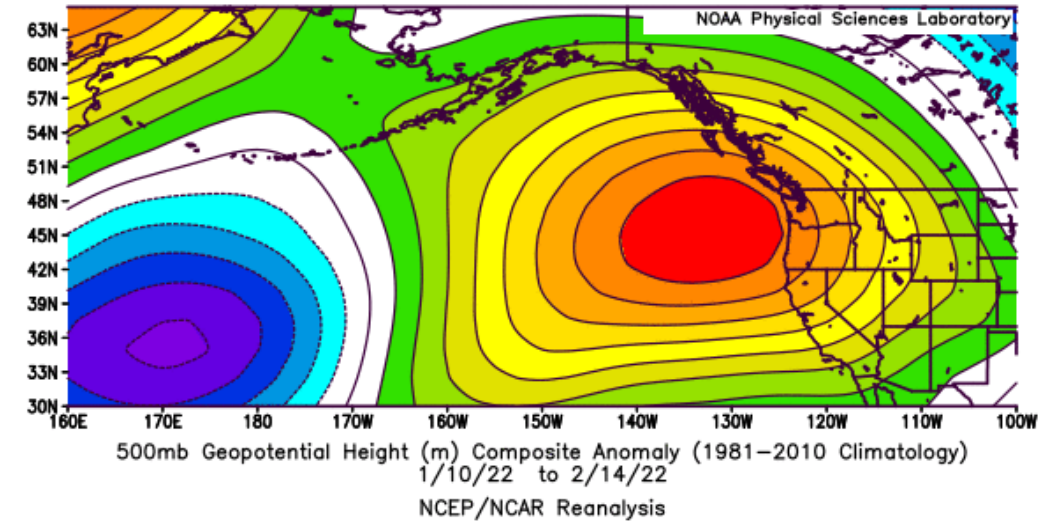
500 hPa Z Anomalies during Recent Past La Nina Winters



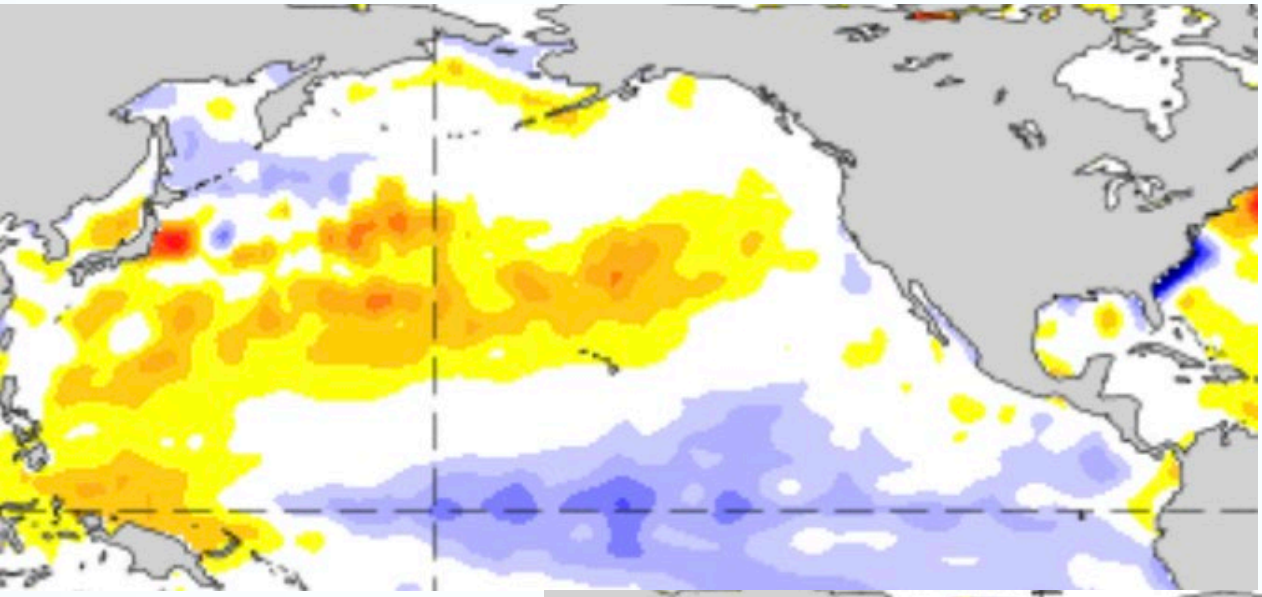
2021


NOAA Physical Sciences Laboratory
63N
60N
57N
54N
51N
48N
45N
42N
39N
36N
33N
30N
160E
170E
180
170W
160W
150W
140W
130W
120W
110W
100W
500mb Geopotential Height (m) Composite Anomaly (1981–2010 Climatology)
1/10/21 to 2/14/21
NCEP/NCAR Reanalysis
−180
−140
−100
−60
−20
20
60
100
140
180

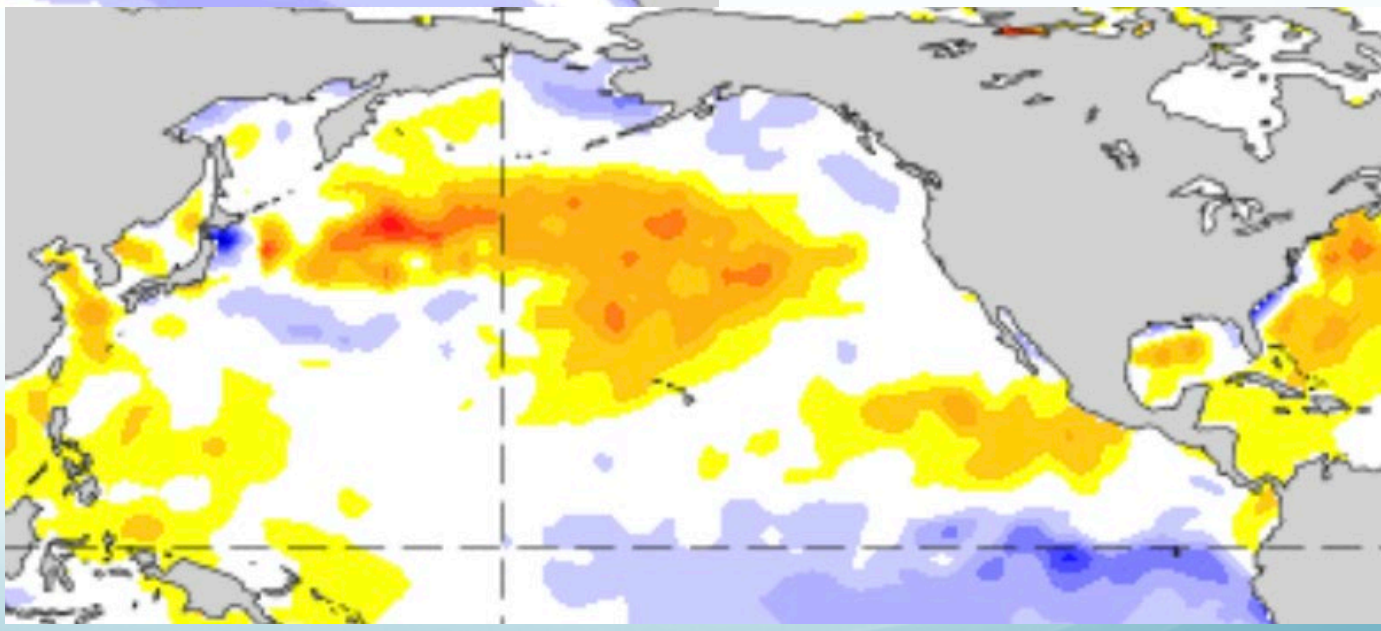
2022

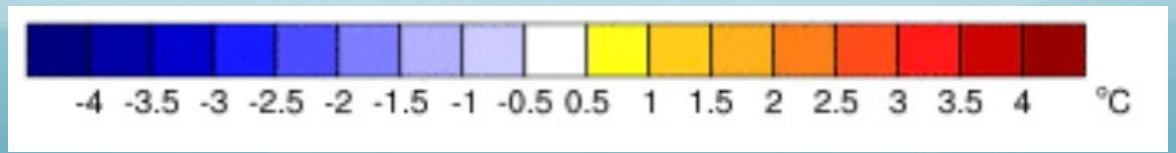

NOAA Physical Sciences Laboratory
63N
60N
57N
54N
51N
48N
45N
42N
39N
36N
33N
30N
160E
170E
180
170W
160W
150W
140W
130W
120W
110W
100W
500mb Geopotential Height (m) Composite Anomaly (1981–2010 Climatology)
1/10/22 to 2/14/22
NCEP/NCAR Reanalysis

Sea Surface Temperature Anomalies: 7-13 February 2021

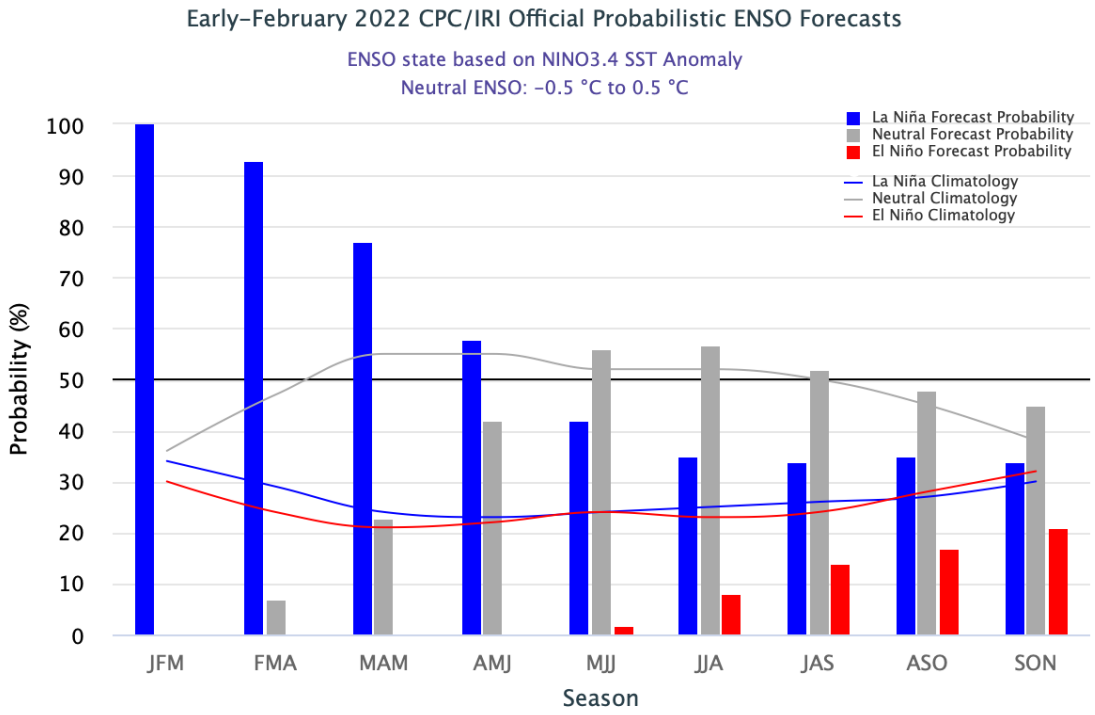


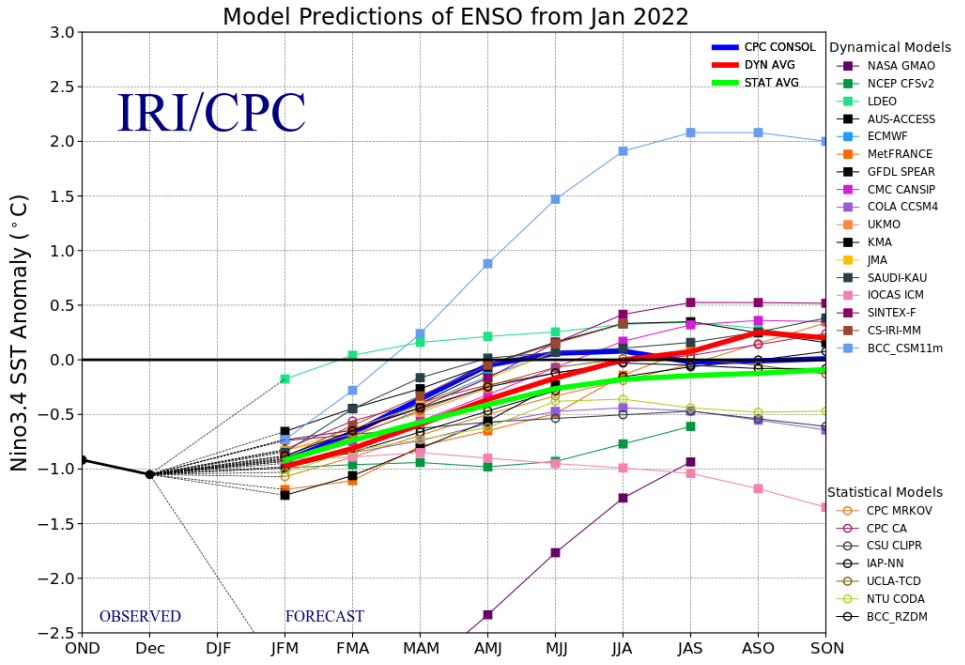
6-12 February 2022





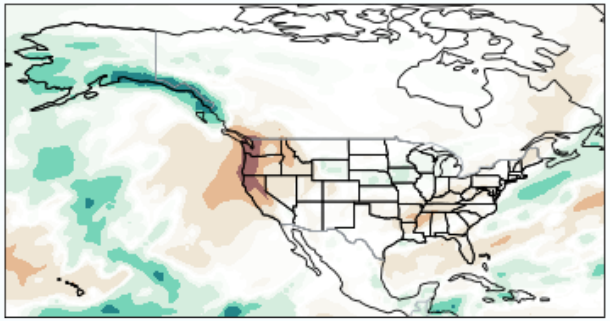
ENSO Predictions



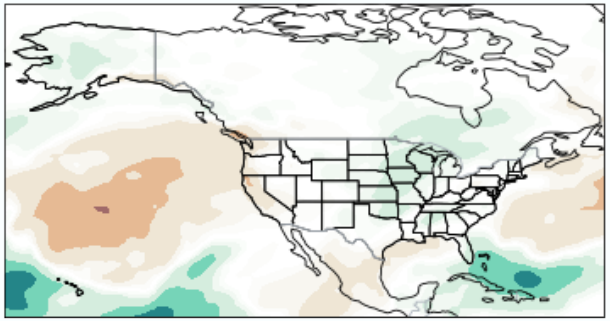


SubX Week 3-4 Total Precipitation Anomalies (mm): Valid 2 weeks ending Mar 11

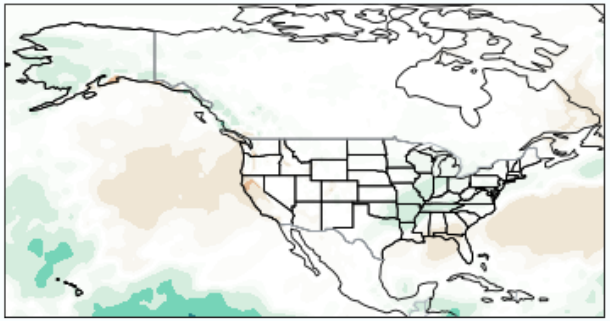
ESRL-FIMr1p1 (IC: 20220209; 4 Ens)



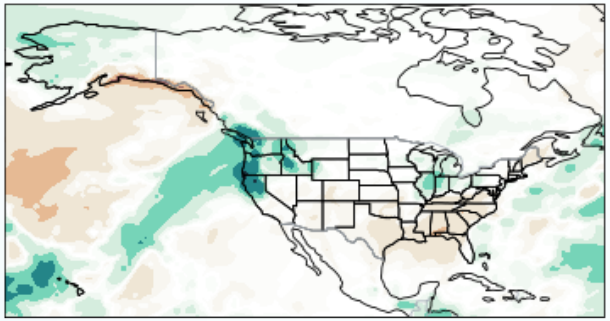
RSMAS-CCSM4 (IC: 20220206; 9 Ens)



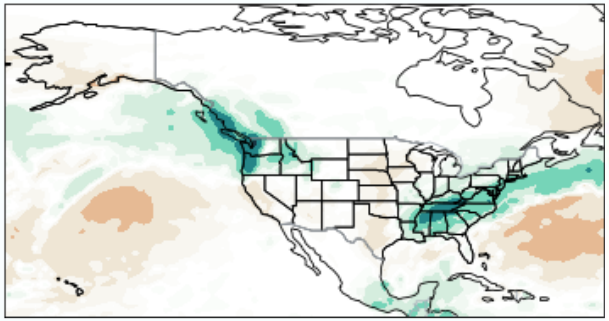
EMC-GEFSv12 (IC: 20220209; 31 Ens)



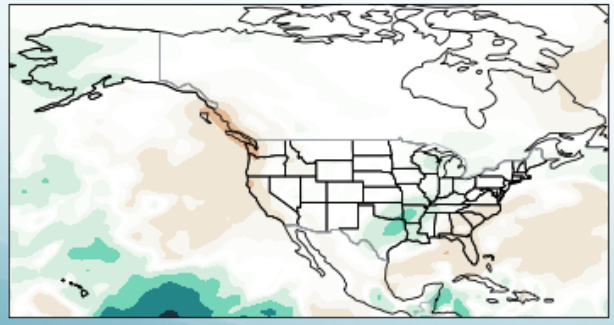
GMAO-GEOS_V2p1 (IC: 20220205; 4 Ens)



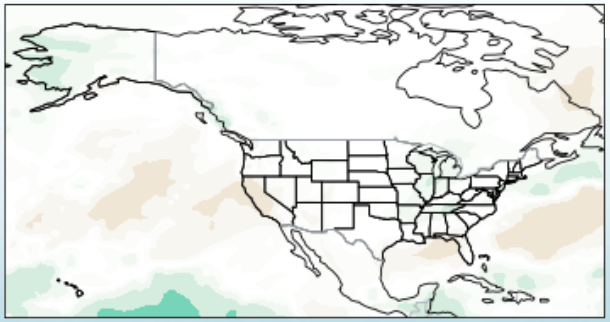
NRL-NESM (IC: 20220205-20220208; 4 Ens)



NCEP-CFSv2 (IC: 20220210; 16 Ens)

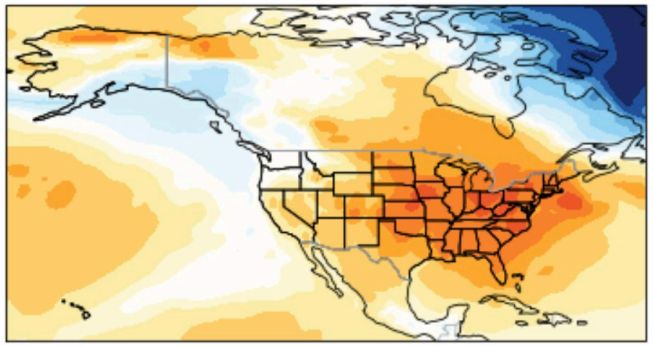


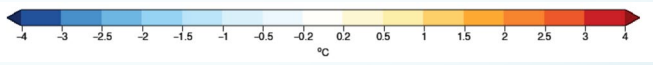
SUBX-MME (68 Ensemble Members)

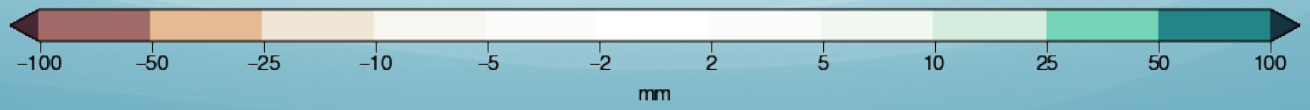


Temperature Anomalies

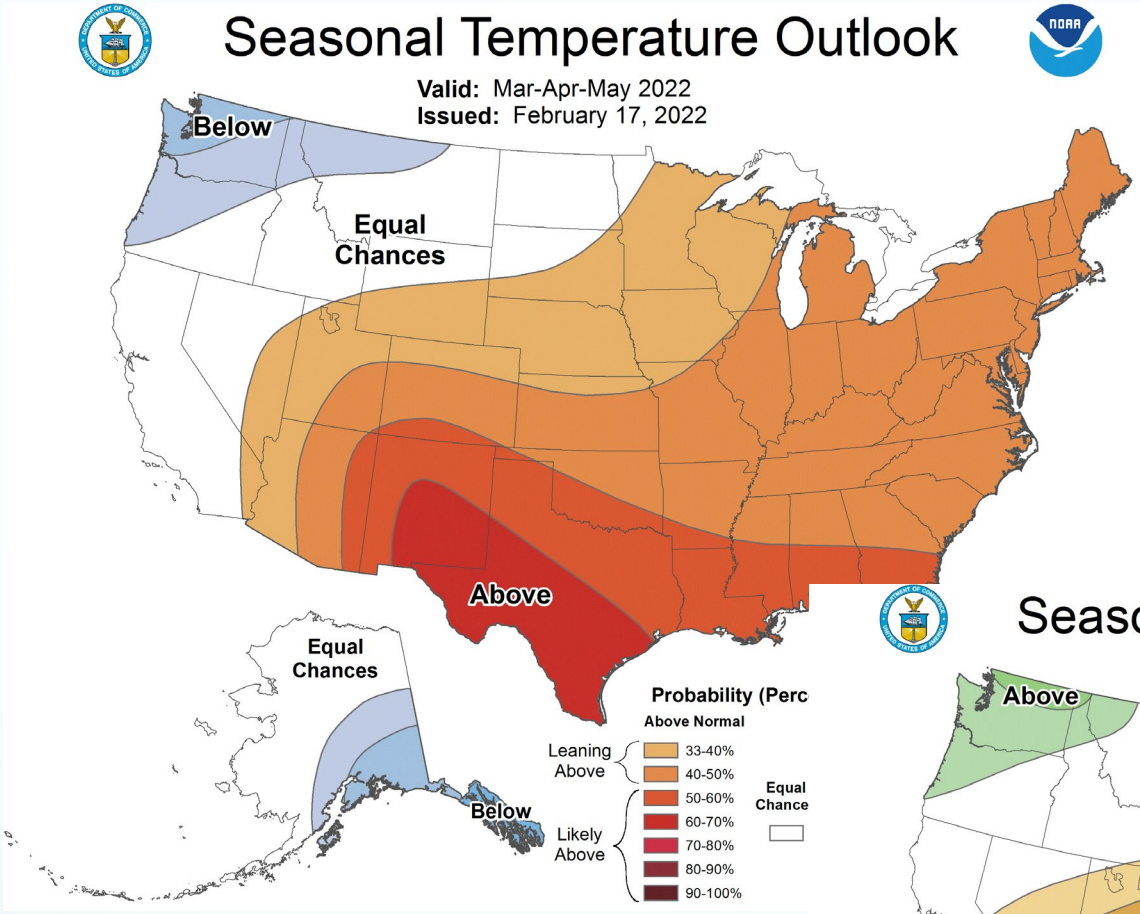
SUBX-MME (68 Ensemble Members)

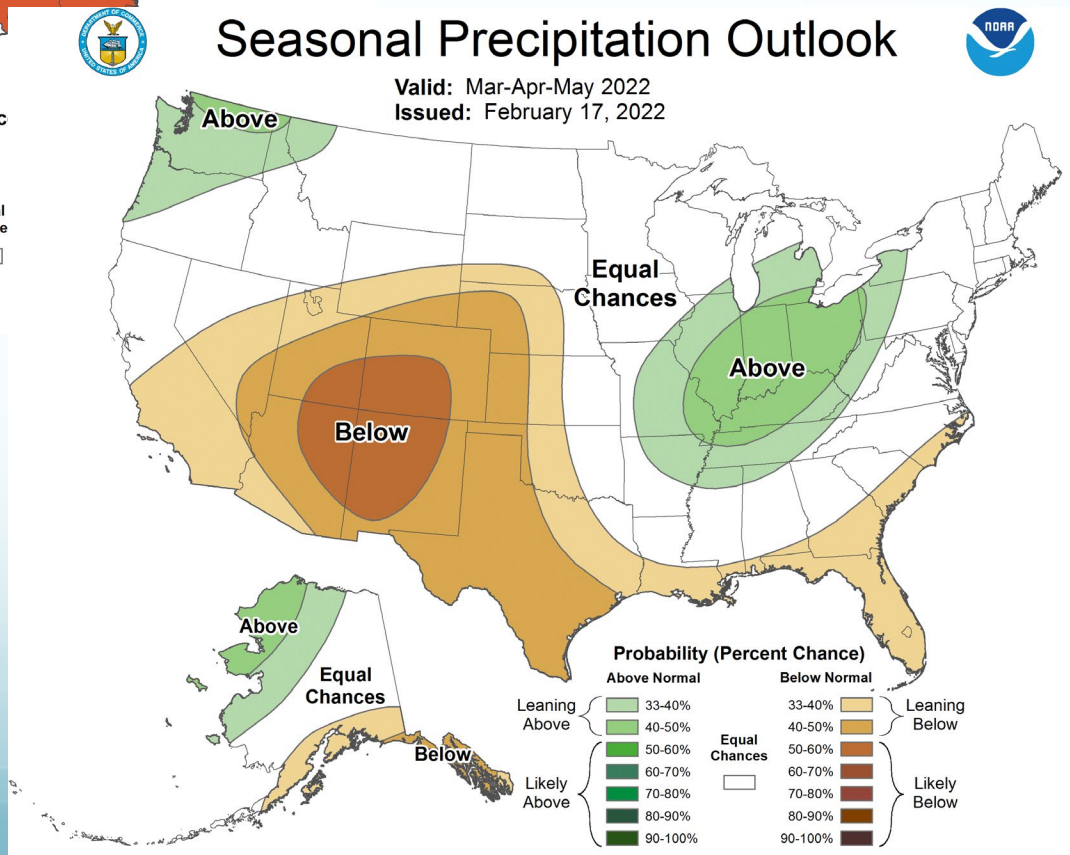






NOAA/CPC Forecasts for Mar-May 2022



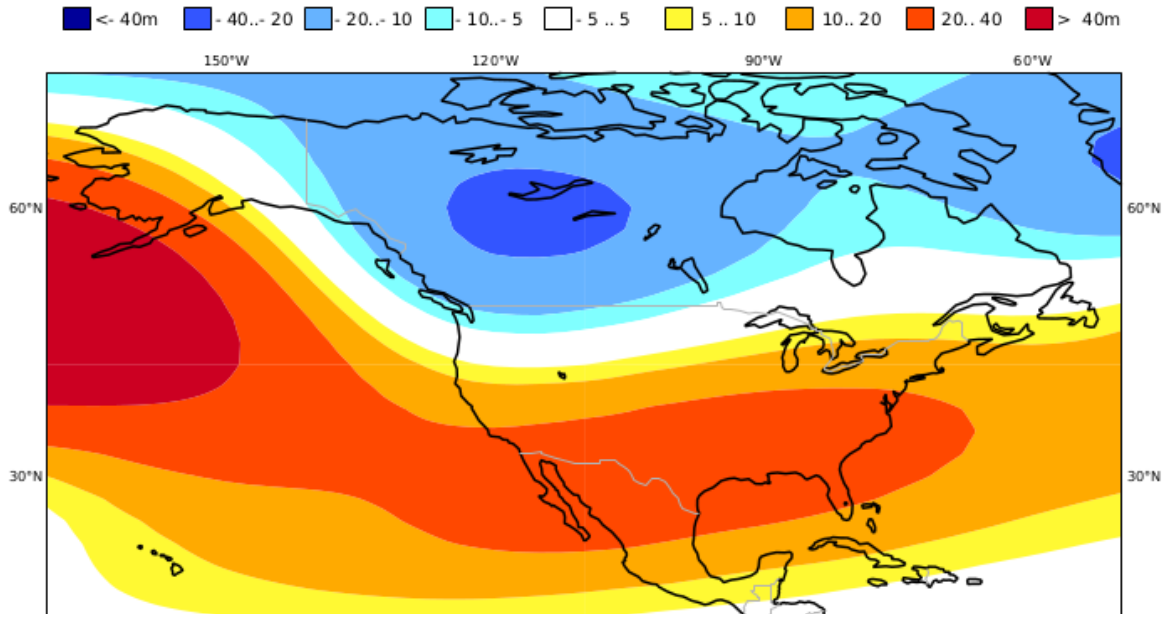


C3S multi-system seasonal forecast
Mean Z500 anomaly
Nominal forecast start: 01/02/22
Variance-standardized mean

ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC
MAM 2022

500 hPa

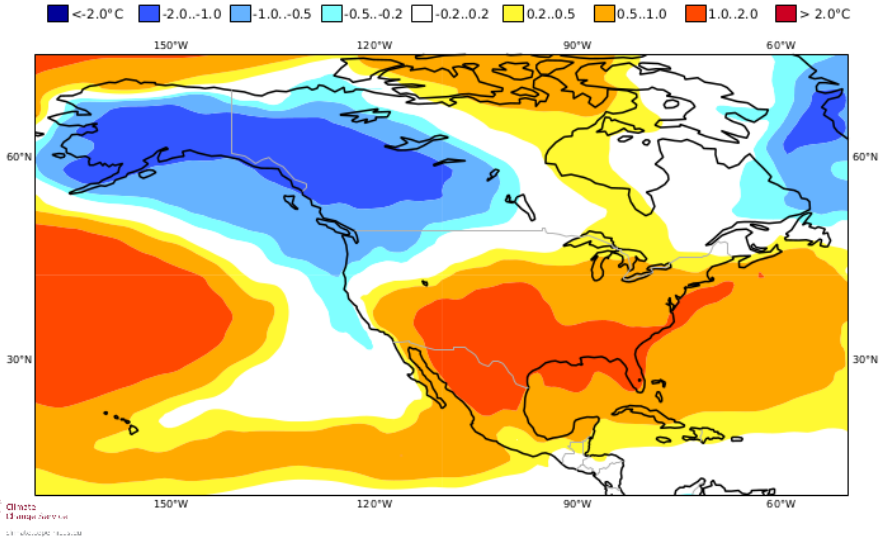
Forecasts from IMME



C3S multi-system seasonal forecast
Mean 2m temperature anomaly
Nominal forecast start: 01/02/22
Variance-standardized mean

ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC
MAM 2022

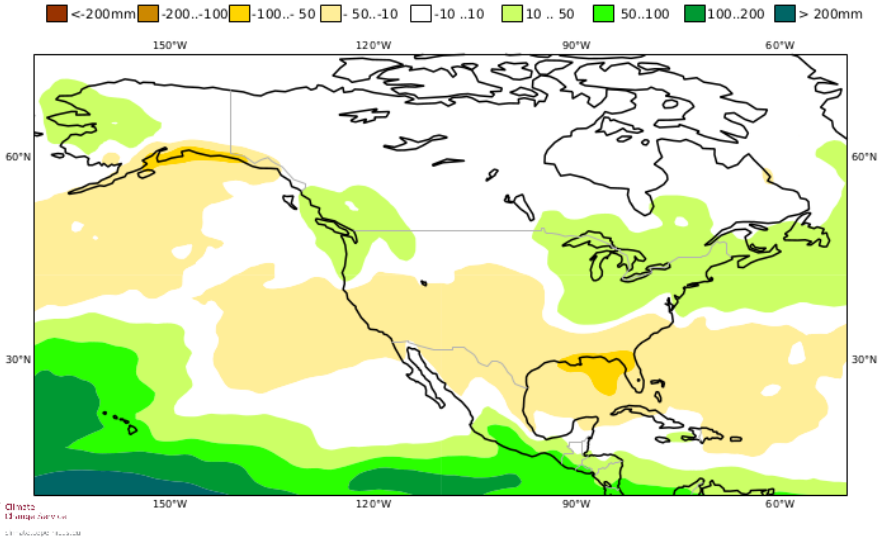
Temperature



C3S multi-system seasonal forecast
Mean precipitation anomaly
Nominal forecast start: 01/02/22
Variance-standardized mean

ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC
MAM 2022

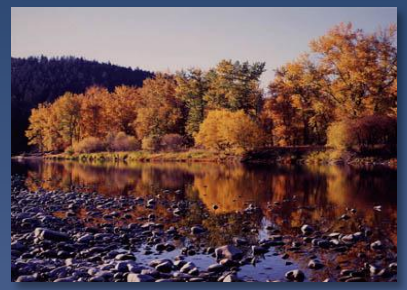
Precipitation



Summary

- Water year 2022 is still hanging on as being wetter than normal west of the Cascades despite the recent dry spell
  - Water year drier than normal in most of eastern WA
- Long-term precipitation deficits are persisting in parts of eastern WA
- A reminder that Mother Nature does not play fair
- We are liable to have later harvests of our lettuce and other greens this spring compared with recent years

NWS NWRFC and WFOs



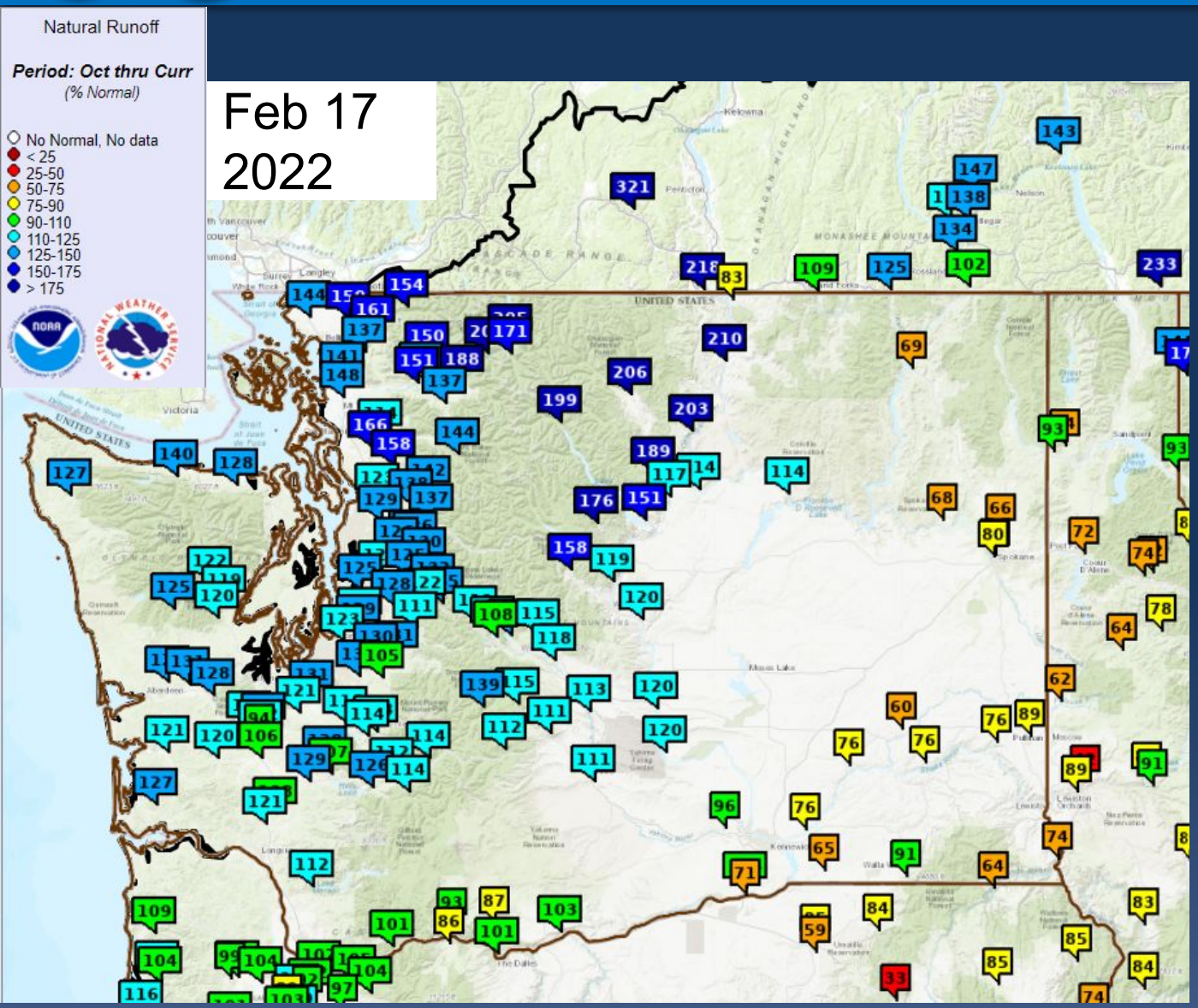
February 2022 Washington Water Supply Availability Committee Meeting

February 18, 2022

Amy Burke
NWRFC.watersupply@noaa.gov

Brent Bower
brent.bower@noaa.gov

YTD Natural Runoff - WA



% Normal Natural Runoff Vol Oct 1- Feb 17

Washington		Δ since Jan 13
Skagit nr Mt Vernon	148	-11
Dungeness nr Sequim	128	-7
Chehalis at Porter	128	-25
Okanogan at Malott	203	-23
Methow nr Pateros	189	-14
Yakima at Parker	111	-6
Walla Walla nr Touchet	65	-6

Natural ESP10 - WA

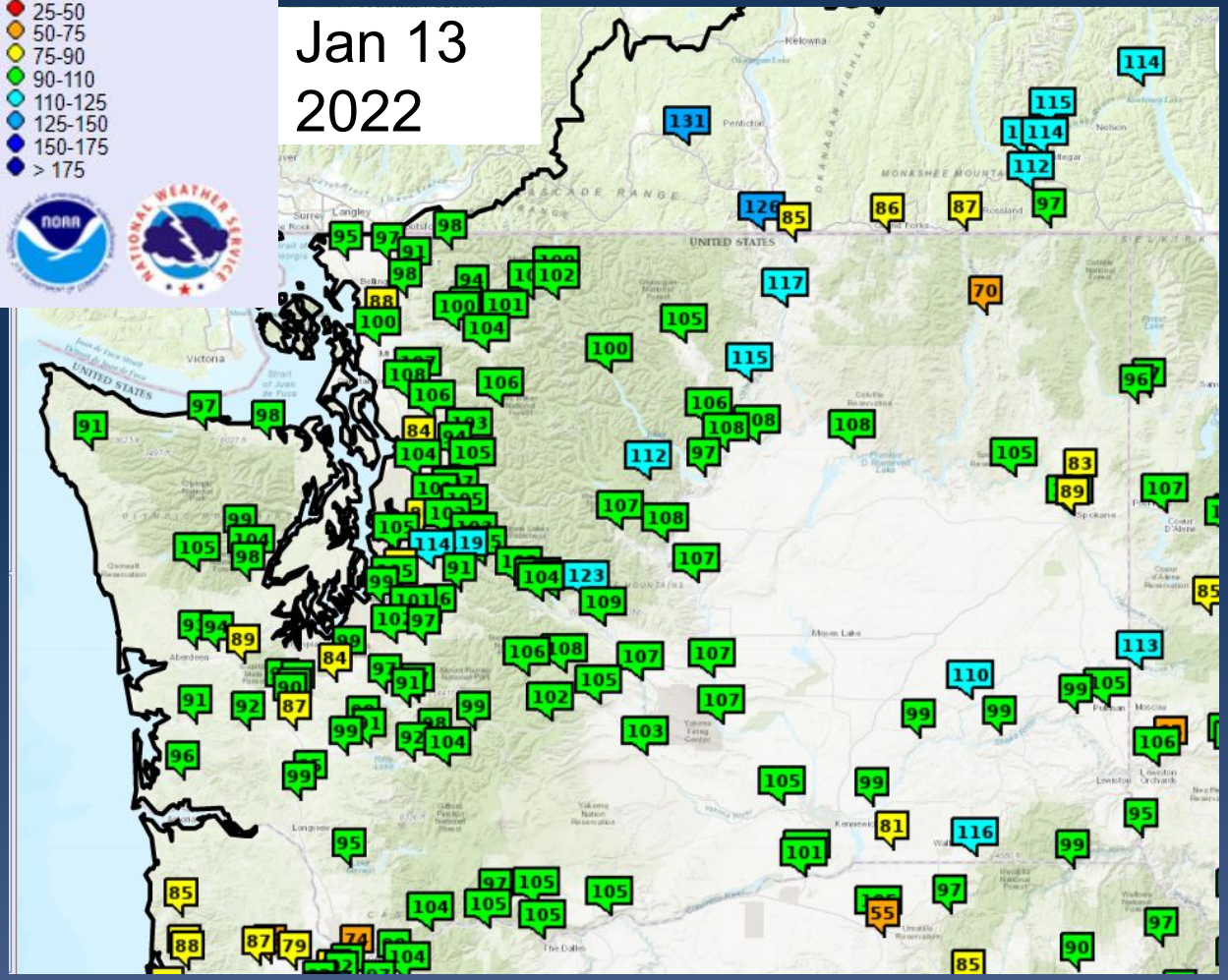
ESP Natural Forecast

Period: APR-SEP

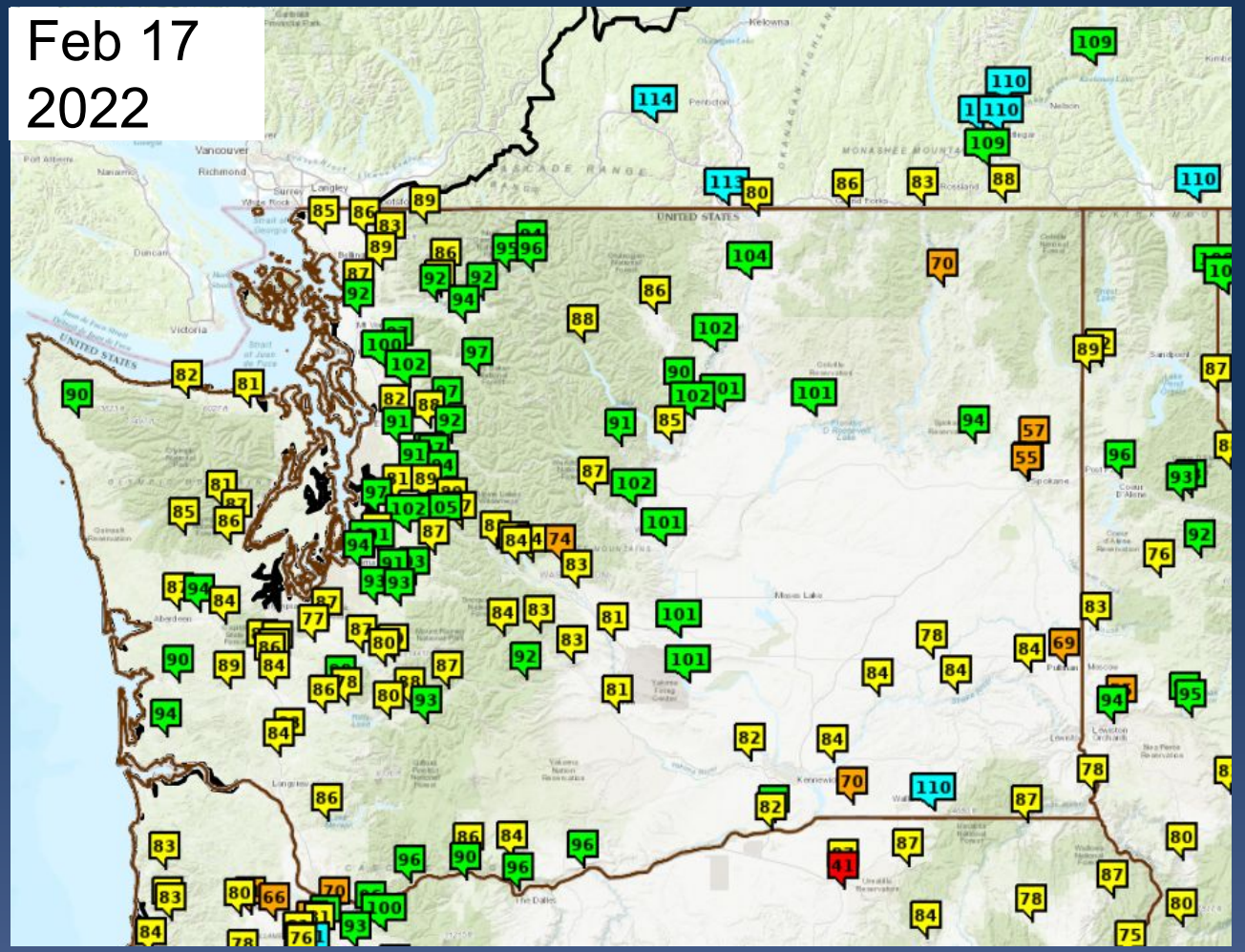
Forecast (% Normal)

- No Normal, No Data
- < 25
- 25-50
- 50-75
- 75-90
- 90-110
- 110-125
- 125-150
- 150-175
- > 175

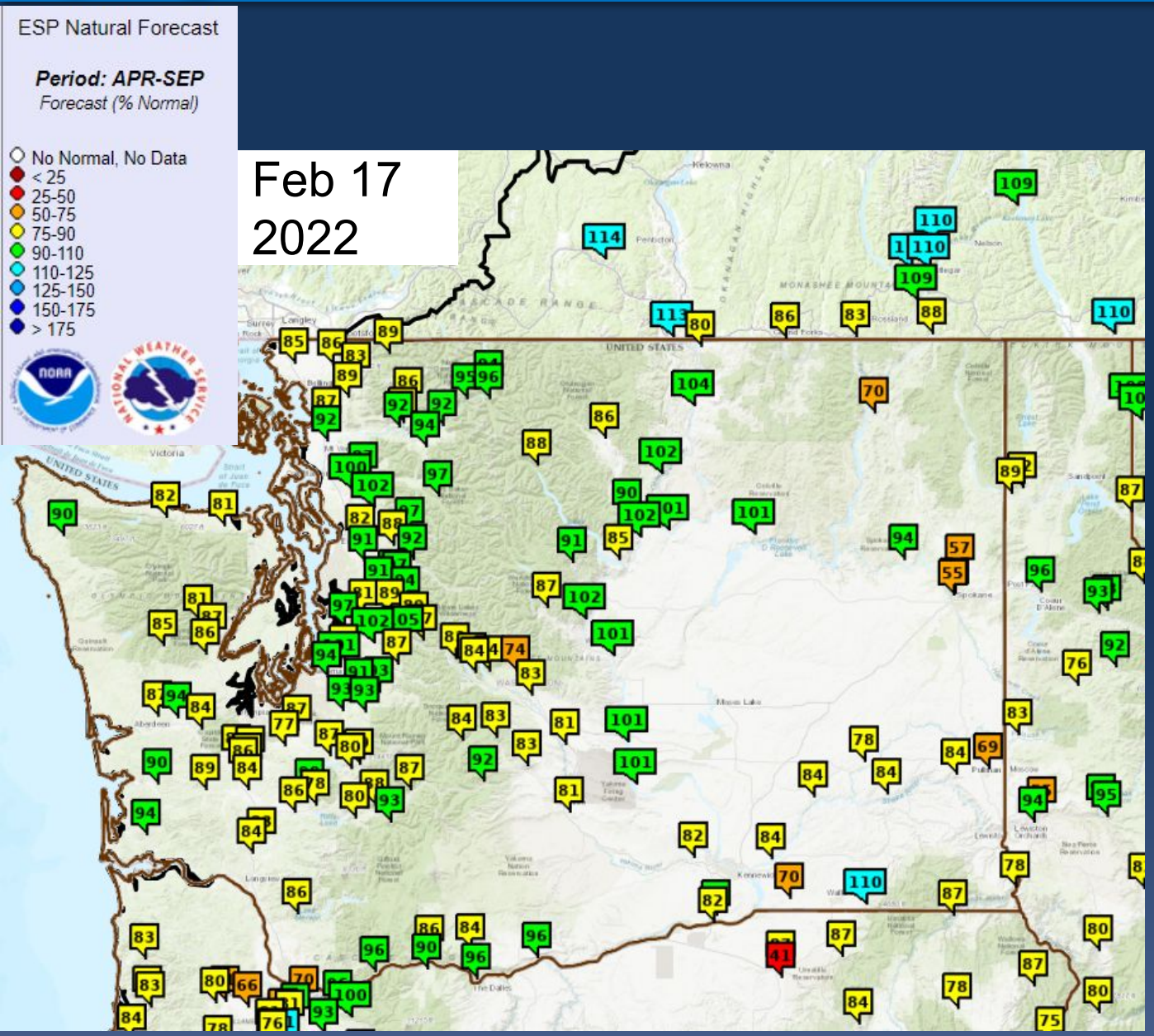
Jan 13
2022



Feb 17
2022



Natural ESP10 - WA



Forecast % Normal Apr -Sep Vol

Washington		Δ since Jan 13
Skagit nr Mt Vernon	92	-8
Dungeness nr Sequim	81	-17
Chehalis at Porter	84	-5
Okanogan at Malott	102	-13
Methow nr Pateros	90	-16
Yakima at Parker	81	-22
Walla Walla nr Touchet	70	-11

YAKIMA - NEAR PARKER (PARW1)
Forecasts for Water Year 2022

Official Water Supply
ESP with 10 Days QPF **Ensemble: 2022-02-17** **Issued:** 2022-02-17

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	1445	1705	81	2106	2102
APR-JUL	1277	1549	82	1912	1899
JAN-SEP	2338	2492	84	2987	2974
JAN-JUL	2146	2318	84	2791	2770
OCT-SEP	3119	3273	92	3768	3576

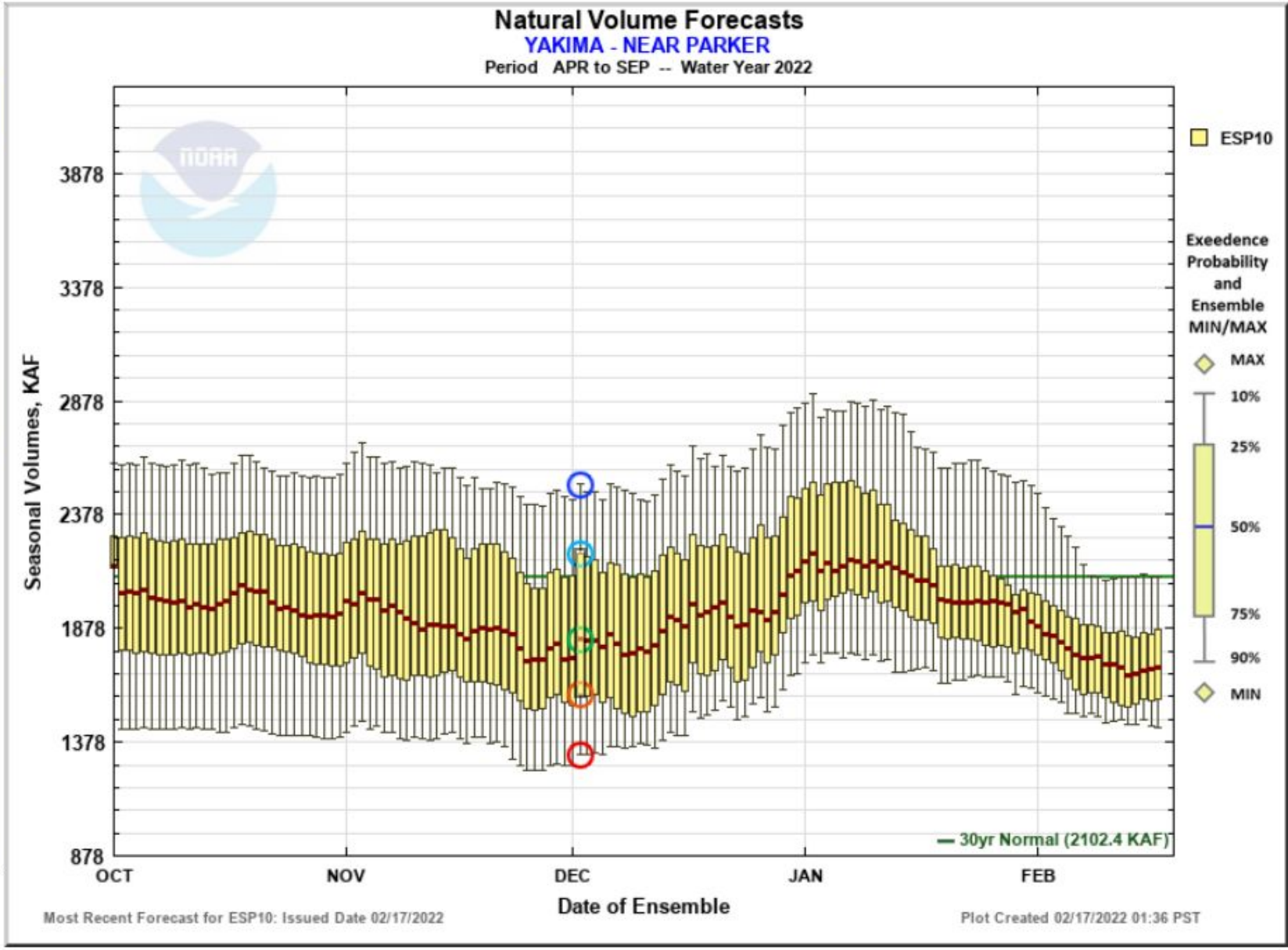
Experimental Water Supply
HEFS with 15 days EQPF **Ensemble: 2022-02-17** **Issued:** 2022-02-17

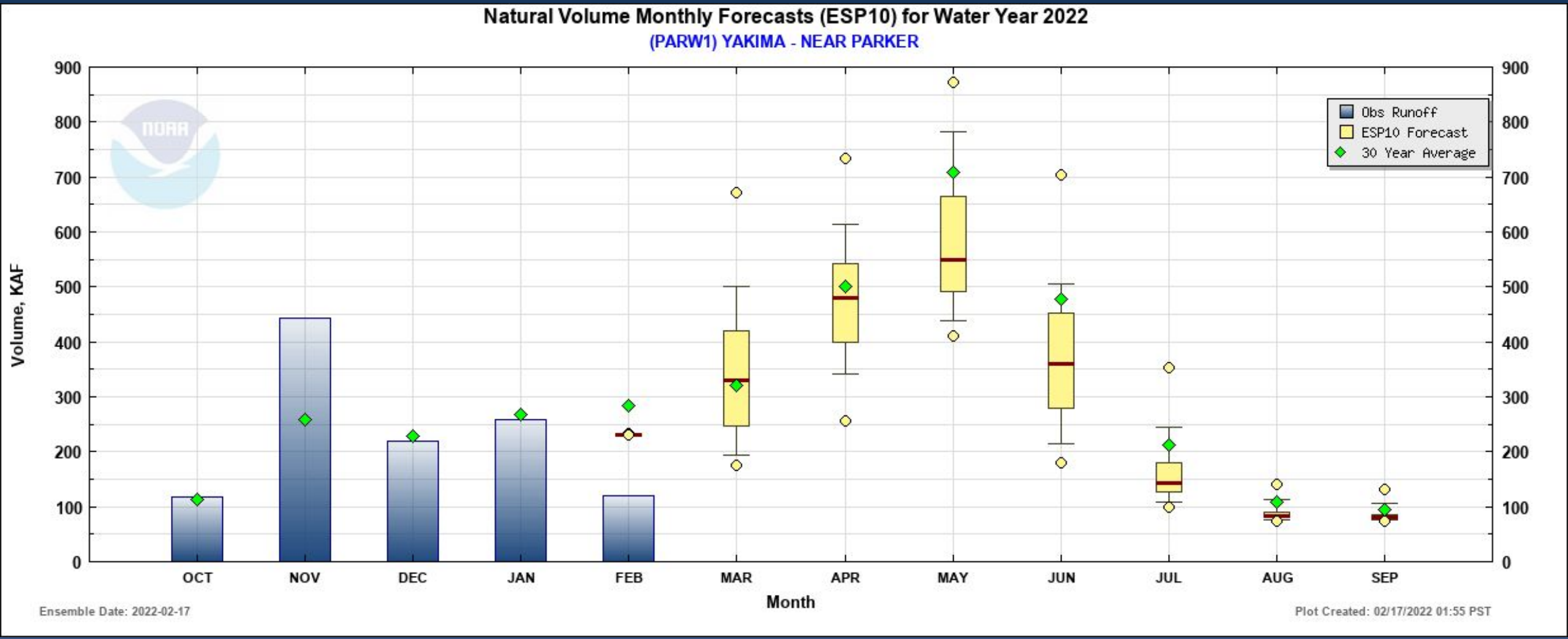
APR-SEP	1530	1736	83	2101	2102
APR-JUL	1323	1576	83	1909	1899
JAN-SEP	2368	2539	85	3037	2974
JAN-JUL	2178	2380	86	2837	2770
OCT-SEP	3149	3320	93	3818	3576

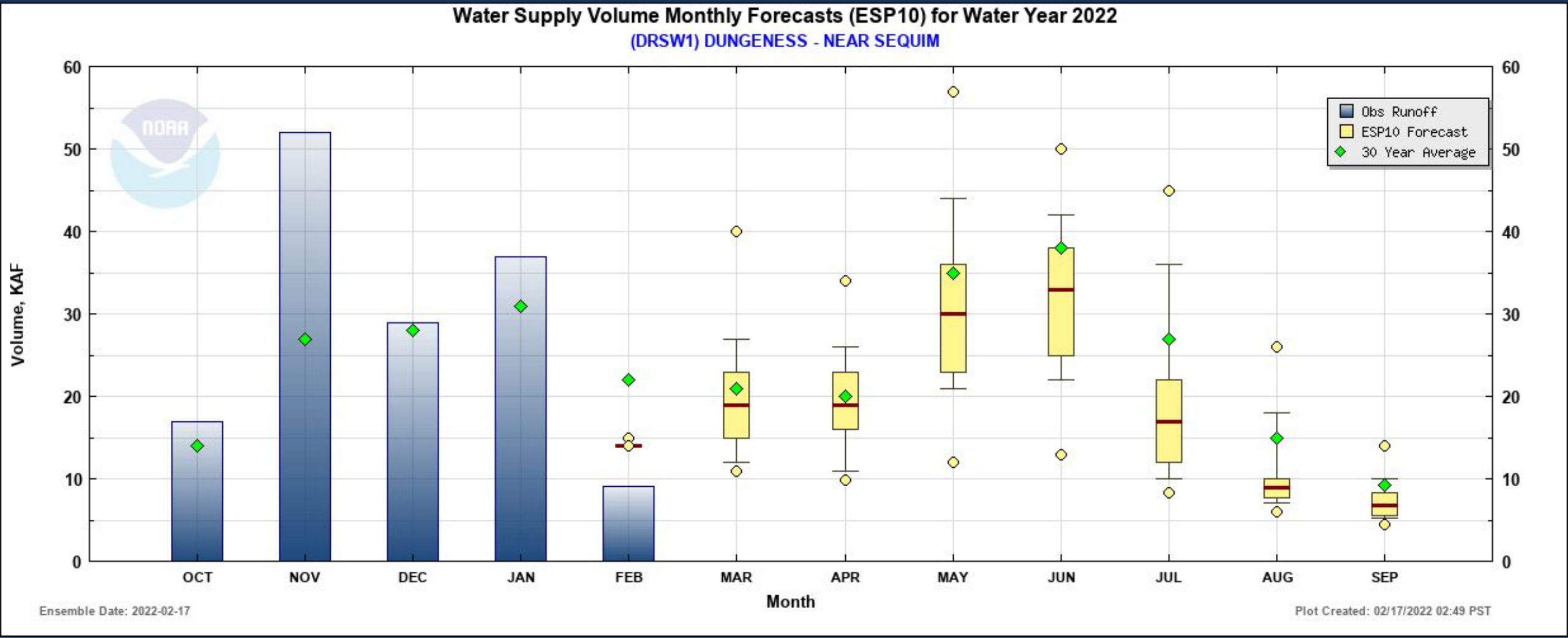
Reference
ESP with 0 Days QPF **Ensemble: 2022-02-17** **Issued:** 2022-02-17

APR-SEP	1540	1799	86	2218	2102
APR-JUL	1372	1639	86	2004	1899
JAN-SEP	2414	2642	89	3255	2974
JAN-JUL	2207	2478	89	3044	2770
OCT-SEP	3195	3423	96	4036	3576

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




Natural Volume Monthly Forecasts (ESP10) for Water Year 2022
(PARW1) YAKIMA - NEAR PARKER
Obs Runoff
ESP10 Forecast
30 Year Average
Volume, KAF
0
100
200
300
400
500
600
700
800
900
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
Month
Ensemble Date: 2022-02-17
Plot Created: 02/17/2022 01:55 PST


Water Supply Volume Monthly Forecasts (ESP10) for Water Year 2022
(DRSW1) DUNGENESS - NEAR SEQUIM
Obs Runoff
ESP10 Forecast
30 Year Average
Volume, KAF
0
10
20
30
40
50
60
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
Month
Ensemble Date: 2022-02-17
Plot Created: 02/17/2022 02:49 PST

DUNGENESS - NEAR SEQUIM
Forecasts For Water Year 2022

Official Water Supply

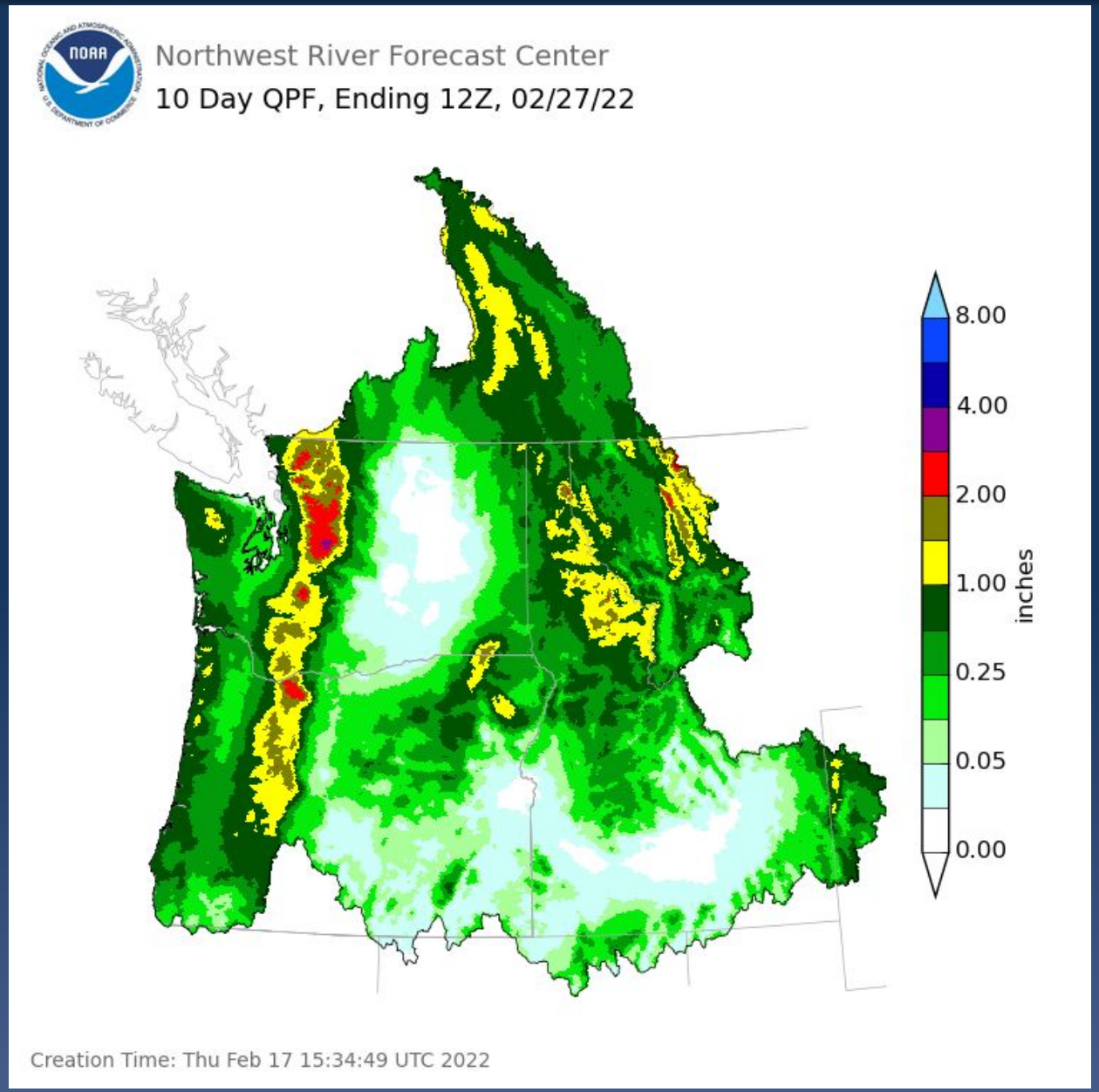
ESP with 10 days QPF

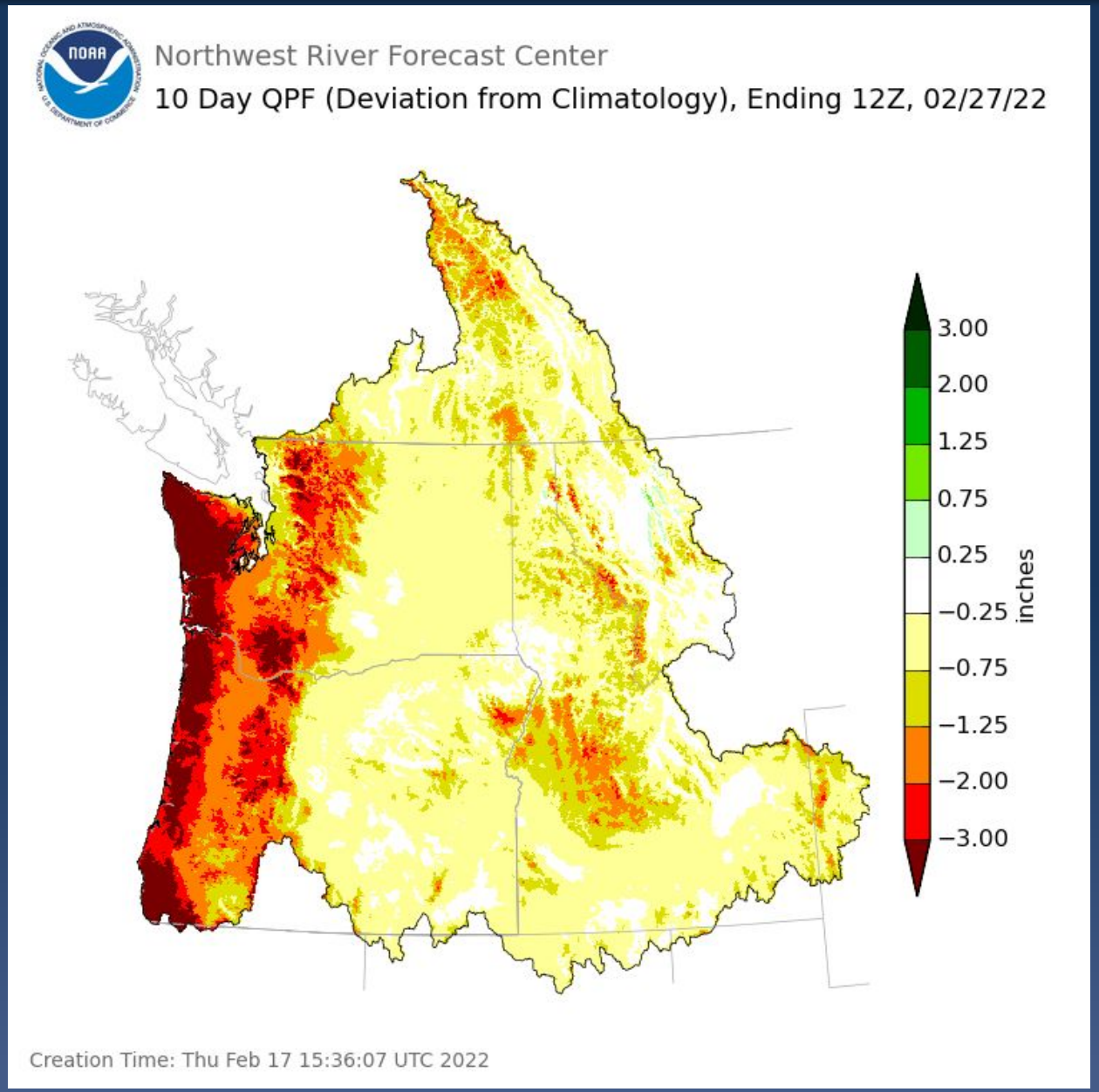
Ensemble: 2022-02-17 Issued: 2022-02-17

Forecast Period	Forecasts Are in KAF				Obs Runoff (2022-02-17)	30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %		
OCT					17	14
NOV					52	27
DEC					29	28
JAN					37	31
FEB	14	14	64	14	9.1*	22
MAR	12	19	91	27		21
APR	11	19	95	26		20
MAY	21	30	86	44		35
JUN	22	33	88	42		38
JUL	10	17	62	36		27
AUG	7.1	8.9	61	18		15
SEP	5.2	6.7	73	10		9.2

Move the mouse over the desired "Forecast Table" to update graph.
* Partial Monthly Total

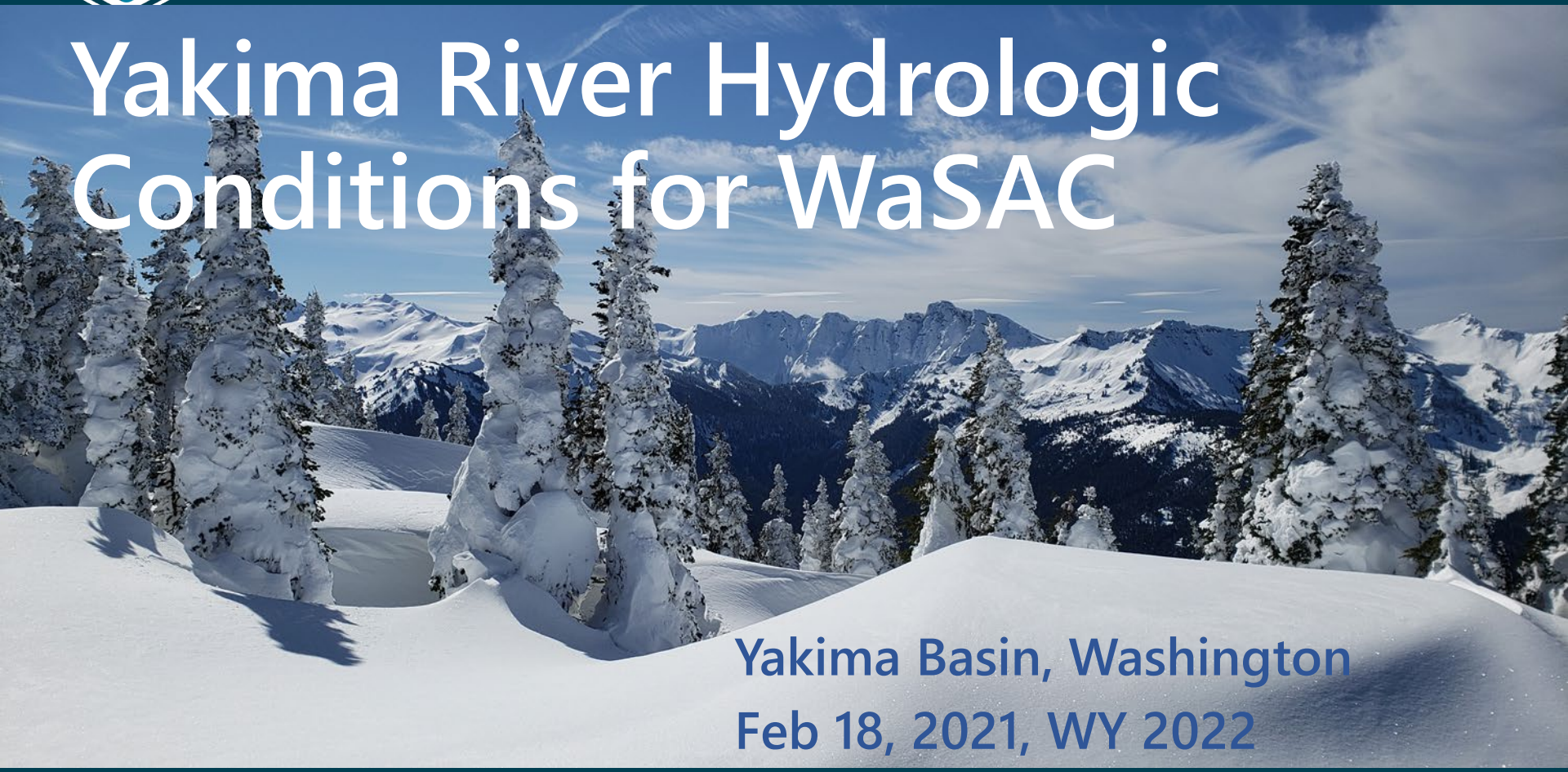
Precipitation Forecast (Feb 18-27)





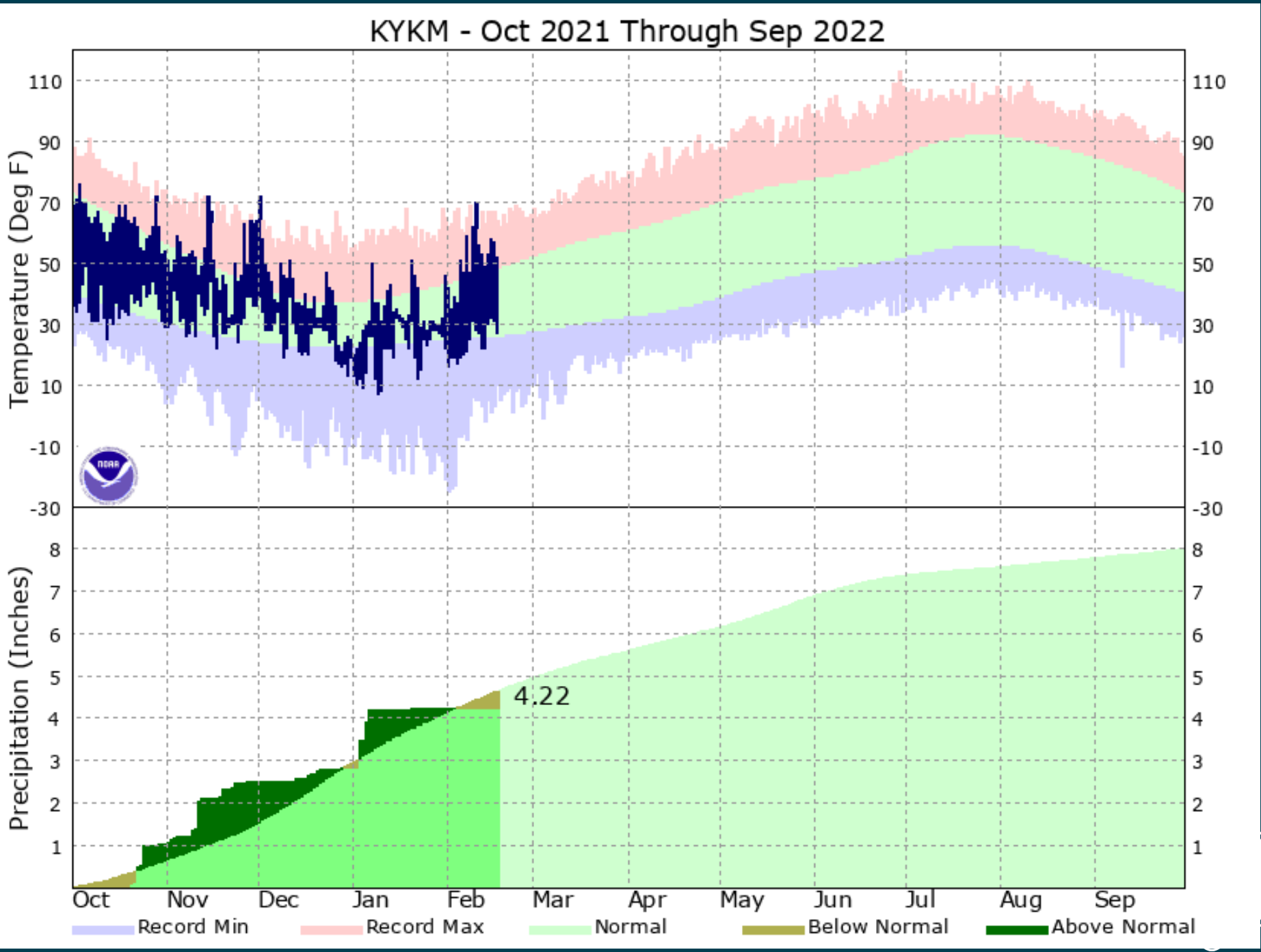
BUREAU OF RECLAMATION

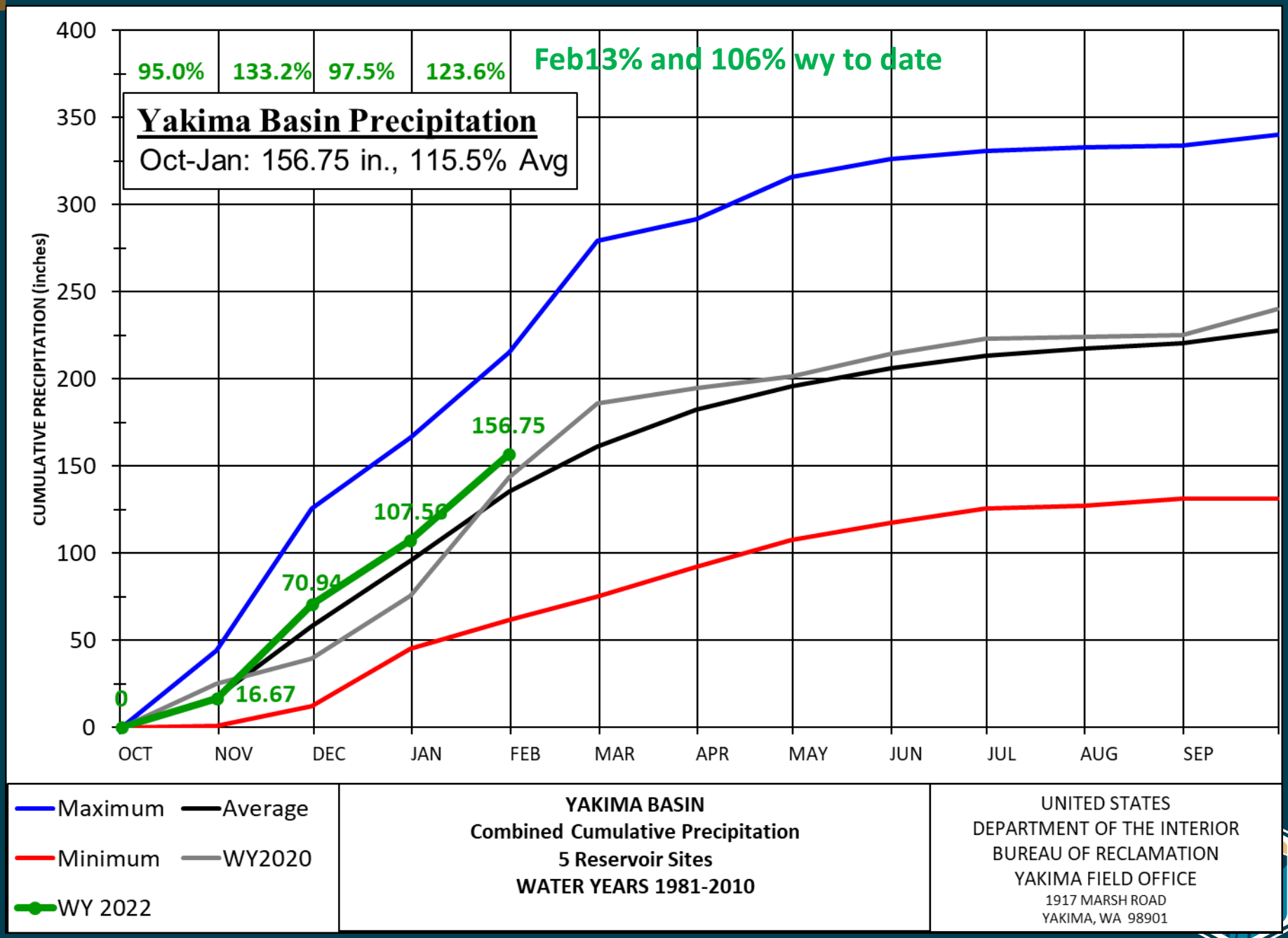
Yakima River Hydrologic Conditions for WaSAC

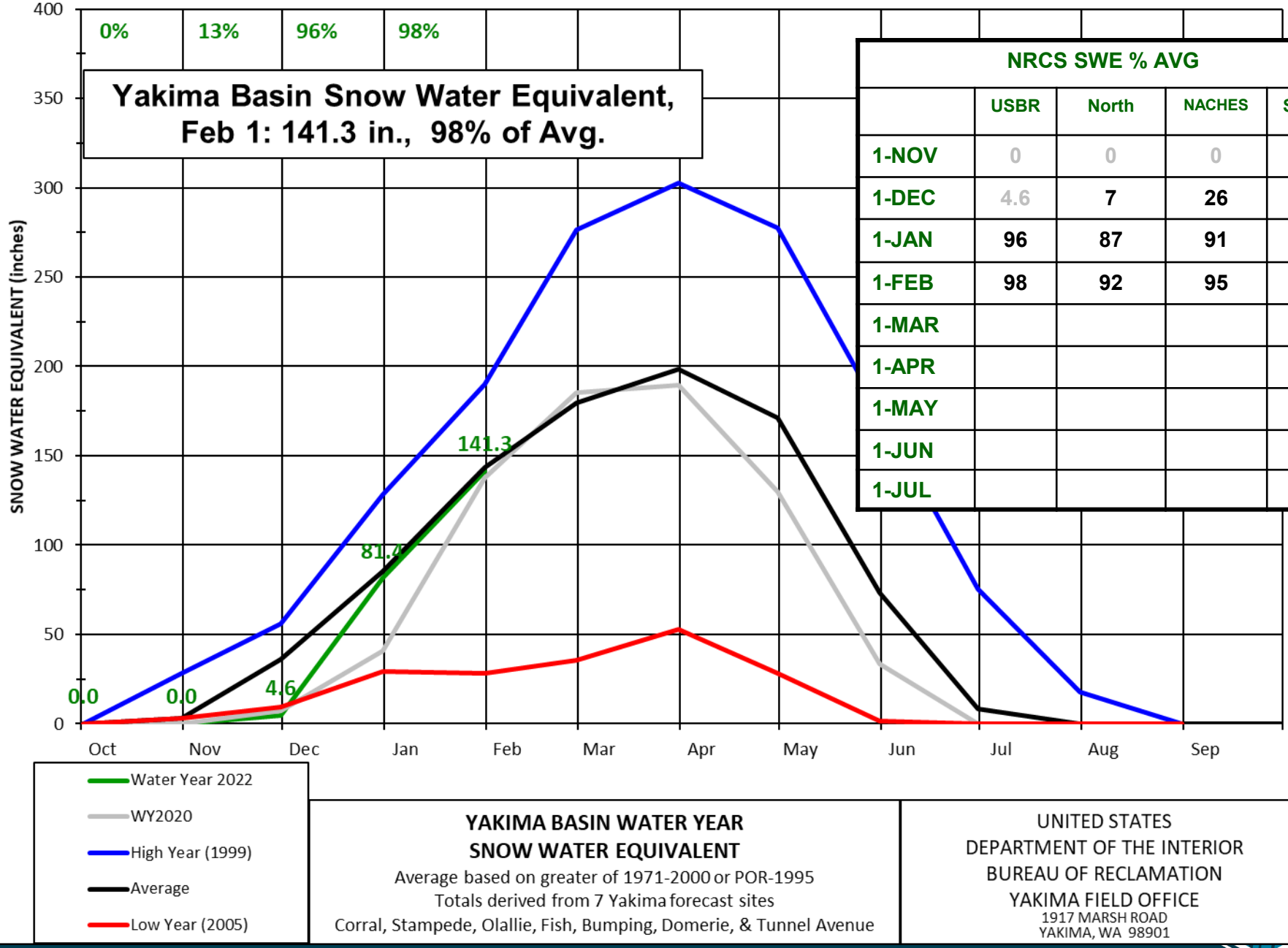


Yakima Basin, Washington

Feb 18, 2021, WY 2022


KYKM - Oct 2021 Through Sep 2022
Temperature (Deg F)
110
90
70
50
30
10
-10
-30
Precipitation (Inches)
8
7
6
5
4
3
2
1
4.22
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Record Min
Record Max
Normal
Below Normal
Above Normal


Feb13% and 106% wy to date
95.0%
133.2%
97.5%
123.6%
Yakima Basin Precipitation
Oct-Jan: 156.75 in., 115.5% Avg
CUMULATIVE PRECIPITATION (inches)
400
350
300
250
200
150
100
50
0
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
156.75
107.50
70.94
16.67
0
Maximum
Average
Minimum
WY2020
WY 2022
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



NRCS SWE % AVG				
	USBR	North	NACHES	South
1-NOV	0	0	0	0
1-DEC	4.6	7	26	14
1-JAN	96	87	91	91
1-FEB	98	92	95	83
1-MAR				
1-APR				
1-MAY				
1-JUN				
1-JUL				

YAKIMA BASIN WATER YEAR
SNOW WATER EQUIVALENT
Average based on greater of 1971-2000 or POR-1995
Totals derived from 7 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

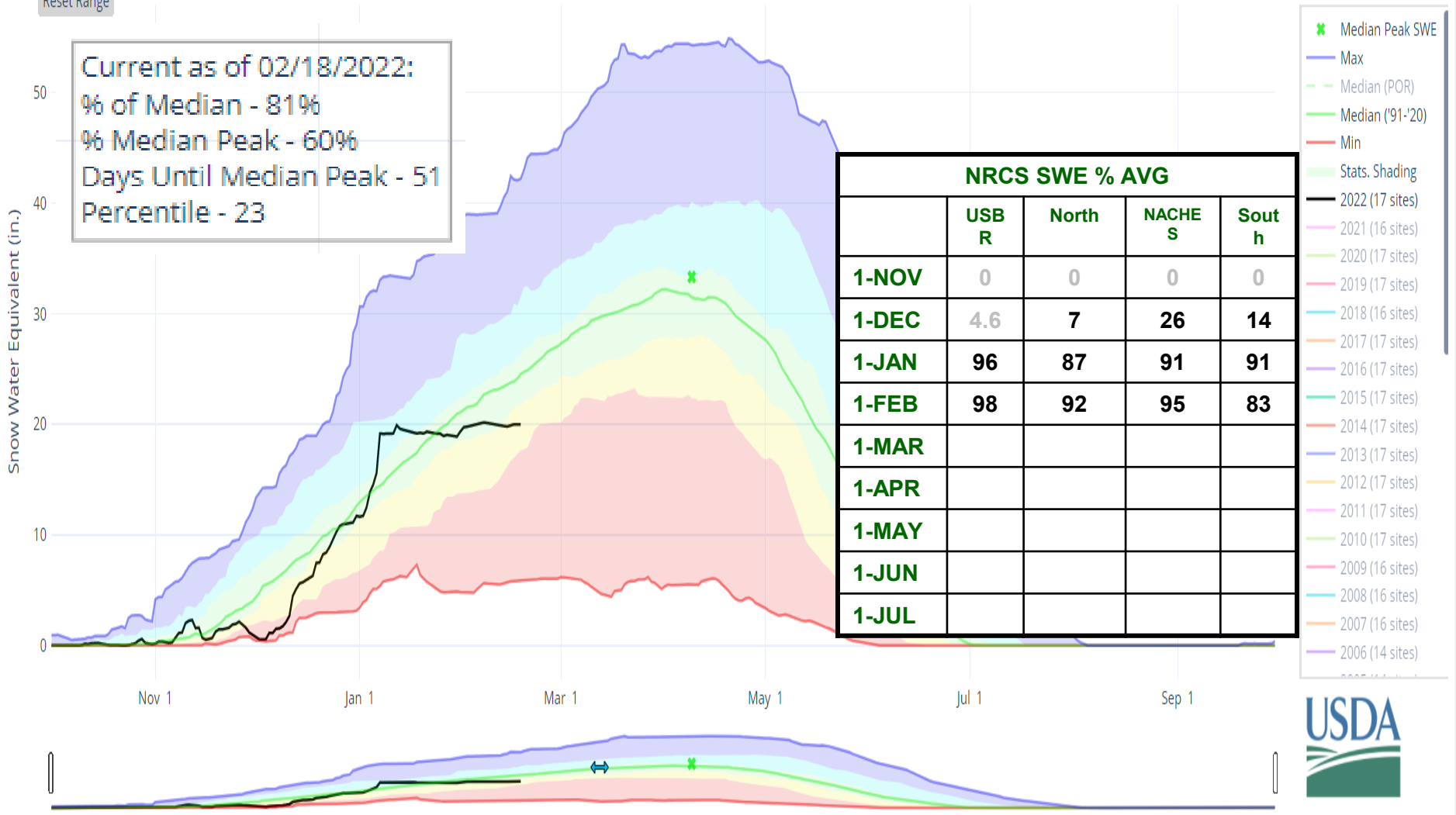
SNOW WATER EQUIVALENT IN
YAKIMA

Reset Range

Link to data: CSV / JSON

Station List

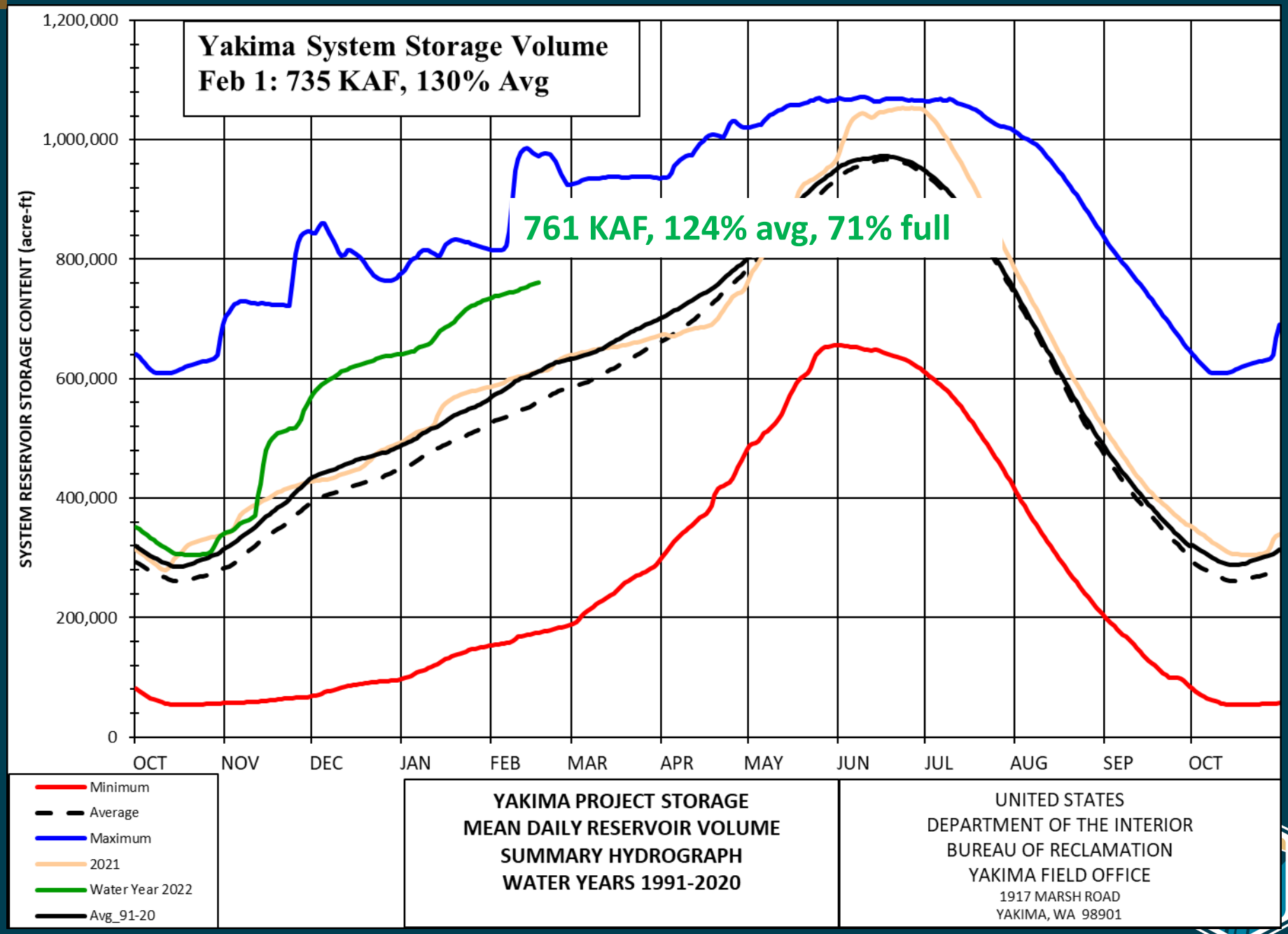
Current as of 02/18/2022:
% of Median - 81%
% Median Peak - 60%
Days Until Median Peak - 51
Percentile - 23



NRCS SWE % AVG				
	USB R	North	NACHE S	Sout h
1-NOV	0	0	0	0
1-DEC	4.6	7	26	14
1-JAN	96	87	91	91
1-FEB	98	92	95	83
1-MAR				
1-APR				
1-MAY				
1-JUN				
1-JUL				

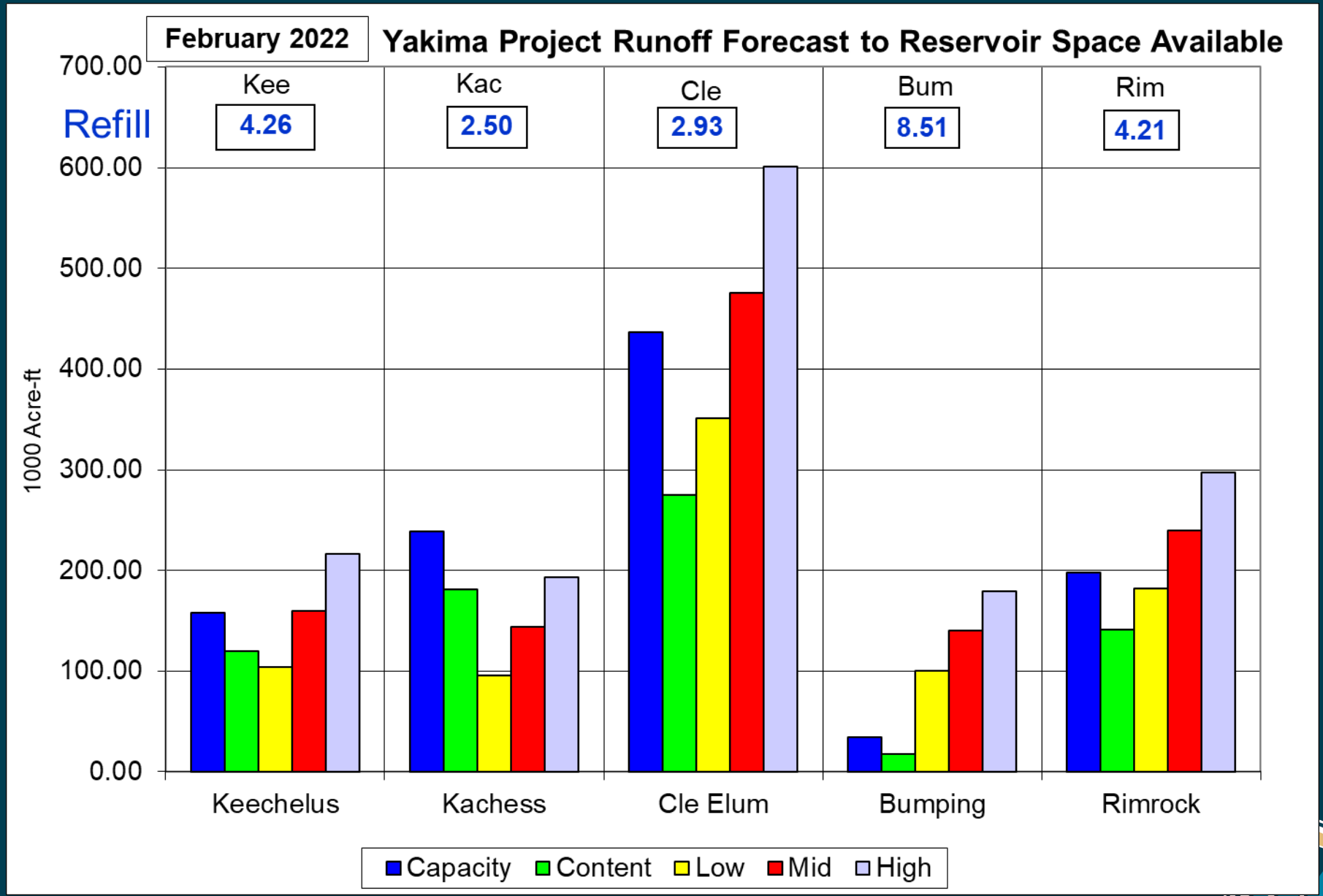
USDA

Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles
For more information visit: 30-Year Hydroclimatic Normals


Yakima System Storage Volume
Feb 1: 735 KAF, 130% Avg
761 KAF, 124% avg, 71% full
SYSTEM RESERVOIR STORAGE CONTENT (acre-ft)
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
Minimum
Average
Maximum
2021
Water Year 2022
Avg_91-20
YAKIMA PROJECT STORAGE
MEAN DAILY RESERVOIR VOLUME
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, Feb-Jul, AF						
Feb, 2022	Min	**Adopted**	Max	Min	**Adopted**	Max
Parw	1507327	**2281000**	3054673	67%	**101%**	136%
kee	103932	**160000**	216068	68%	**105%**	142%
kac	96000	**144000**	193412	69%	**104%**	140%
cle	350737	**476000**	601263	76%	**103%**	130%
bum	100333	**140000**	179667	71%	**99%**	128%
rim	181856	**240000**	296907	76%	**101%**	125%
Yumw	714004	**1010014**	1307811	73%	**103%**	134%
Nacw	614216	**895000**	1181634	69%	**100%**	133%
System	832857	**1160000**	1487317	74%	**102%**	131%


February 2022
Yakima Project Runoff Forecast to Reservoir Space Available
700.00
600.00
500.00
400.00
300.00
200.00
100.00
0.00
1000 Acre-ft
Refill
Kee
4.26
Kac
2.50
Cle
2.93
Bum
8.51
Rim
4.21
Keechelus
Kachess
Cle Elum
Bumping
Rimrock
Capacity
Content
Low
Mid
High

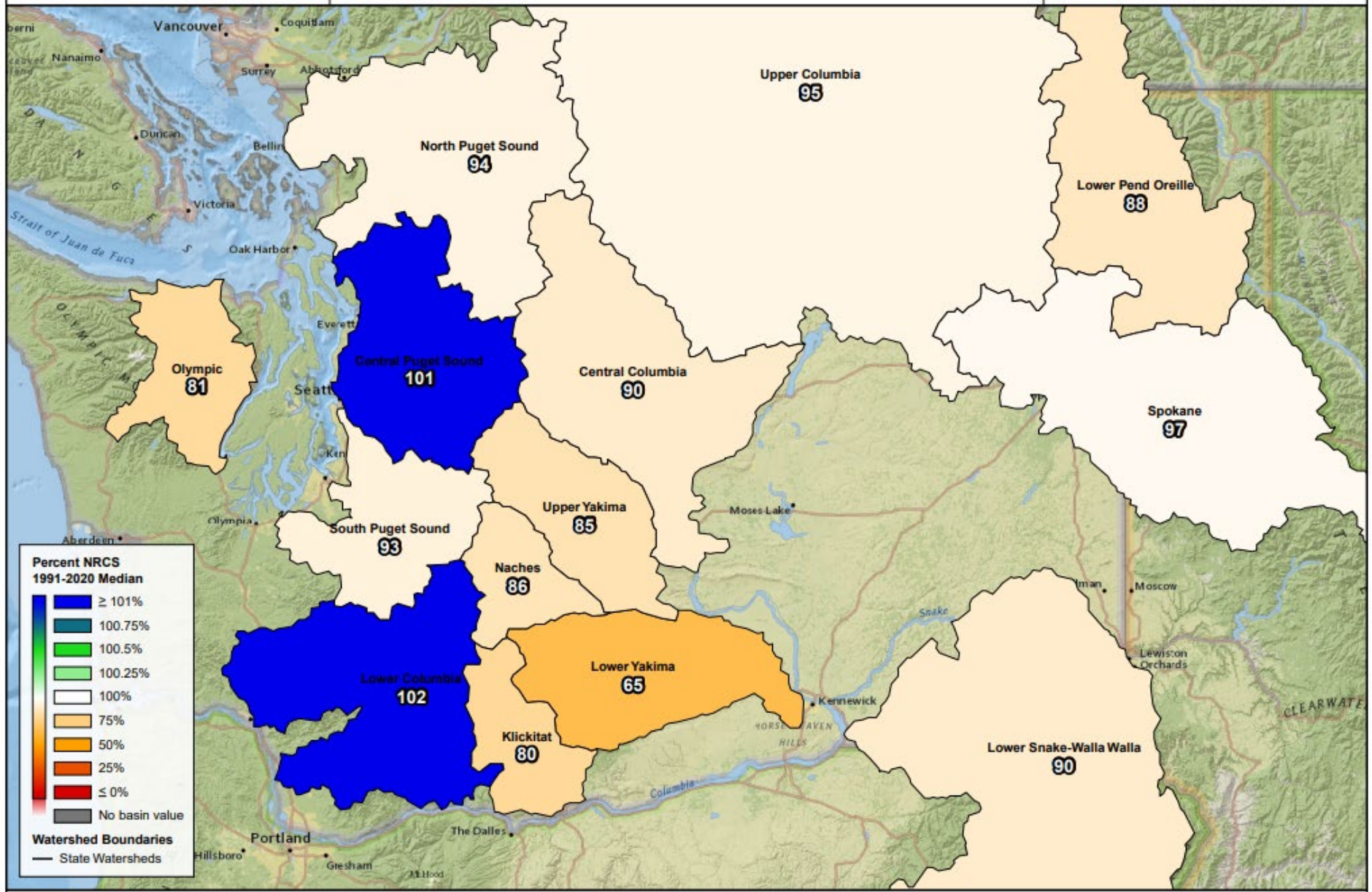
Hydrologic Summary

- Precipitation has been stalled.
- System storage is 761 KAF, 123% average, 71 % full.
- All refill ratios were above 2, good.
- Runoff Feb forecasts were in the 90% to 100% range but they have likely worsened since Feb 1.

WSAC February 2022

NRCS
Natural Resources
Conservation Service

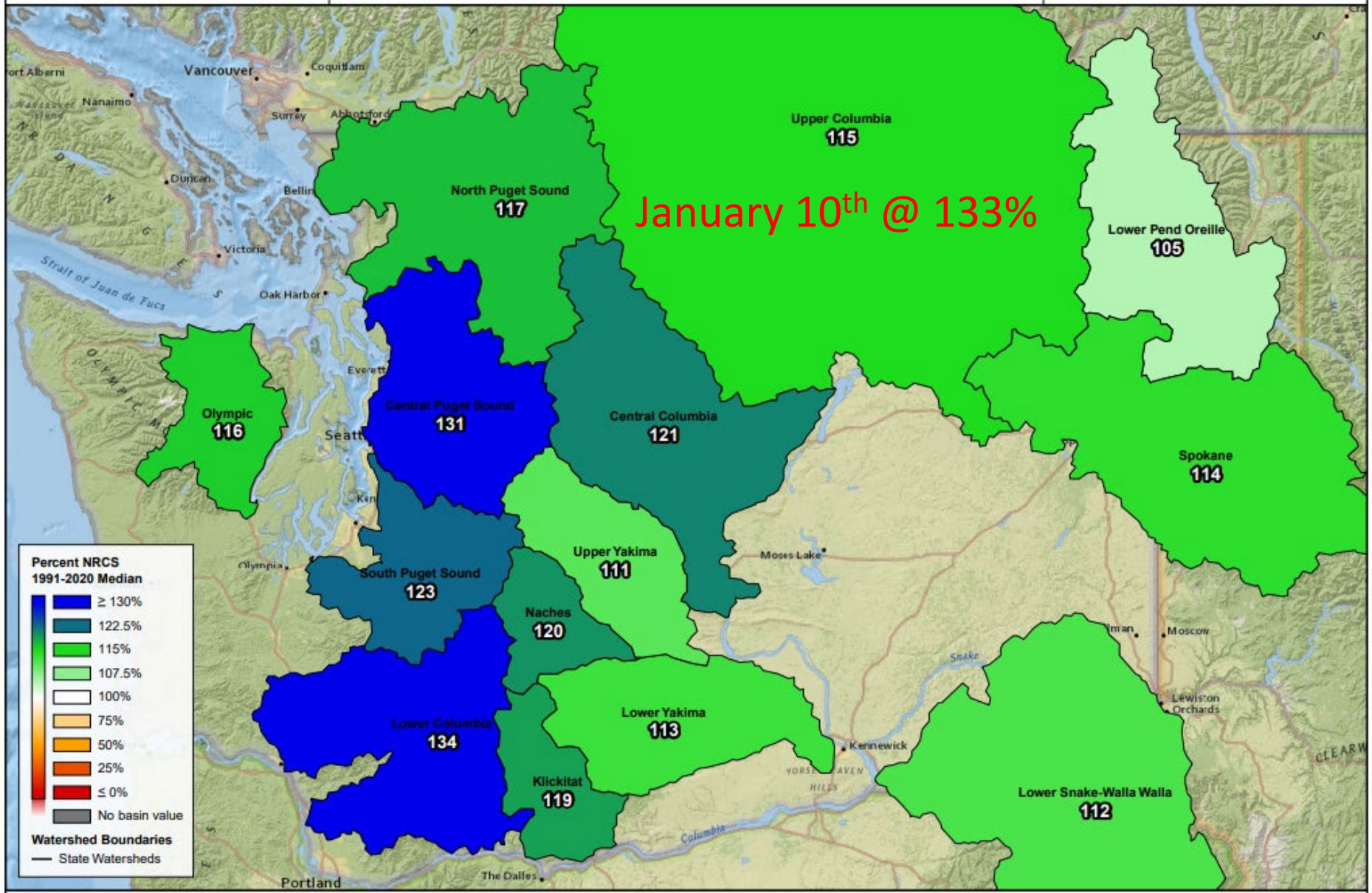
Snow Water Equivalent	Percent NRCS 1991-2020 Median	February 15, 2022, first of day



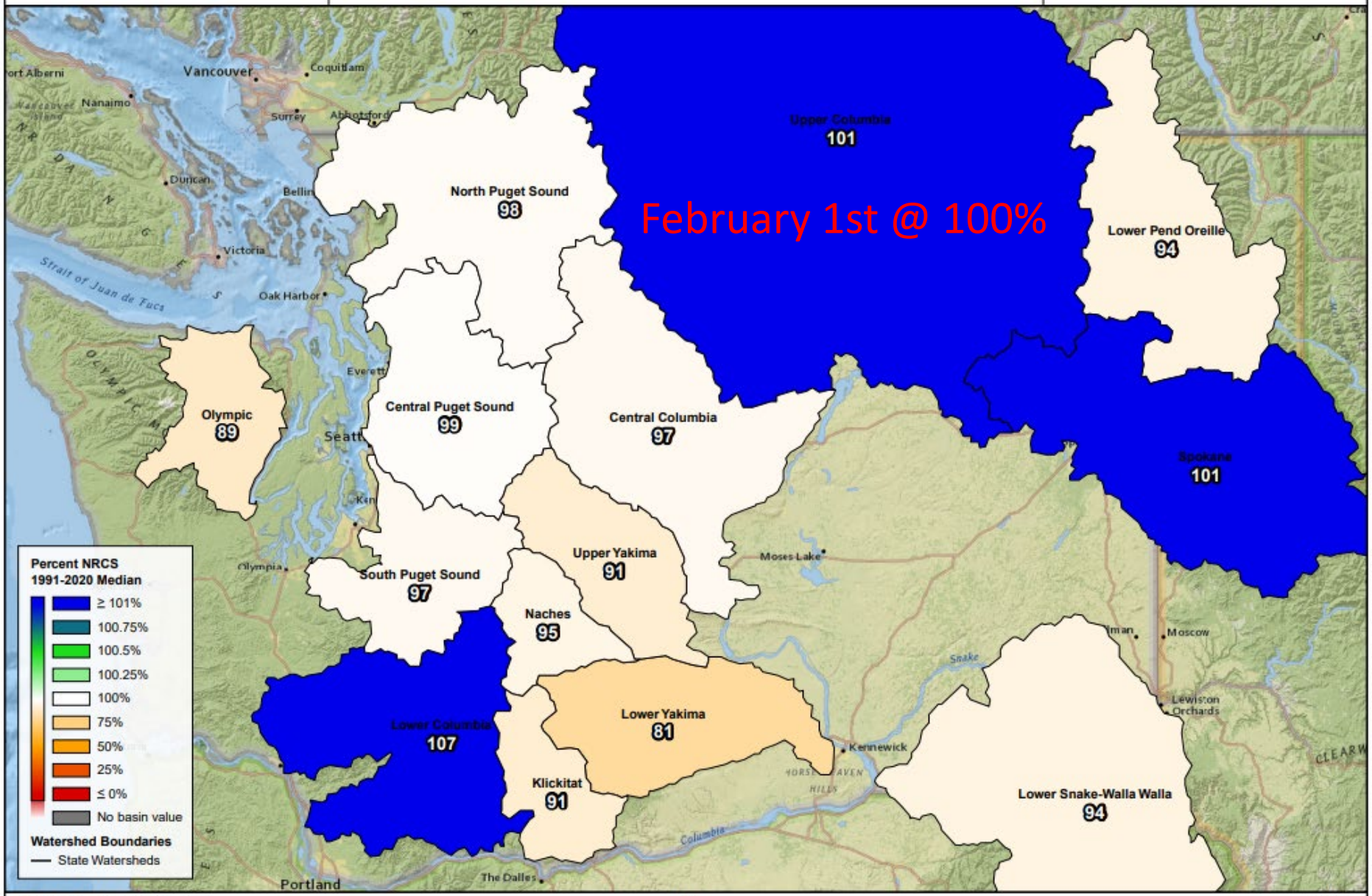
USDA Natural Resources Conservation Service
United States Department of Agriculture

Created 2-15-2022

Snow Water Equivalent	Percent NRCS 1991-2020 Median	January 15, 2022, first of day



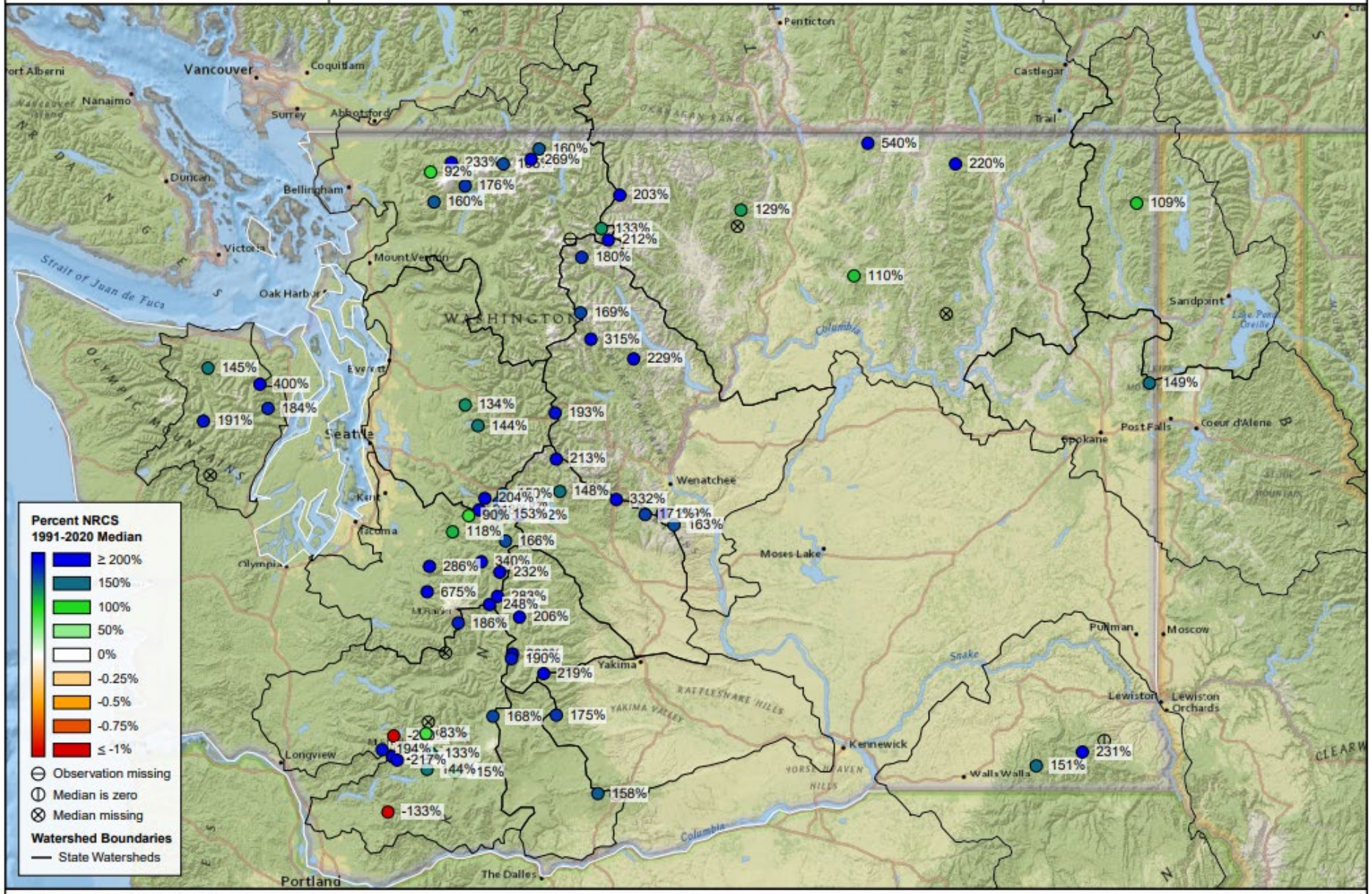
Snow Water Equivalent	Percent NRCS 1991-2020 Median	January 31, 2022, first of day



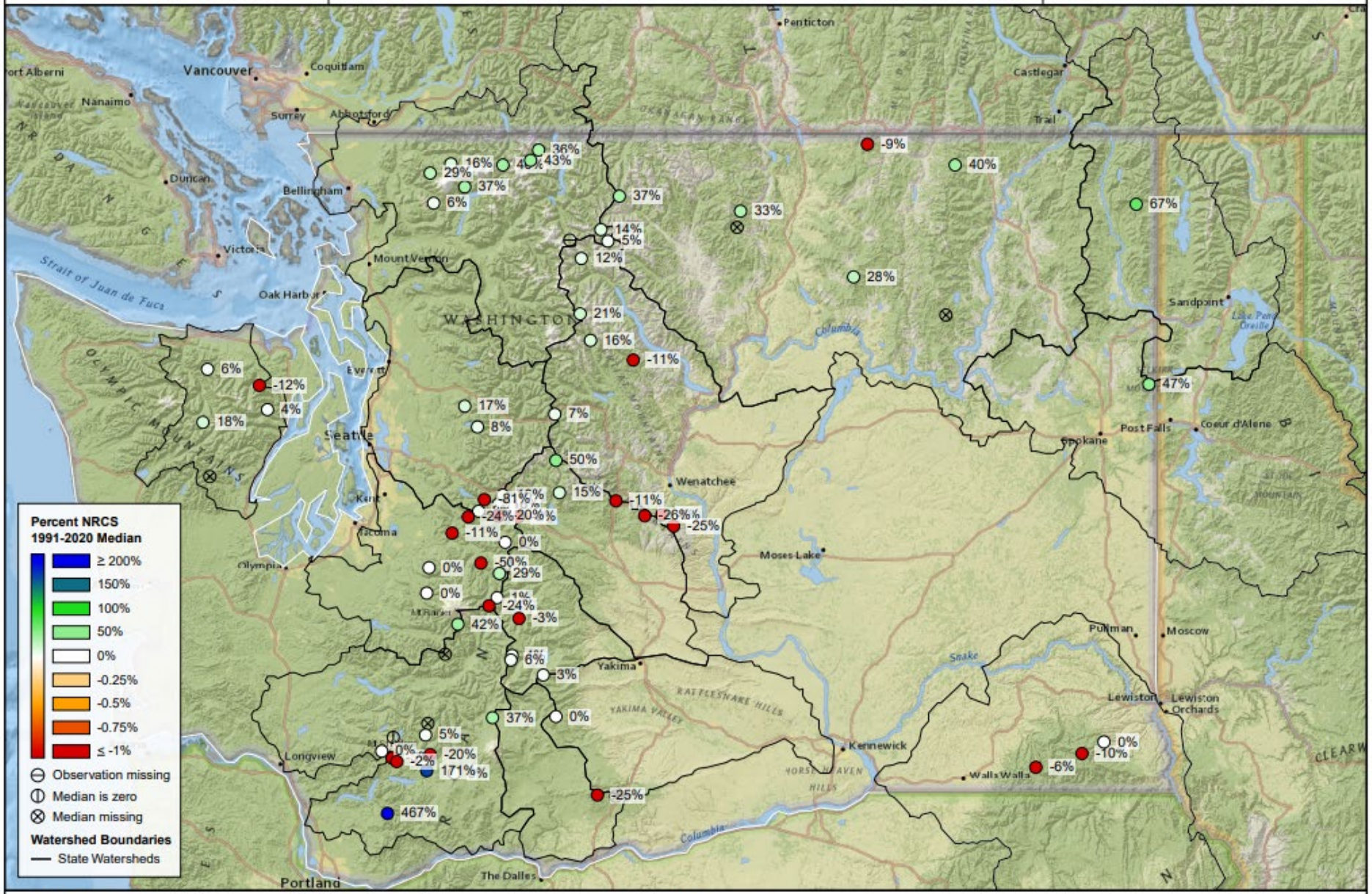
USDA Natural Resources Conservation Service
United States Department of Agriculture

Created 2-15-2022

Snow Water Equivalent Delta	Percent NRCS 1991-2020 Median	January 15, 2022 - January 1, 2022, first of day



Snow Water Equivalent Delta	Percent NRCS 1991-2020 Median	January 31, 2022 - January 16, 2022, first of day



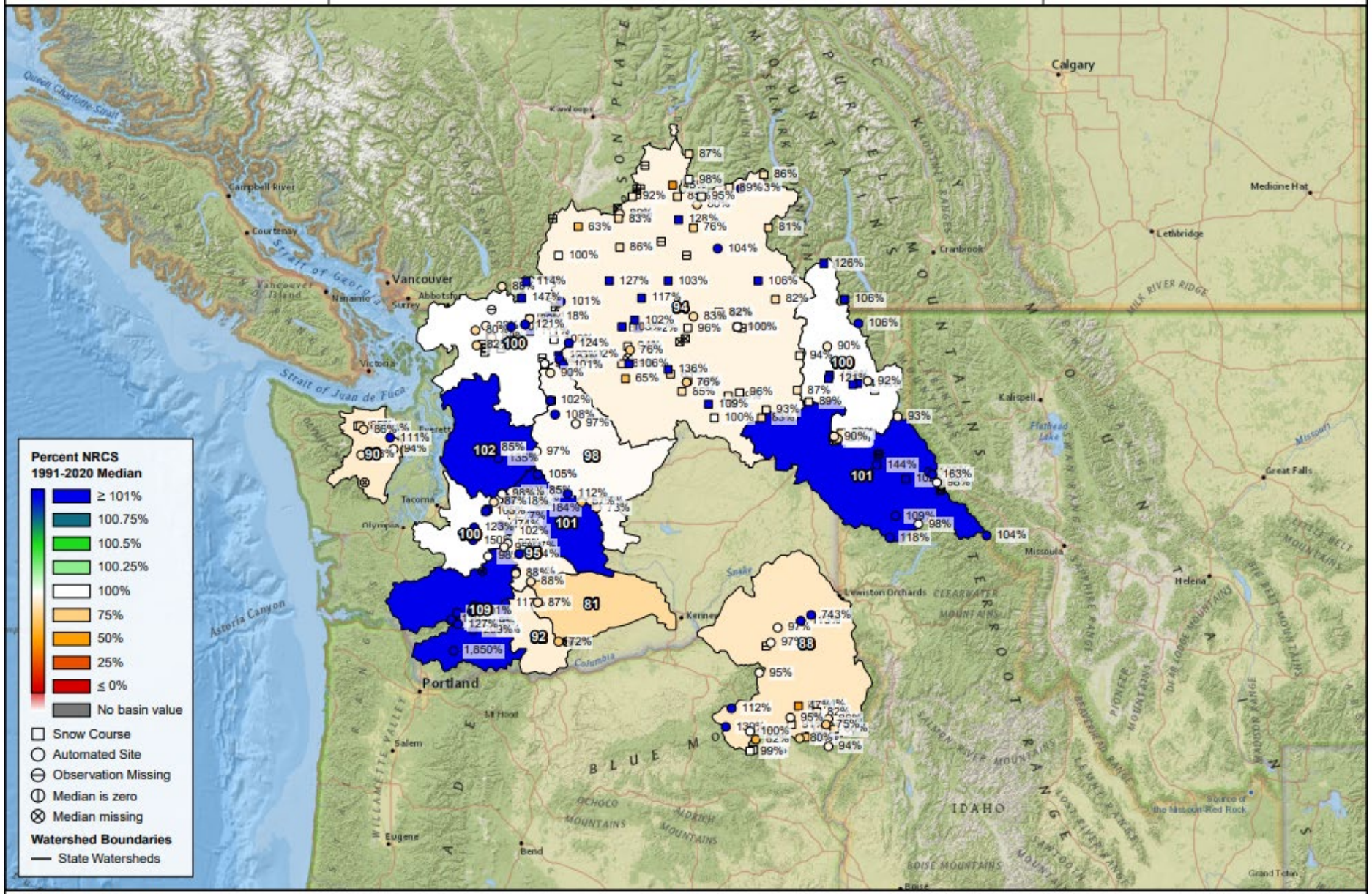
USDA Natural Resources Conservation Service
United States Department of Agriculture

N

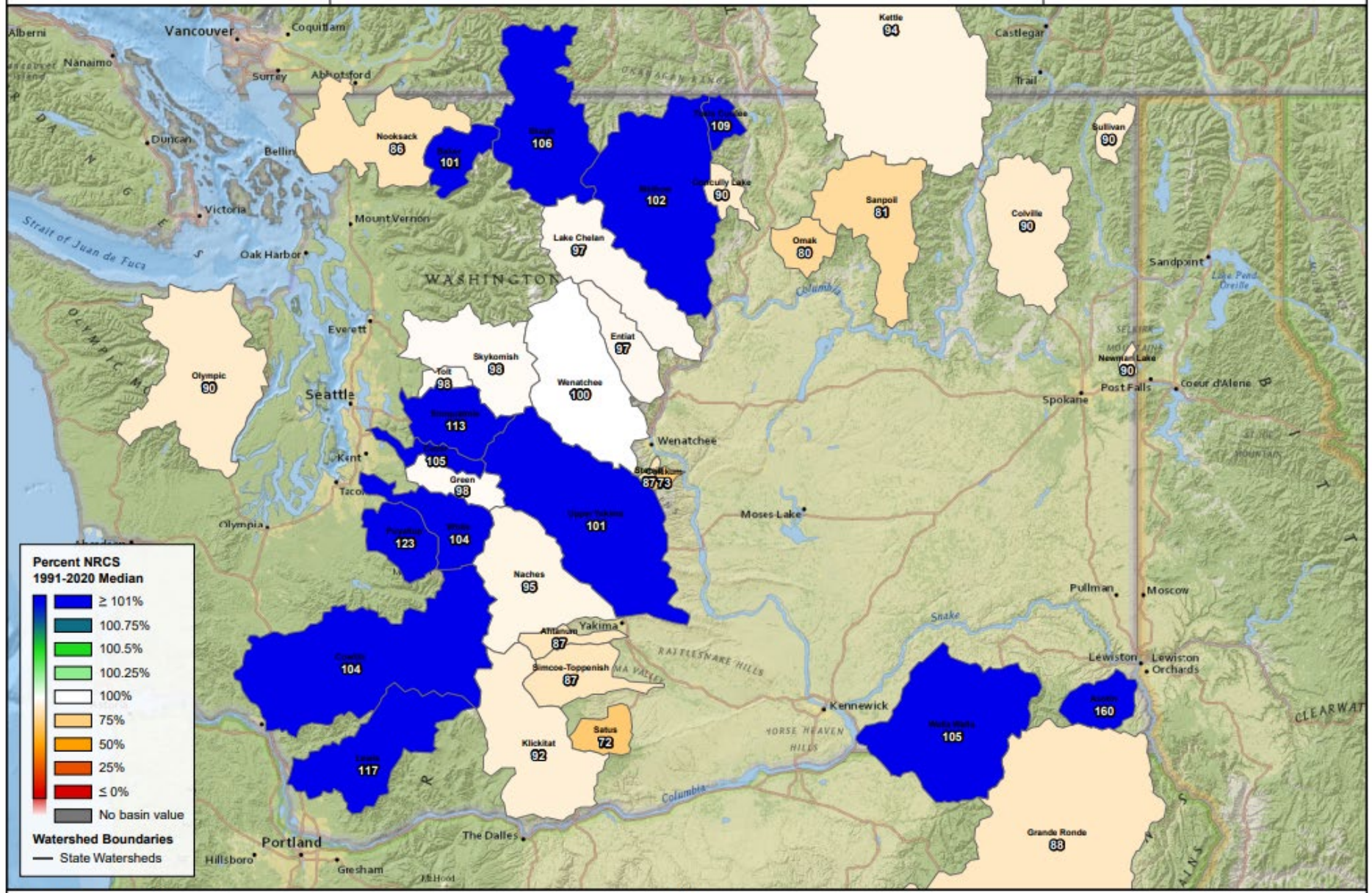
0 10 20 40 60 80 100 Miles

Created 2-15-2022

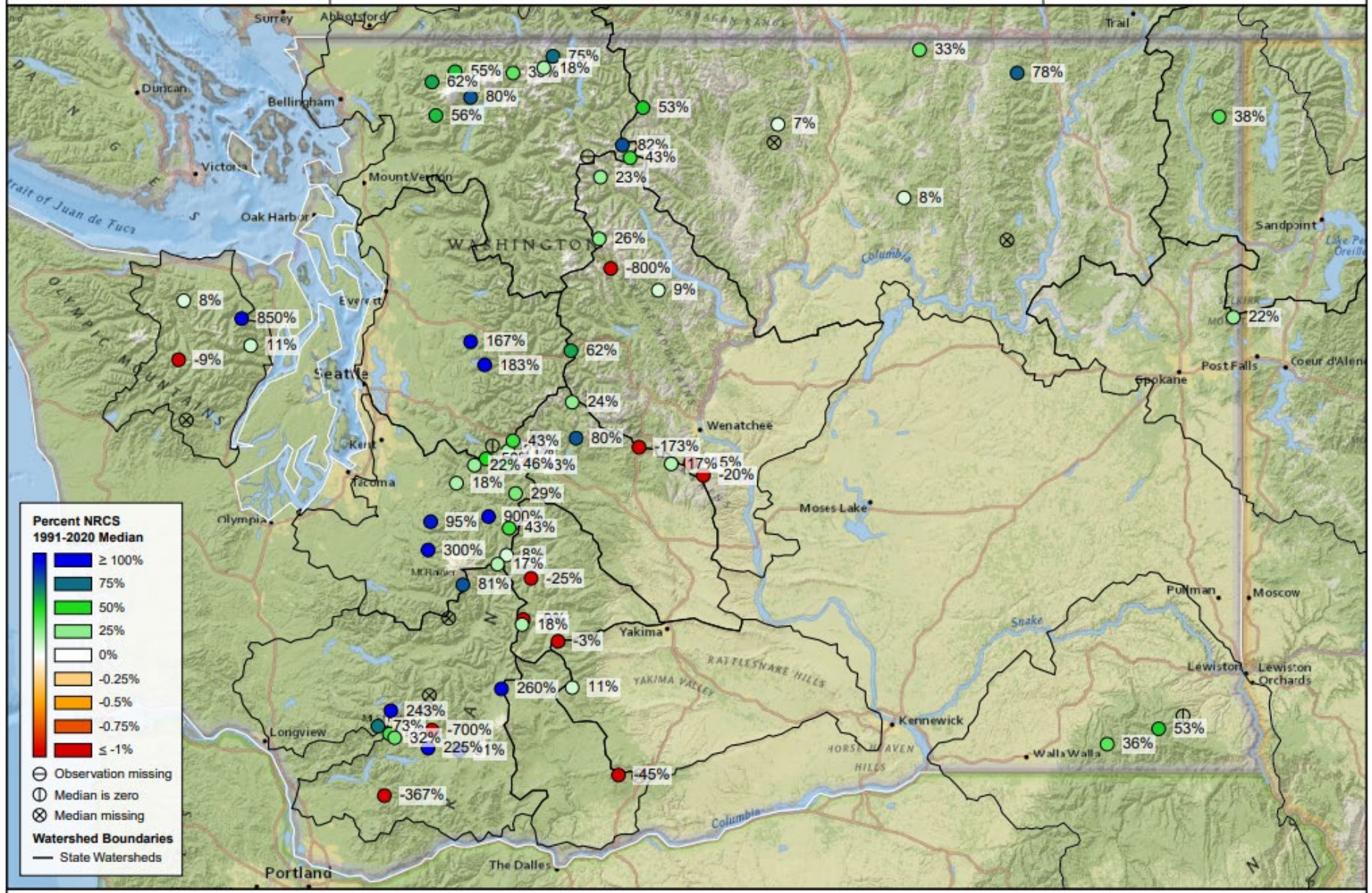
Snow Water Equivalent	Percent NRCS 1991-2020 Median	End of January, 2022



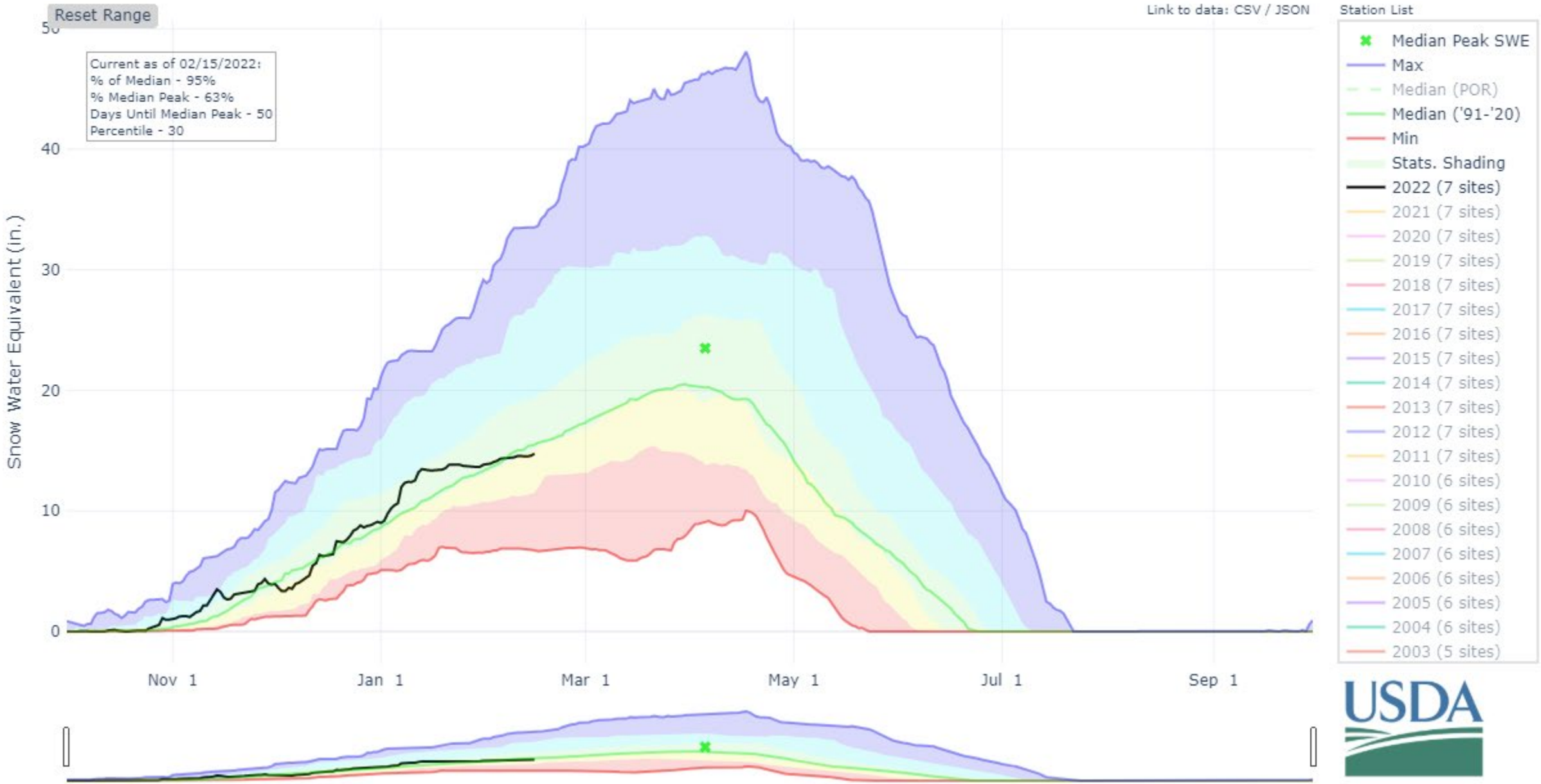
Snow Water Equivalent	Percent NRCS 1991-2020 Median	End of January, 2022

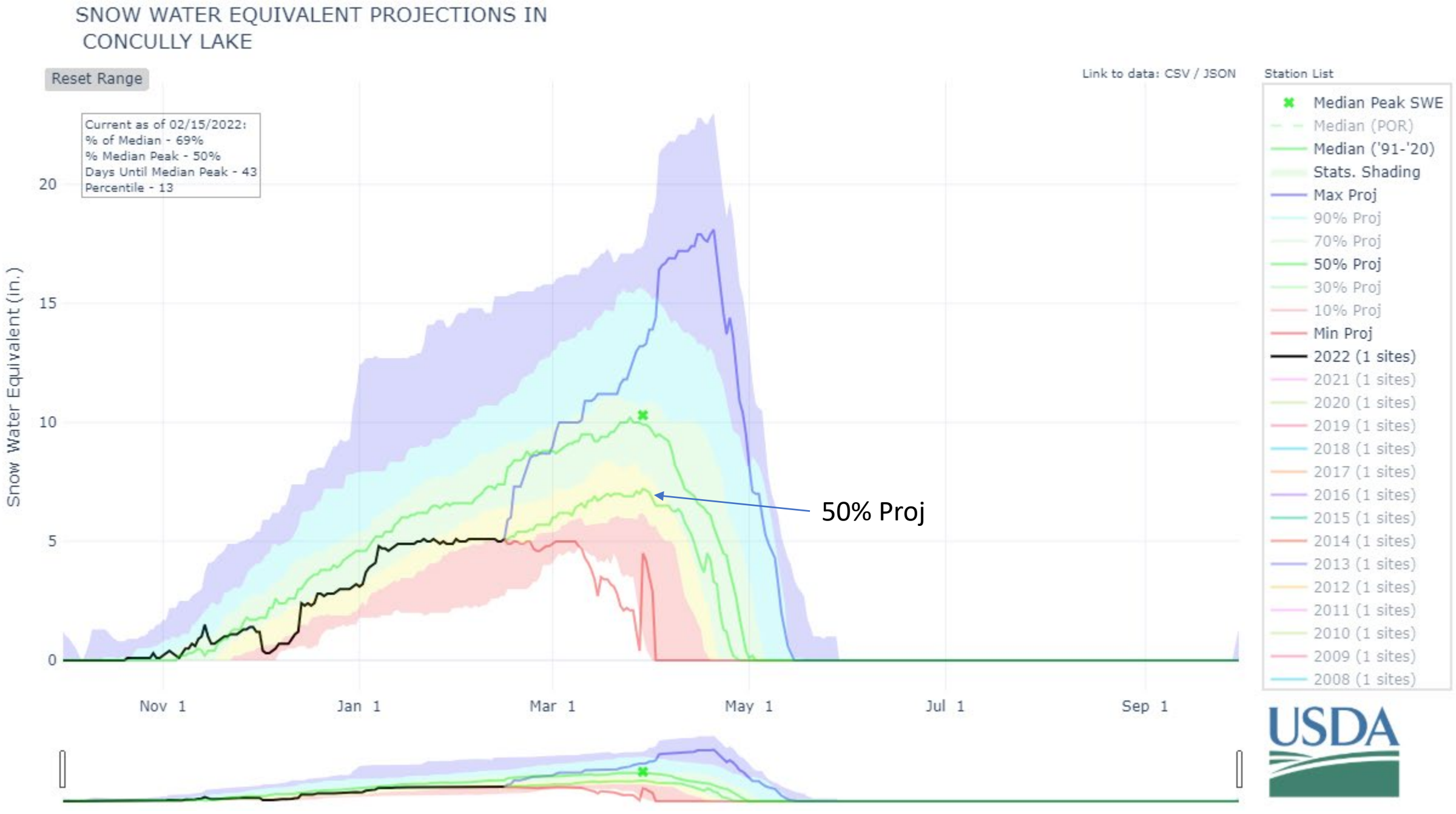


Snow Water Equivalent Delta	Percent NRCS 1991-2020 Median	February 16, 2022 - February 1, 2022, first of day



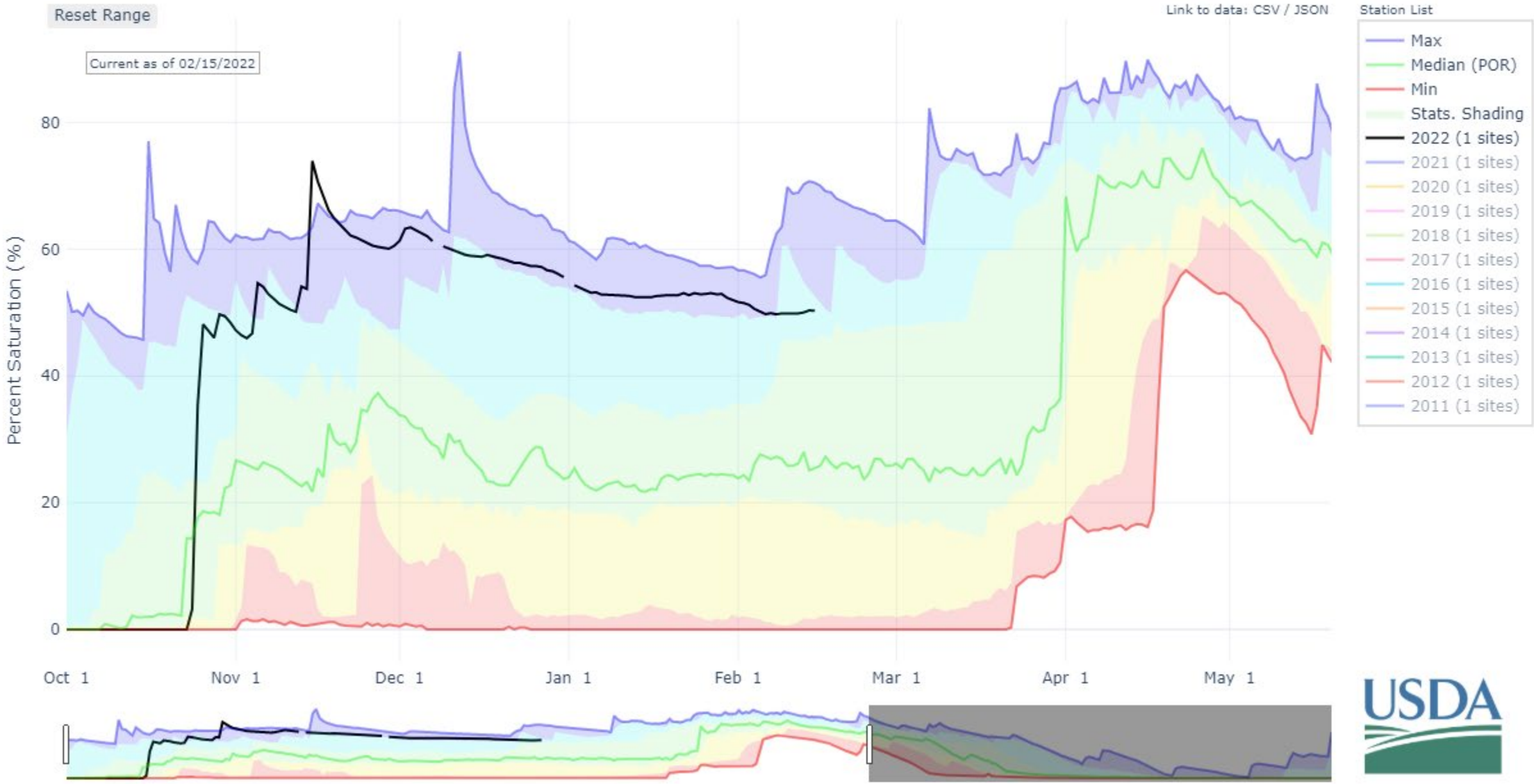
SNOW WATER EQUIVALENT IN UPPER COLUMBIA



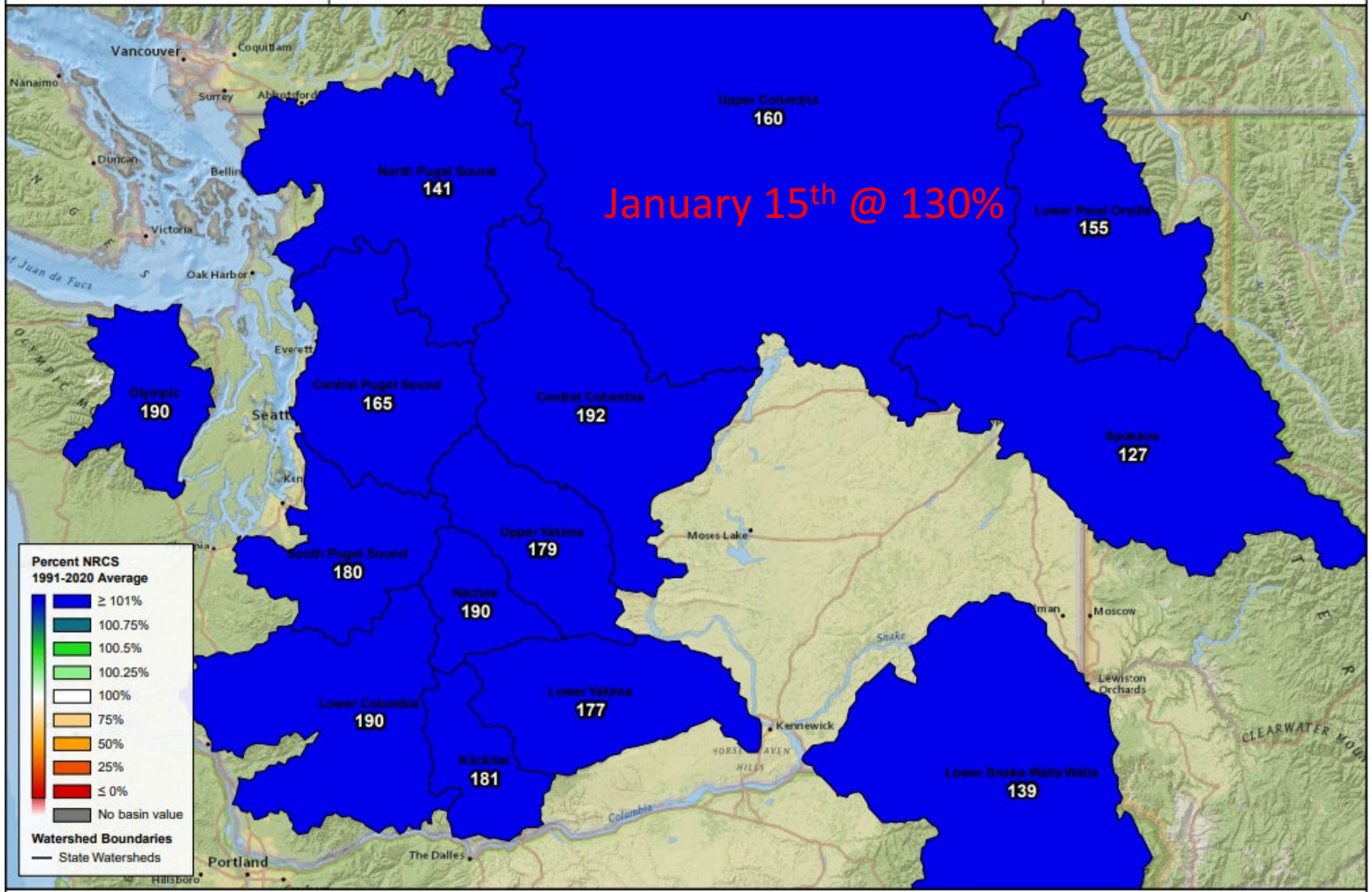

SNOW WATER EQUIVALENT PROJECTIONS IN CONCULLY LAKE
Reset Range
Link to data: CSV / JSON
Station List
Current as of 02/15/2022:
% of Median - 69%
% Median Peak - 50%
Days Until Median Peak - 43
Percentile - 13
Snow Water Equivalent (in.)
0
5
10
15
20
Nov 1
Jan 1
Mar 1
May 1
Jul 1
Sep 1
Median Peak SWE
Median (POR)
Median ('91-'20)
Stats. Shading
Max Proj
90% Proj
70% Proj
50% Proj
30% Proj
10% Proj
Min Proj
2022 (1 sites)
2021 (1 sites)
2020 (1 sites)
2019 (1 sites)
2018 (1 sites)
2017 (1 sites)
2016 (1 sites)
2015 (1 sites)
2014 (1 sites)
2013 (1 sites)
2012 (1 sites)
2011 (1 sites)
2010 (1 sites)
2009 (1 sites)
2008 (1 sites)
50% Proj

DAILY AVERAGE TEMPERATURE IN CONCULLY LAKE

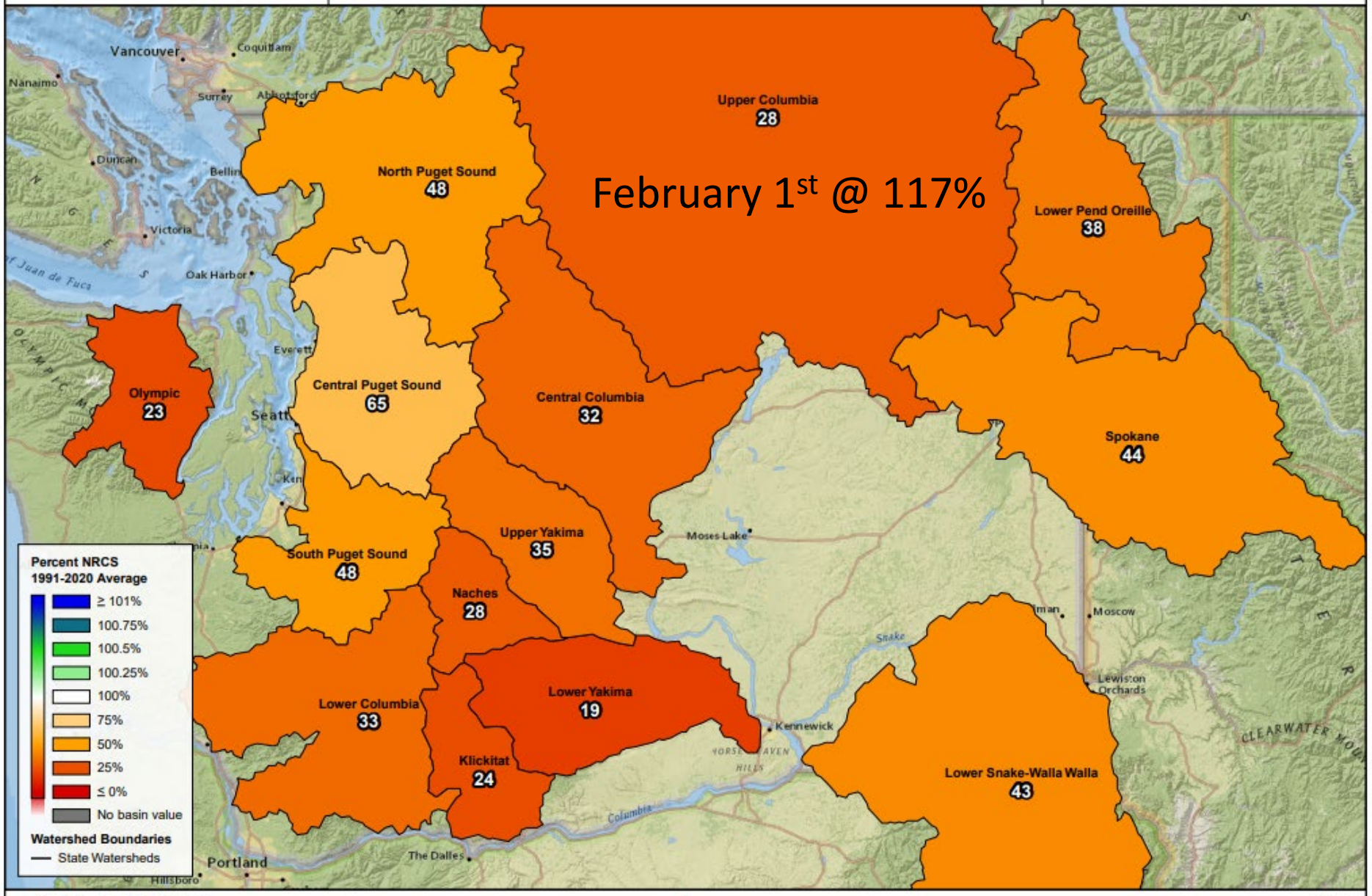
DEPTH AVERAGED SOIL SATURATION IN CONCULLY LAKE



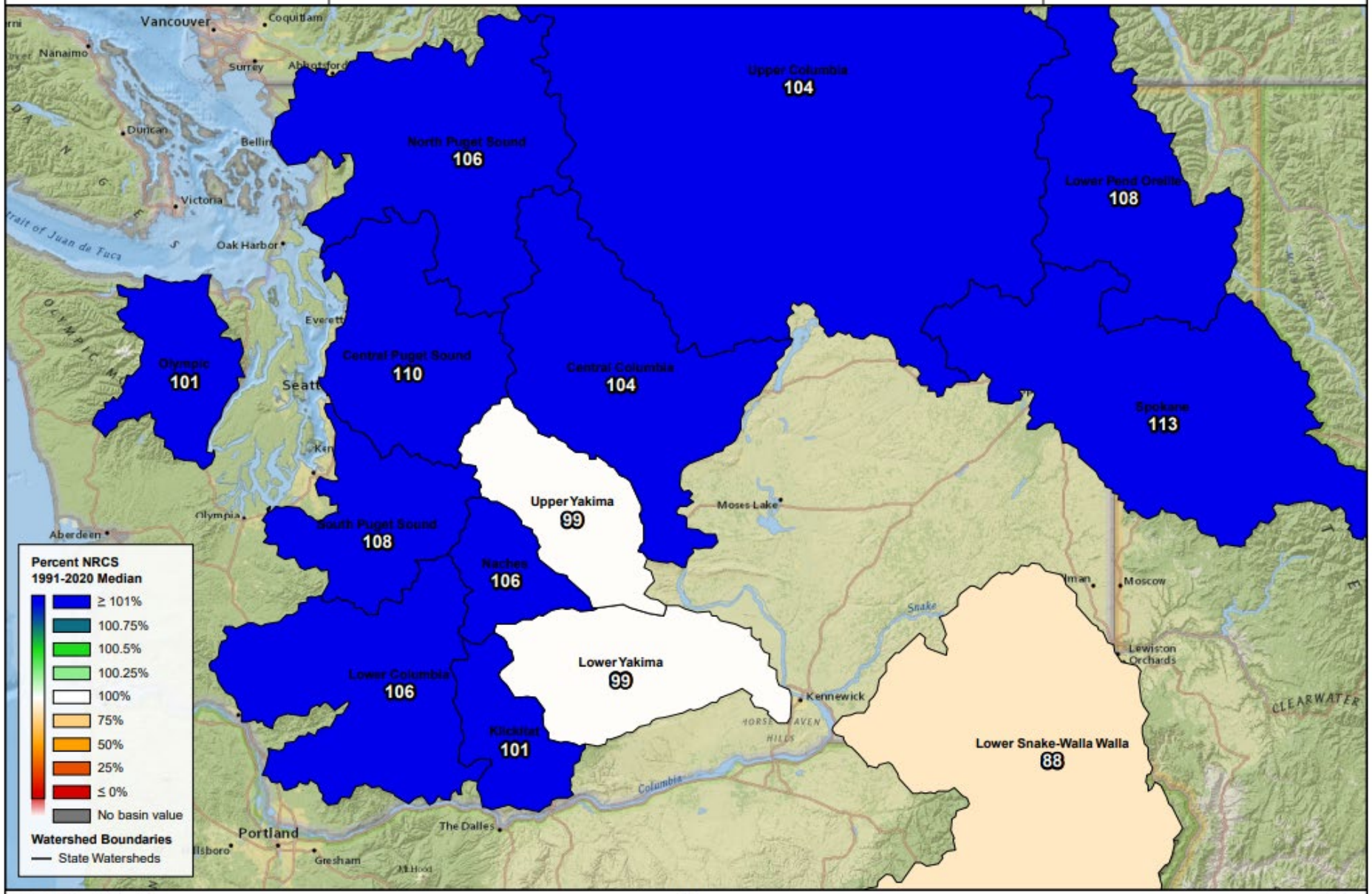
15 day Precipitation	Percent NRCS 1991-2020 Average	January 1, 2022 - January 15, 2022



17 day Precipitation	Percent NRCS 1991-2020 Average	January 16, 2022 - February 1, 2022



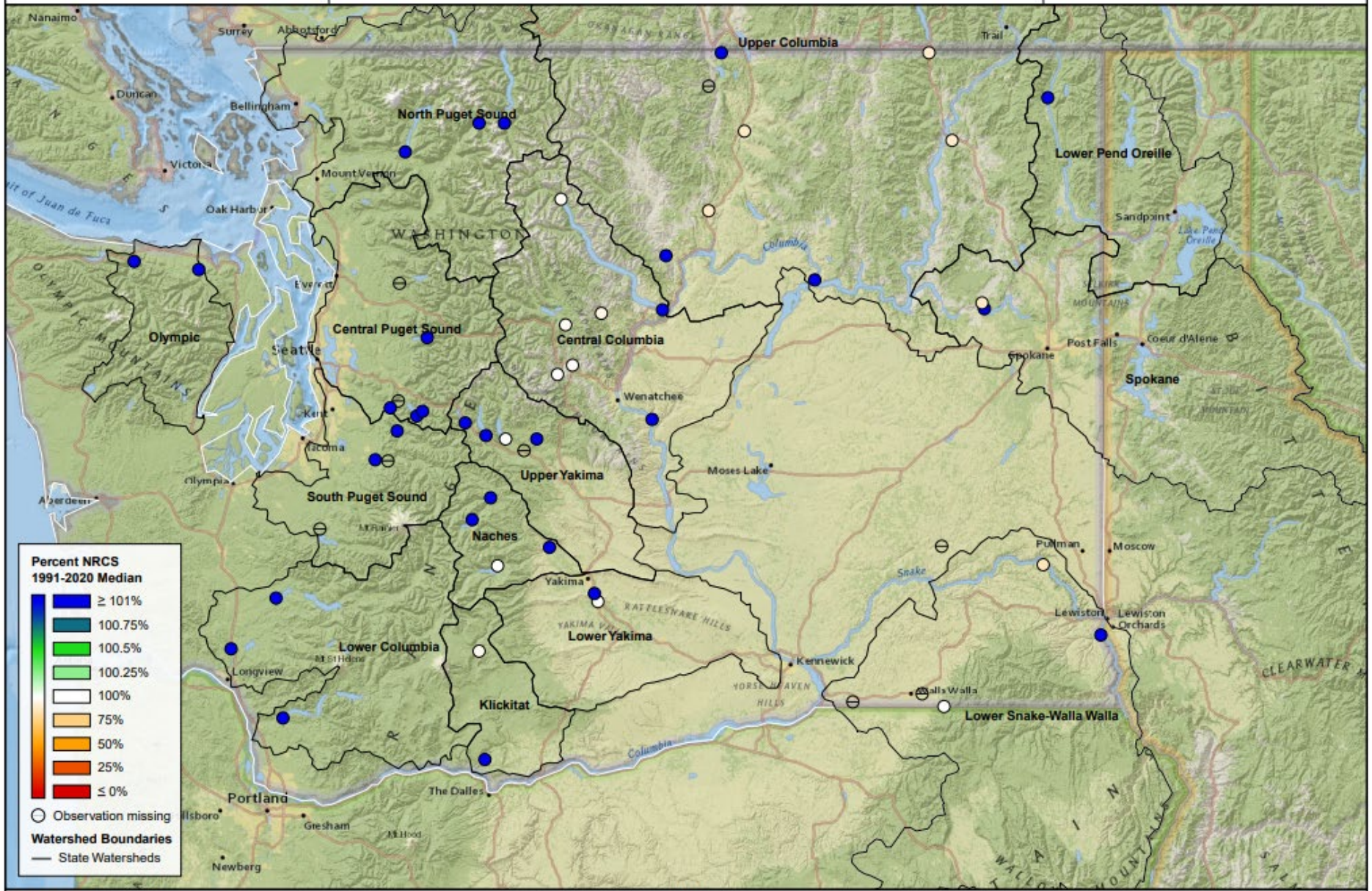
Forecast Volume, 50% Exceedance Probability	Percent NRCS 1991-2020 Median	Primary Period, February 1, 2022



USDA Natural Resources Conservation Service
United States Department of Agriculture

Created 2-15-2022

Forecast Volume, 50% Exceedance Probability	Percent NRCS 1991-2020 Median	Primary Period, February 1, 2022



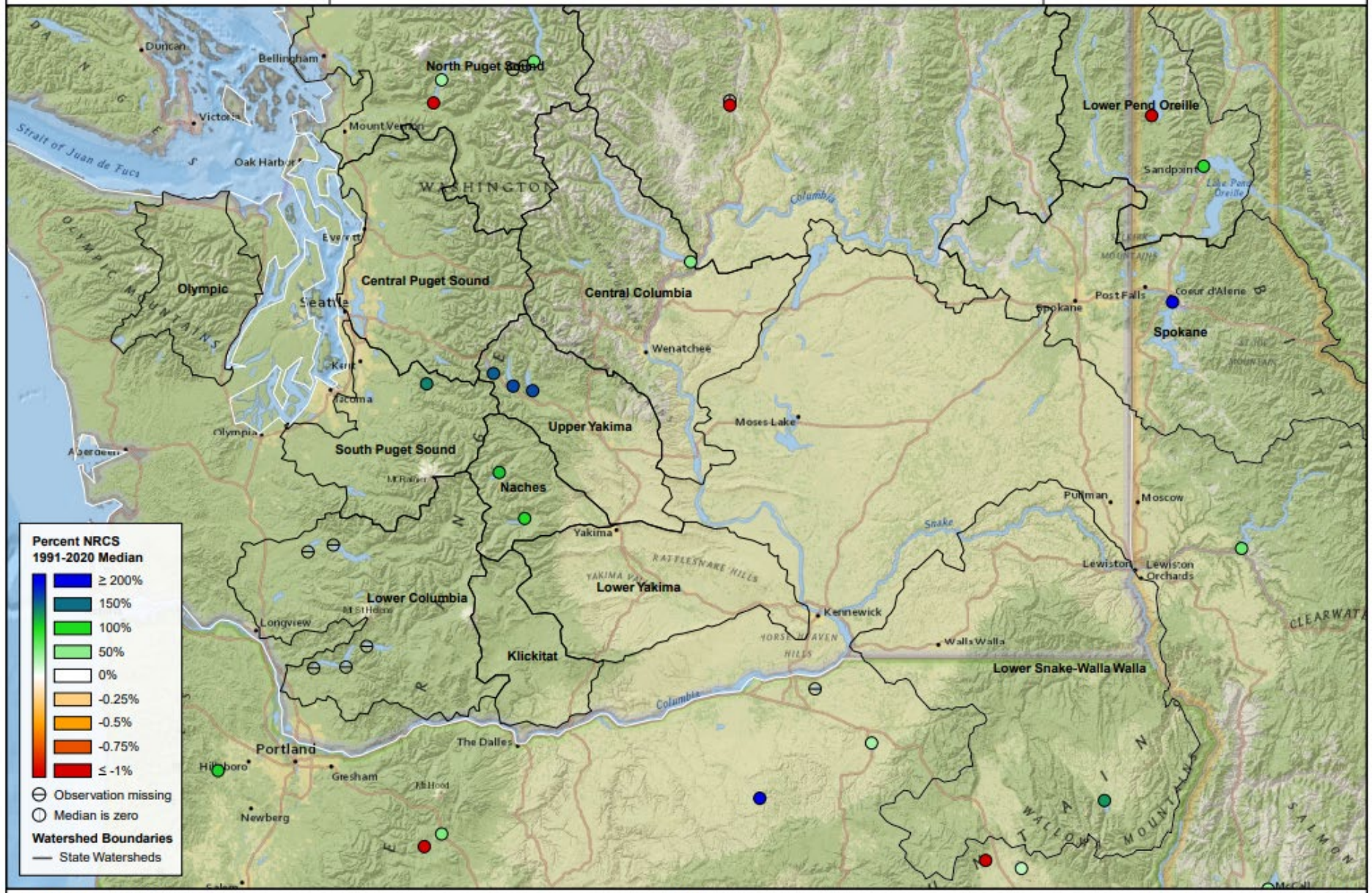
USDA Natural Resources Conservation Service
United States Department of Agriculture

N

0 10 20 40 60 80 100 Miles

Created 2-15-2022

Reservoir Storage Delta	Percent NRCS 1991-2020 Median	End of January, 2022 - End of October, 2020



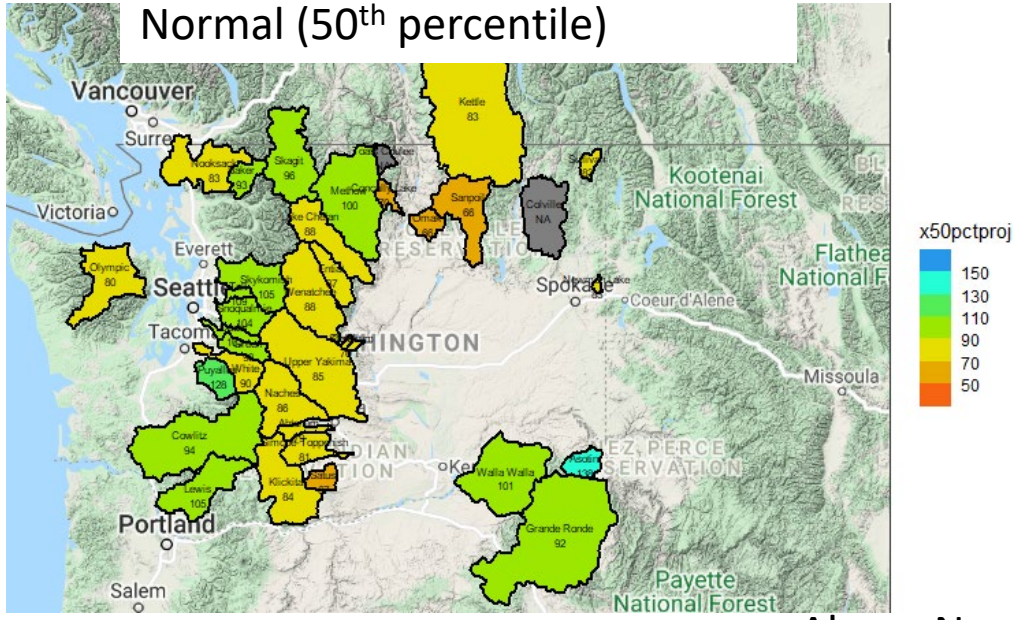
USDA Natural Resources Conservation Service
United States Department of Agriculture

Created 2-15-2022

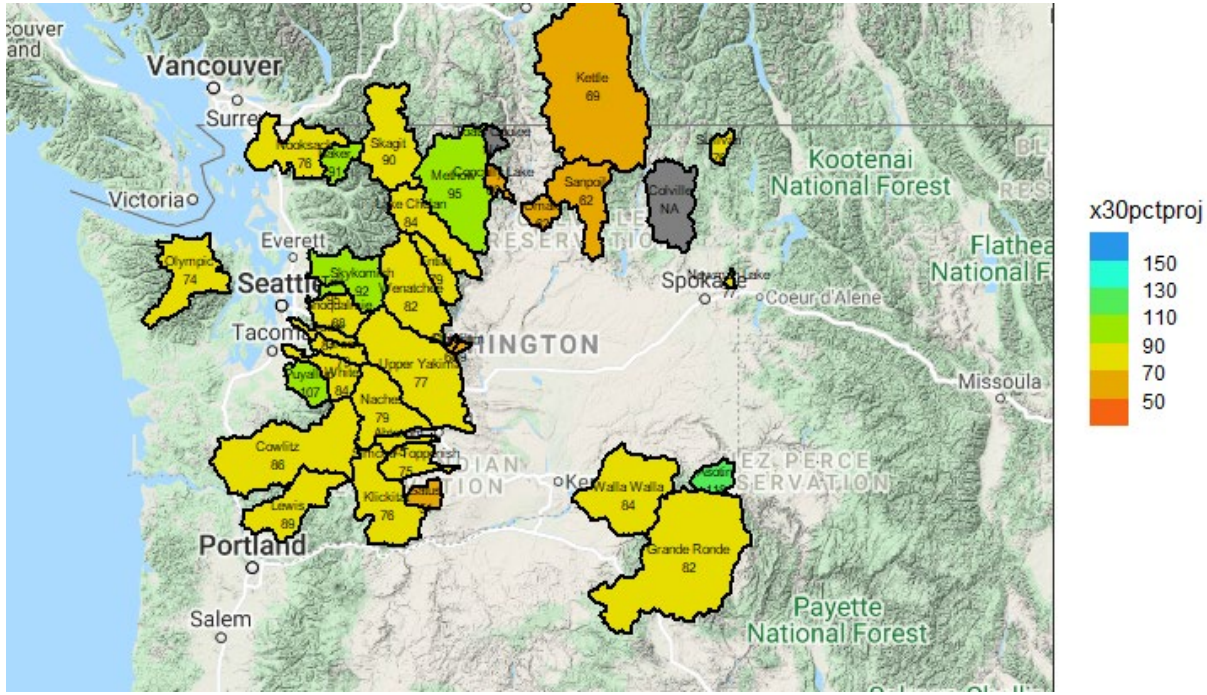
Transition to Jeff’s piggyback slides

Basins/Projection Periods			Current	Percentile Projections						
subbasins	queryDate	projectionDate	todaySWE	Minpctproj	x10pctproj	x30pctproj	x50pctproj	x70pctproj	x90pctproj	Maxpctproj
Ahtanum	02-18	04-01	73	54	67	75	79	87	96	134
Asotin	02-18	04-01	150	0	85	118	138	164	191	238
Baker	02-18	04-01	96	75	78	91	93	96	107	120
Cedar	02-18	04-01	94	56	72	87	103	111	126	146
Colckum	02-18	04-01	65	19	44	59	71	83	107	157
Concully Lake	02-18	04-01	60	21	48	60	70	78	98	140
Cowlitz	02-18	04-01	95	67	78	86	94	101	112	140
Entiat	02-18	04-01	91	19	71	79	87	97	119	131
Grande Ronde	02-18	04-01	91	49	71	82	92	98	106	123
Green	02-18	04-01	87	42	70	79	98	109	120	136
Kettle	02-18	04-01	86	42	62	69	83	92	127	127
Klickitat	02-18	04-01	78	56	66	76	84	88	100	138
Lake Chelan	02-18	04-01	89	69	76	84	88	92	102	118
Lewis	02-18	04-01	107	60	70	89	105	115	126	162
Methow	02-18	04-01	100	70	86	95	100	105	115	126
Naches	02-18	04-01	85	61	75	79	86	91	102	124
Newman Lake	02-18	04-01	79	35	59	77	83	93	108	139
Nooksack	02-18	04-01	86	58	64	76	83	92	103	124
Olympic	02-18	04-01	81	60	63	74	80	87	95	133
Omak	02-18	04-01	60	22	56	62	66	73	97	117
Puyallup	02-18	04-01	123	69	95	107	128	134	172	209
Sanpoil	02-18	04-01	60	22	56	62	66	73	97	117
Satus	02-18	04-01	51	31	42	51	67	73	107	121
Simcoe-Toppenish	02-18	04-01	75	23	61	75	81	88	98	133
Skagit	02-18	04-01	103	79	84	90	96	99	119	125
Skykomish	02-18	04-01	102	70	82	92	105	110	123	145
Snoqualmie	02-18	04-01	100	70	78	88	104	115	128	150
Stemilt	02-18	04-01	71	22	62	68	76	83	98	108
Sullivan	02-18	04-01	82	64	72	76	83	90	99	120
Tolt	02-18	04-01	105	81	84	95	109	113	128	152
Upper Yakima	02-18	04-01	82	48	65	77	85	90	104	125
Walla Walla	02-18	04-01	100	66	70	84	101	104	116	135
Wenatchee	02-18	04-01	89	57	77	82	88	96	106	122
White	02-18	04-01	90	65	77	84	90	97	108	126

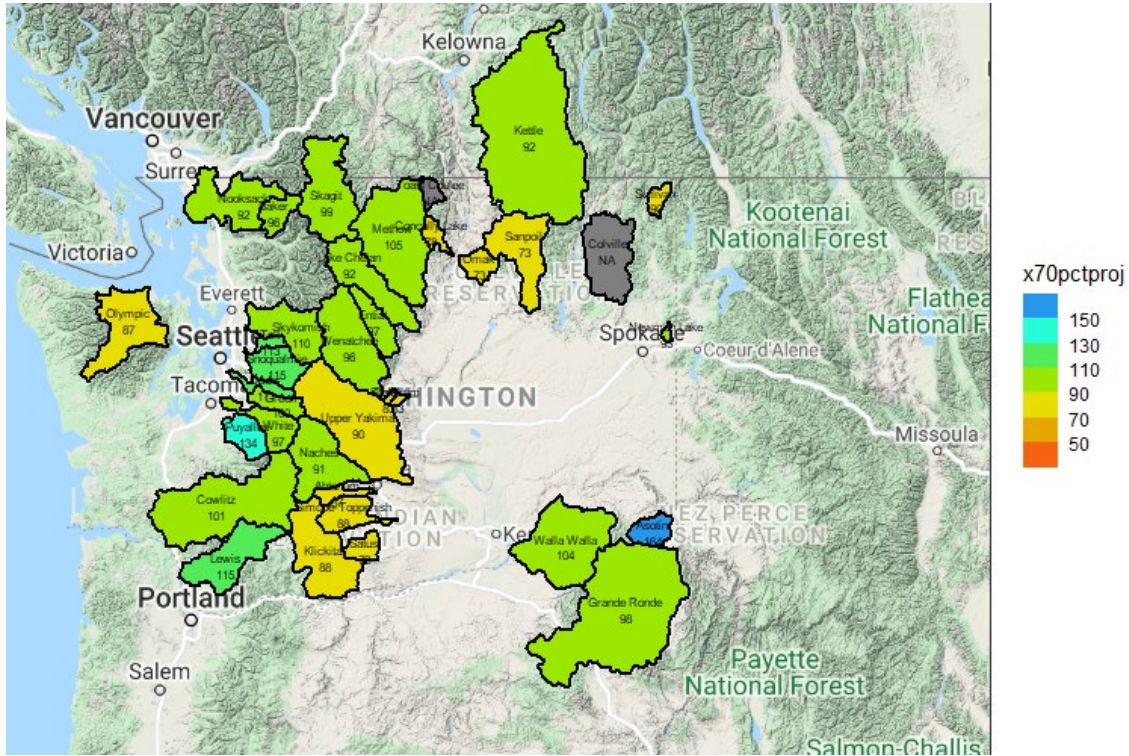
Normal (50th percentile)



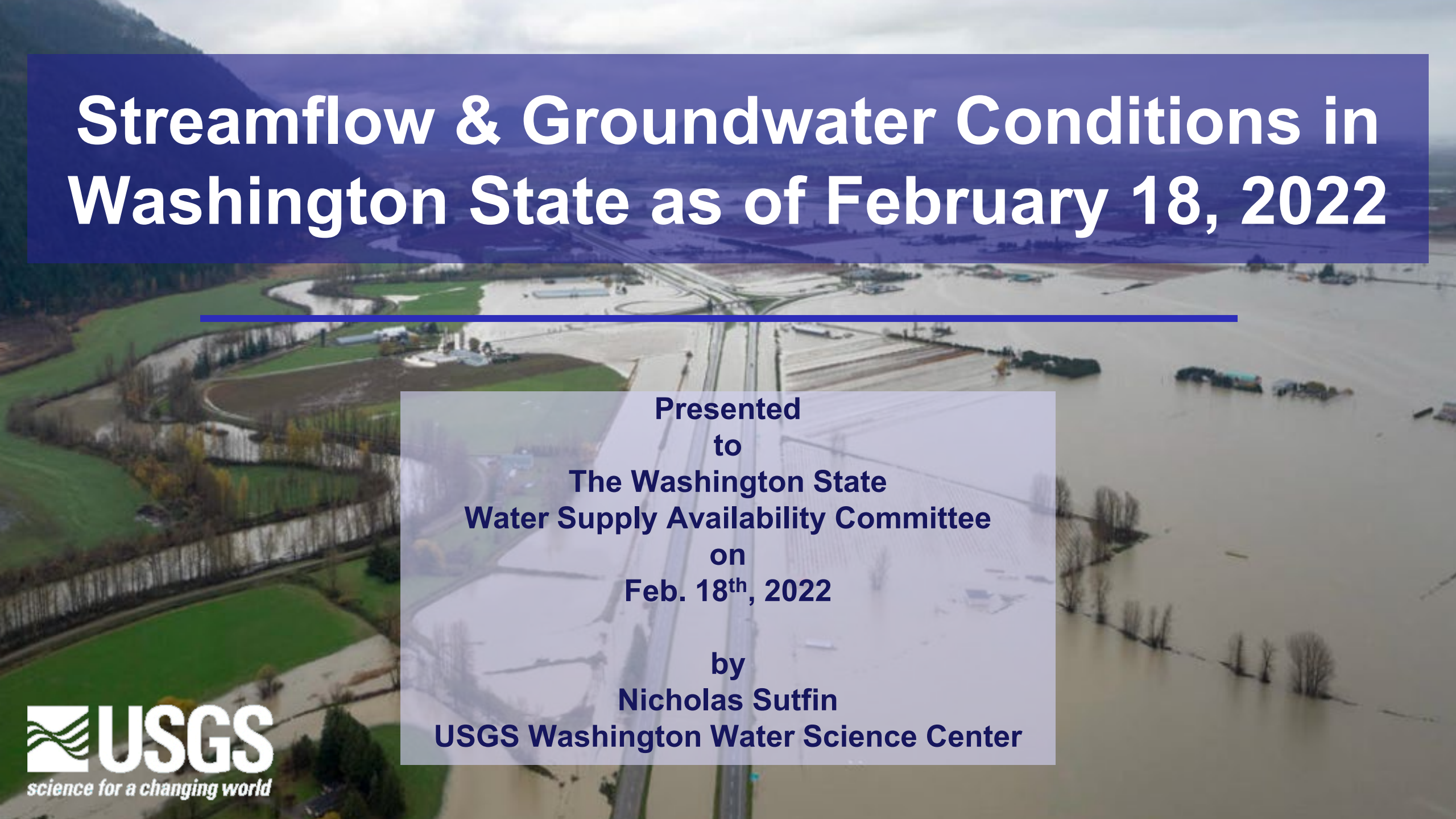
Below Normal (30th percentile)



Above Normal (70th percentile)



Streamflow & Groundwater Conditions in Washington State as of February 18, 2022



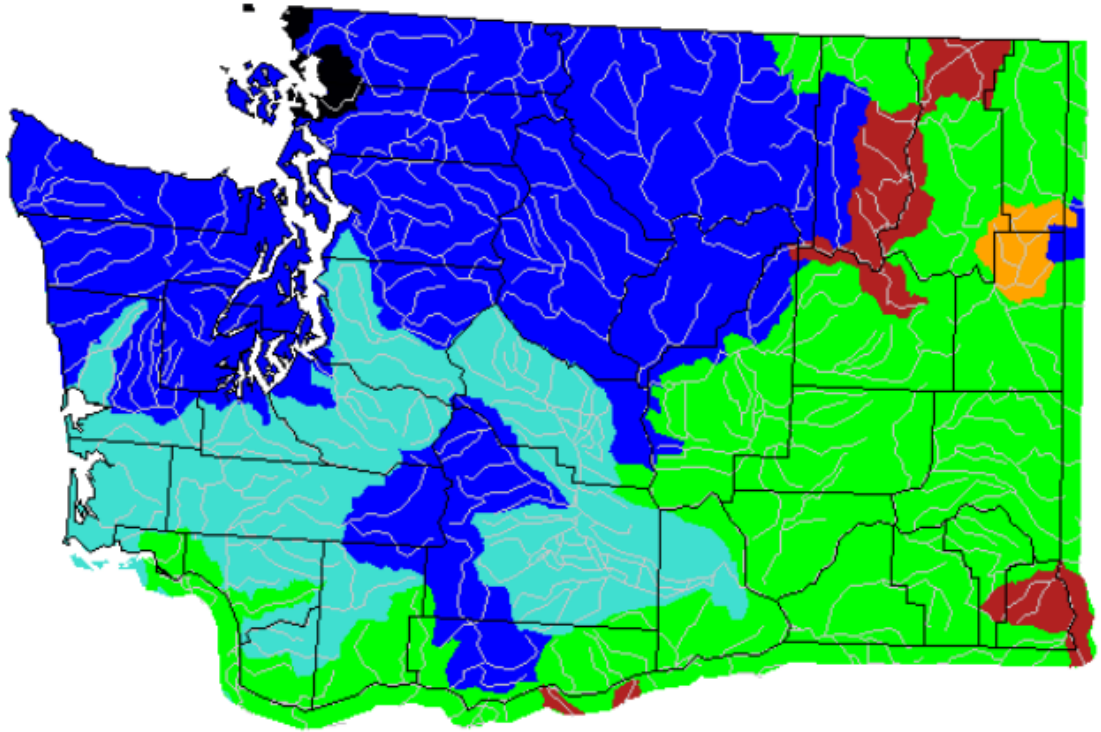
Presented
to
The Washington State
Water Supply Availability Committee
on
Feb. 18th, 2022

by
Nicholas Sutfin
USGS Washington Water Science Center

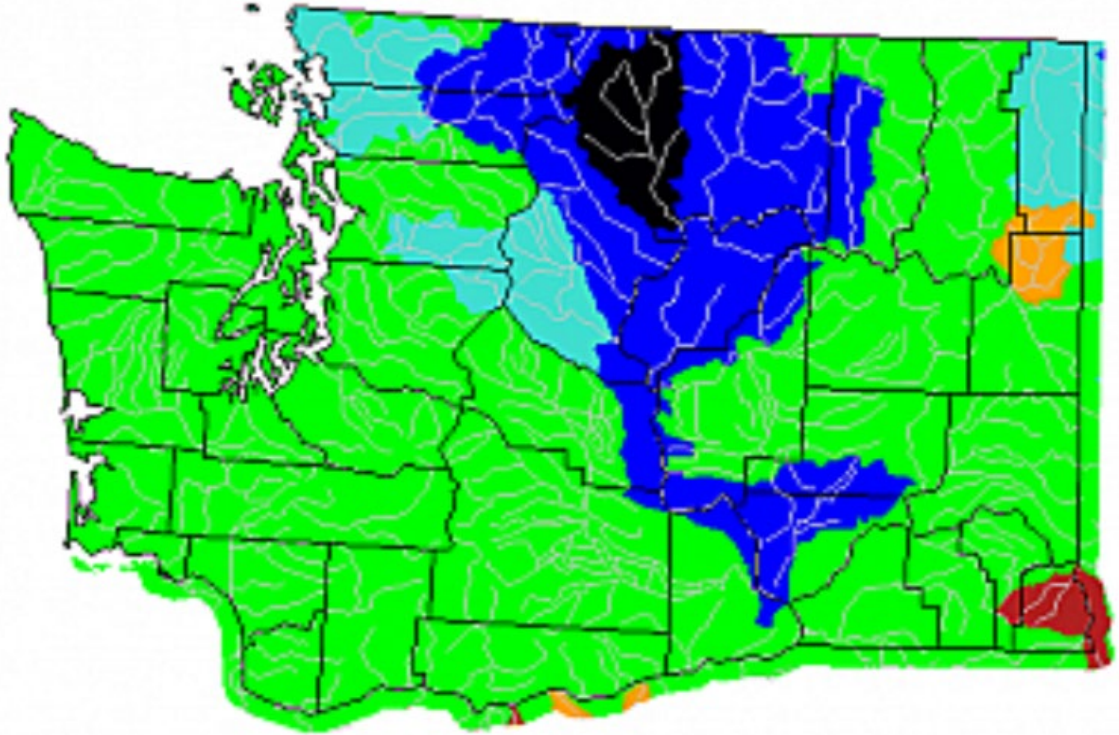
USGS
science for a changing world

Monthly average streamflow compared to historical record for Nov. and Dec. 2021

November 2021



December 2021



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

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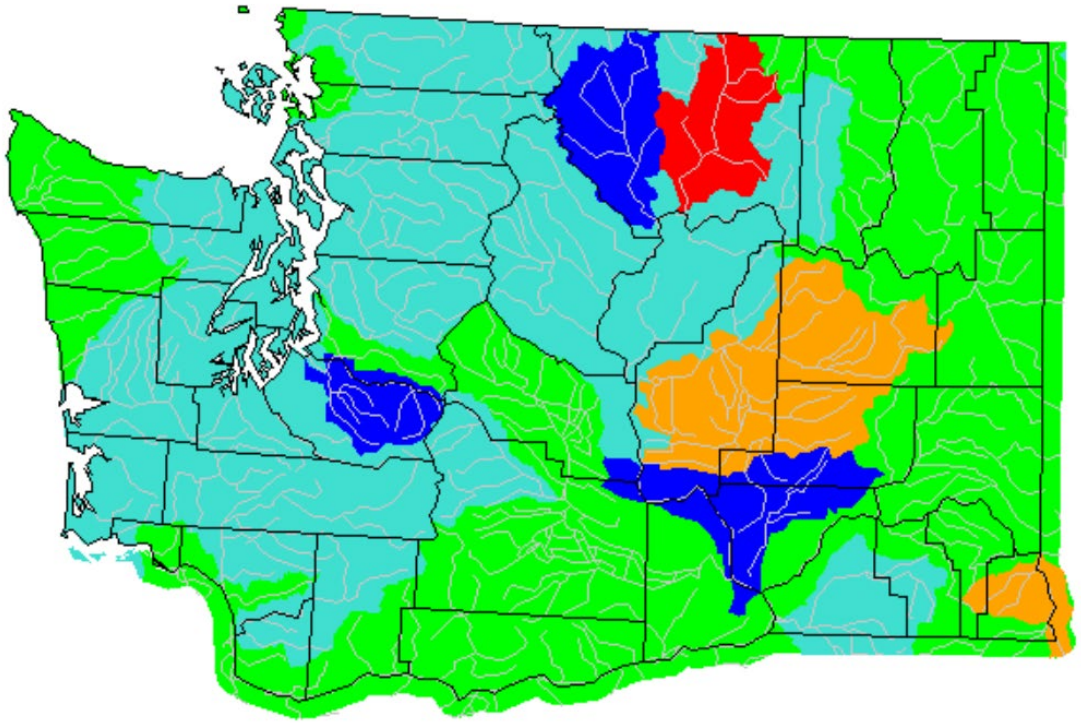
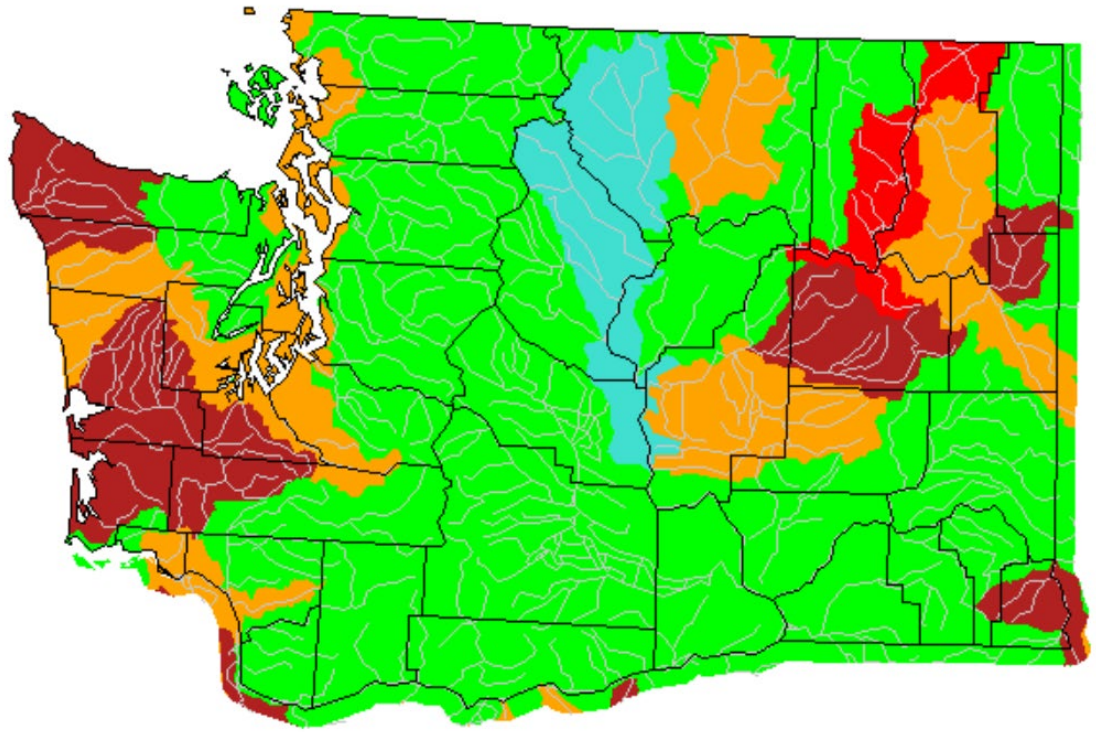
USGS WaterWatch -- Streamflow conditions

Monthly average streamflow compared to historical record for Jan. 2022 & Feb. 2022

January 2022



Feb. 2022 – last 14-day average



Explanation - Percentile classes						
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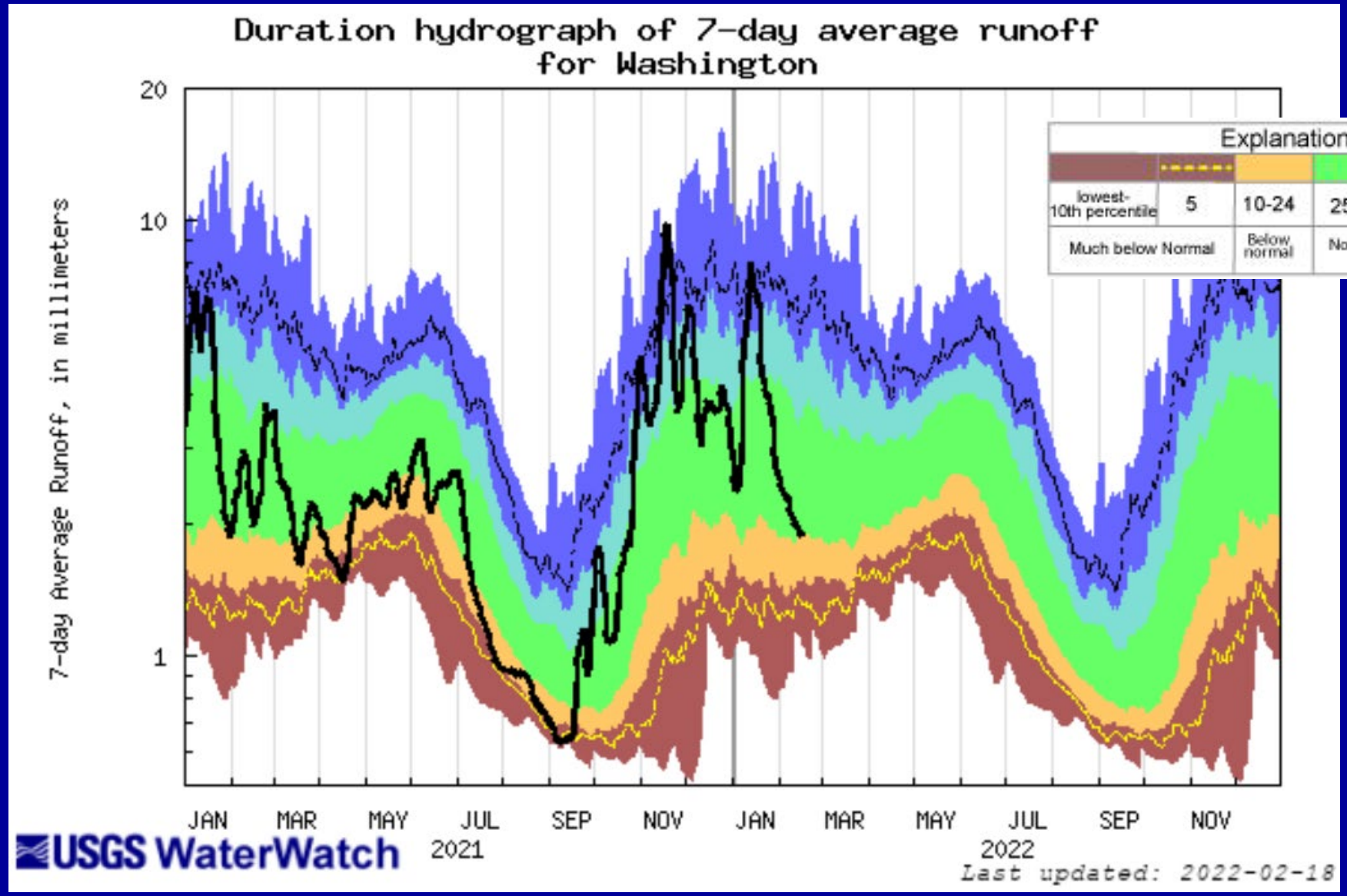
	Much below normal	Below normal	Normal	Above normal	Much above normal	

USGS science for a changing world

USGS WaterWatch -- Streamflow conditions

Duration Hydrograph, Washington State

7-day Average Streamflow (as of **Feb. 18th, 2022**) is above normal

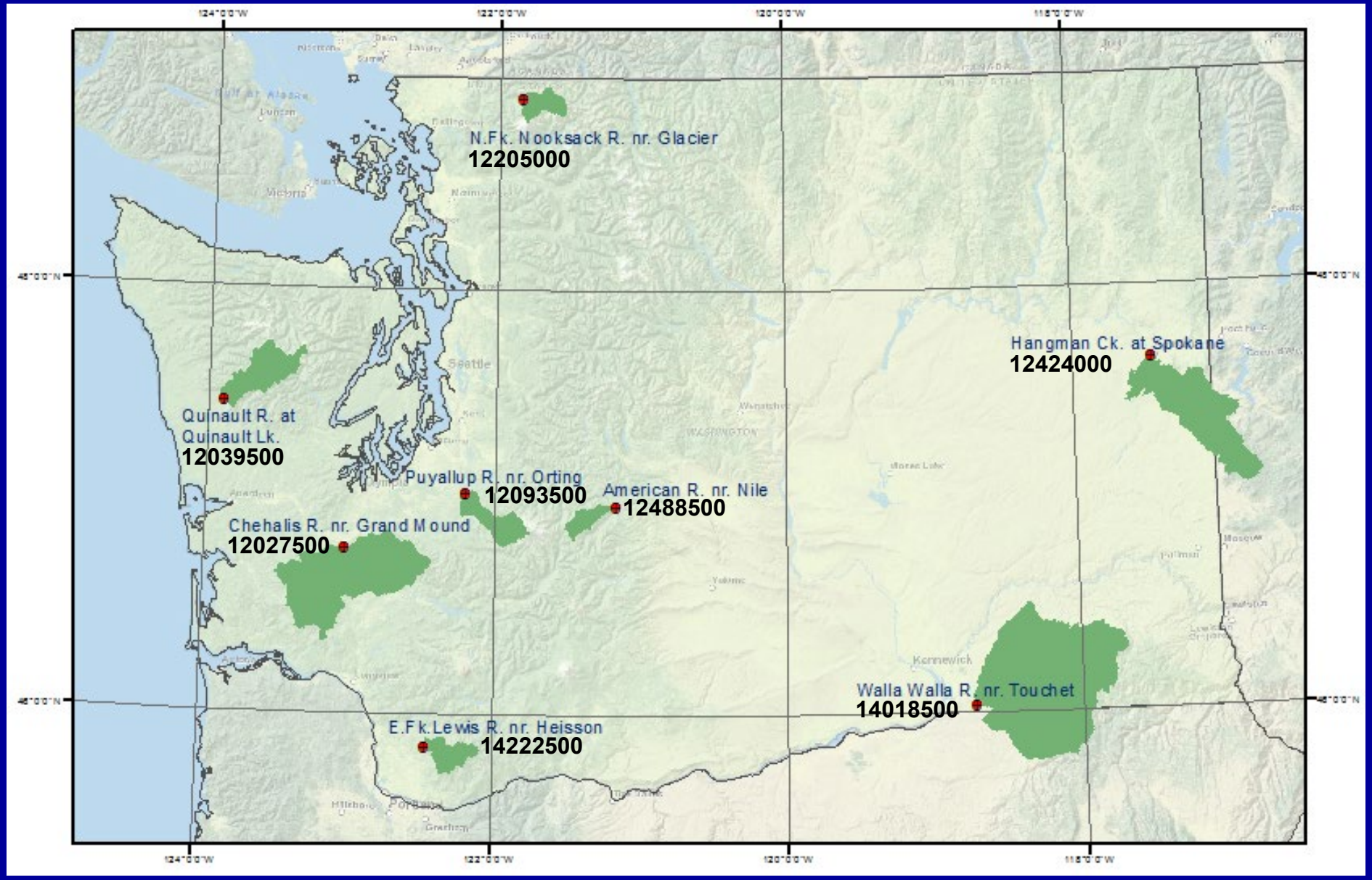


USGS science for a changing world

USGS WaterWatch -- Streamflow conditions

Index Gaging Stations

(Stations that measure natural or near-natural streamflow)



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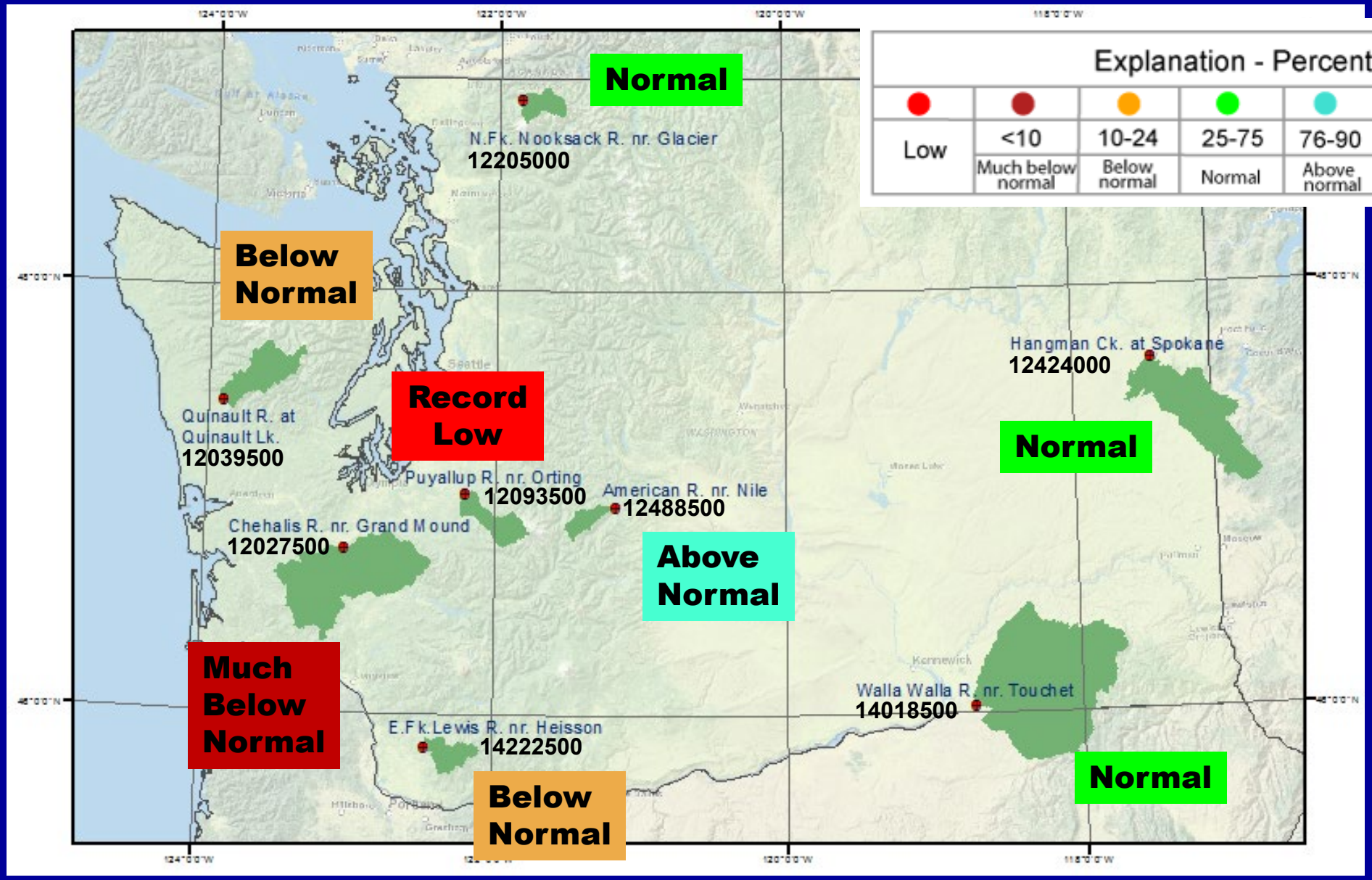
Index Gaging Stations, 7-day average streamflow (as of Feb. 18th, 2022)



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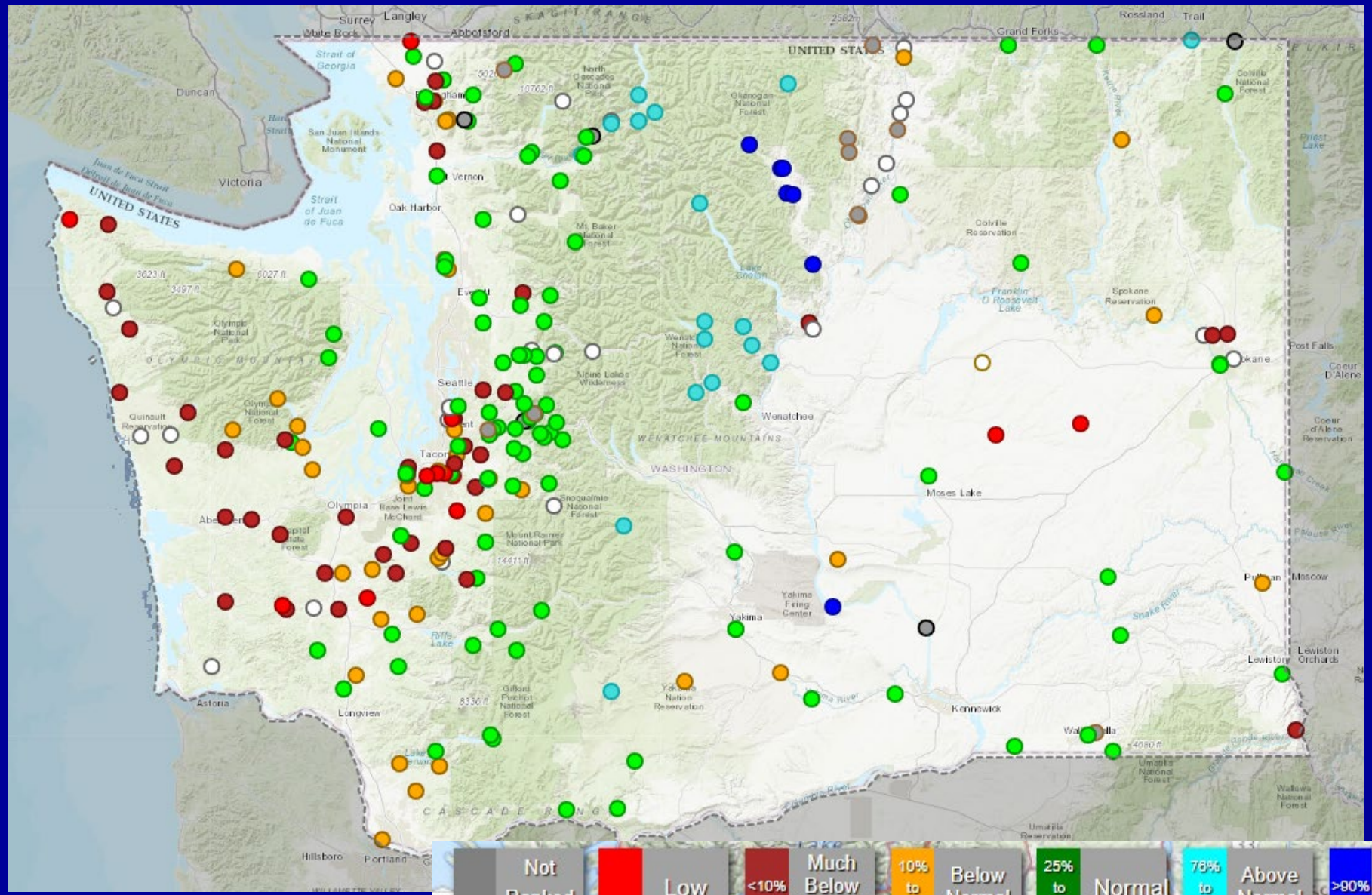
USGS WaterWatch -- Streamflow conditions

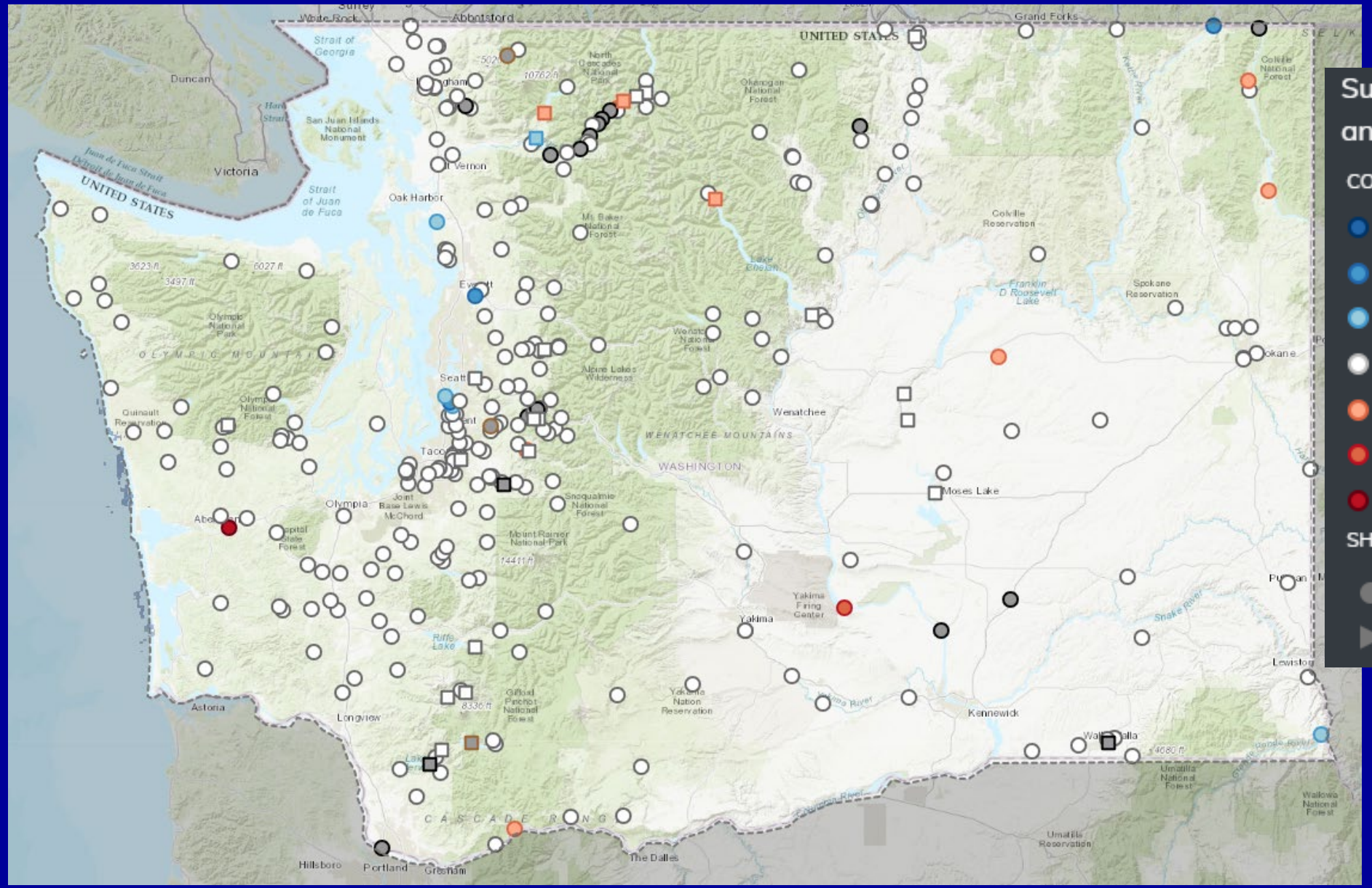
WA Current Streamflow Conditions, Feb. 18th, 2022



USGS
science for a changing world

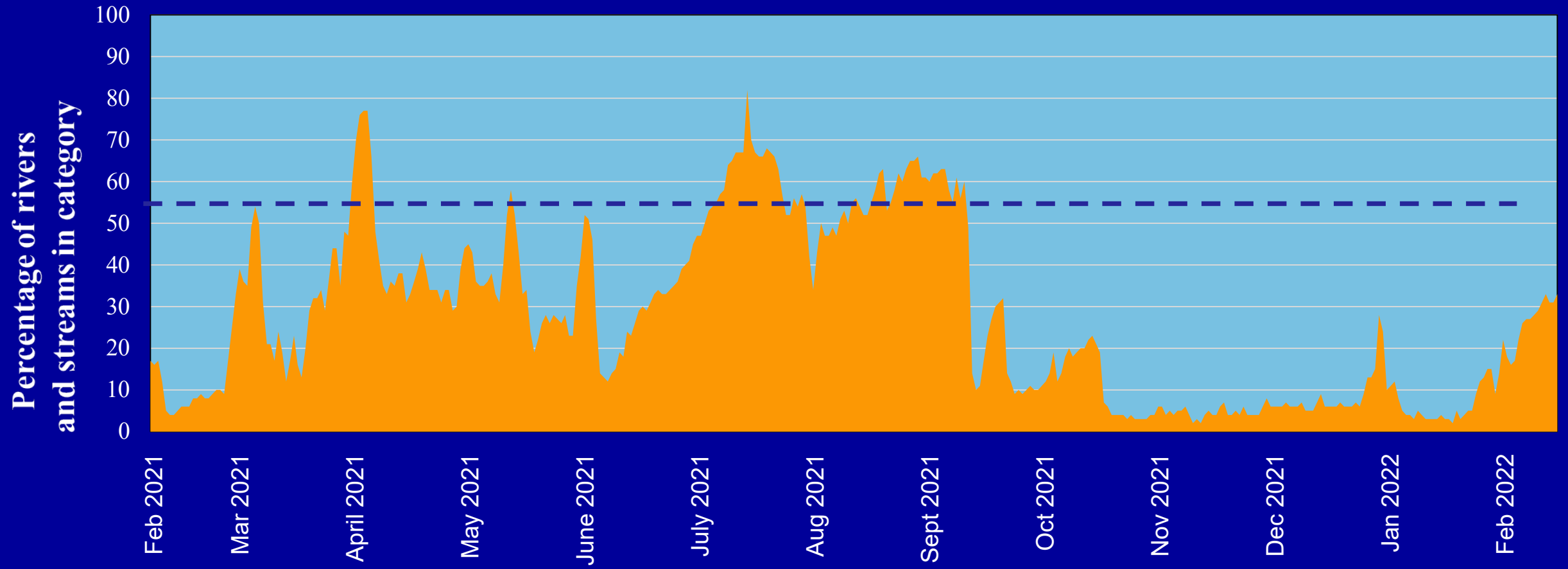
USGS | National Water Dashboard

Rising and Falling conditions of WA streams on Feb. 18th, 2022



USGS | National Water Dashboard

Daily streamflow in Washington Rivers compared to historical streamflow, February 2021 – February 2022



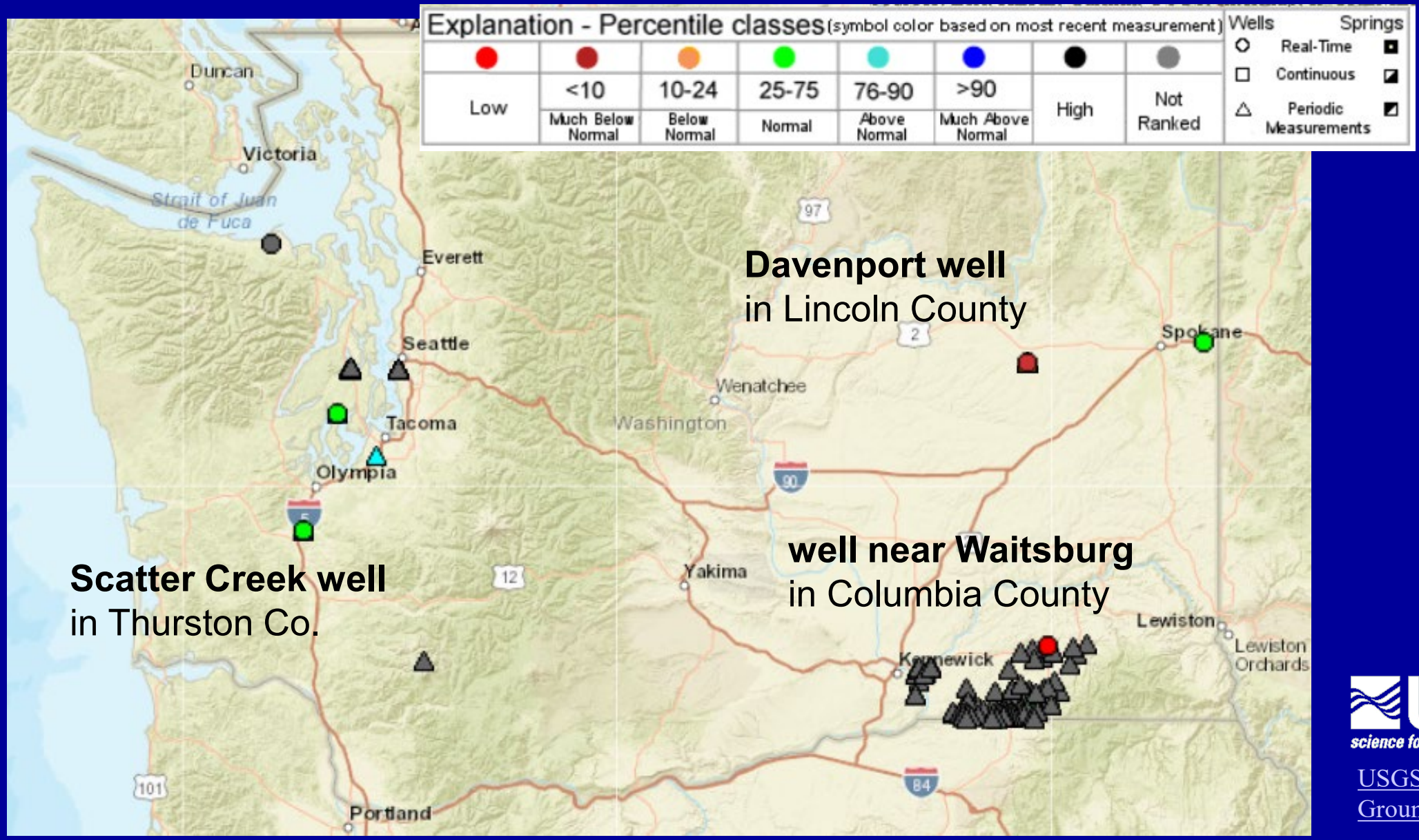
USGS science for a changing world

Below normal

At or above normal

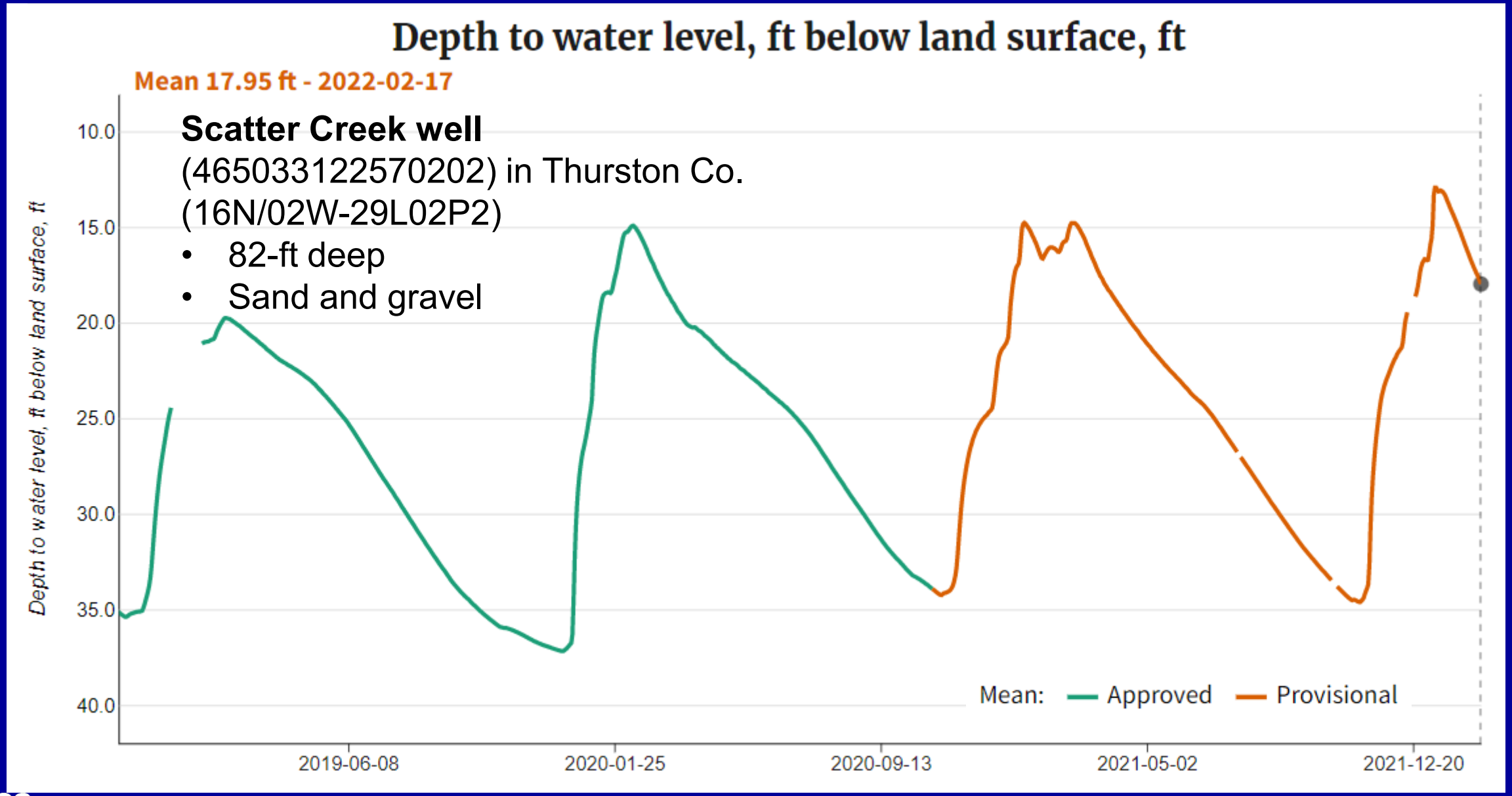
USGS WaterWatch -- Streamflow conditions

WA Current Groundwater Conditions (Fed. 18th, 2022)

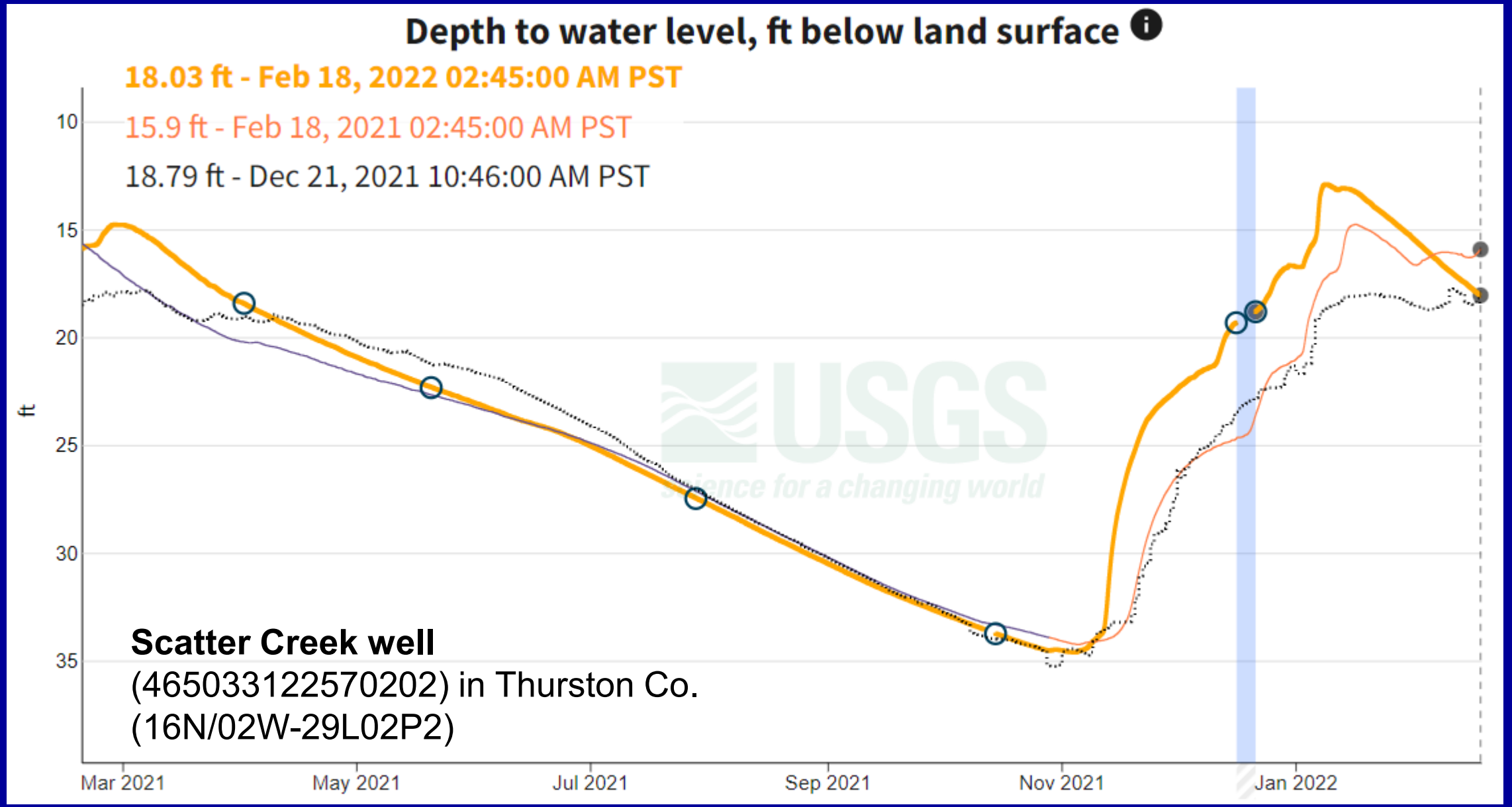


USGS -- Groundwater Watch

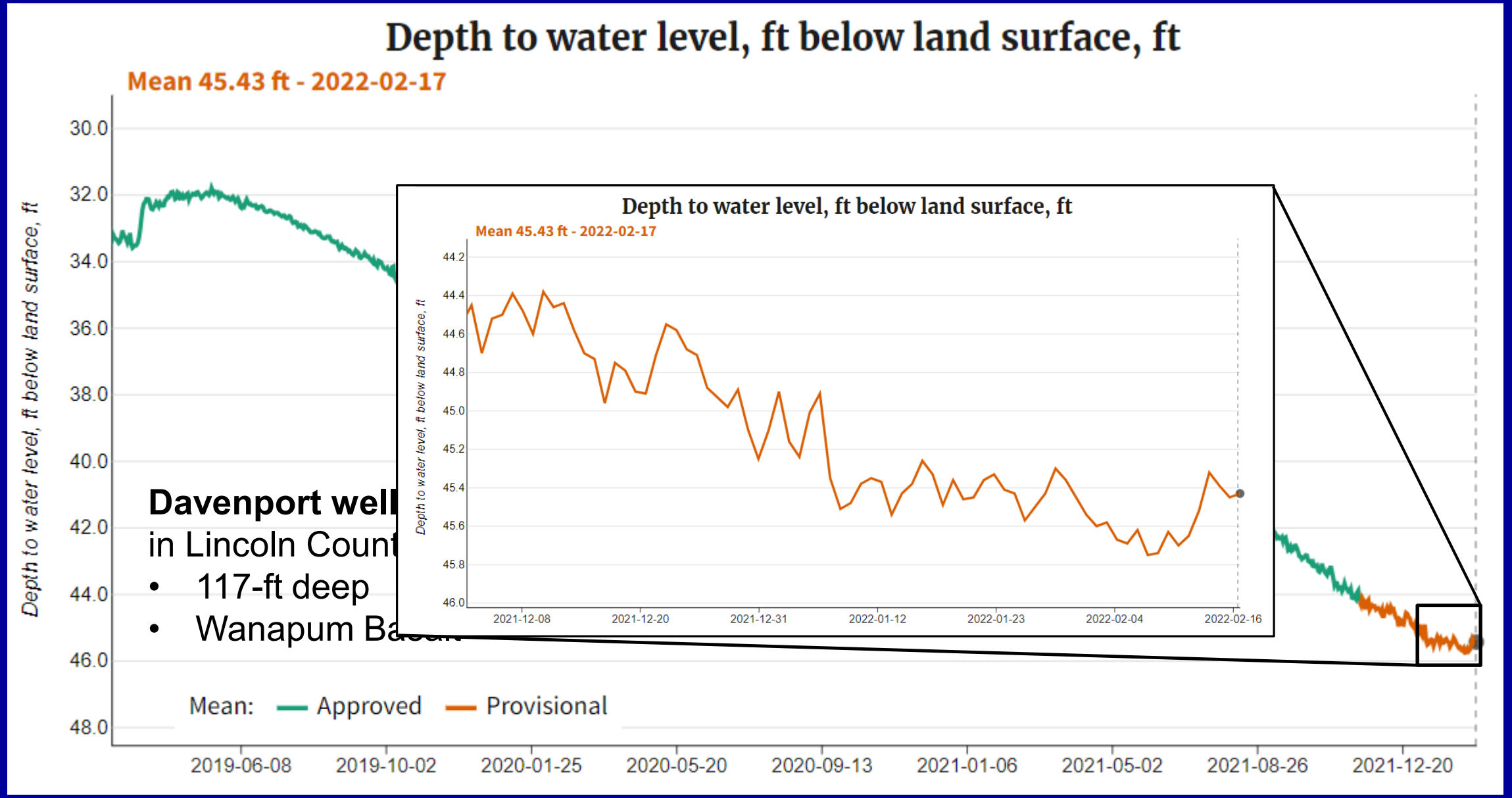
WA Current Groundwater Conditions (Fed. 18th, 2022)



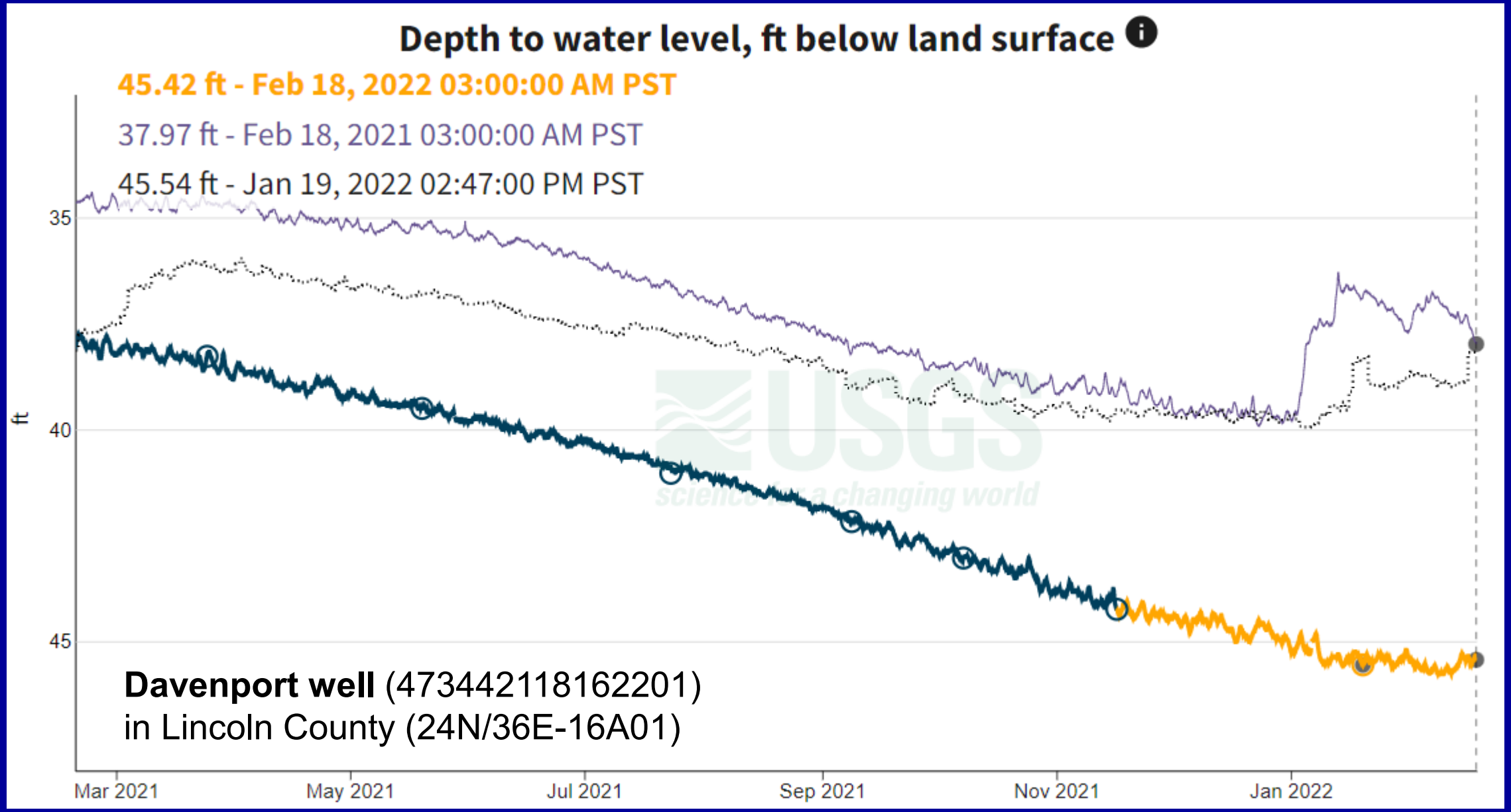
WA Current Groundwater Conditions (Fed. 18th, 2022)



WA Current Groundwater Conditions (Feb. 18, 2022)

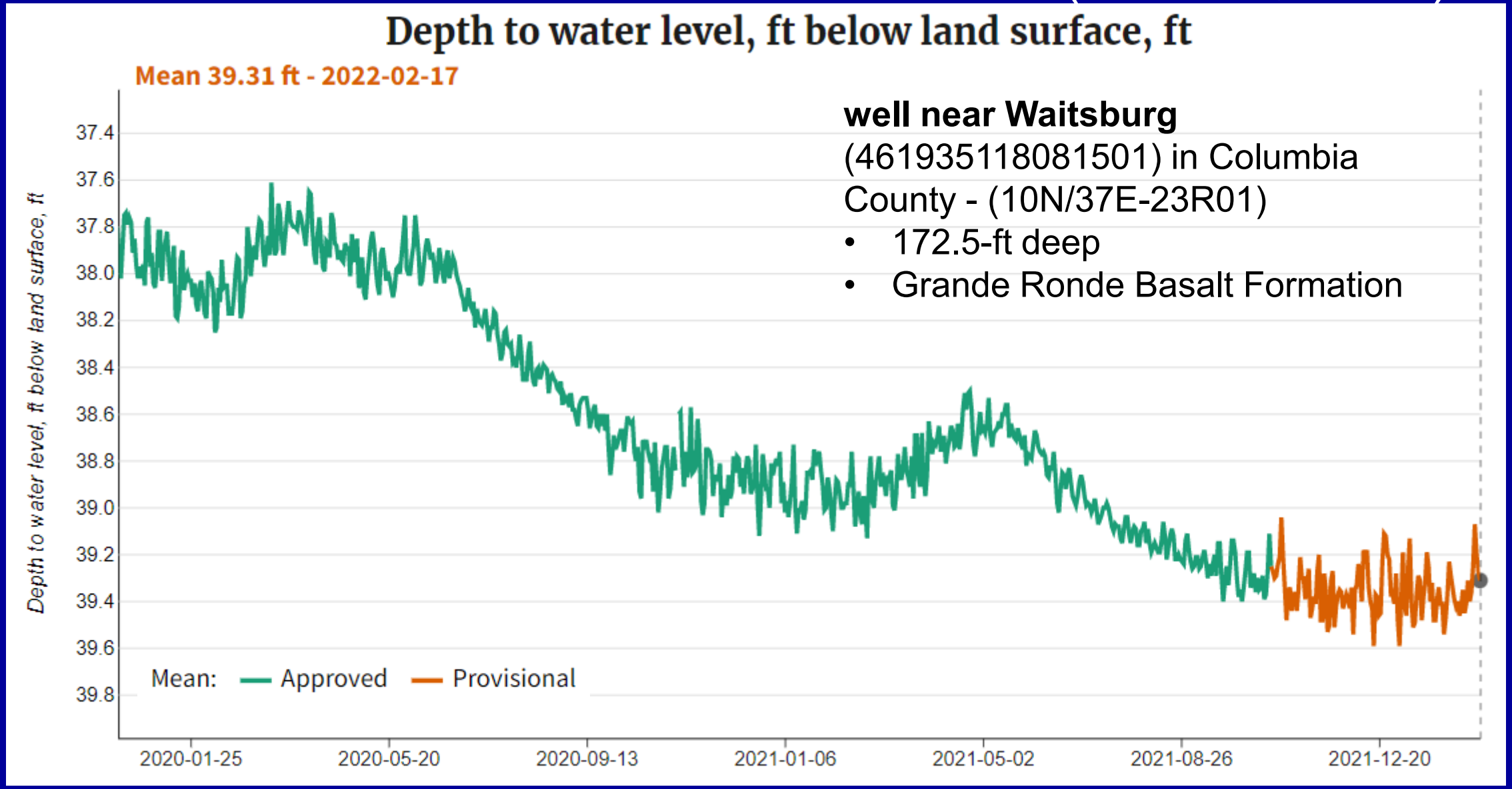


WA Current Groundwater Conditions (Feb. 18, 2022)



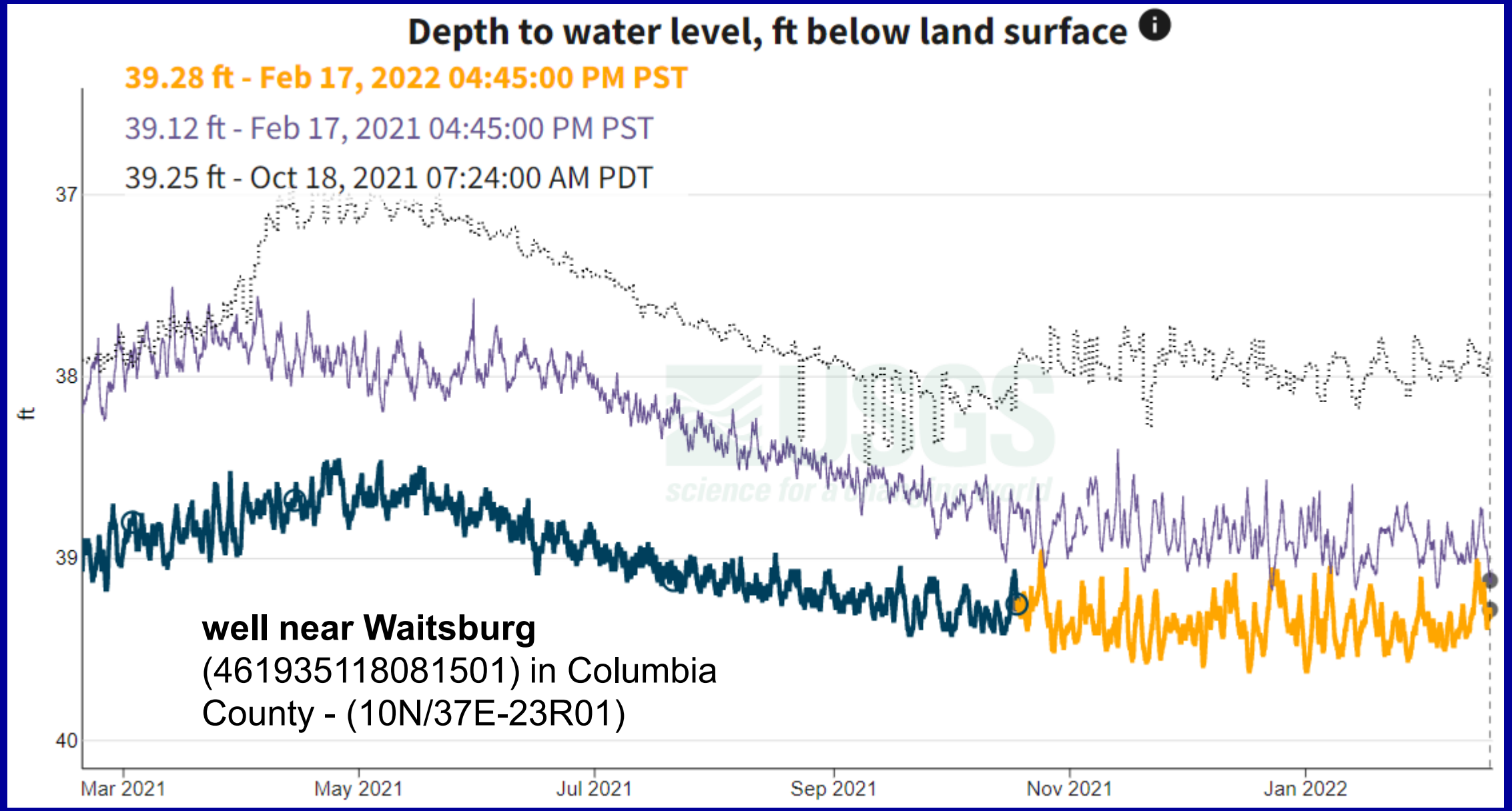
Climate Response Network - USGS Water Data for the Nation

WA Current Groundwater Conditions (Feb. 18, 2022)



USGS science for a changing world

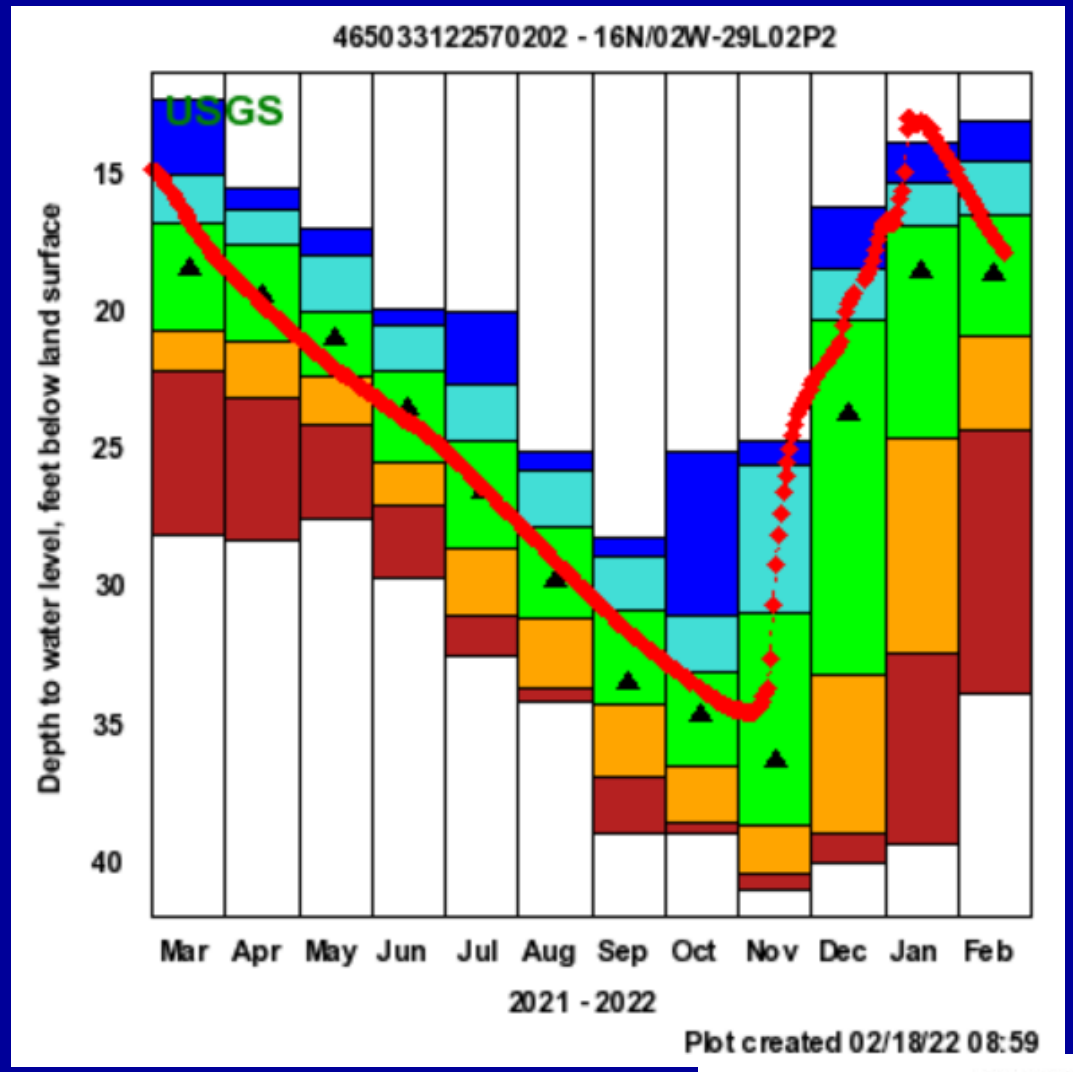
WA Current Groundwater Conditions (Feb. 18, 2022)



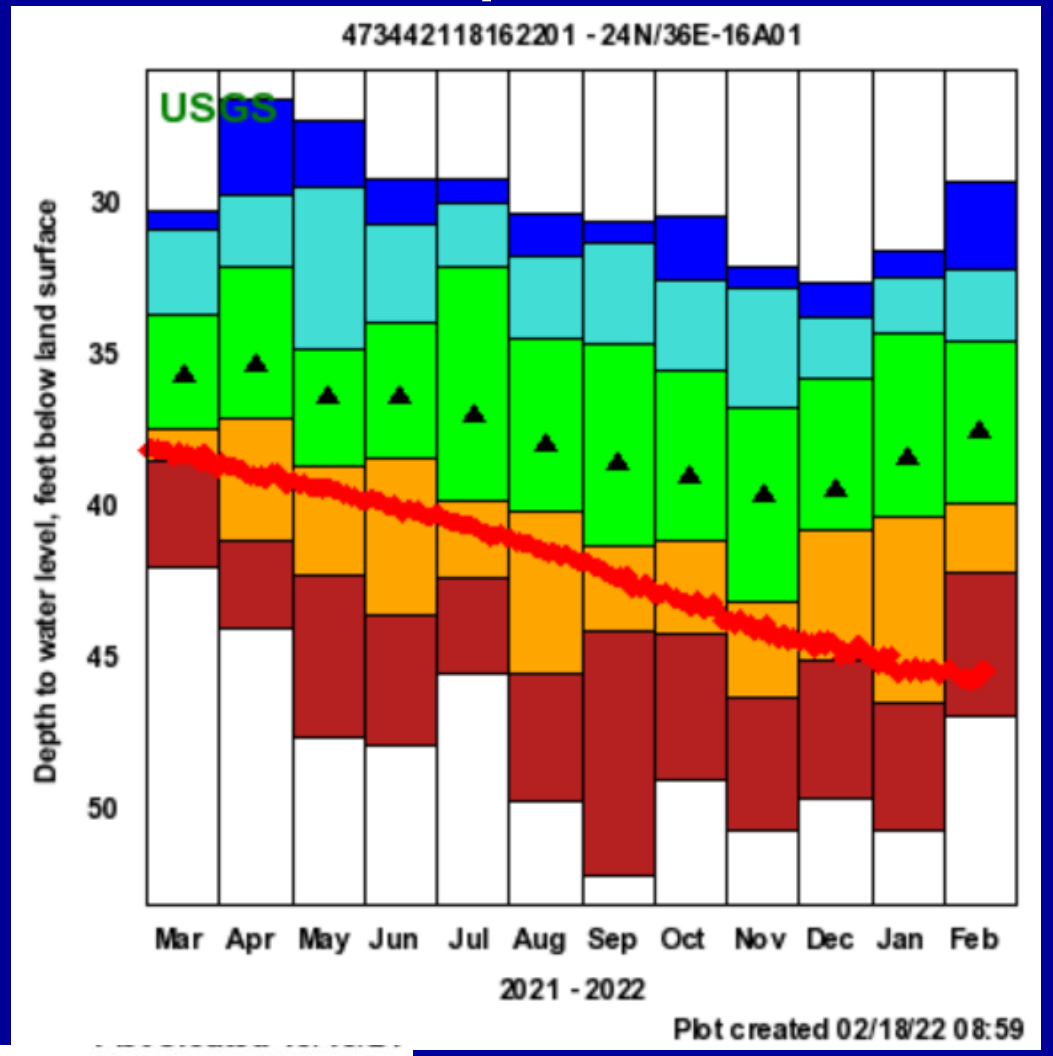
USGS science for a changing world

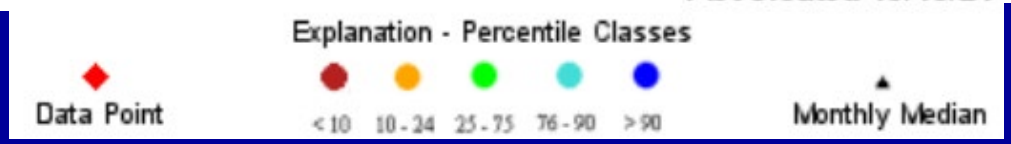
WA Current Groundwater Conditions (Feb. 18th, 2022)

Scatter Creek well



Davenport well





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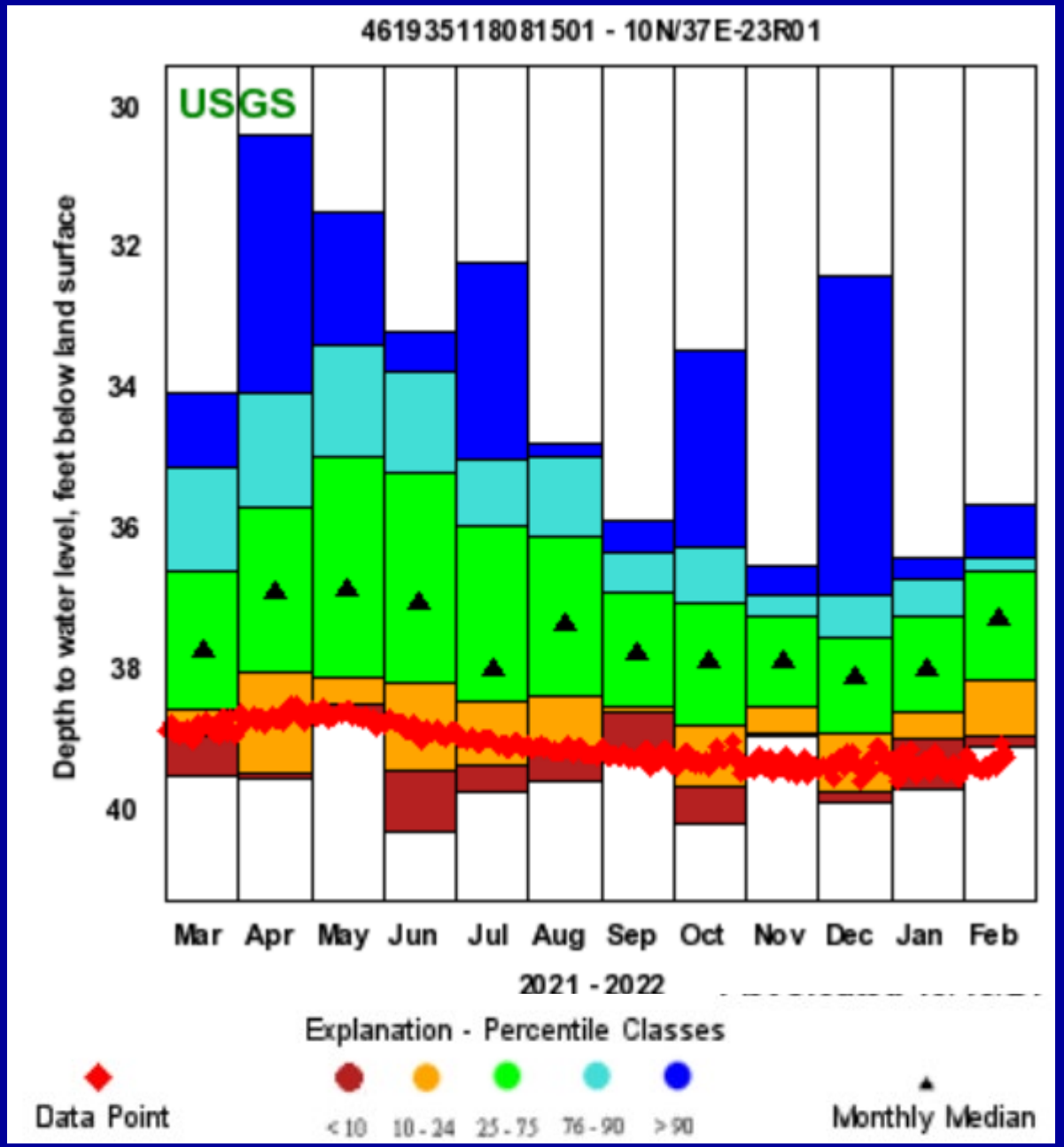
WA Current Groundwater Conditions (Feb. 18th, 2022)

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

- 172.5-ft deep
- Grande Ronde Basalt Formation



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Summary
Streamflow & GW conditions as of February 18th, 2022

- **7-day average streamflow statewide is much above normal (~95th percentile).**
- 7-day average streamflow at eight index gaging stations:
  - North and eastern part of state
    - NF Nooksack River – **Normal**
    - Hangman Creek – **Normal**
    - Walla Walla River –**Normal**
  - Southwestern part of state
    - American River - **Above normal**
    - Quinault River – **Below normal**
    - EF Lewis River – **Below normal**
    - Chehalis River nr. Grand Mound - **Much below normal**
    - Puyallup River nr. Orting – **Record low**

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

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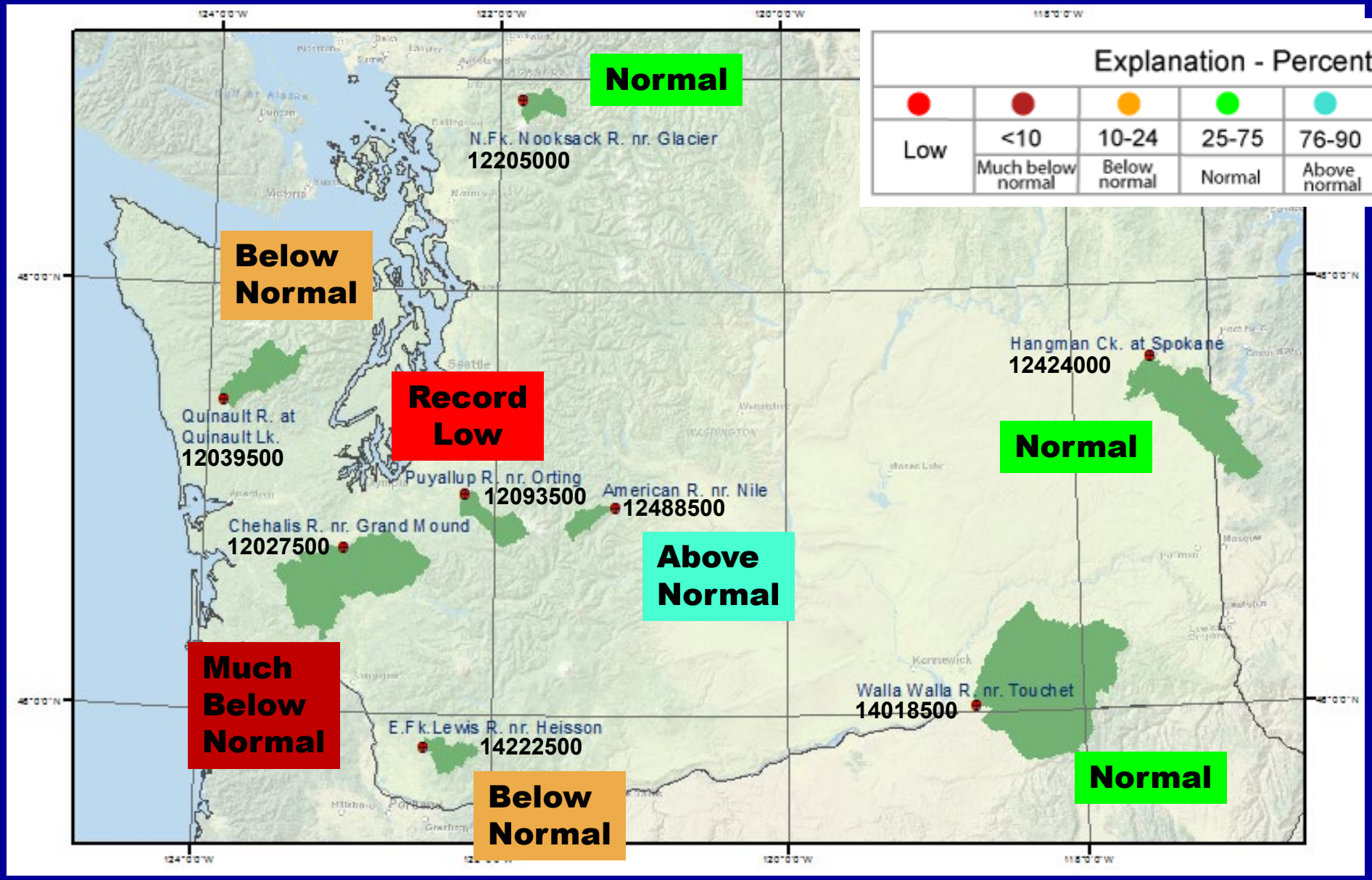
Index Gaging Stations, 7-day average streamflow (as of Feb. 18th, 2022)



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