

Northwest River Forecast Center

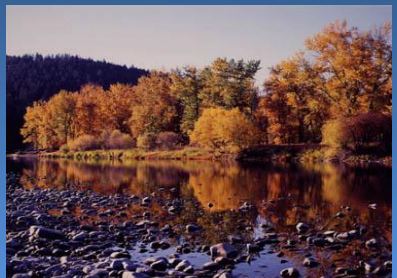


February 2023 Water Supply Briefing

Telephone Conference: (213) 929-4212
Audio Access Code: 949-968-637#



Henry Pai
NWRFC.watersupply@noaa.gov



*Audio PIN is provided when logging into the webinar and is required if you wish to ask questions at the end of presentation



Take Home Messages

Lower than normal January precipitation has lead to decreases in snowpack relative to normal.

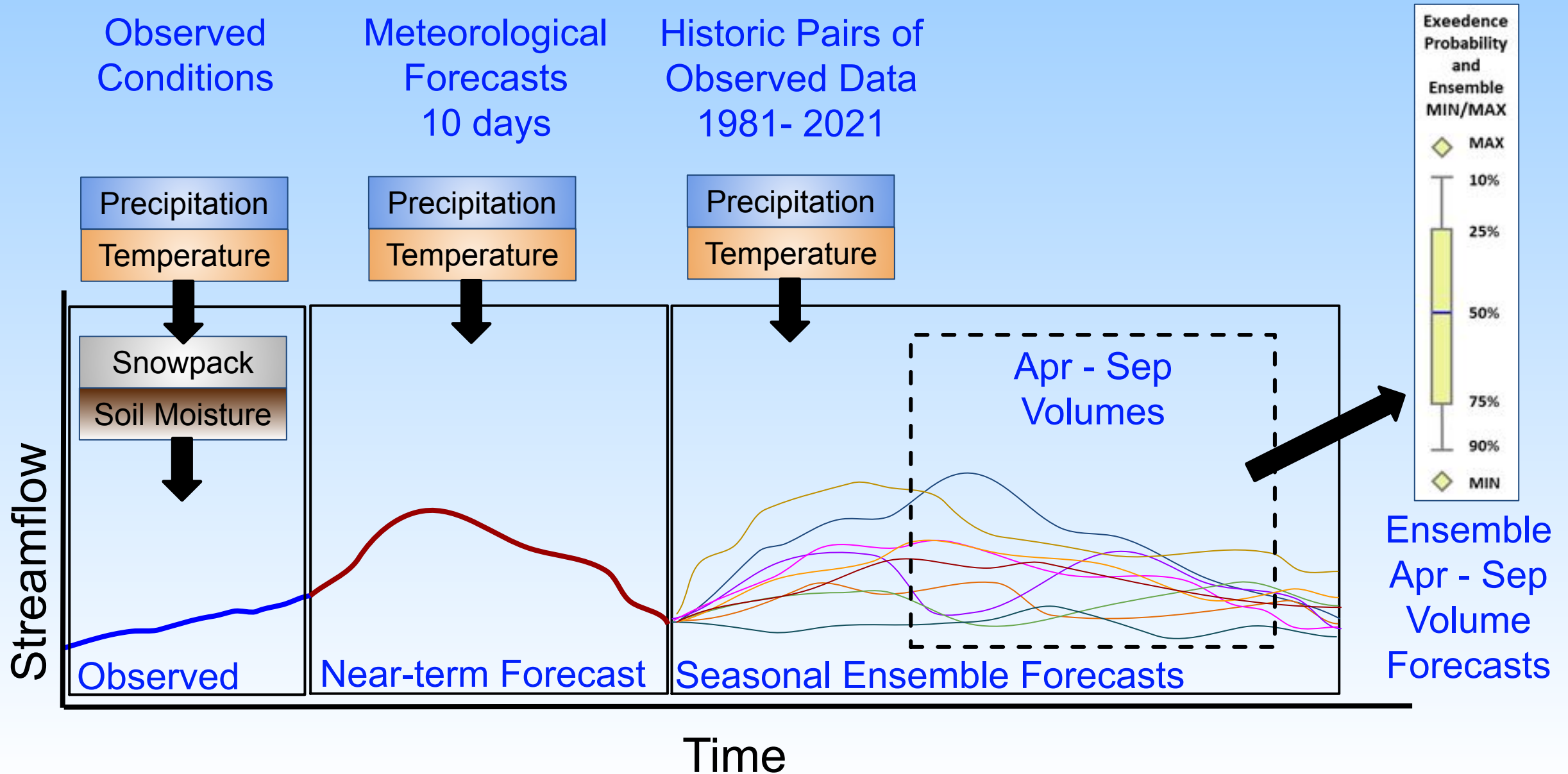
Snowpack has a gradient of well below normal conditions in Northern Canada to well above normal conditions in the Snake, and has mixed conditions along the Cascades.

Observed runoff to date remains well below normal.

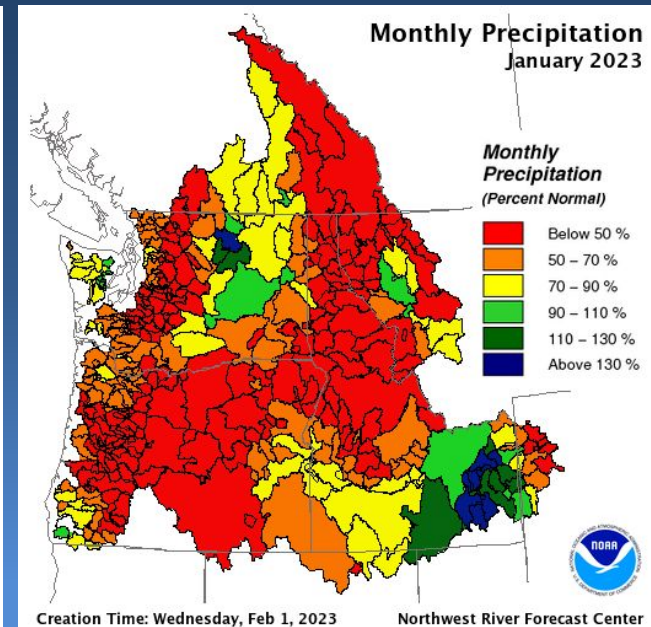
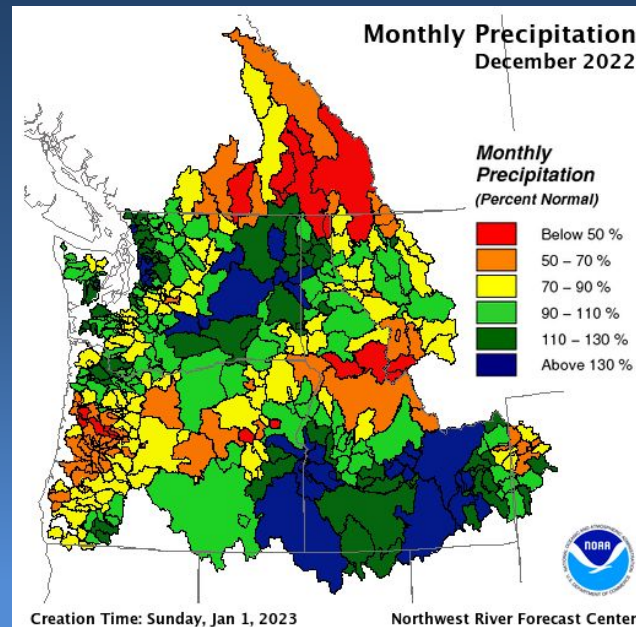
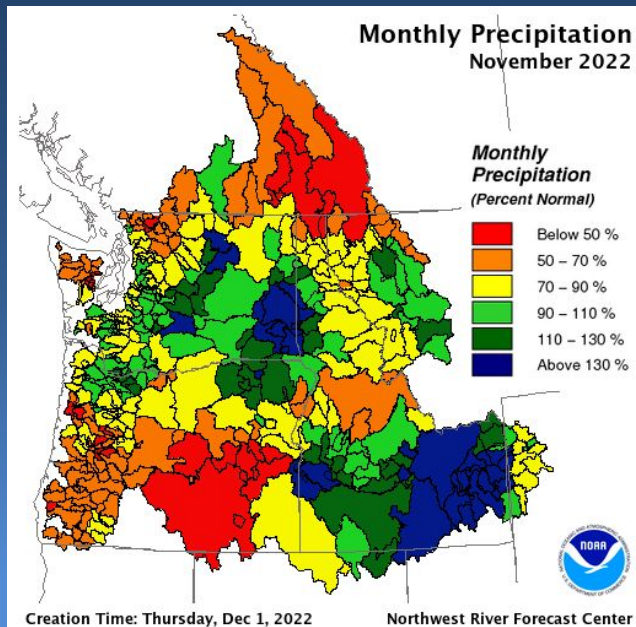
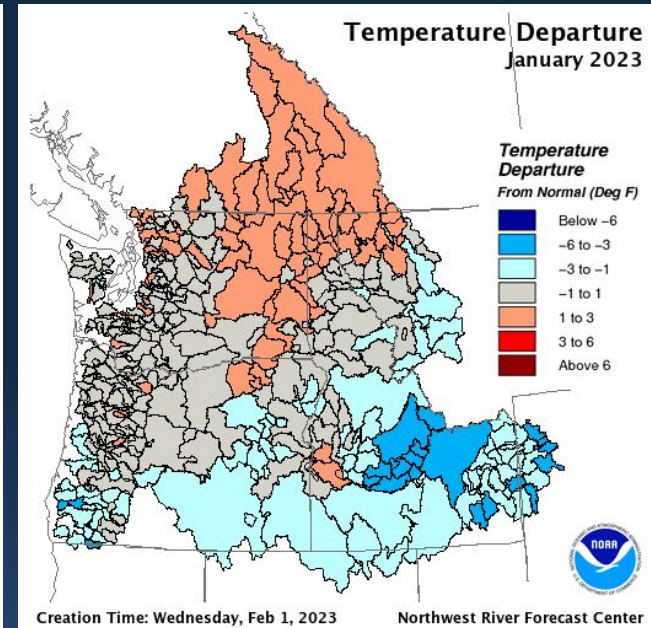
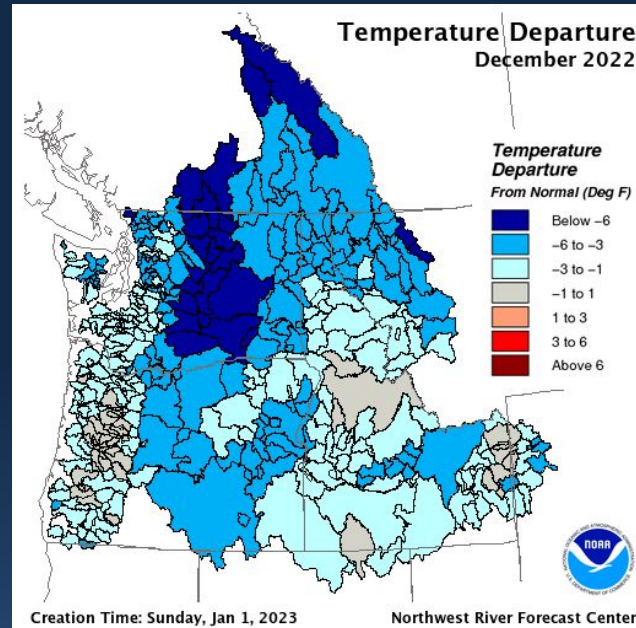
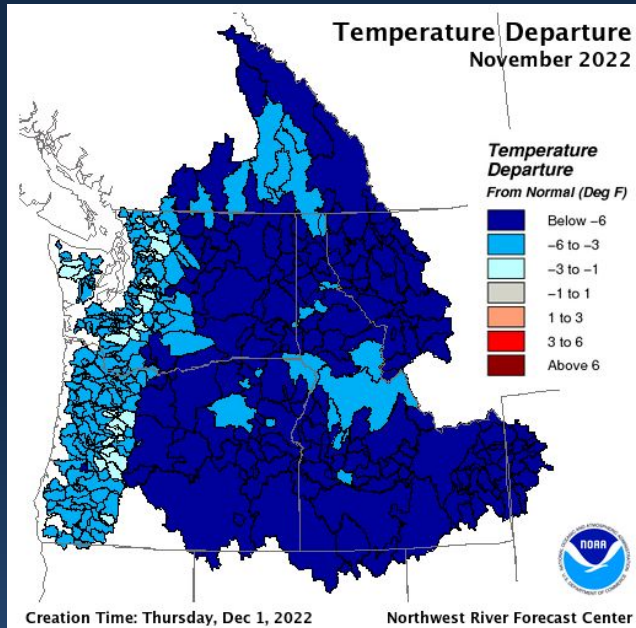
Apr-Sep water supply forecasts remain mostly below normal.



NWRFC Forecast Technique

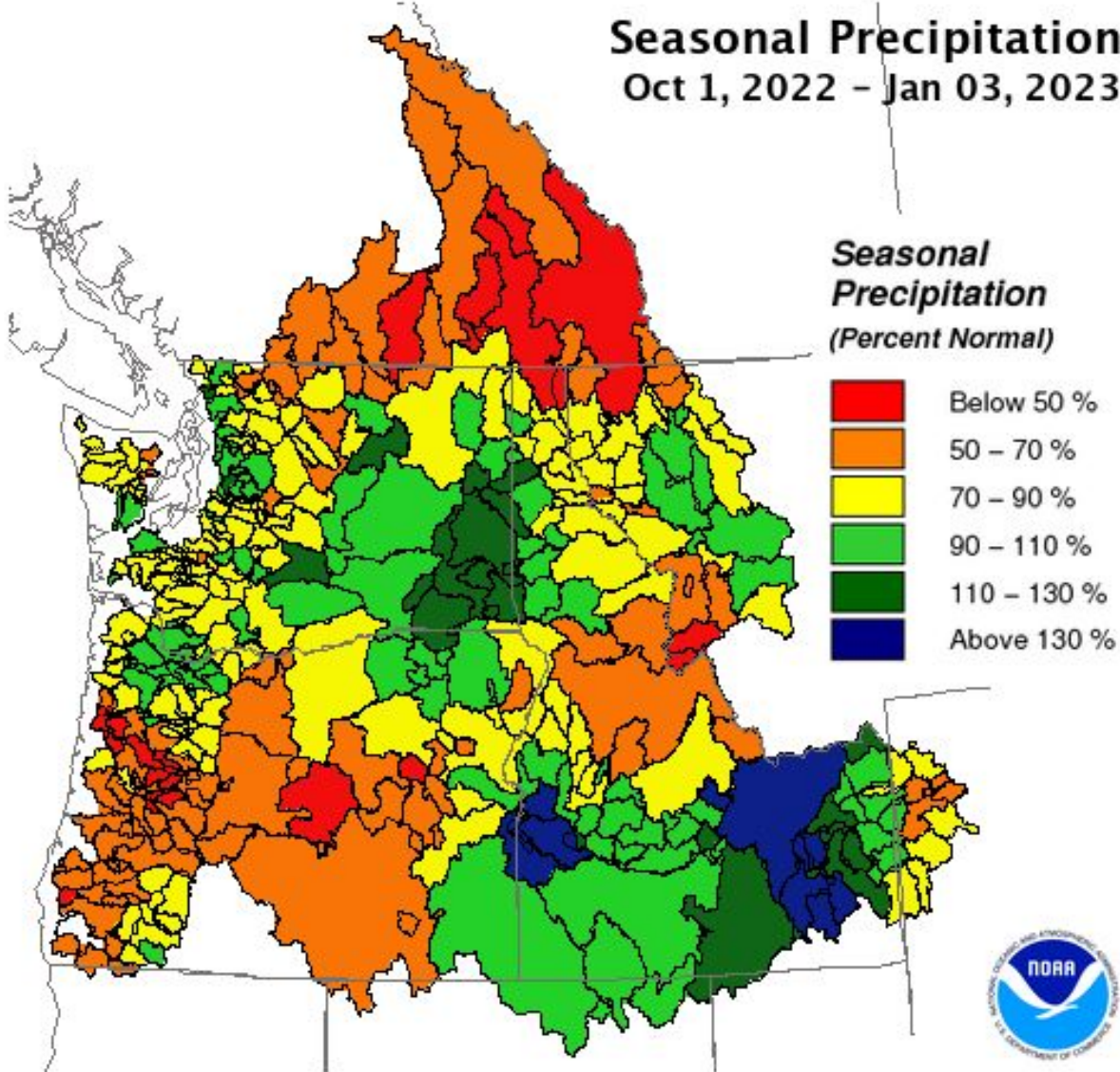


Temperature and Precipitation - Past 3 Months



Change in Water Year Precipitation

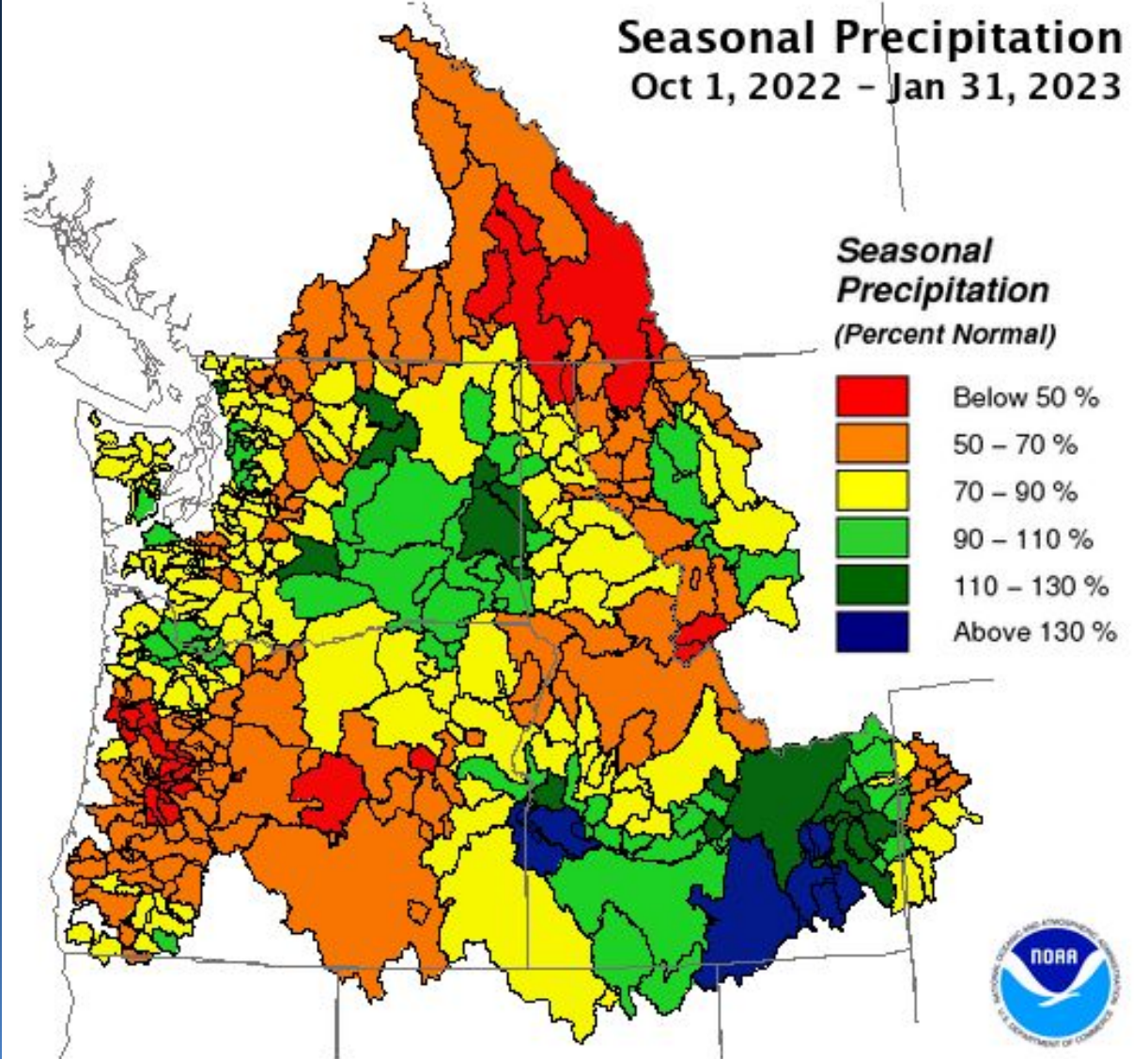
Seasonal Precipitation
Oct 1, 2022 – Jan 03, 2023



Creation Time: Wednesday, Jan 4, 2023

Northwest River Forecast Center

Seasonal Precipitation
Oct 1, 2022 – Jan 31, 2023

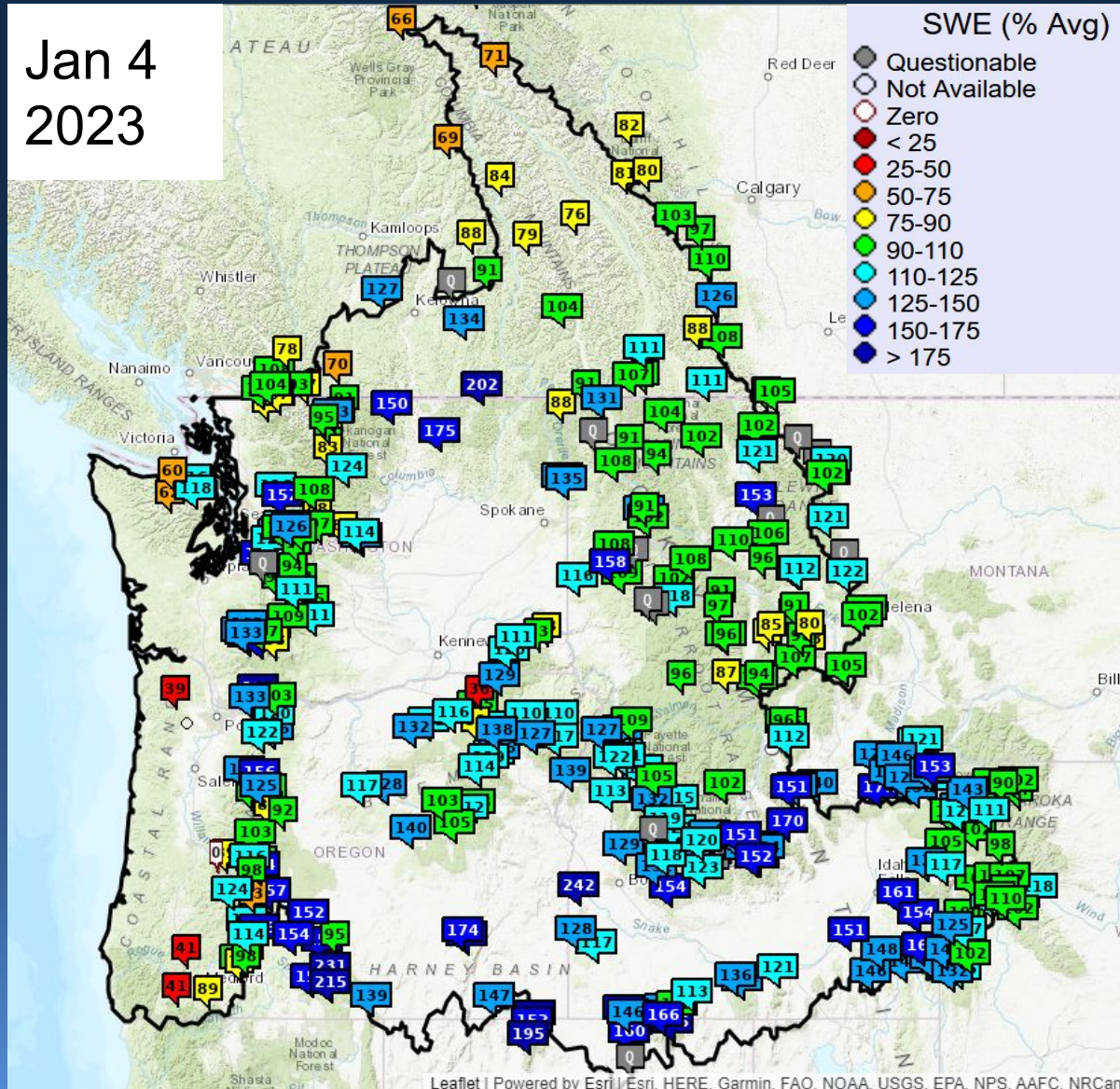


Creation Time: Wednesday, Feb 1, 2023

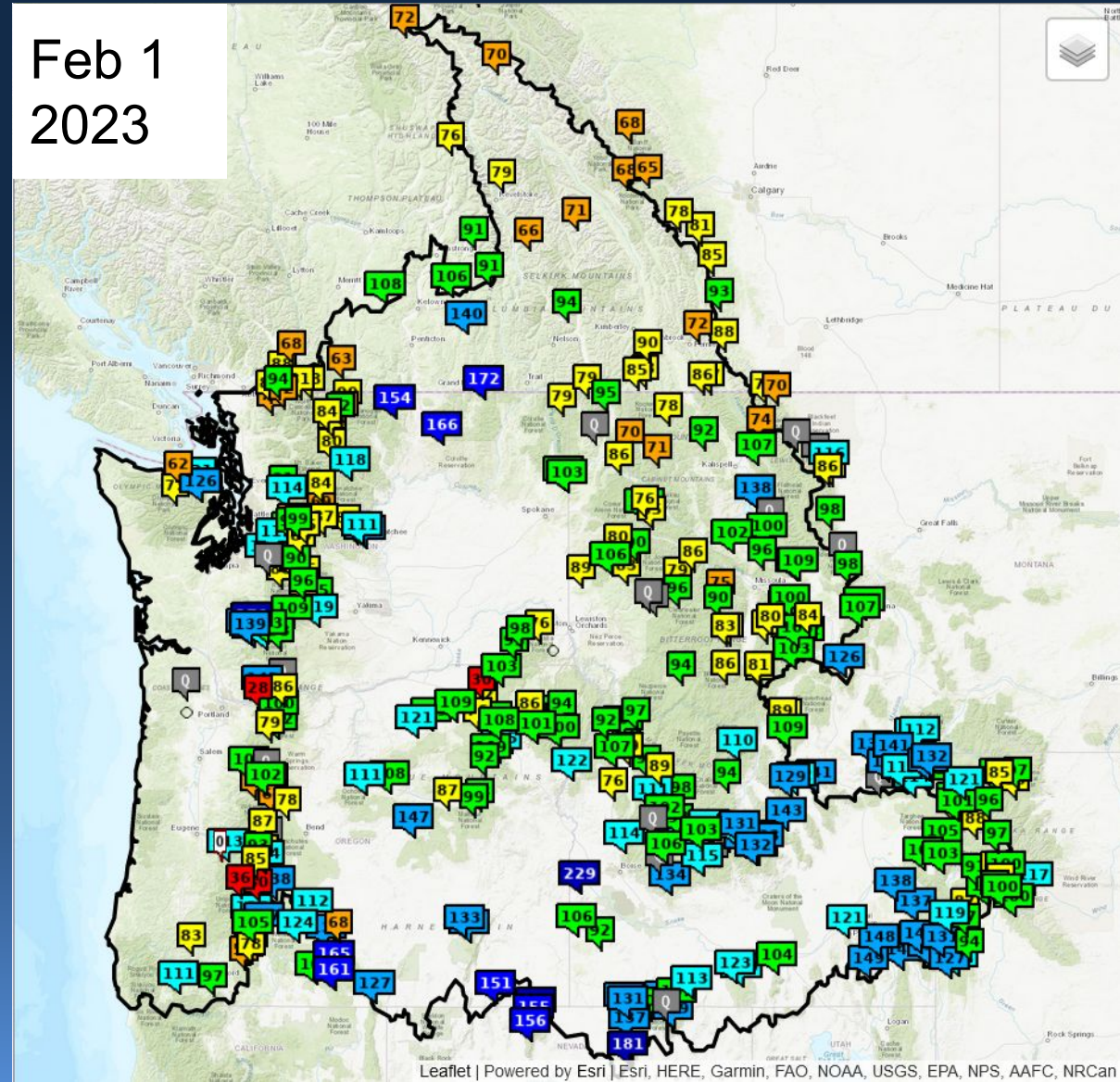
Northwest River Forecast Center

Change in Snowpack

Jan 4
2023



Feb 1
2023

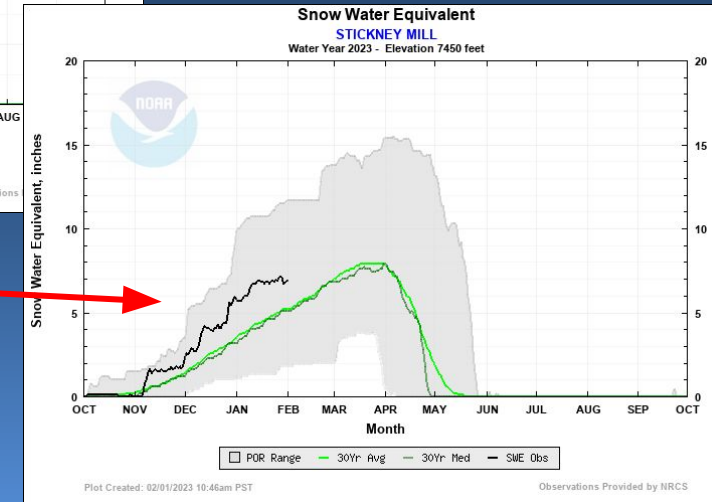
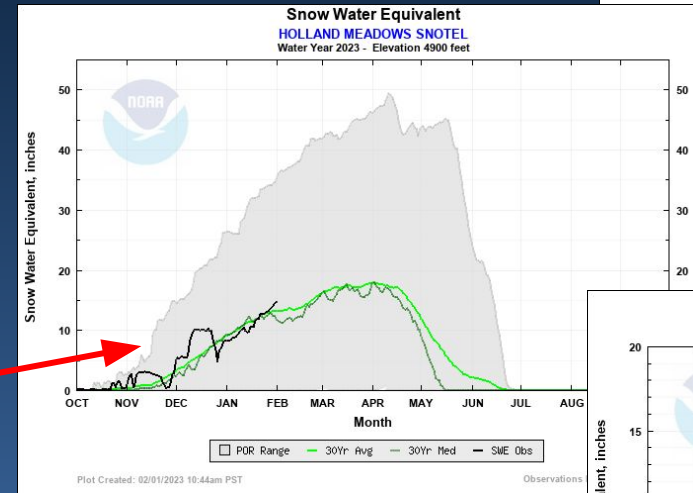
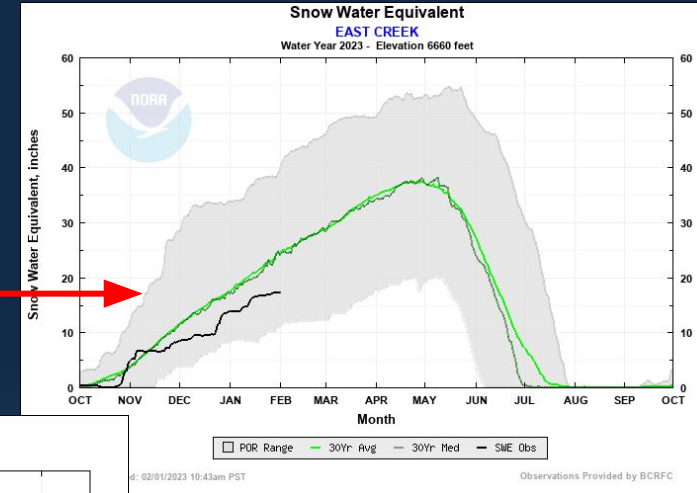
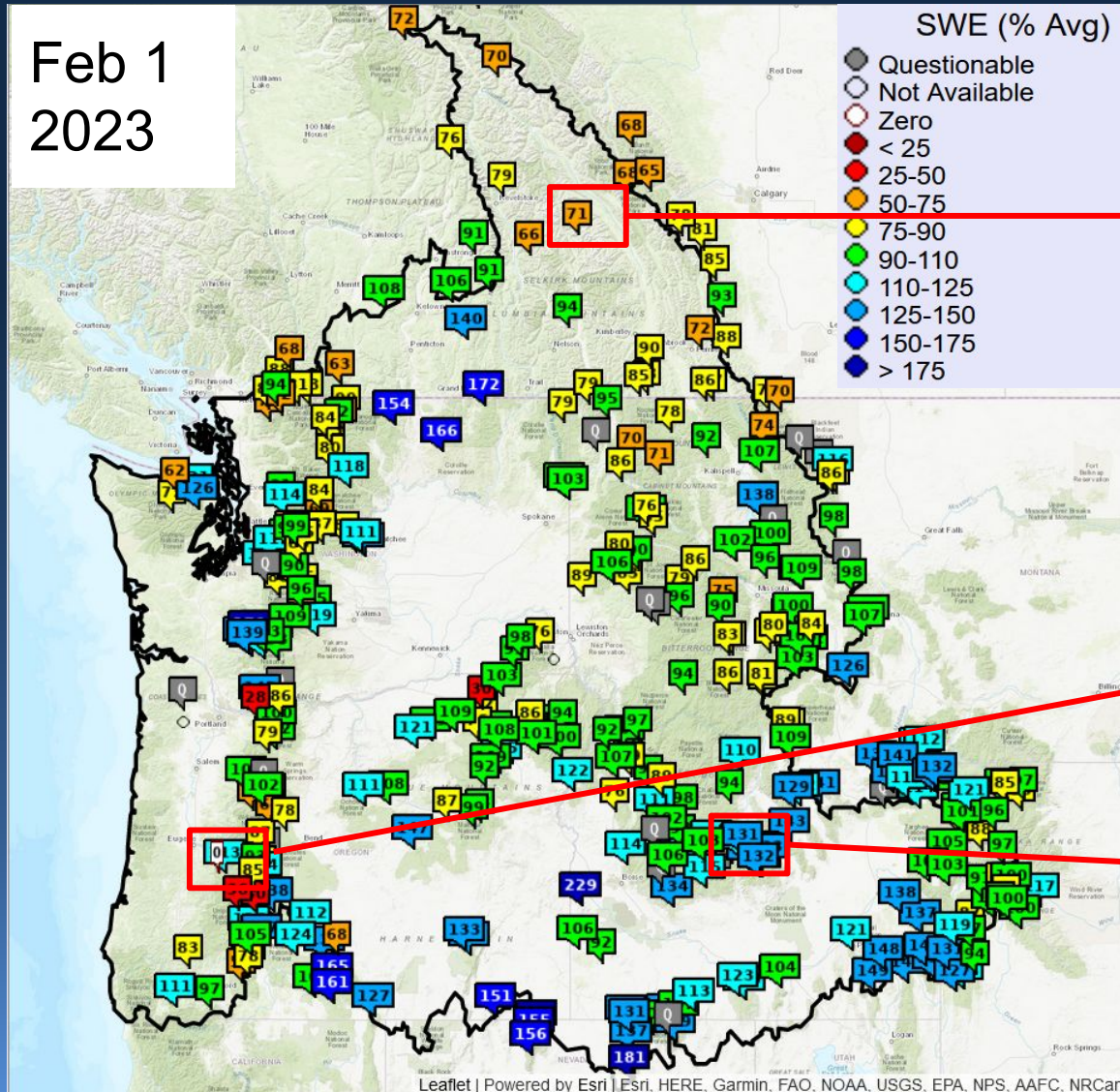


Snow data from Natural Resources Conservation Service, BC Hydro, and Alberta Environment and Parks.



Snowpack

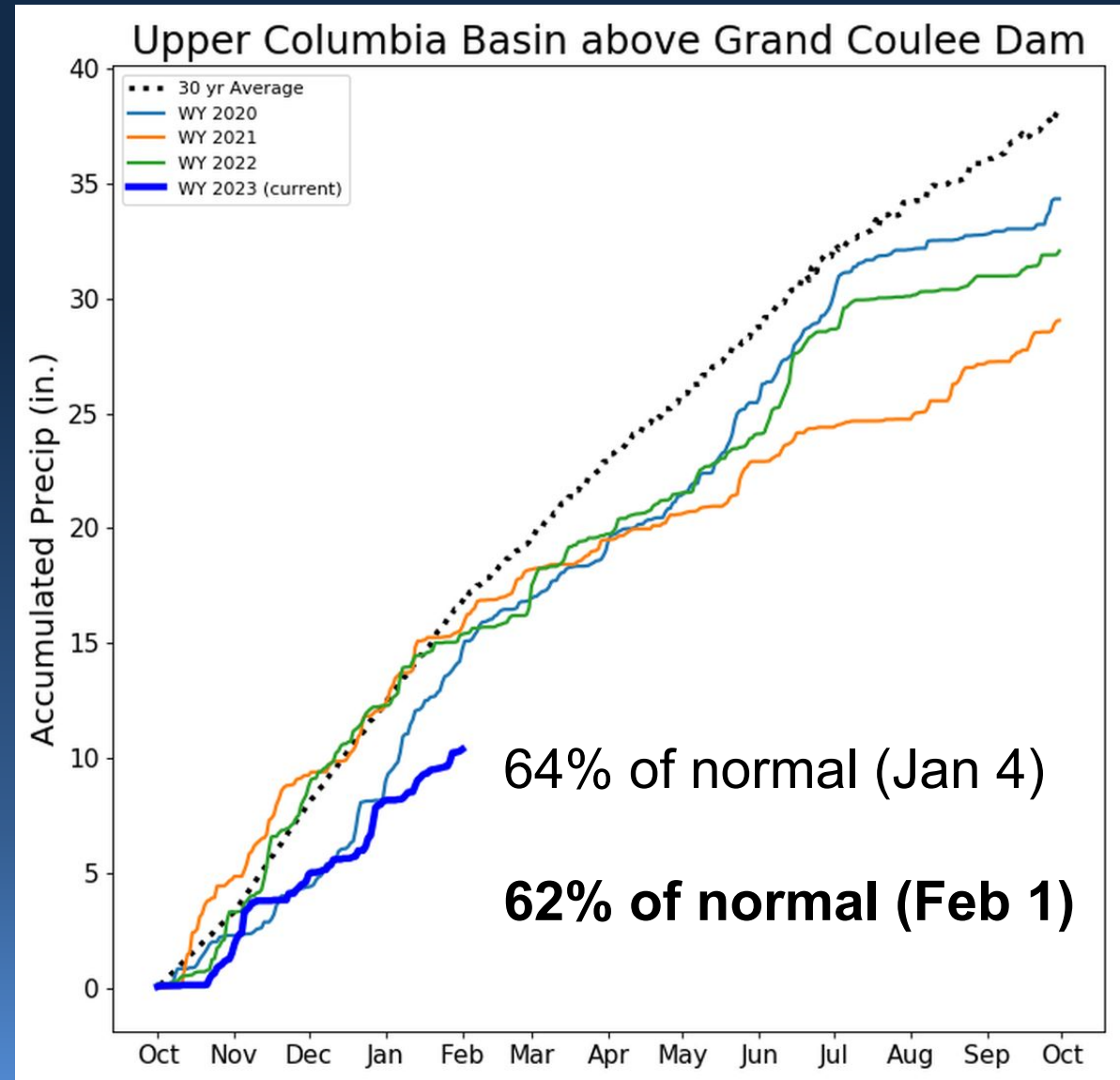
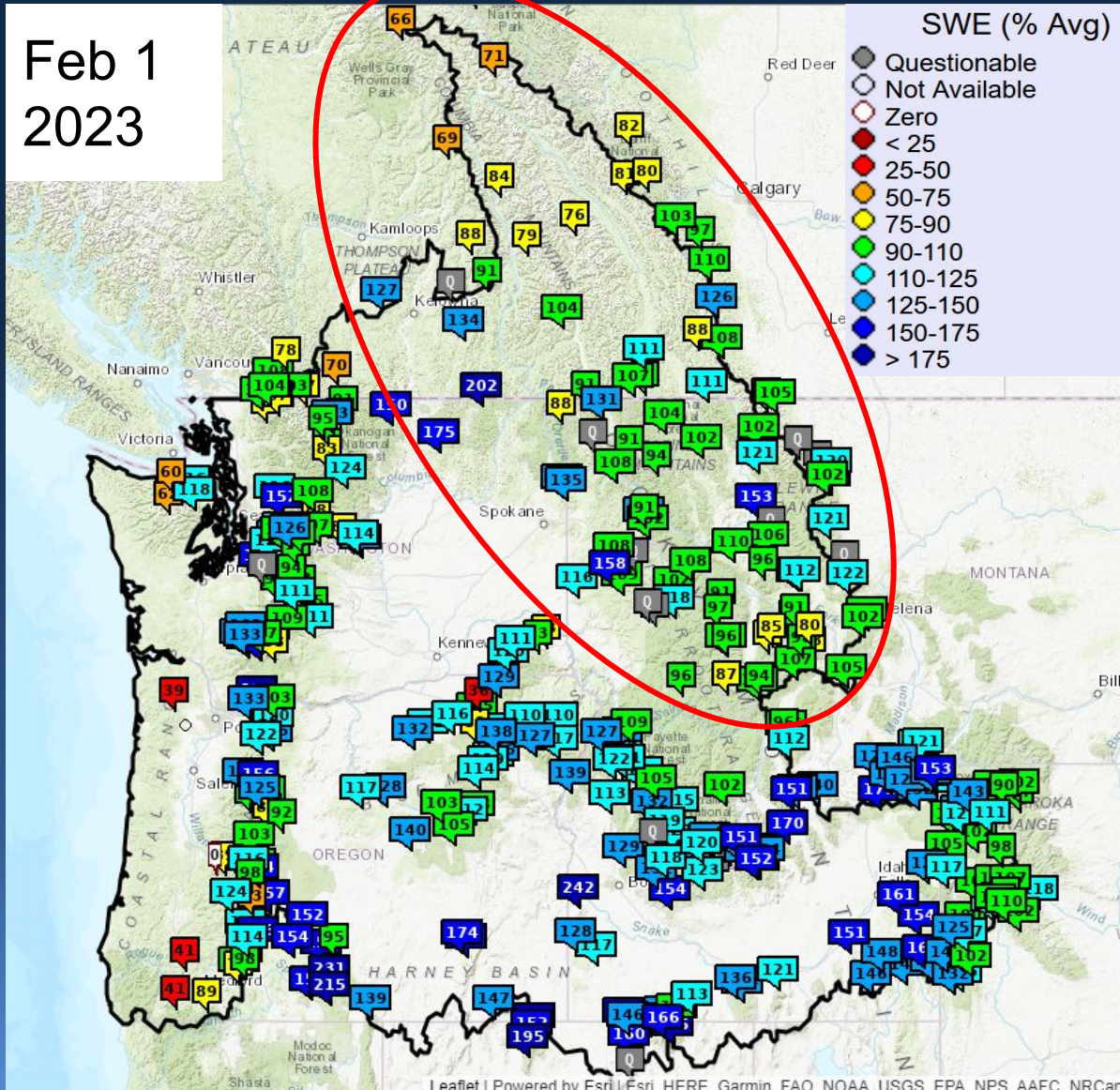
Feb 1
2023



Snow data from Natural Resources Conservation Service, BC Hydro, and Alberta Environment and Parks.

Snow and Precipitation

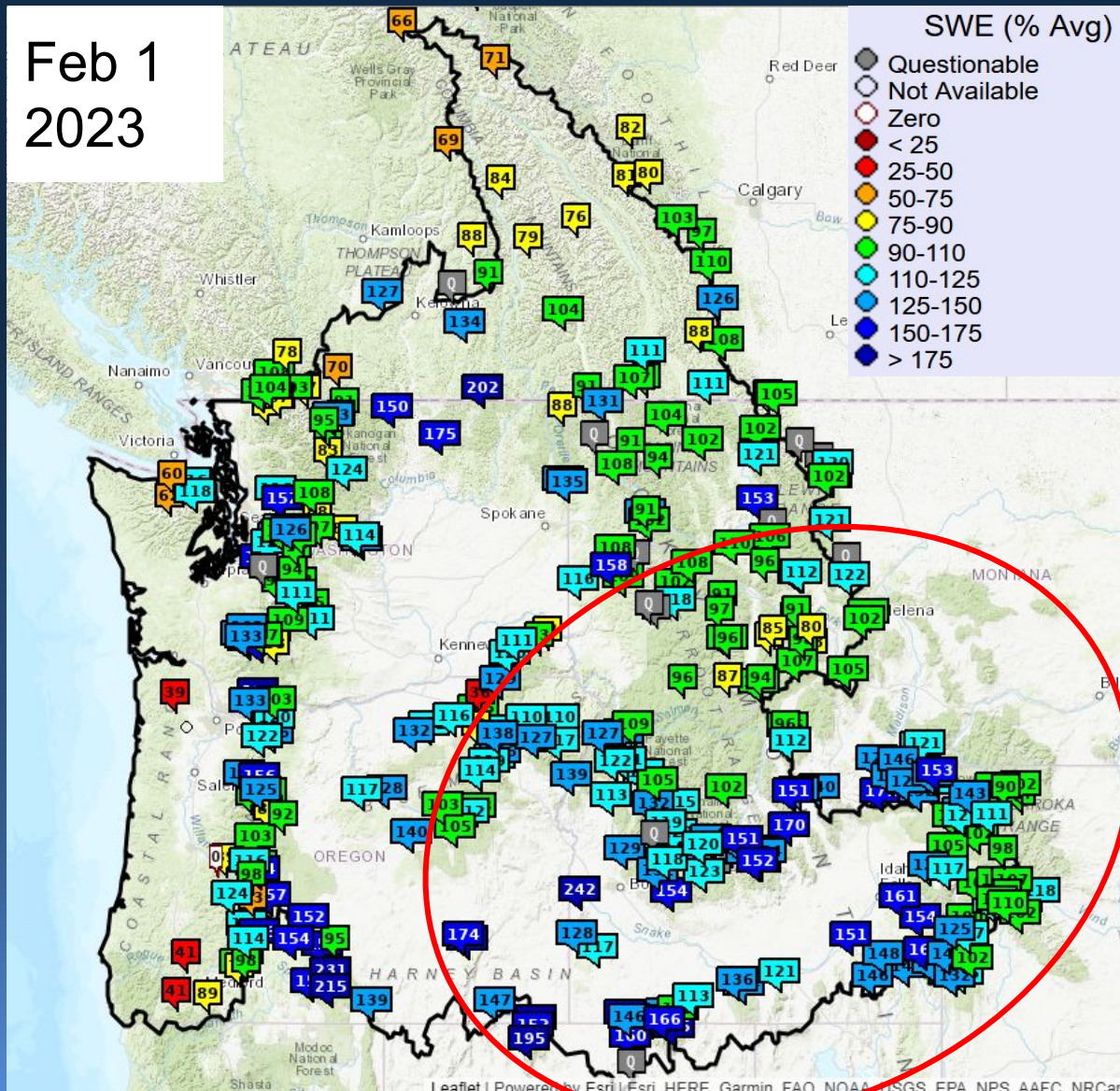
Feb 1
2023



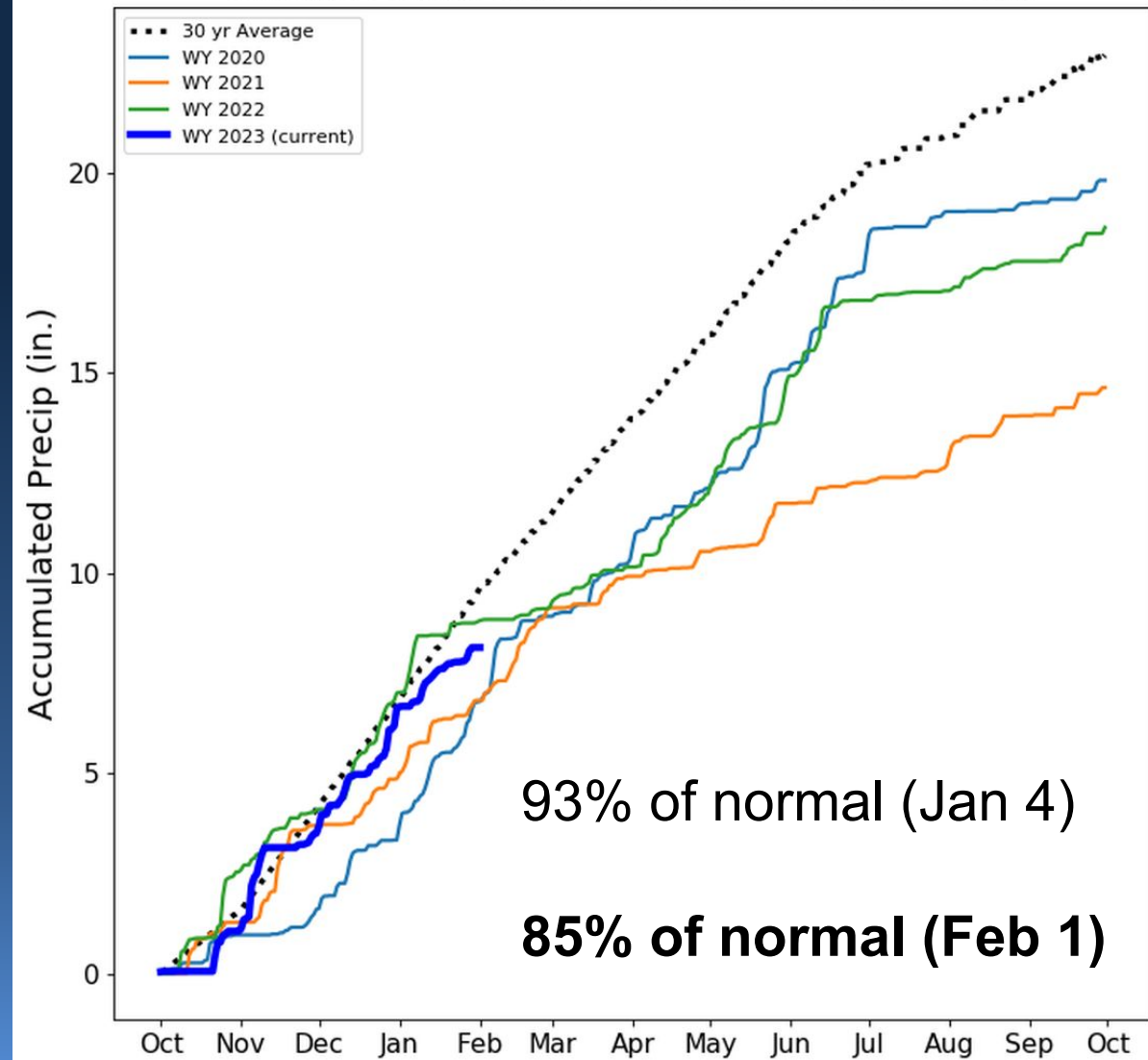
Snow data from NRCS, BC Hydro, and Alberta Environment and Parks. Precip averages from PRISM OSU and PCIC.

Snow and Precipitation

Feb 1
2023



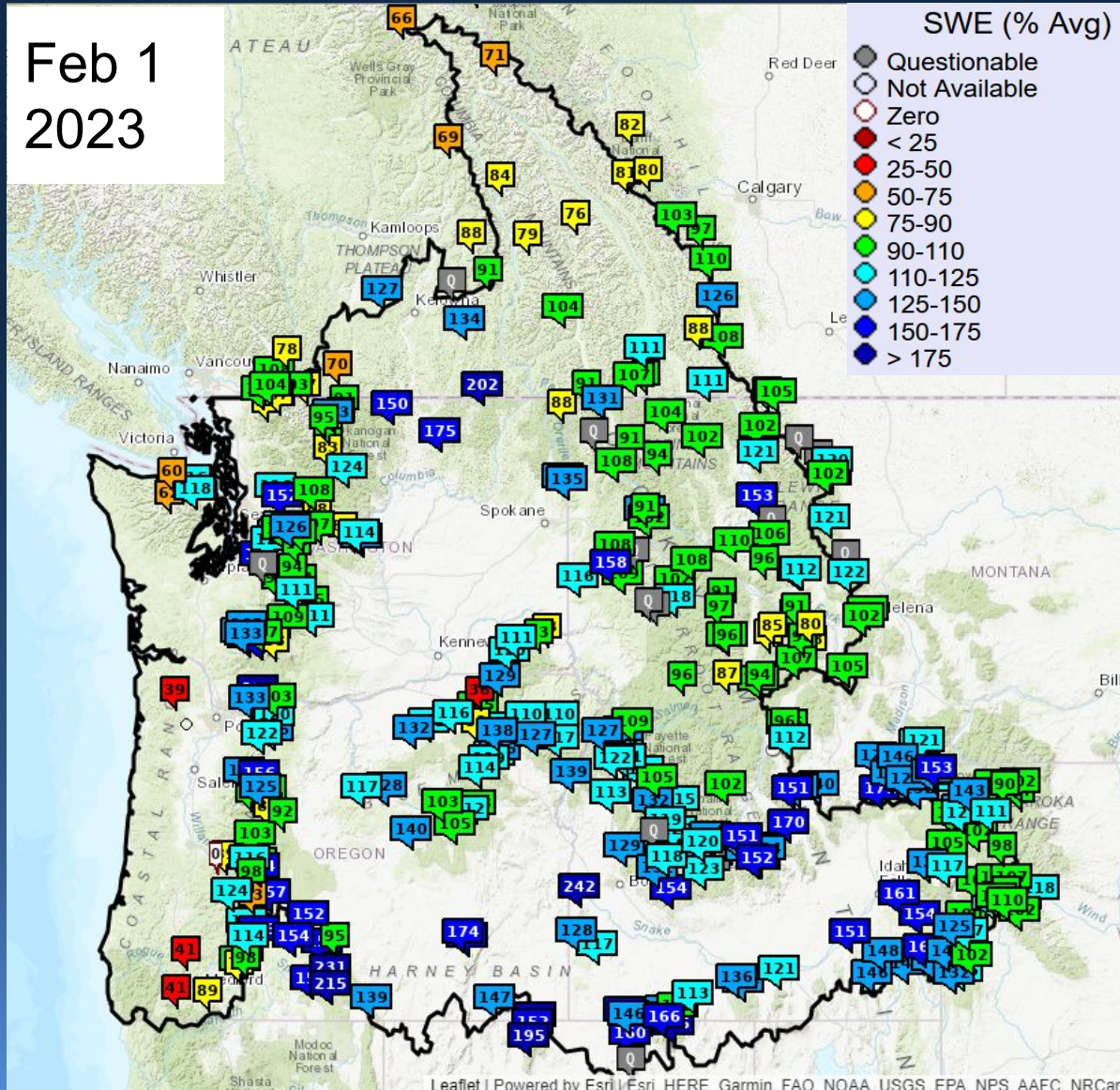
Snake Basin above Lower Granite Dam



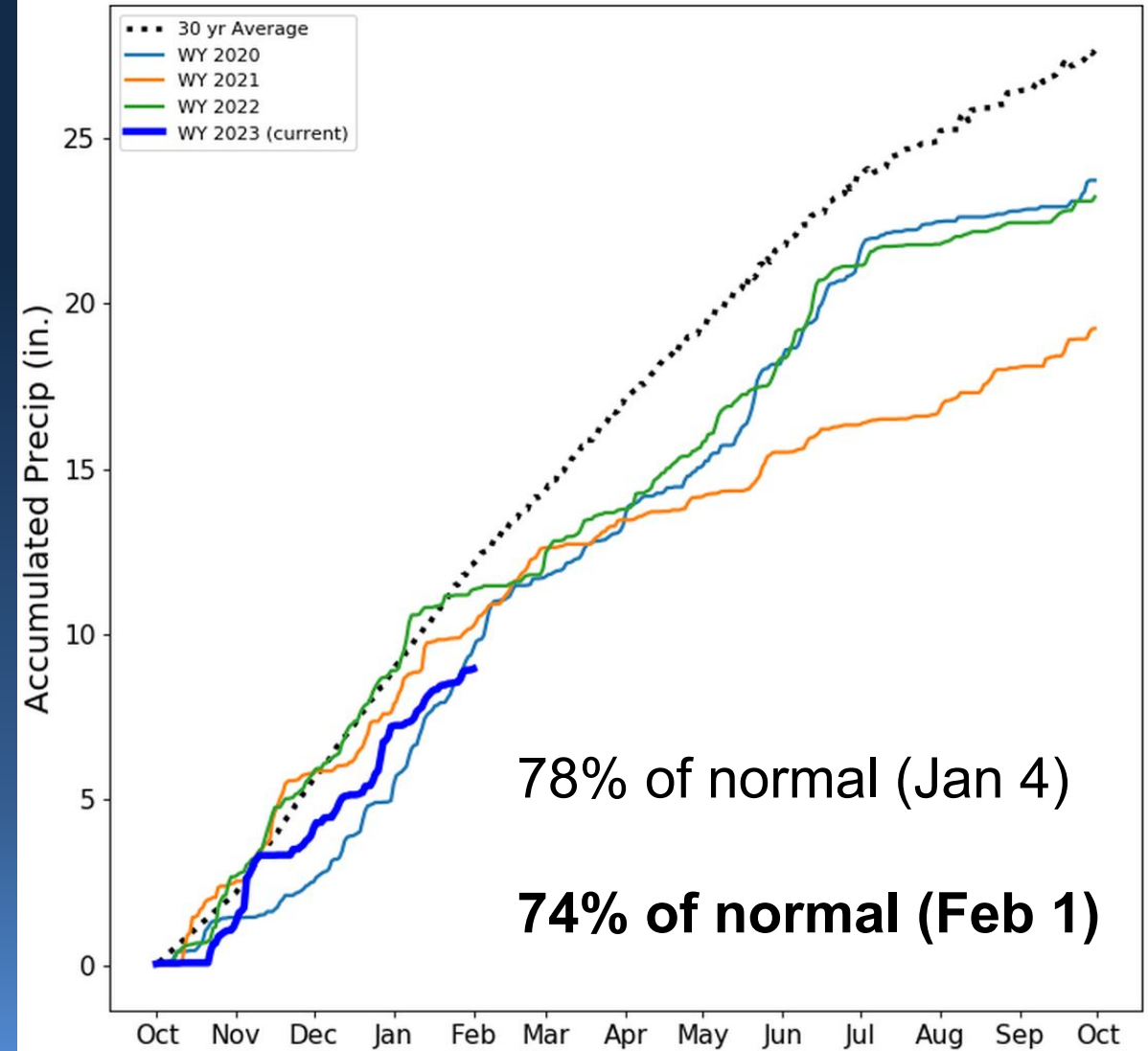
Snow data from NRCS, BC Hydro, and Alberta Environment and Parks. Precip averages from PRISM OSU and PCIC.

Snow and Precipitation

Feb 1
2023



Columbia Basin above The Dalles Dam

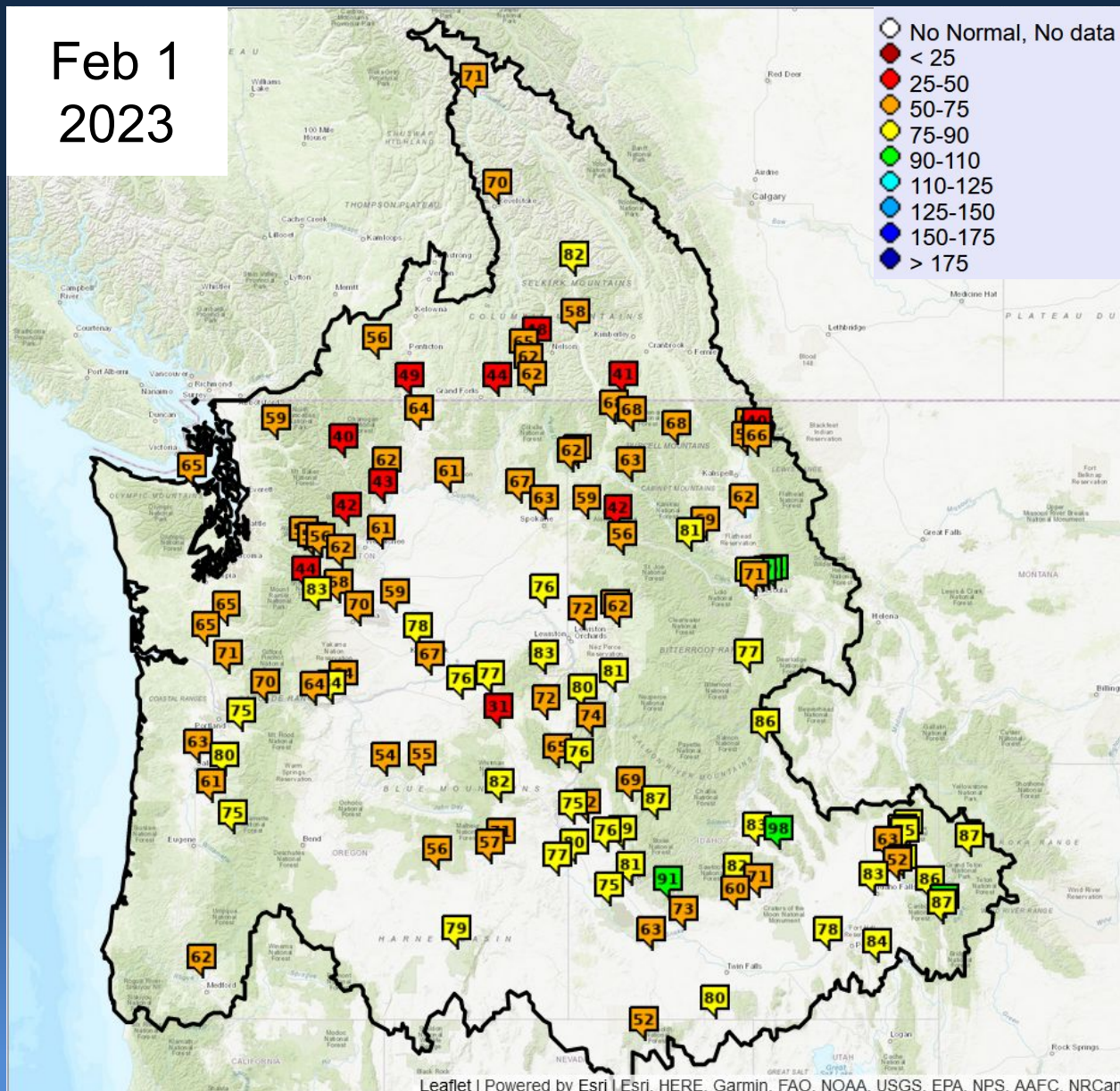


Snow data from NRCS, BC Hydro, and Alberta Environment and Parks. Precip averages from PRISM OSU and PCIC.



Water Year to Date Adjusted Runoff

Feb 1
2023



% Normal Runoff Oct 1- Feb 1

Upper Columbia Basin

Δ since Jan 4

Mica	71	3
Duncan	82	2
Queens Bay	58	2
Libby	68	2
Hungry Horse	66	4
Grand Coulee	61	3

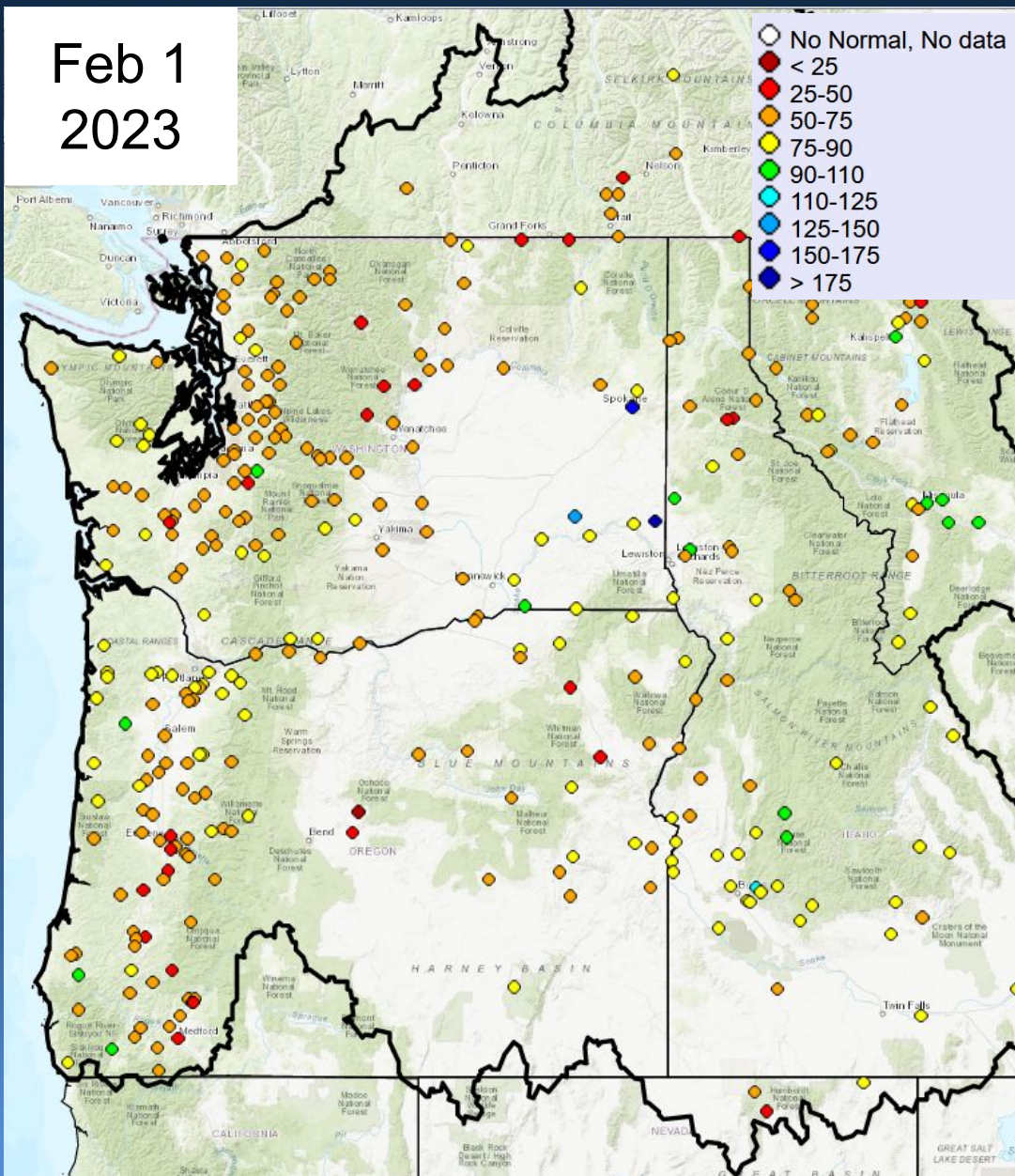
Snake River Basin

American Falls	78	1
Lucky Peak	81	-1
Dworshak	63	-1
Lower Granite	76	0

Lower Columbia Basin

The Dalles	64	0
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Water Year to Date Adjusted Runoff



% Normal Runoff Oct 1- Feb 1

Washington

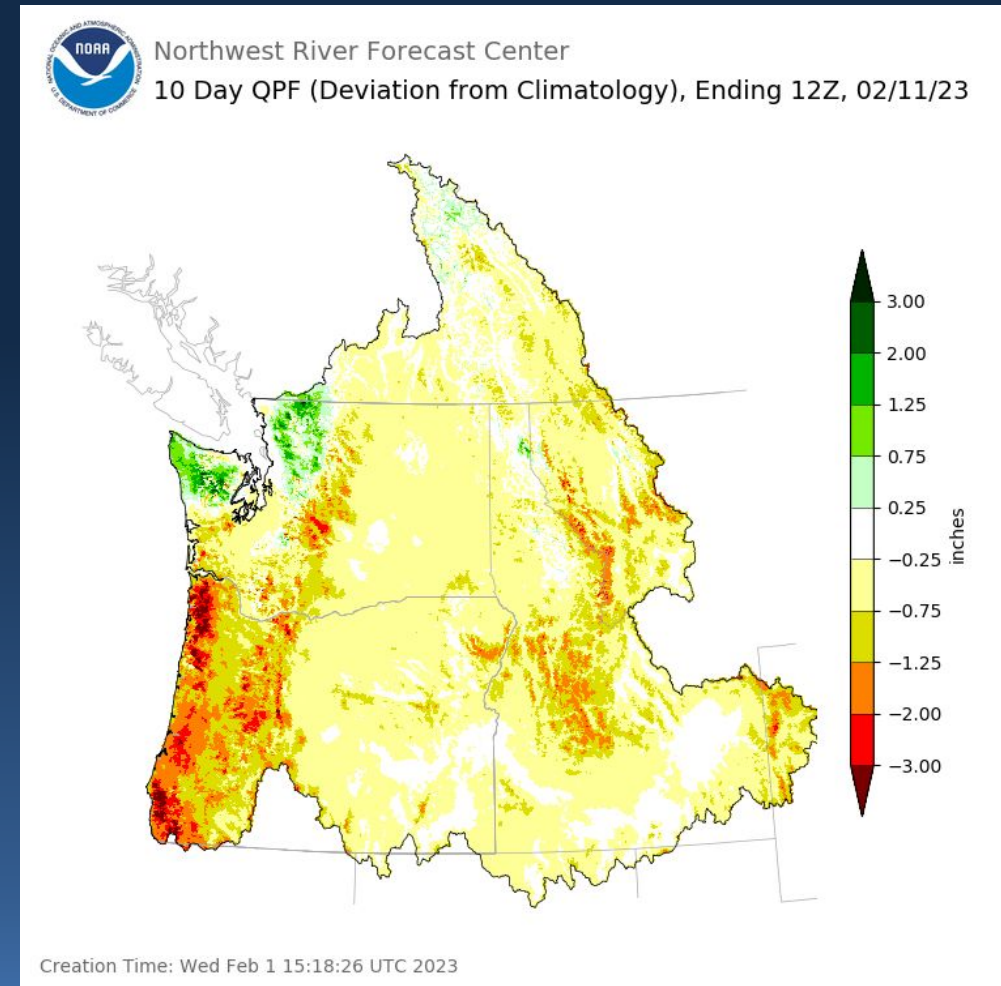
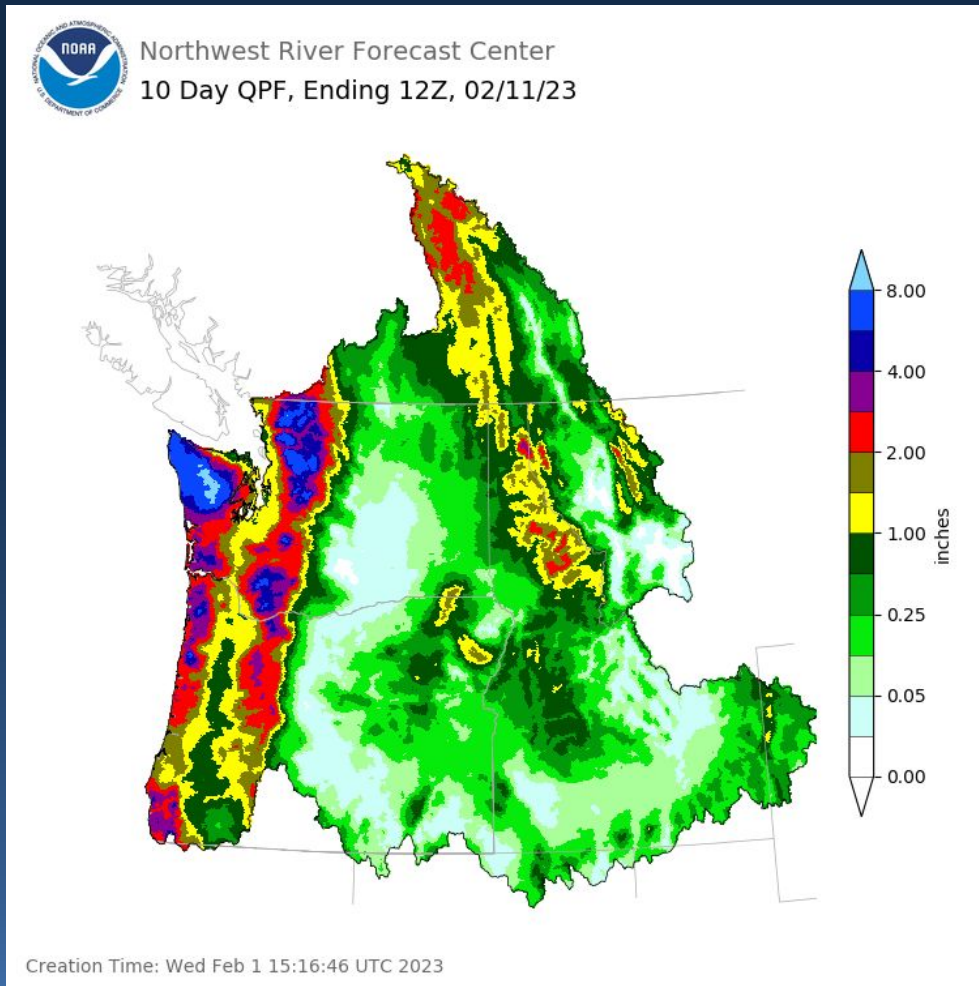
		<u>Δ since Jan 4</u>
Skagit nr Mt Vernon	63	6
Dungeness nr Sequim	65	8
Chehalis at Porter	68	3
Okanogan at Malott	62	2
Methow nr Pateros	62	4
Yakima at Parker	72	3
Walla Walla nr Touchet	107	-11

Oregon

Willamette at Salem	58	-3
Rogue at Raygold	62	-5
Umatilla at Pendleton	76	-6
Grande Ronde at Troy	83	1
Crooked nr Prineville	37	1
Owyhee Dam	71	-5



10 Day Precipitation Forecast Used in ESP10

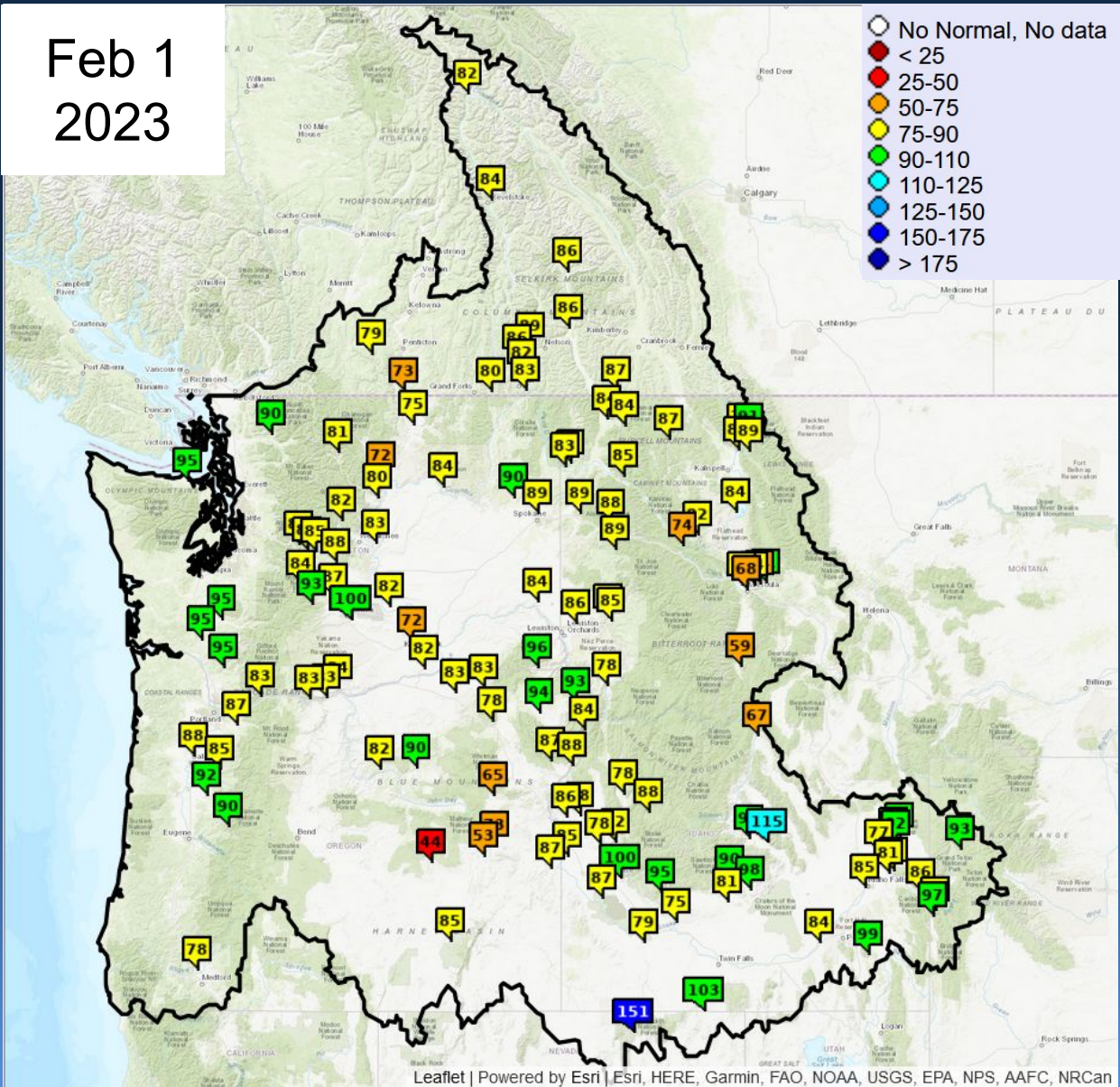


Quantitative Precipitation Forecast (QPF) Sources
Days 1 - 2 NWS Weather Forecast Offices (WFO) in the US, WPC in BC
Days 3 - 7 NWS Weather Prediction Center (WPC)
Days 8 - 10 NWS National Blend of Models (NBM)



Water Supply Forecasts

Feb 1
2023



% Normal Apr-Sep Volume

Upper Columbia Basin

Δ since Jan 4

Mica	82	9
Duncan	86	4
Queens Bay	86	5
Libby	87	7
Hungry Horse	89	2
Grand Coulee	84	5

Snake River Basin

American Falls	84	-10
Lucky Peak	100	-2
Dworshak	88	0
Lower Granite	84	-6

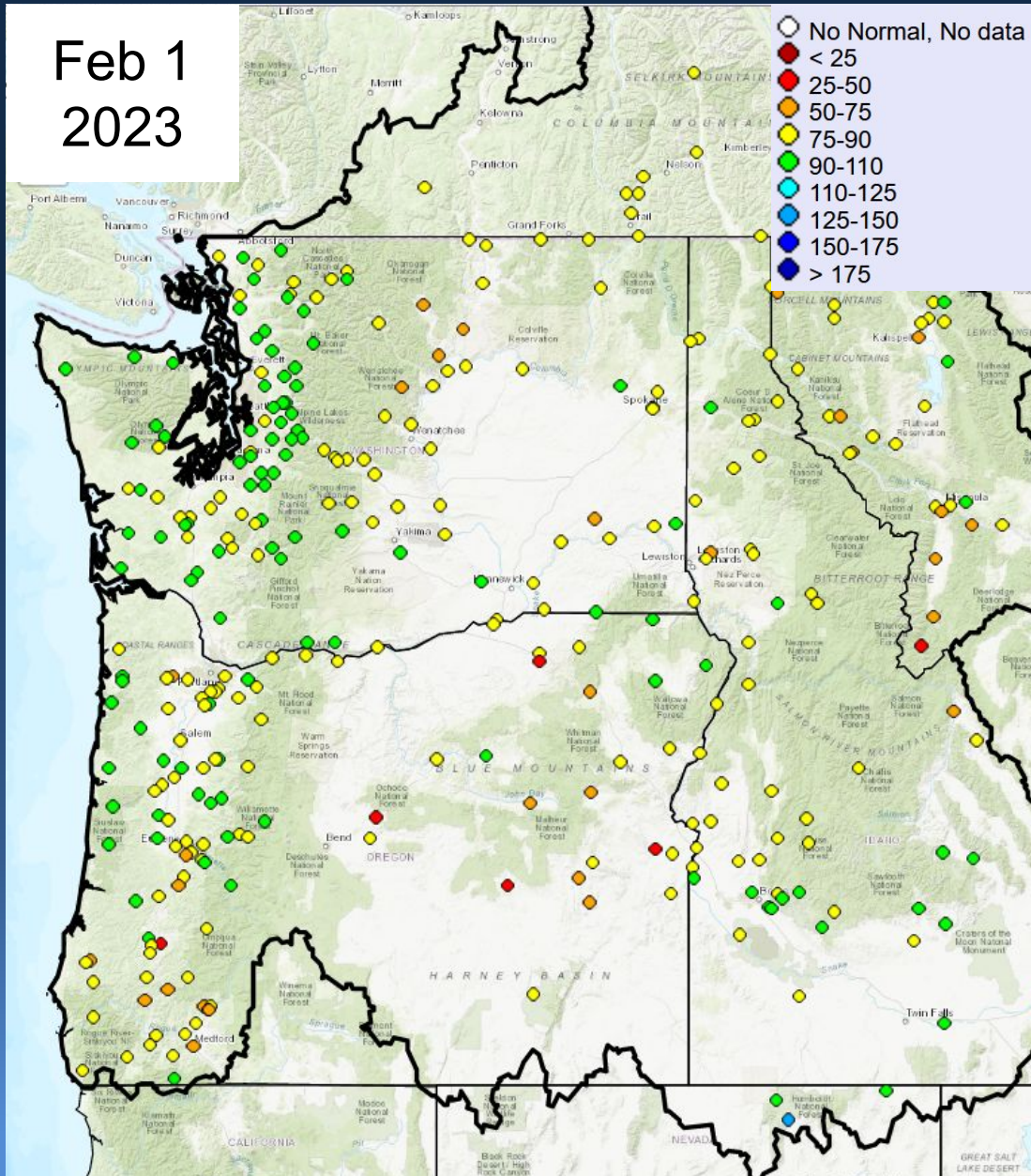
Lower Columbia Basin

The Dalles	83	1
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Water Supply Forecasts (Natural)

Feb 1
2023



% Normal Apr -Sep Volume

Washington

		<u>Δ since Jan 4</u>
Skagit nr Mt Vernon	91	0
Dungeness nr Sequim	94	0
Chehalis at Porter	89	0
Okanogan at Malott	74	7
Methow nr Pateros	72	-1
Yakima at Parker	92	-3
Walla Walla nr Touchet	79	-5

Oregon

Willamette at Salem	84	-3
Rogue at Raygold	80	-8
Umatilla at Pendleton	84	-5
Grande Ronde R at Troy	96	1
Crooked nr Prineville	85	11
Owyhee Dam	86	-2



Water Supply Forecasts

COLUMBIA - GRAND COULEE DAM (GCDW1) Forecasts for Water Year 2023

Official Water Supply

ESP with 10 Days QPF Ensemble: 2023-02-01 Issued: 2023-02-01

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	43310	51677	84	61090	61483
APR-JUL	36077	43284	82	50362	52774
APR-AUG	40266	48862	84	56768	58186
JAN-SEP	50418	58114	82	68736	70457
JAN-JUL	43041	50022	81	58151	61749
OCT-SEP	55282	62978	80	73600	78842

Experimental Water Supply

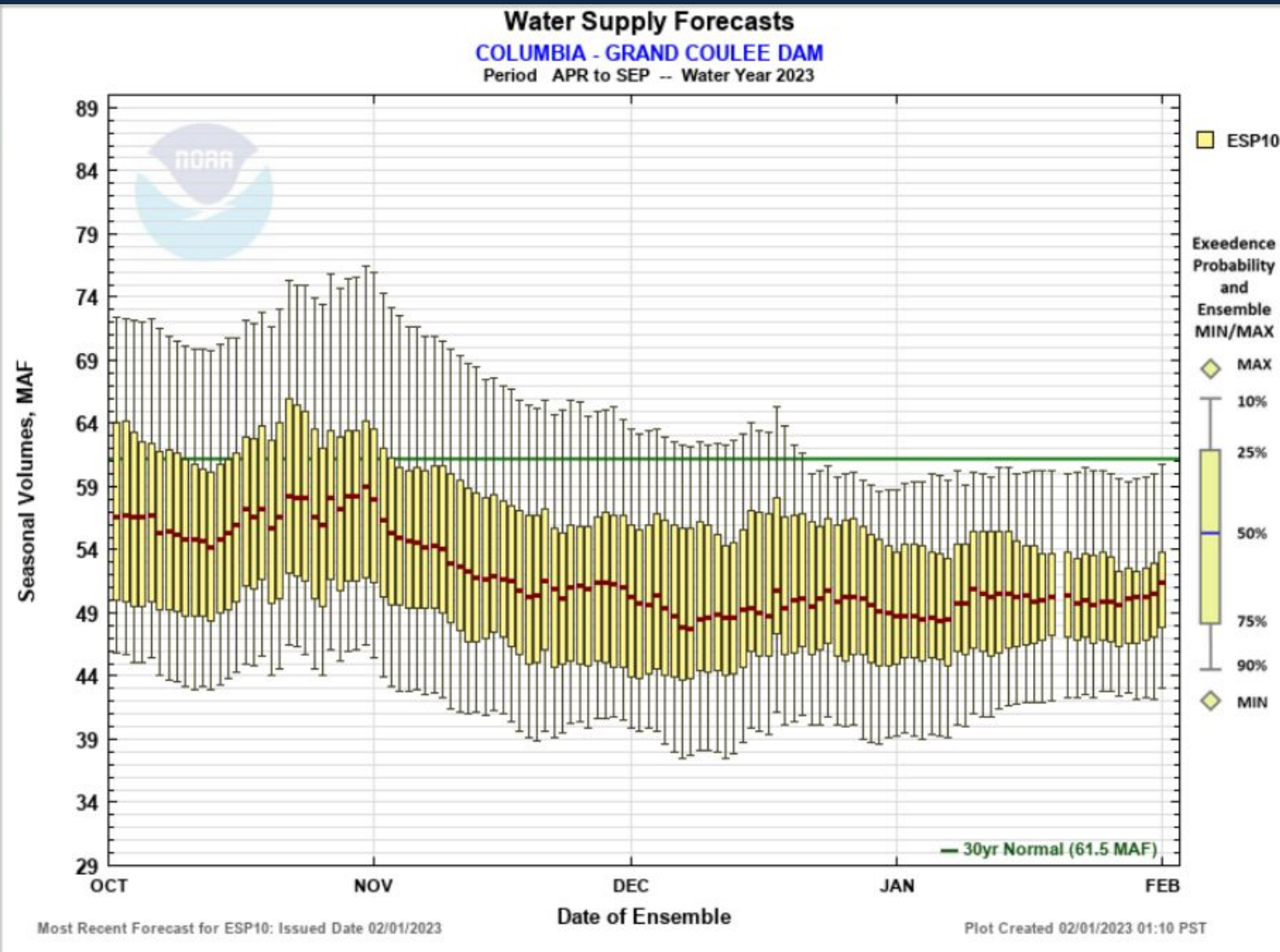
HEFS with 15 days EQPF Ensemble: 2023-02-01 Issued: 2023-02-01

APR-SEP	44346	51586	84	61354	61483
APR-JUL	36721	43729	83	50647	52774
APR-AUG	41663	48963	84	57235	58186
JAN-SEP	51210	58457	83	67602	70457
JAN-JUL	43749	50119	81	57211	61749
OCT-SEP	56074	63320	80	72466	78842

Reference

ESP with 0 Days QPF Ensemble: 2023-02-01 Issued: 2023-02-01

APR-SEP	43884	51440	84	61864	61483
APR-JUL	36409	43530	82	51188	52774
APR-AUG	41168	48438	83	57669	58186
JAN-SEP	50451	59067	84	68620	70457
JAN-JUL	43145	50469	82	57675	61749
OCT-SEP	55315	63930	81	73483	78842



☐ Max Scale ☒ Scale To Data ☐ Scale To Last 45 Days ☐ Show Min/Max Ensemble Volume ☐ Show Tooltips Help



Water Supply Forecasts

SNAKE - LOWER GRANITE DAM (LGDW1) Forecasts for Water Year 2023

Official Water Supply

ESP with 10 Days QPF Ensemble: 2023-02-01 Issued: 2023-02-01

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	14568	18566	84	23073	22232
APR-JUL	12582	16211	81	20536	19946
APR-AUG	13570	17430	83	21833	21121
JAN-SEP	19944	24386	82	29774	29736
JAN-JUL	17975	22210	81	27237	27450
OCT-SEP	23413	27855	81	33244	34287

Experimental Water Supply

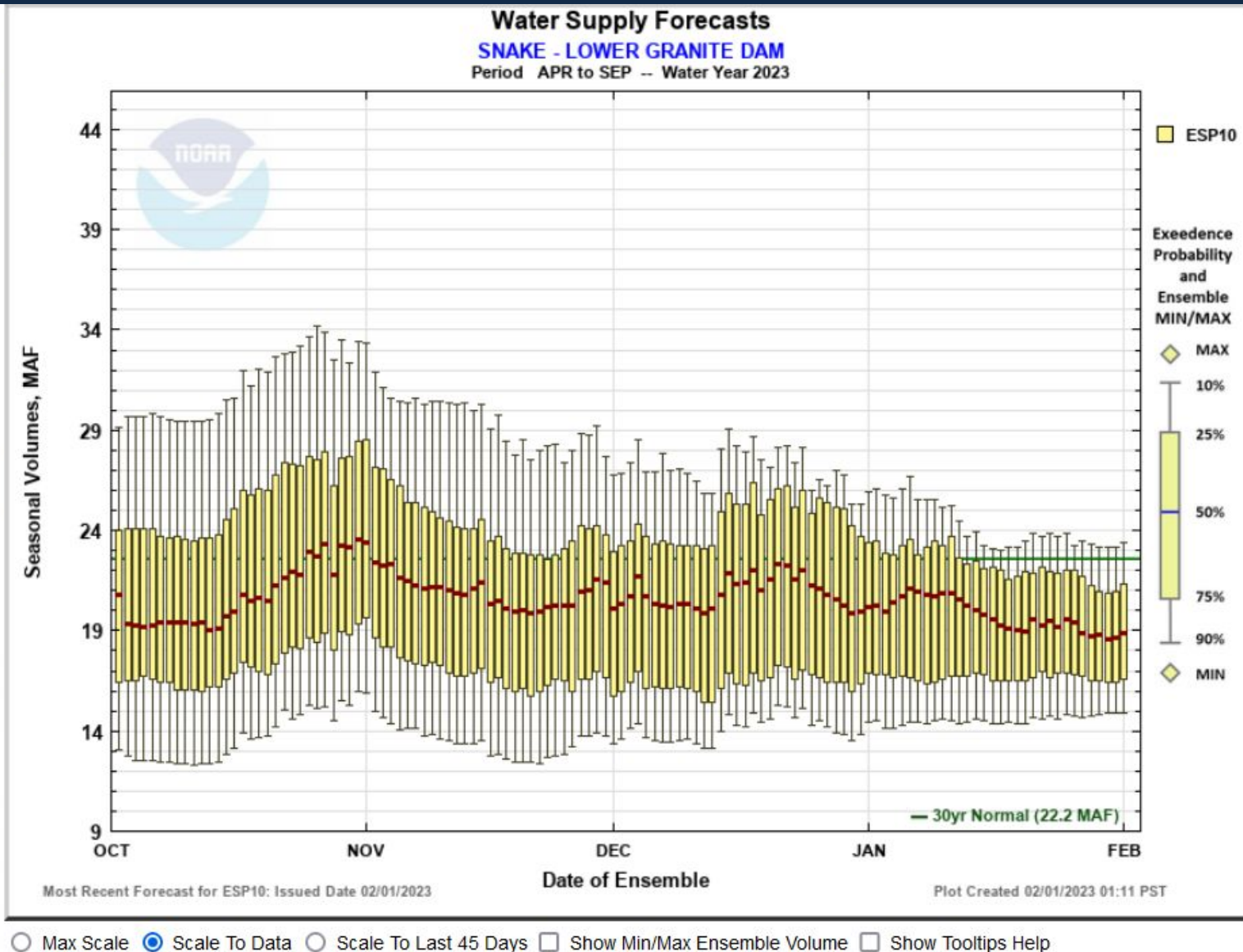
HEFS with 15 days EQPF Ensemble: 2023-02-01 Issued: 2023-02-01

APR-SEP	14458	18562	83	22825	22232
APR-JUL	12442	16245	81	20361	19946
APR-AUG	13454	17418	82	21628	21121
JAN-SEP	19730	24451	82	29597	29736
JAN-JUL	17750	22142	81	26984	27450
OCT-SEP	23199	27920	81	33066	34287

Reference

ESP with 0 Days QPF Ensemble: 2023-02-01 Issued: 2023-02-01

APR-SEP	14413	19254	87	23428	22232
APR-JUL	12420	16886	85	20809	19946
APR-AUG	13405	18107	86	22192	21121
JAN-SEP	19822	24744	83	30440	29736
JAN-JUL	17882	22388	82	27833	27450
OCT-SEP	23291	28213	82	33909	34287





Water Supply Forecasts

COLUMBIA - THE DALLES DAM (TDAO3) Forecasts for Water Year 2023

Official Water Supply

ESP with 10 Days QPF Ensemble: 2023-02-01 Issued: 2023-02-01

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	64614	78061	83	91700	94166
APR-JUL	54231	66396	81	77321	81933
APR-AUG	59939	73273	82	85552	89196
JAN-SEP	79806	92763	80	111206	115946
JAN-JUL	70240	80990	78	98468	103714
OCT-SEP	90189	103147	78	121588	132314

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2023-02-01 Issued: 2023-02-01

APR-SEP	64348	78965	84	93746	94166
APR-JUL	54008	66189	81	79709	81933
APR-AUG	59744	74081	83	87920	89196
JAN-SEP	82991	93826	81	111708	115946
JAN-JUL	72344	81892	79	98099	103714
OCT-SEP	93375	104209	79	122091	132314

Reference

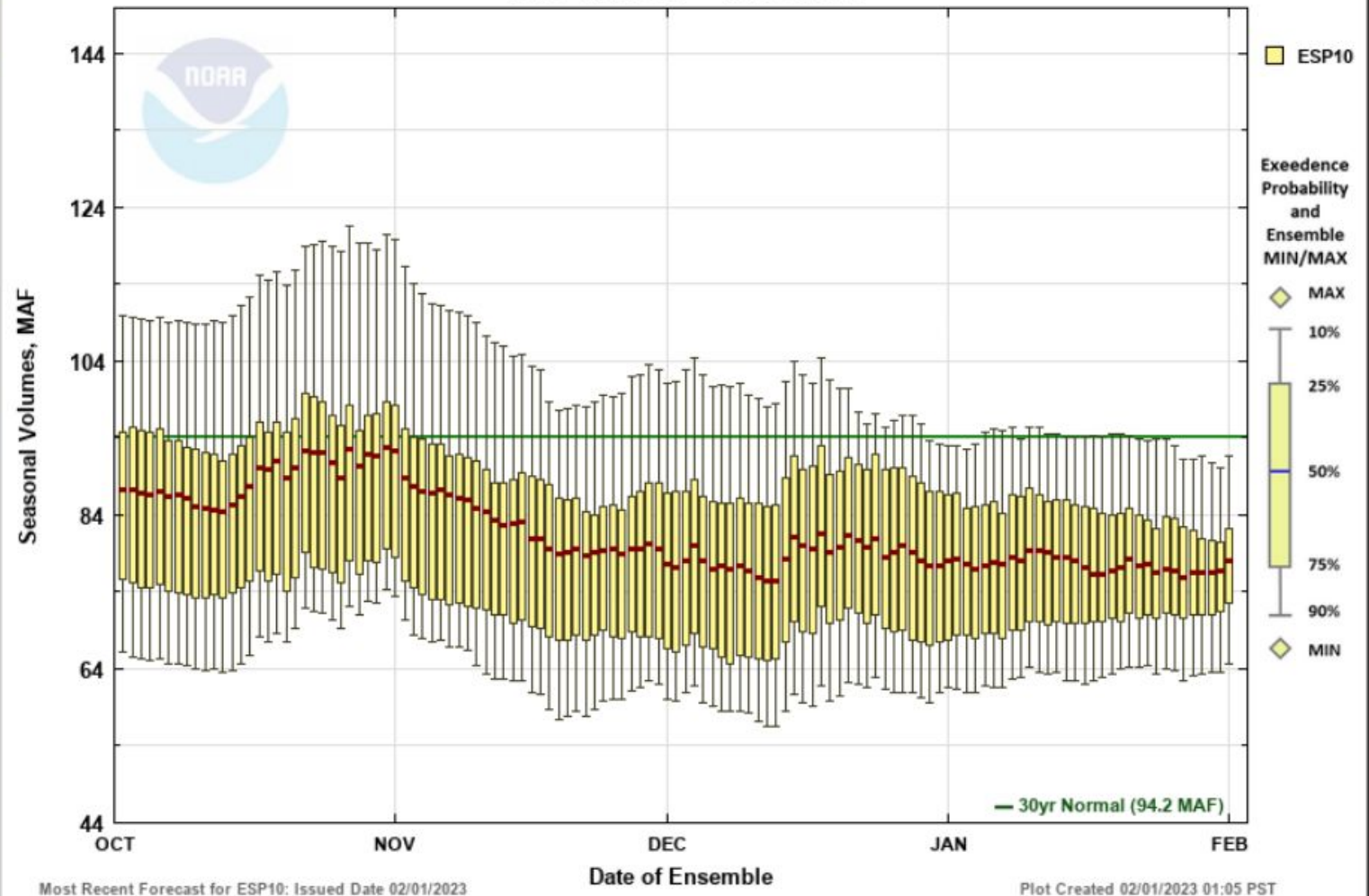
ESP with 0 Days QPF Ensemble: 2023-02-01 Issued: 2023-02-01

APR-SEP	65649	79221	84	94895	94166
APR-JUL	55198	66004	81	80421	81933
APR-AUG	60750	74049	83	88606	89196
JAN-SEP	84180	95903	83	113313	115946
JAN-JUL	73370	82583	80	99694	103714
OCT-SEP	94563	106286	80	123696	132314

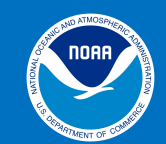
Water Supply Forecasts

COLUMBIA - THE DALLES DAM

Period APR to SEP -- Water Year 2023

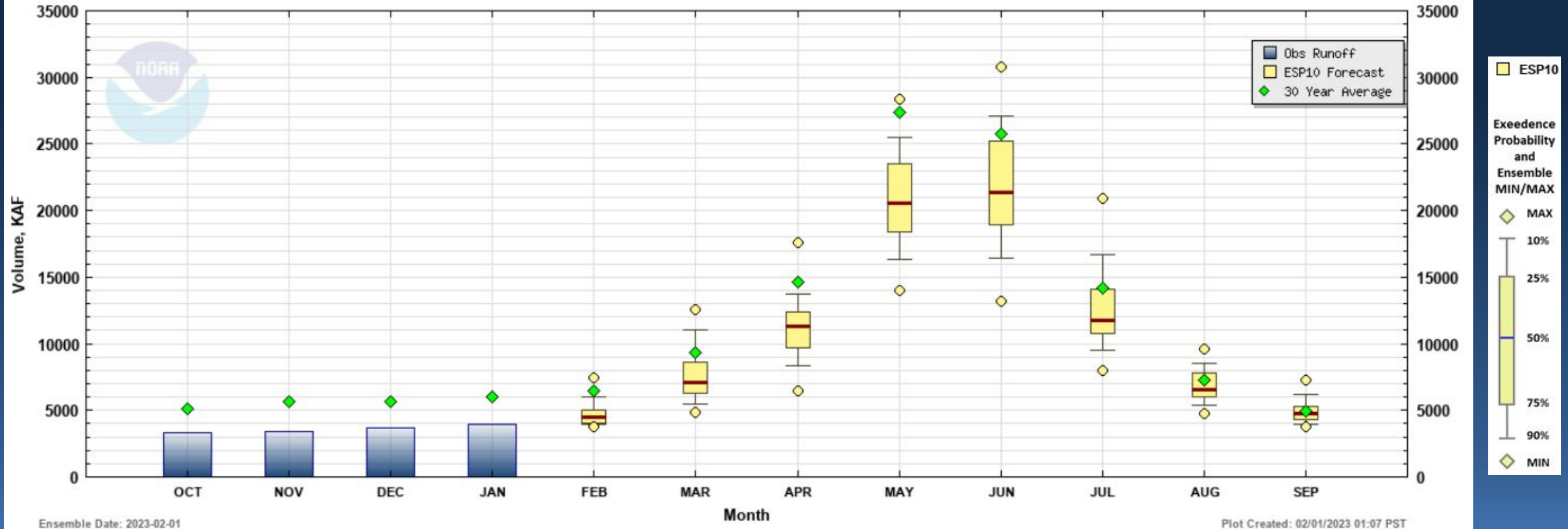


☐ Max Scale ☒ Scale To Data ☐ Scale To Last 45 Days ☐ Show Min/Max Ensemble Volume ☐ Show Tooltips Help



Water Supply Forecasts

Water Supply Volume Monthly Forecasts (ESP10) for Water Year 2023
(TDA03) COLUMBIA - THE DALLES DAM



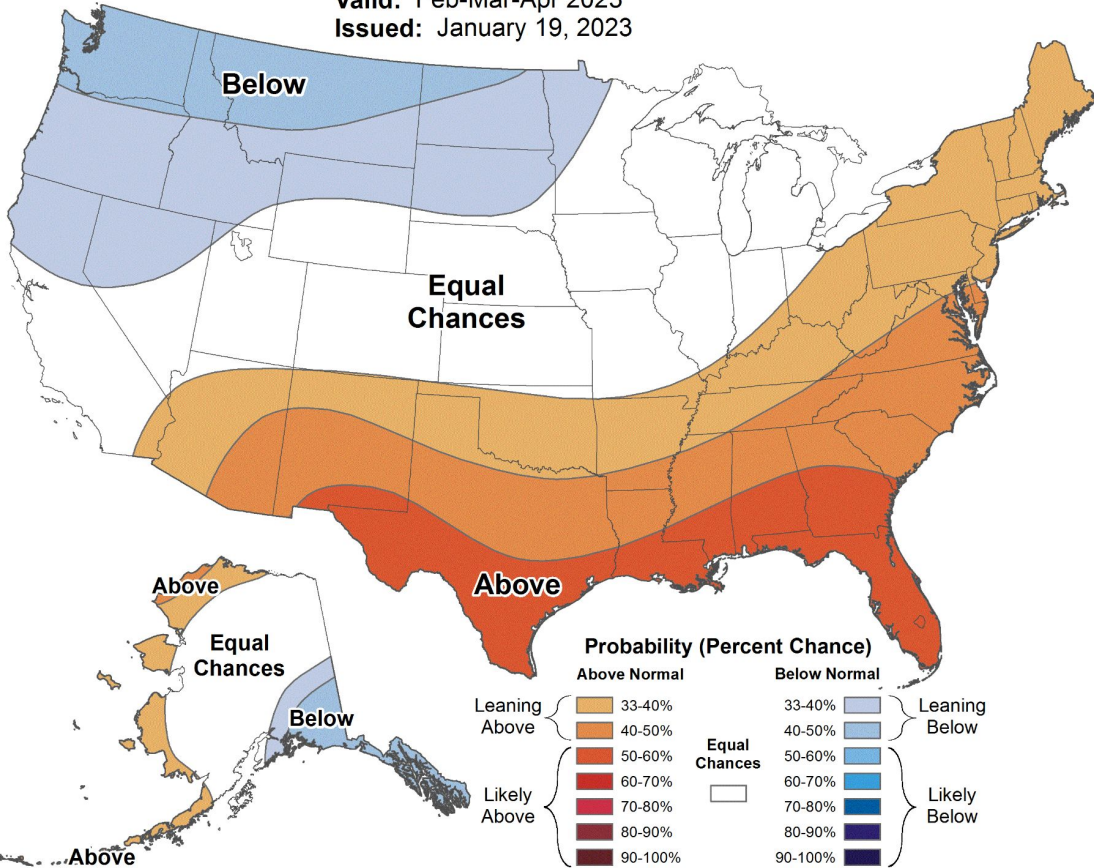
Climate Prediction Center Seasonal Outlook



Seasonal Temperature Outlook



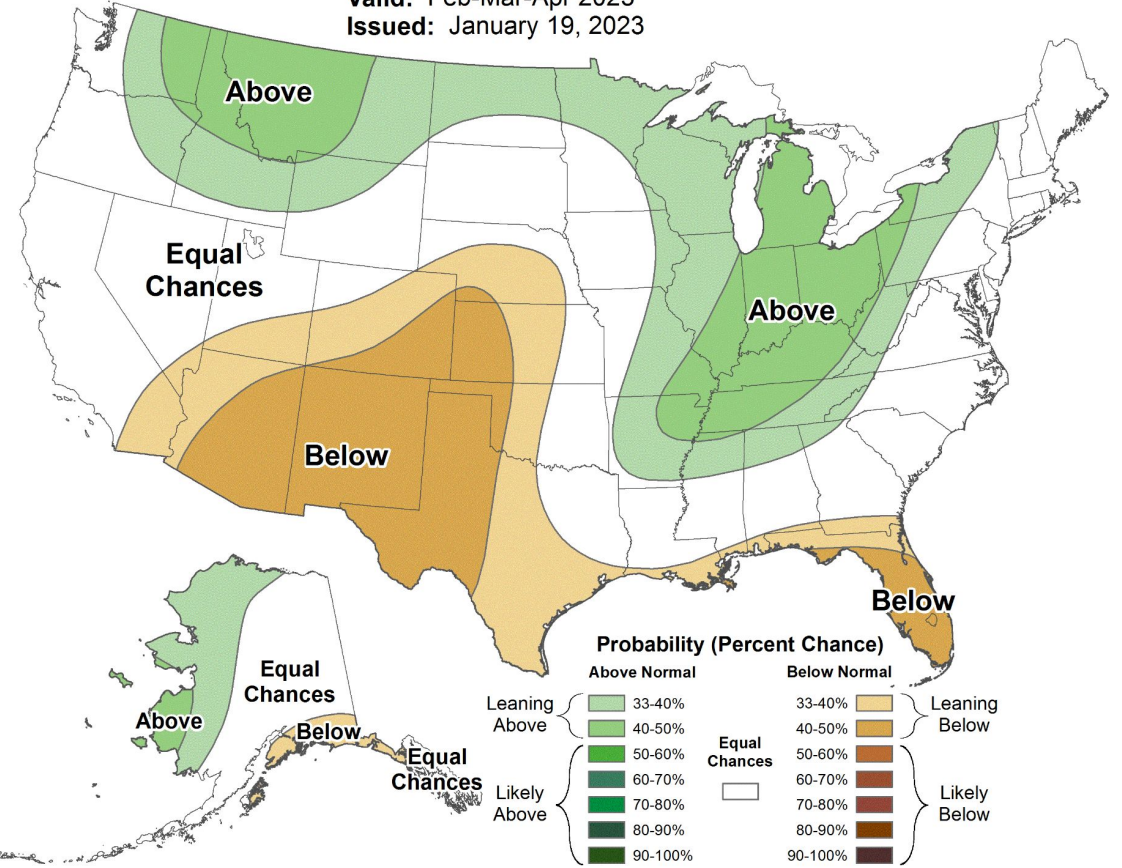
Valid: Feb-Mar-Apr 2023
Issued: January 19, 2023



Seasonal Precipitation Outlook



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



Climate Prediction Center Model Predictions

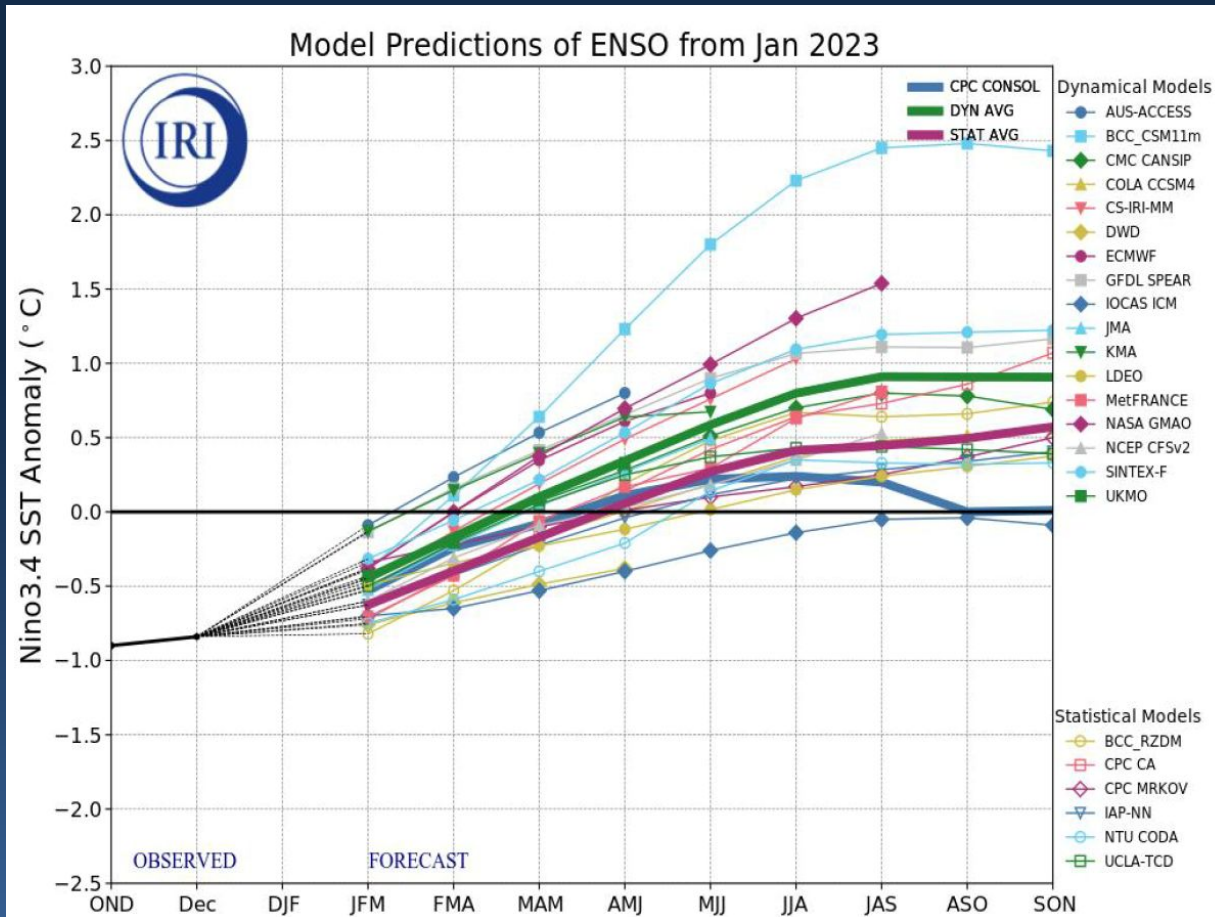
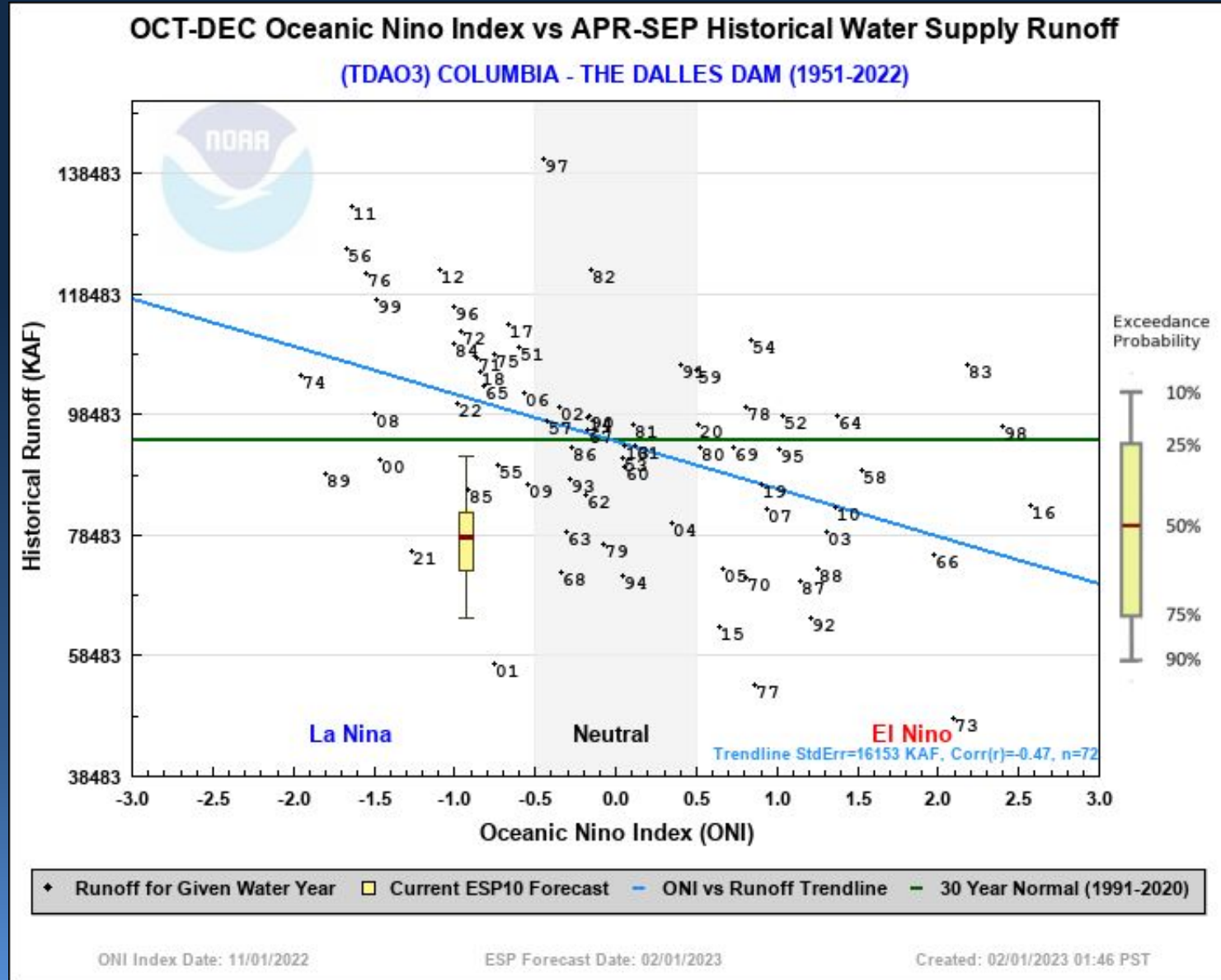


Figure provided by the International Research Institute (IRI) for Climate and Society (updated 19 January 2023).

By February-April 2023, most models indicate the return of ENSO-neutral. By May-July, the dynamical models suggest a potential return to El Niño, while the statistical models indicate the continuation of ENSO-neutral through the Northern Hemisphere summer.



Oceanic Niño Index vs Apr - Sep Runoff Volumes





Take Home Messages

Lower than normal January precipitation has lead to decreases in snowpack relative to normal.

Snowpack has a gradient of well below normal conditions in Northern Canada to well above normal conditions in the Snake, and has mixed conditions along the Cascades.

Observed runoff to date remains well below normal.

Apr-Sep water supply forecasts remain mostly below normal.



WY2022 Schedule for Live Water Supply Briefings

Mar	Apr	May
2	6	4
All presentations held at 10:00 am Pacific Time unless noted otherwise		

Telephone Conference Call Number
(same for each month's brief):
(213) 929 - 4212

Access Code :
949-968-637#



Questions?

If you have a question, use the 'Raise Hand' function we can unmute you or type your question in the chat.

To ask a question using your phone, enter the **AUDIO PIN** followed by the **#** sign. The **AUDIO PIN** was provided when you logged into the webinar. If you need to enter the PIN after you are connected, try **#PIN#**.

NWRFC.watersupply@noaa.gov
(503) 326-7291

