



Northwest River Forecast Center

April 2024 Water Supply Briefing

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April 4, 2024



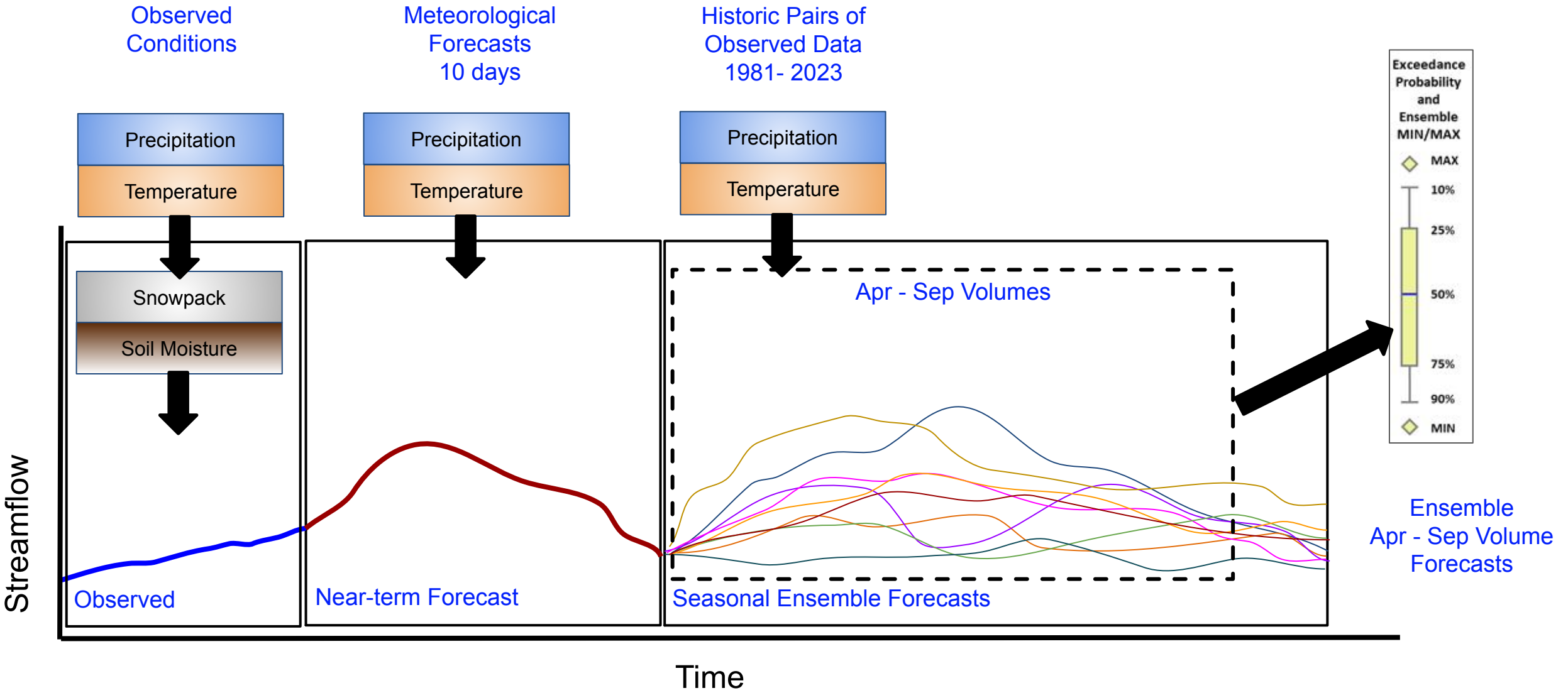


Key Takeaways

- Water year to date precipitation and current snowpack are stratified geographically, with well below normal conditions in the northern, mountainous areas and near to well above normal conditions in the south
- Some warm spells this past month have melted off mid-to-lower elevation snow
- Water supply forecasts largely mimic precipitation and snow conditions with extremely dry forecasts in the north (Canadian portion of the Columbia River Basin) and very wet forecasts in the south



NWRFC Forecast Technique: Ensemble Streamflow Prediction

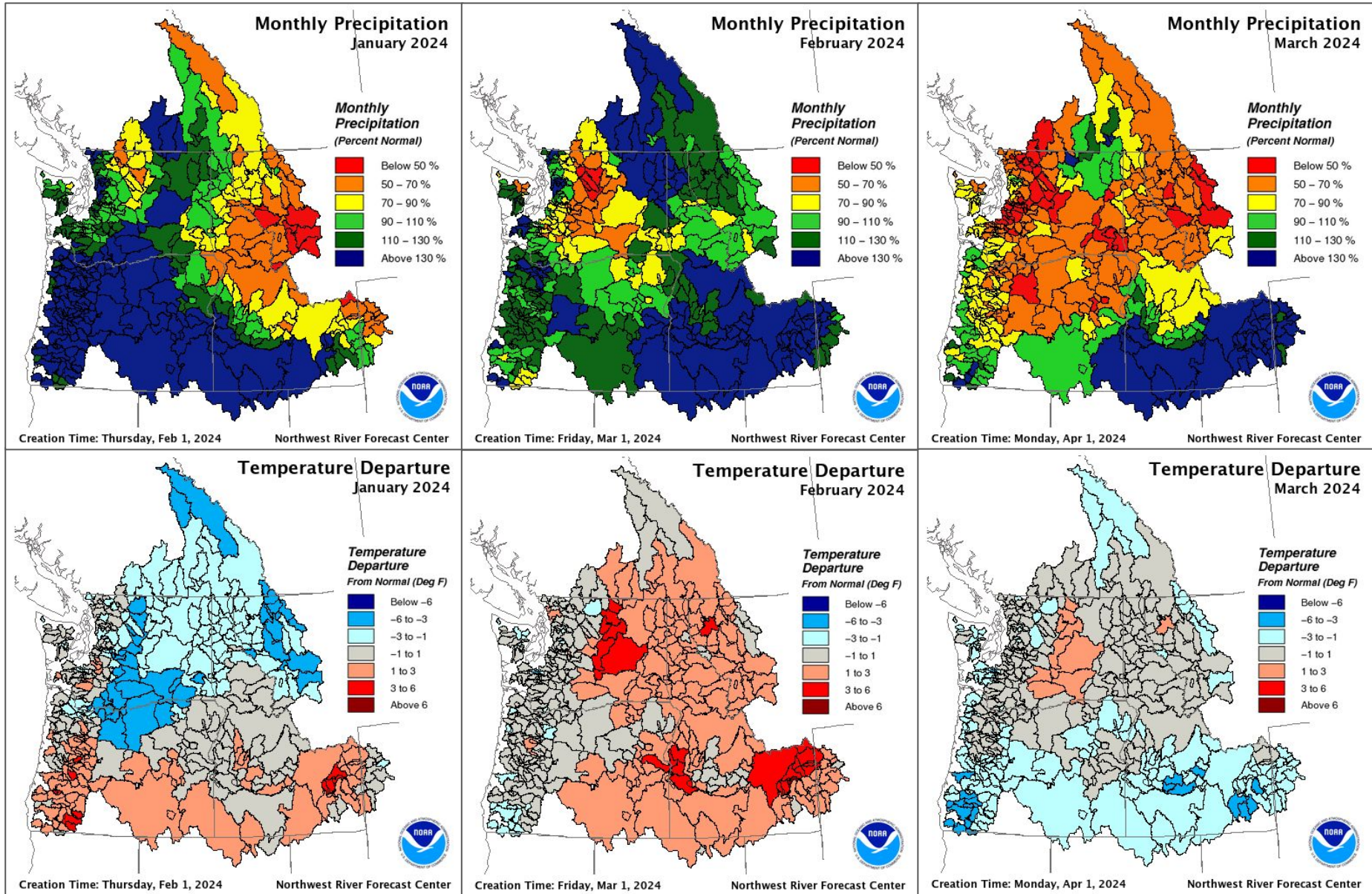




Observed Monthly Precipitation and Temperature

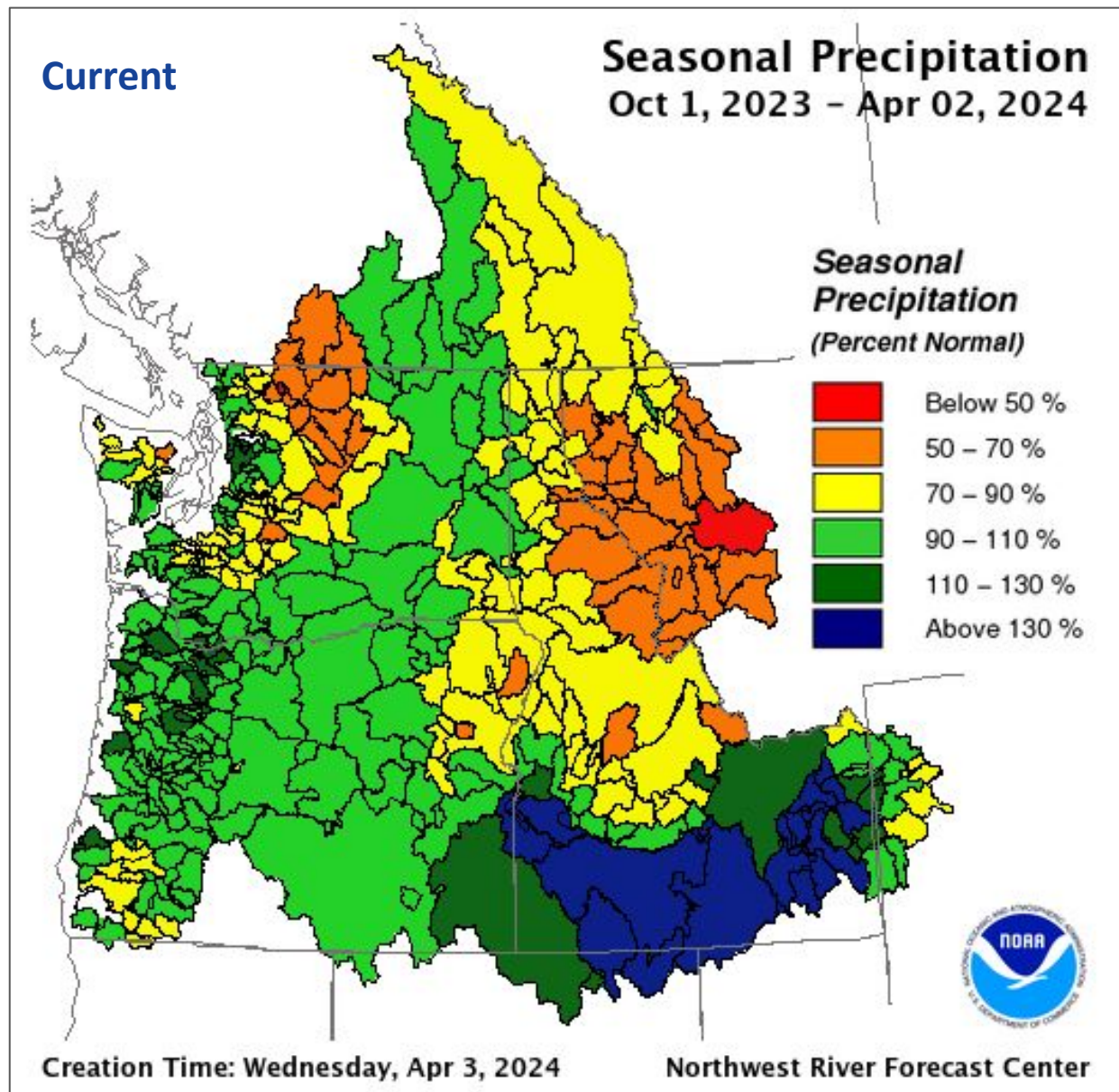
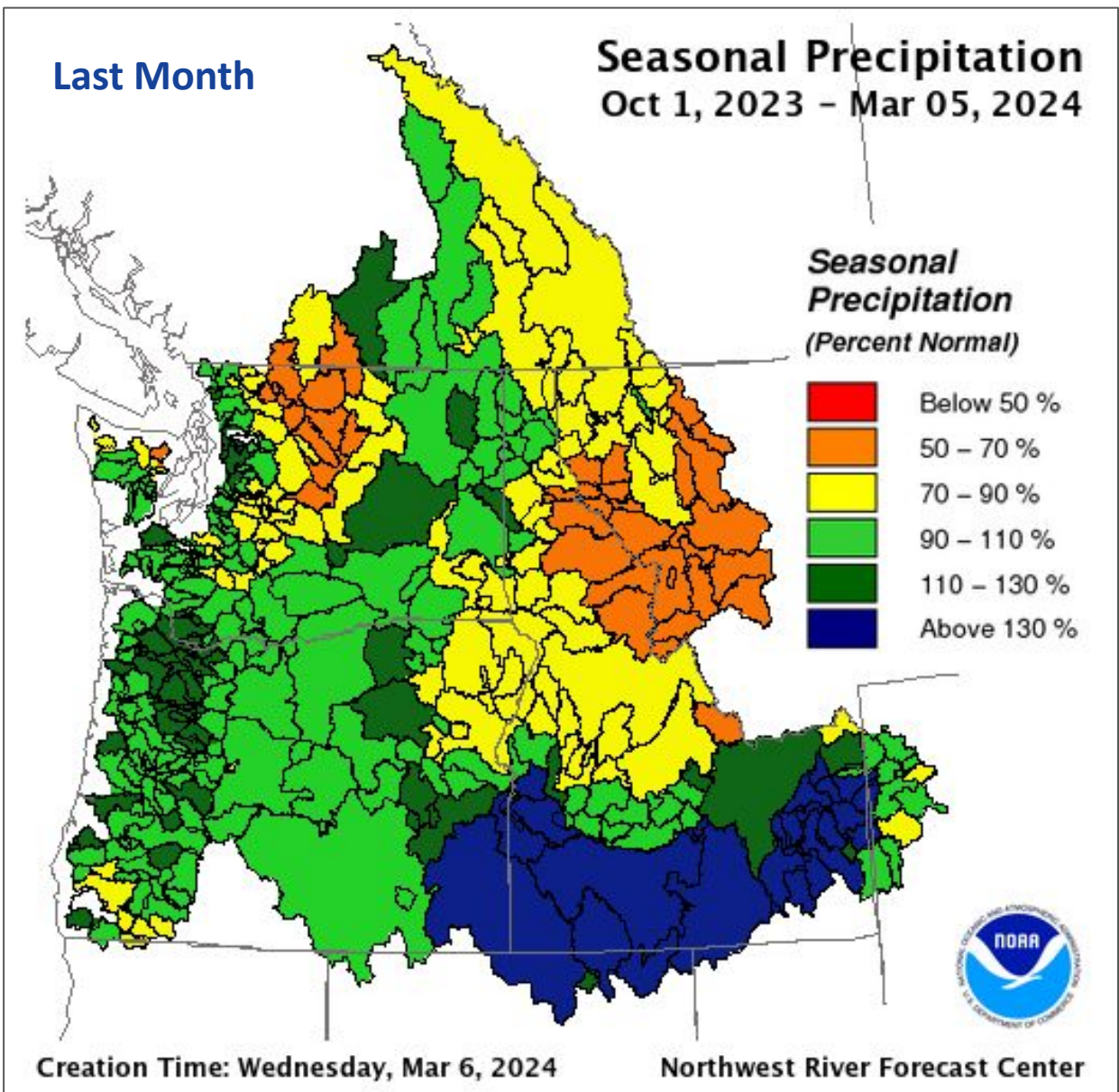
Precipitation % Normal

Temperature Departure from Normal



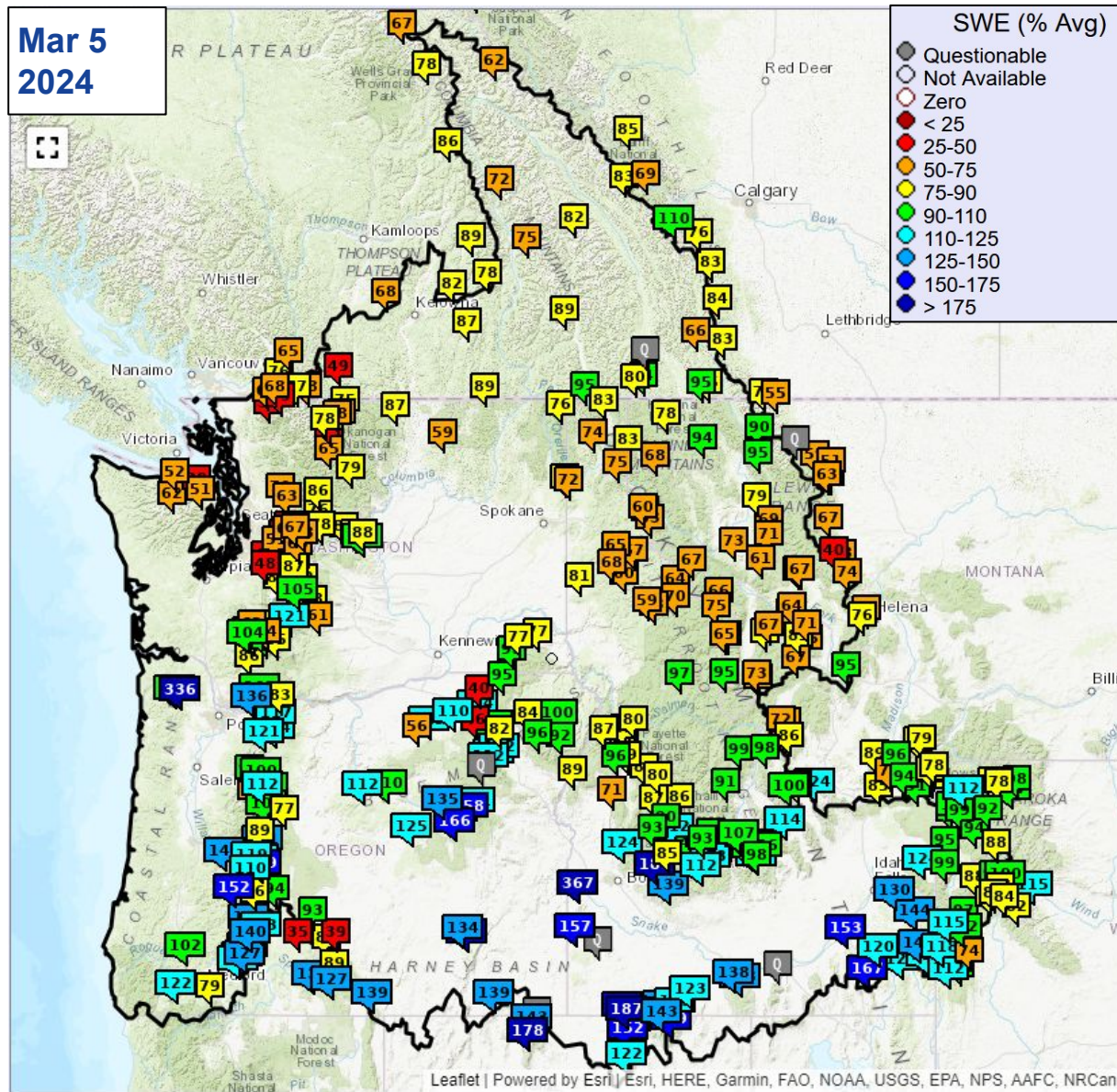


Water Year to Date Precipitation

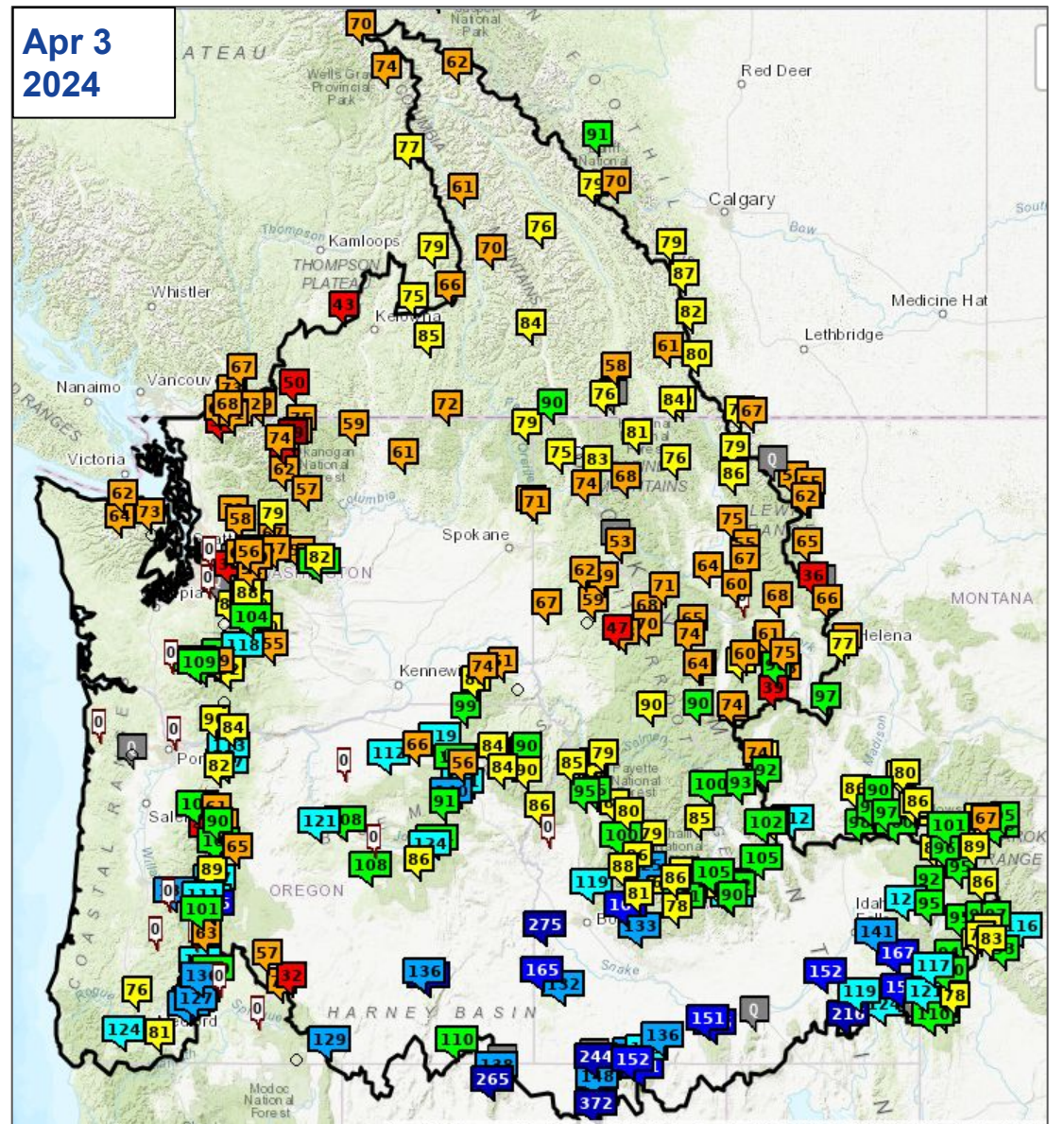


Snowpack

**Mar 5
2024**



**Apr 3
2024**

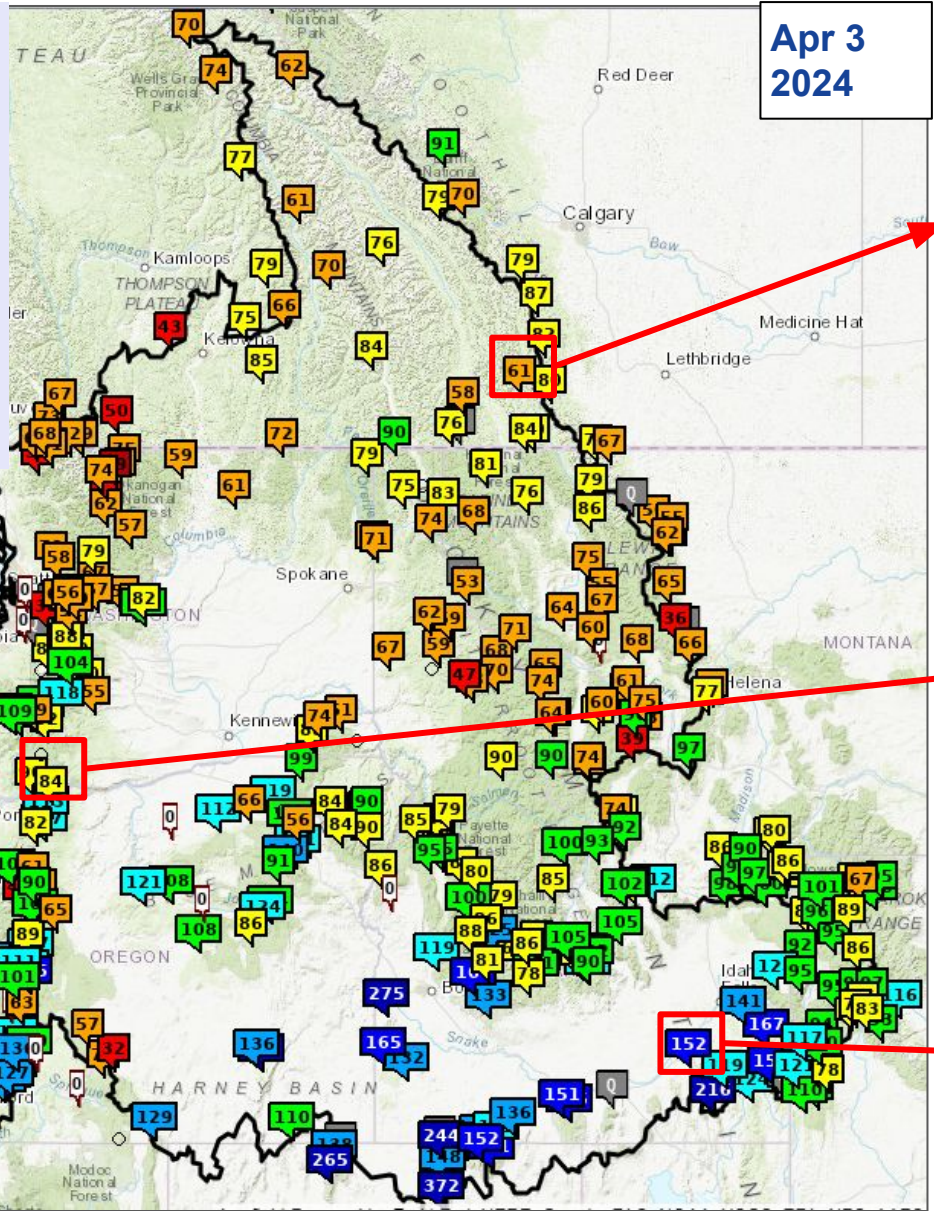


Snow data from Natural Resources Conservation Service, BC Hydro, Ministry of Environment and Climate Change Strategy, and Alberta Environment and Parks.

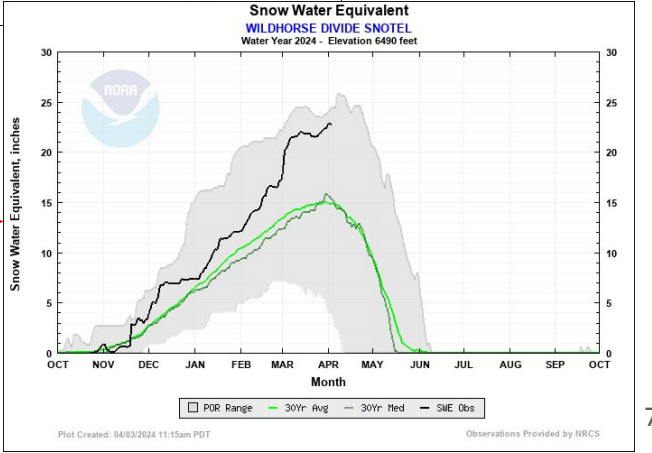
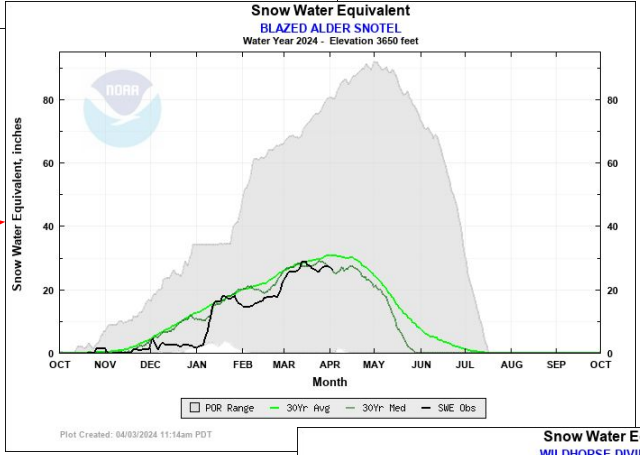
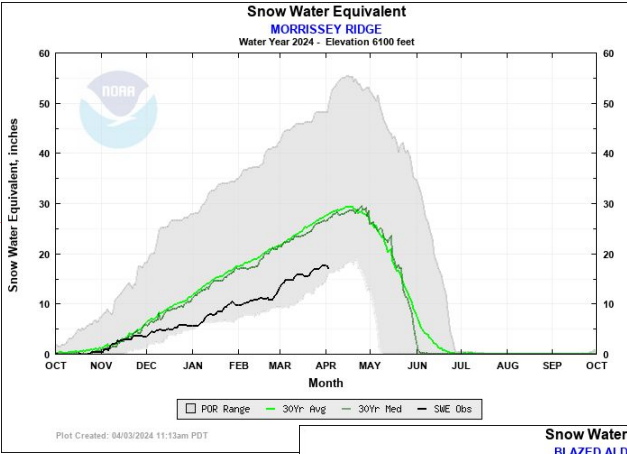


Snowpack

- SWE (% Avg)**
- Questionable
 - Not Available
 - Zero
 - < 25
 - 25-50
 - 50-75
 - 75-90
 - 90-110
 - 110-125
 - 125-150
 - 150-175
 - > 175

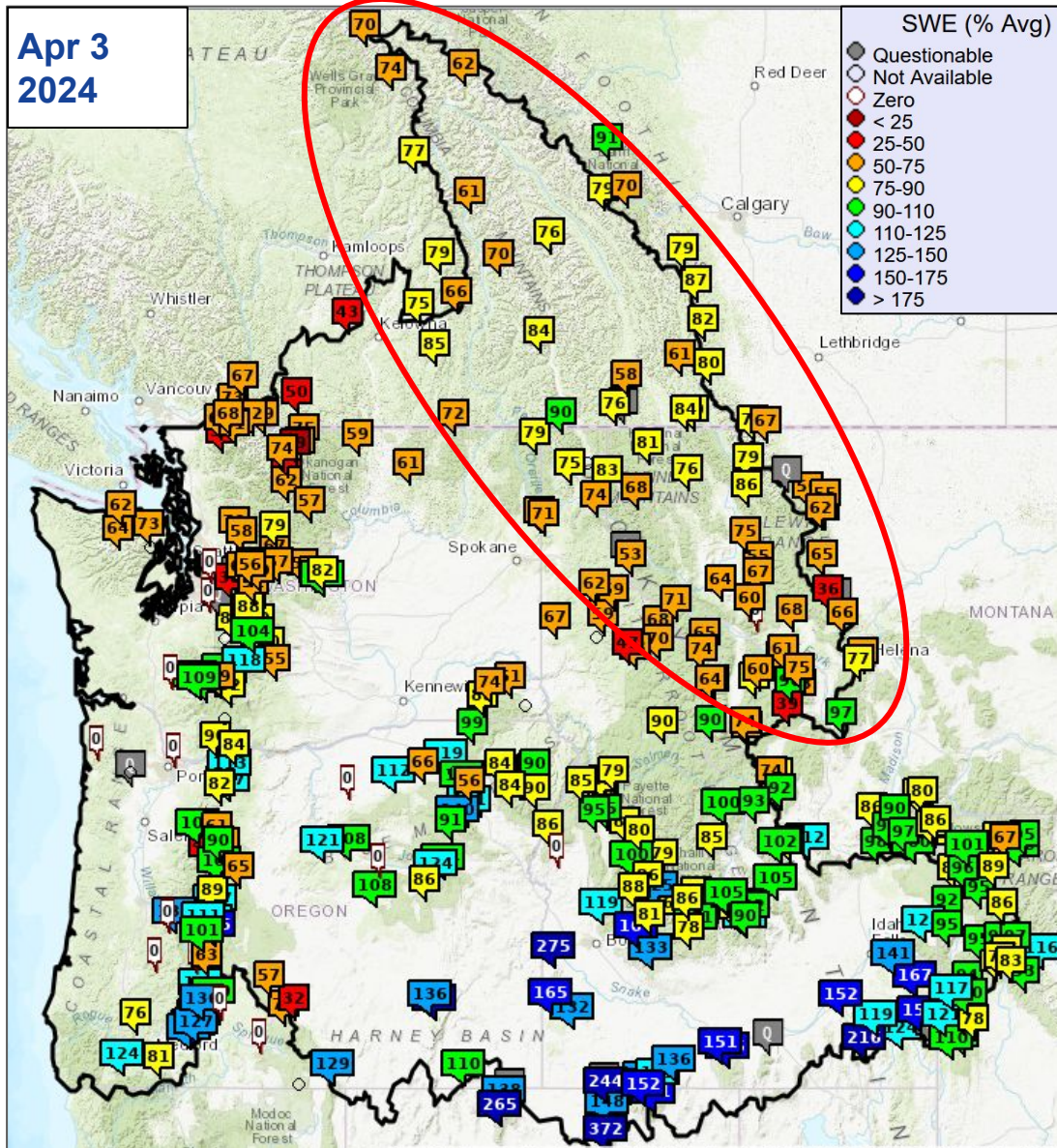


Apr 3 2024

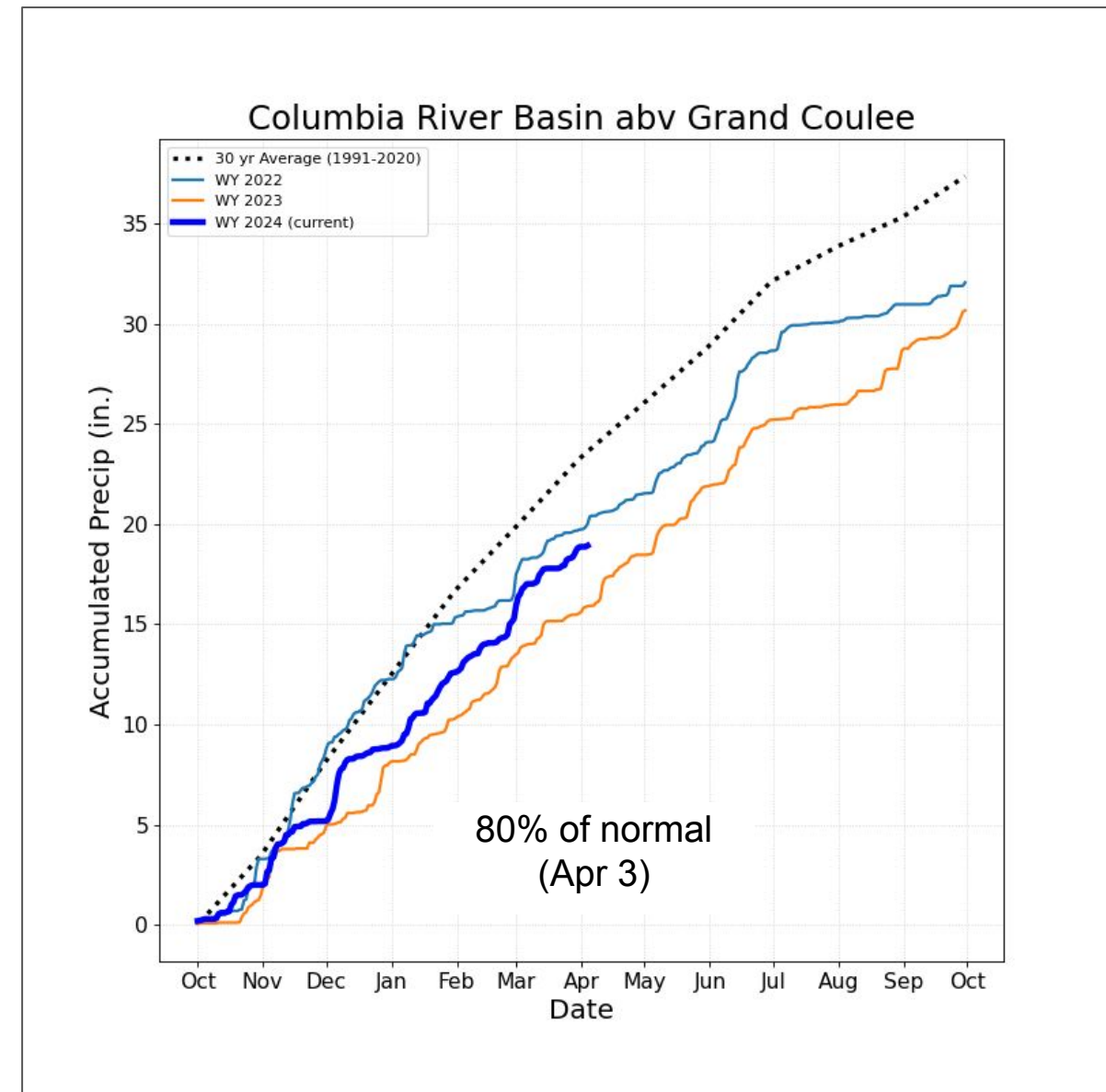


Snow data from Natural Resources Conservation Service, BC Hydro, Ministry of Environment and Climate Change Strategy, and Alberta Environment and Parks.

Snowpack and Precipitation

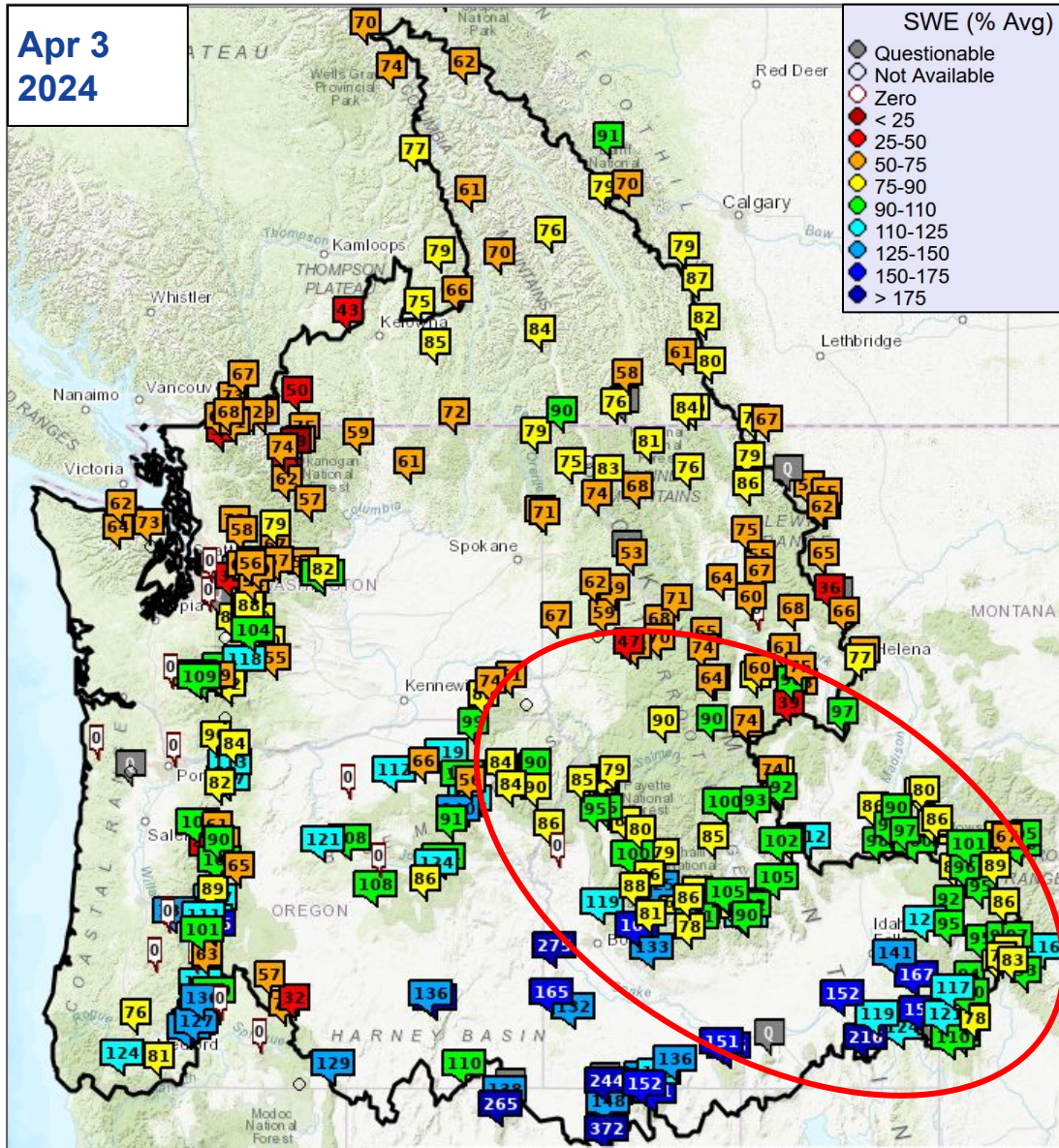


Snow data from Natural Resources Conservation Service, BC Hydro, Ministry of Environment and Climate Change Strategy, and Alberta Environment and Parks.

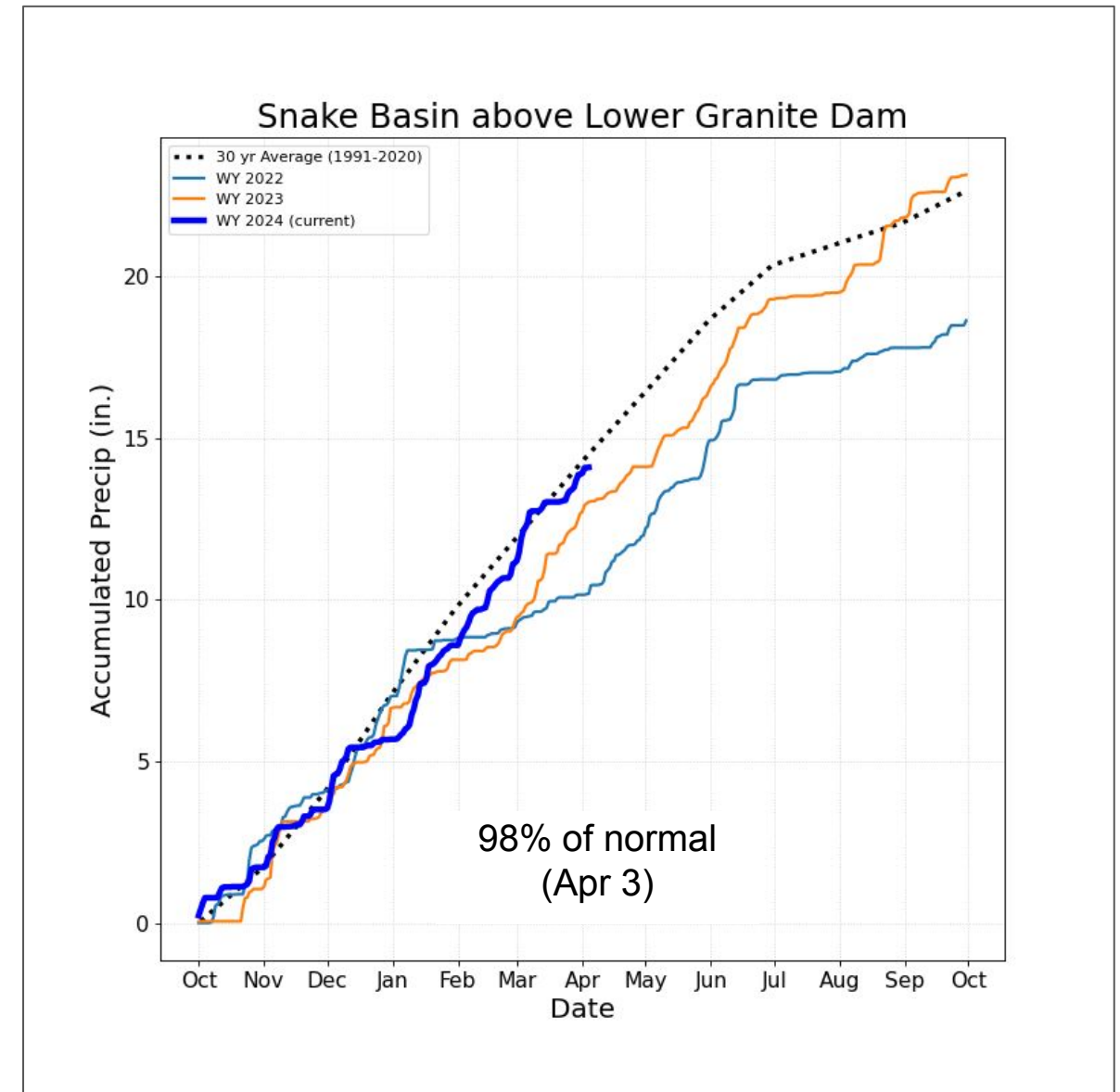


Precip averages from PRISM, OSU and PCIC.

Snowpack and Precipitation

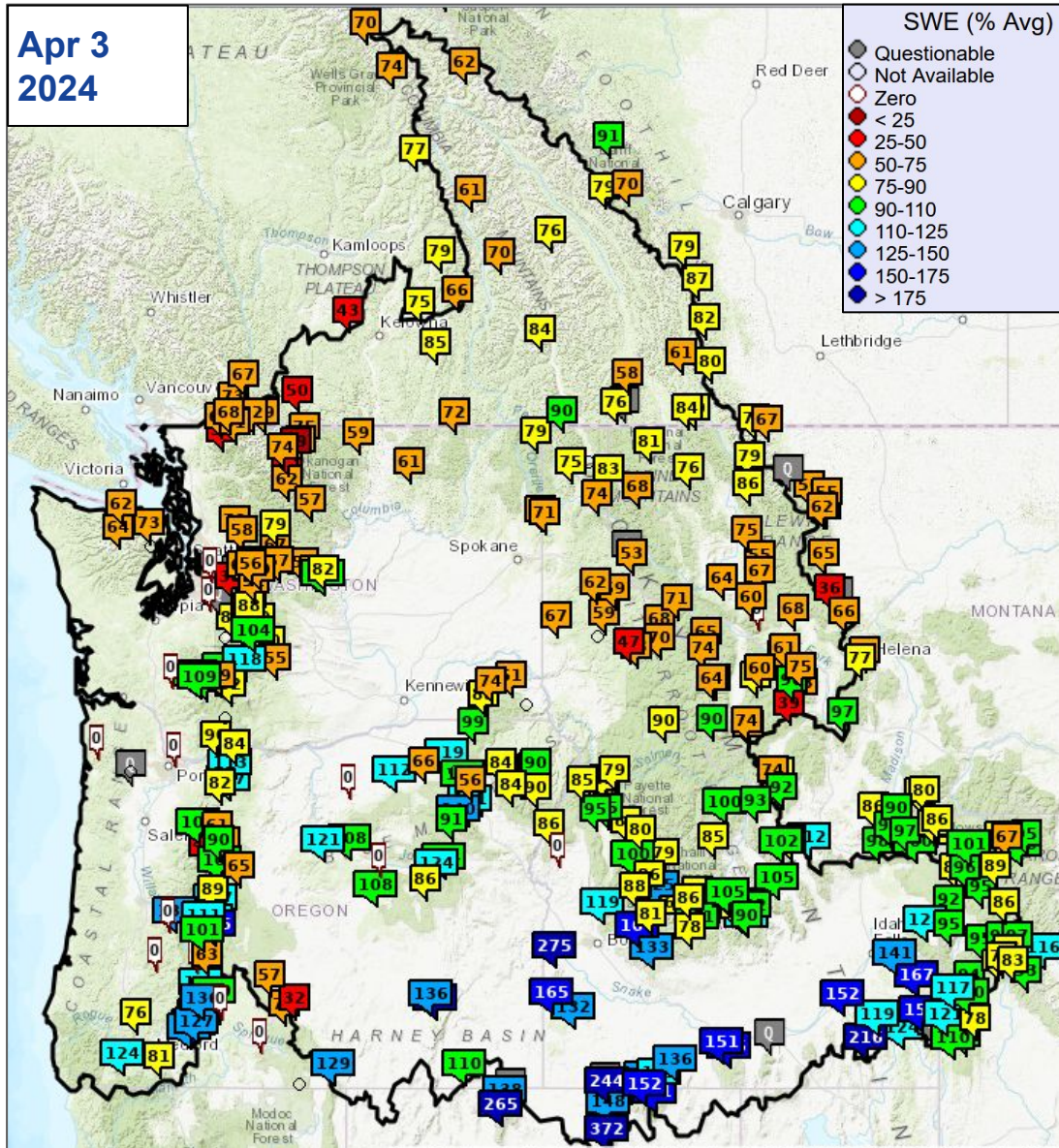


Snow data from Natural Resources Conservation Service, BC Hydro, Ministry of Environment and Climate Change Strategy, and Alberta Environment and Parks.

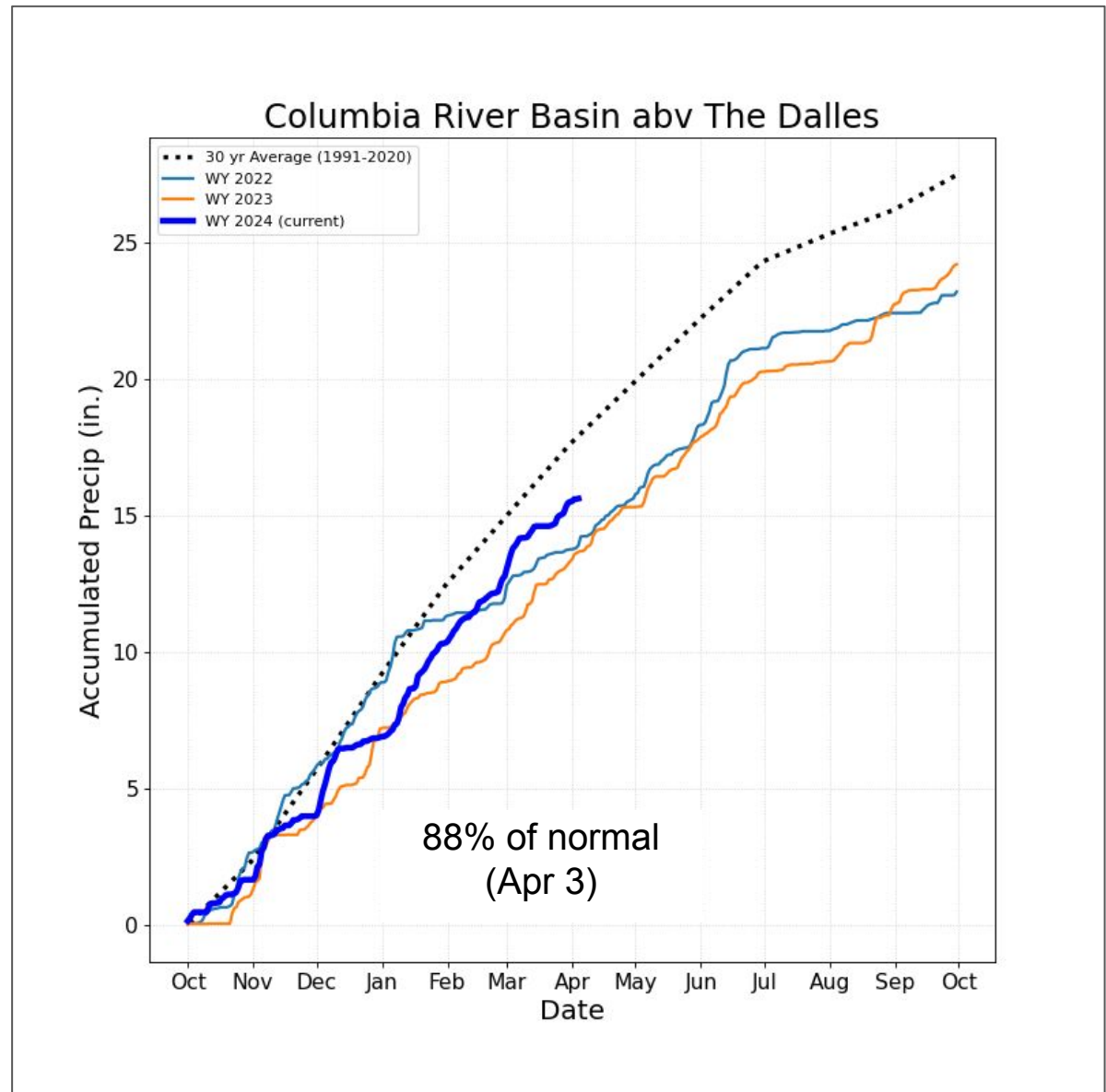


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Snowpack and Precipitation



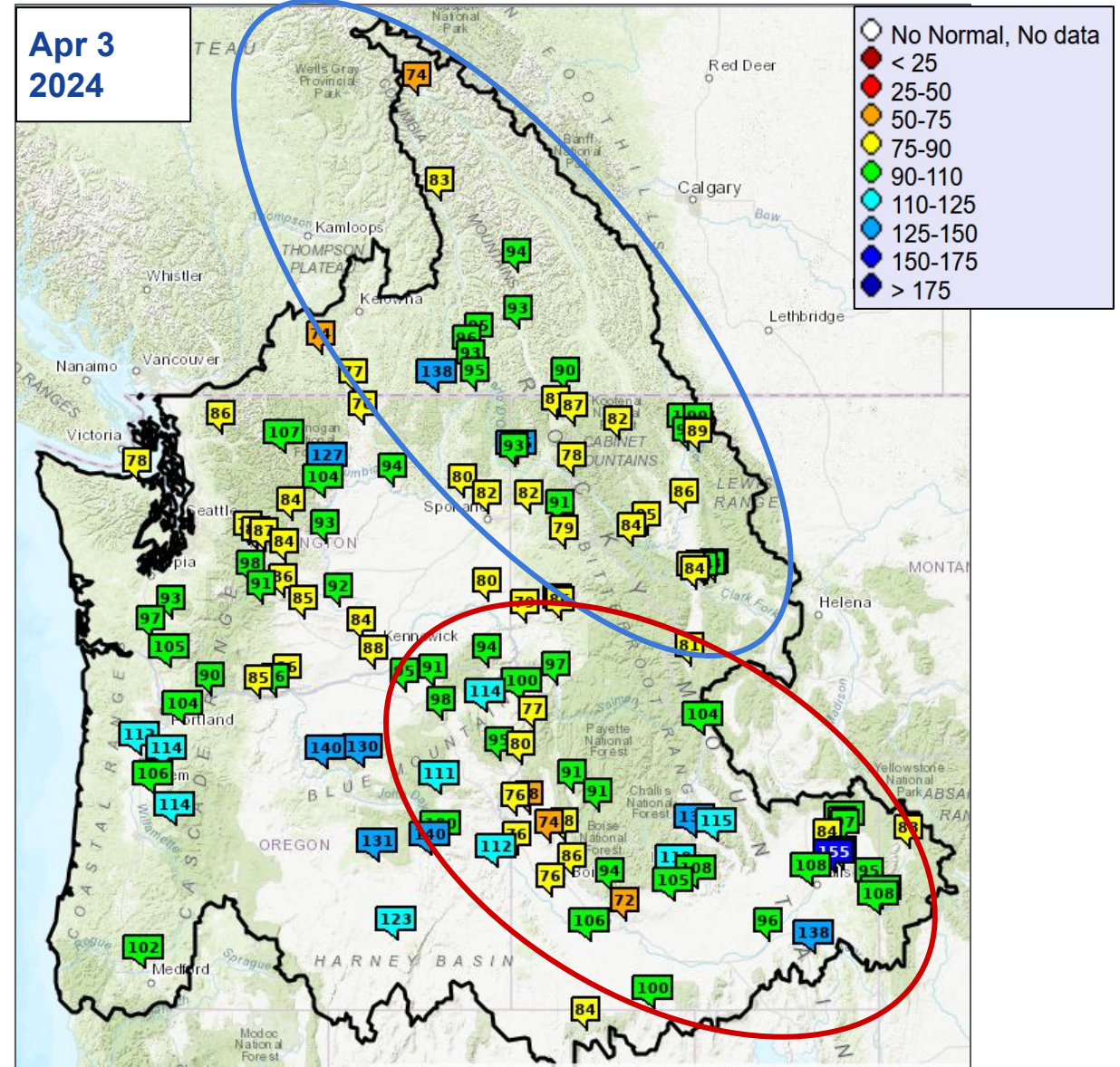
Snow data from Natural Resources Conservation Service, BC Hydro, Ministry of Environment and Climate Change Strategy, and Alberta Environment and Parks.



Precip averages from PRISM, OSU and PCIC.

Water Year to Date Adjusted Observed Runoff

% Normal Runoff Oct 1 - Apr 3		
<u>Upper Columbia Basin</u>		
		Δ since Mar 7
Mica	74	0
Duncan	94	1
Queens Bay	93	1
Libby	82	0
Hungry Horse	89	-3
Grand Coulee	94	0
<u>Snake River Basin</u>		
American Falls	96	-3
Lucky Peak	86	-5
Dworshak	72	1
Lower Granite	80	-3
<u>Lower Columbia Basin</u>		
The Dalles	85	0



Water Year to Date Natural Observed Runoff

% Normal Runoff Oct 1 - Apr 3

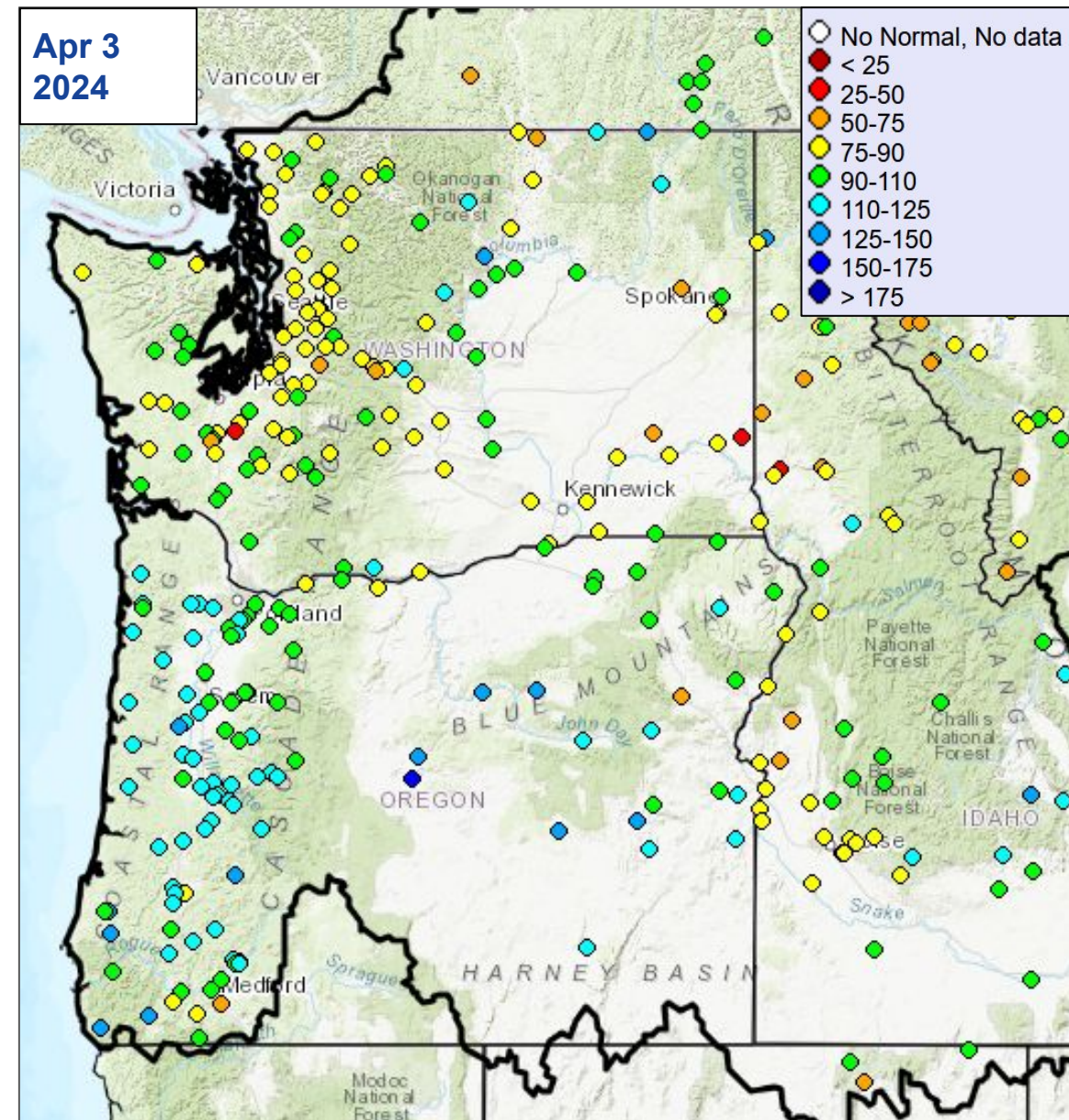
Washington

Δ since Mar 7

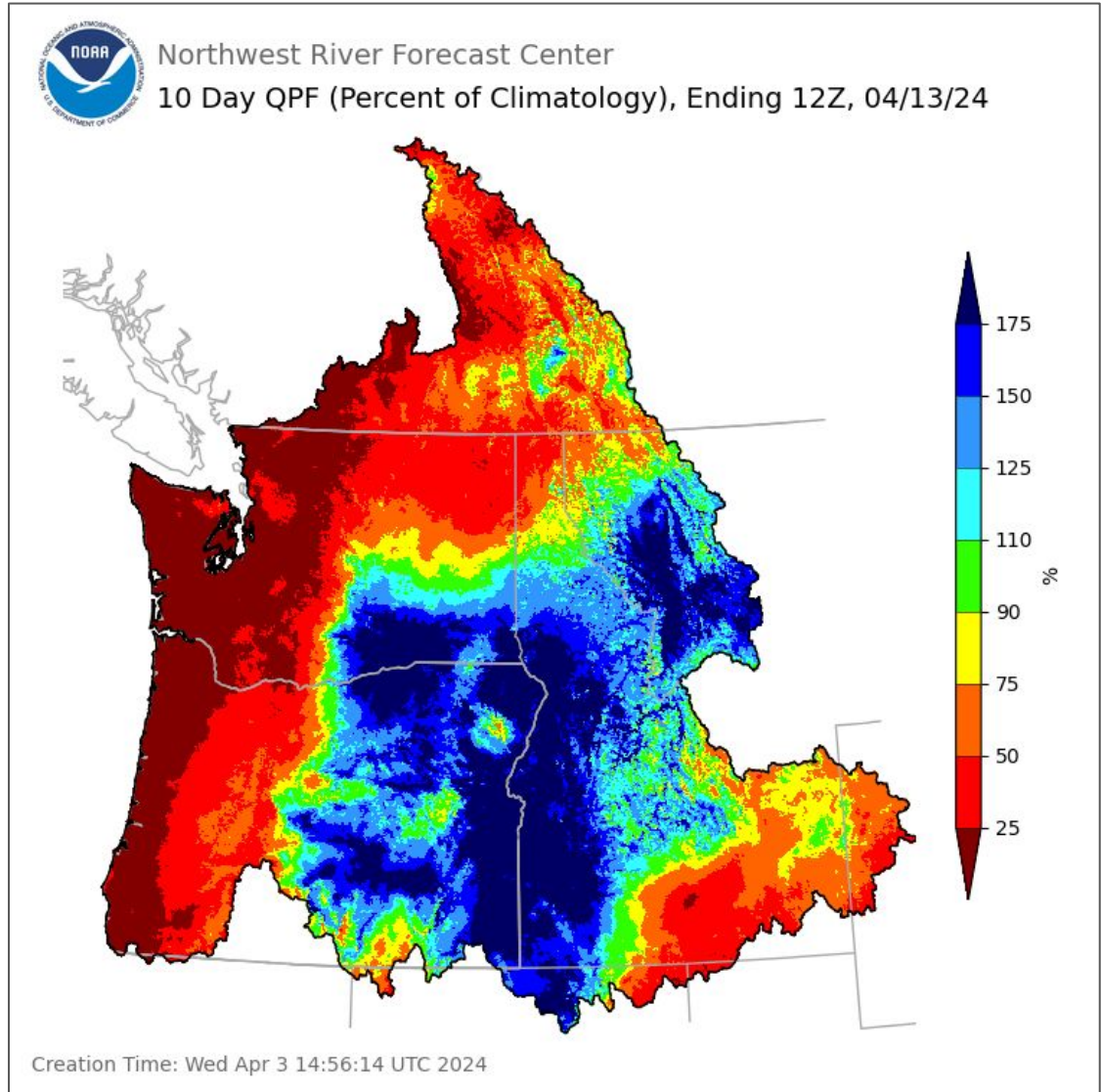
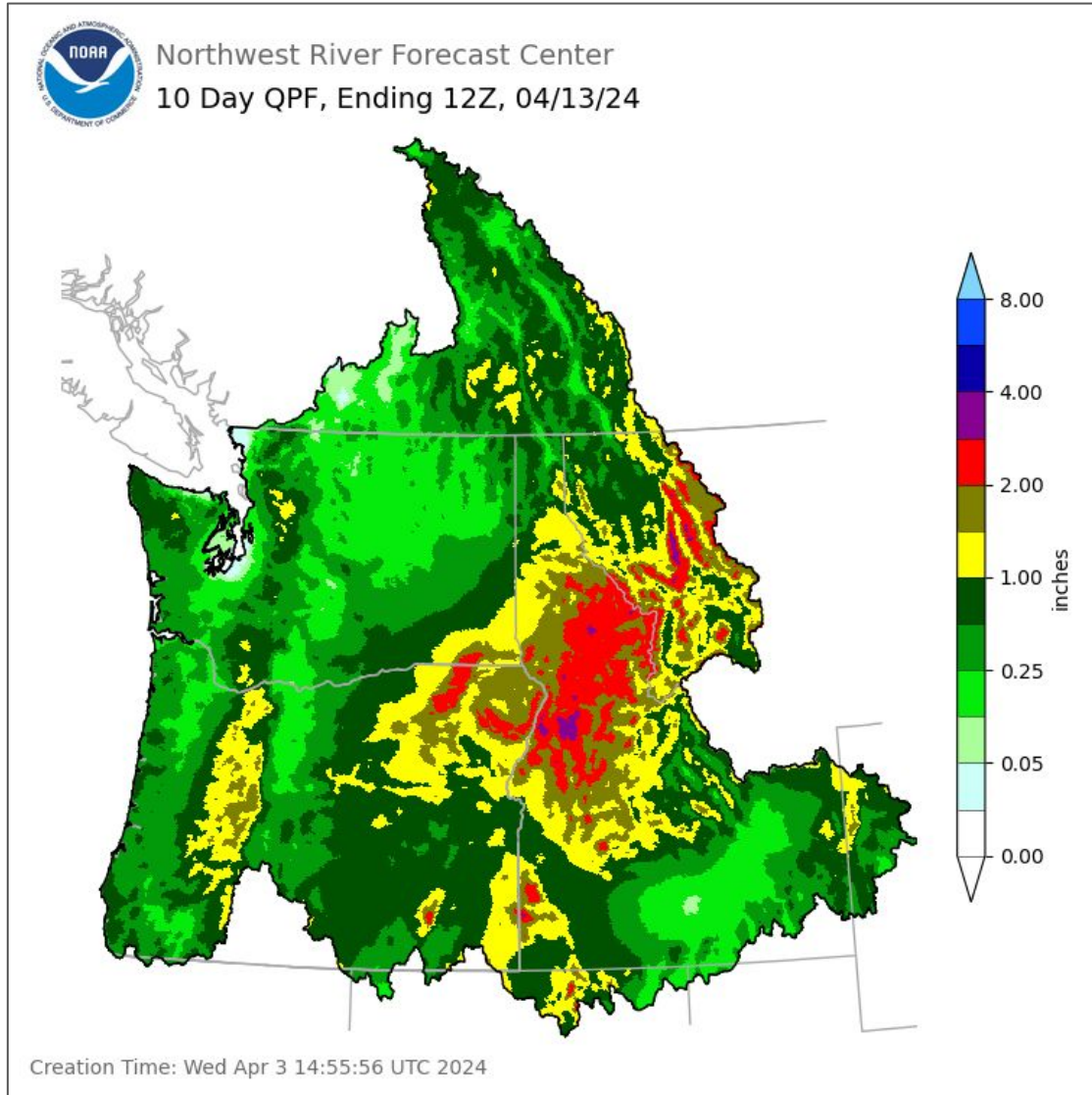
Skagit near Mt Vernon	82	0
Dungeness near Sequim	78	-1
Chehalis at Porter	90	0
Okanogan at Malott	79	0
Methow near Pateros	125	8
Yakima at Parker	84	3
Walla Walla near Touchet	84	-4

Oregon

Willamette at Salem	102	-2
Rogue at Raygold	102	4
Umatilla at Pendleton	94	-10
Grande Ronde at Troy	92	-8
Crooked near Prineville	163	-32
Owyhee Dam	111	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).

ESP10 Water Supply Forecasts

% Normal Apr-Sep Volume

Upper Columbia Basin

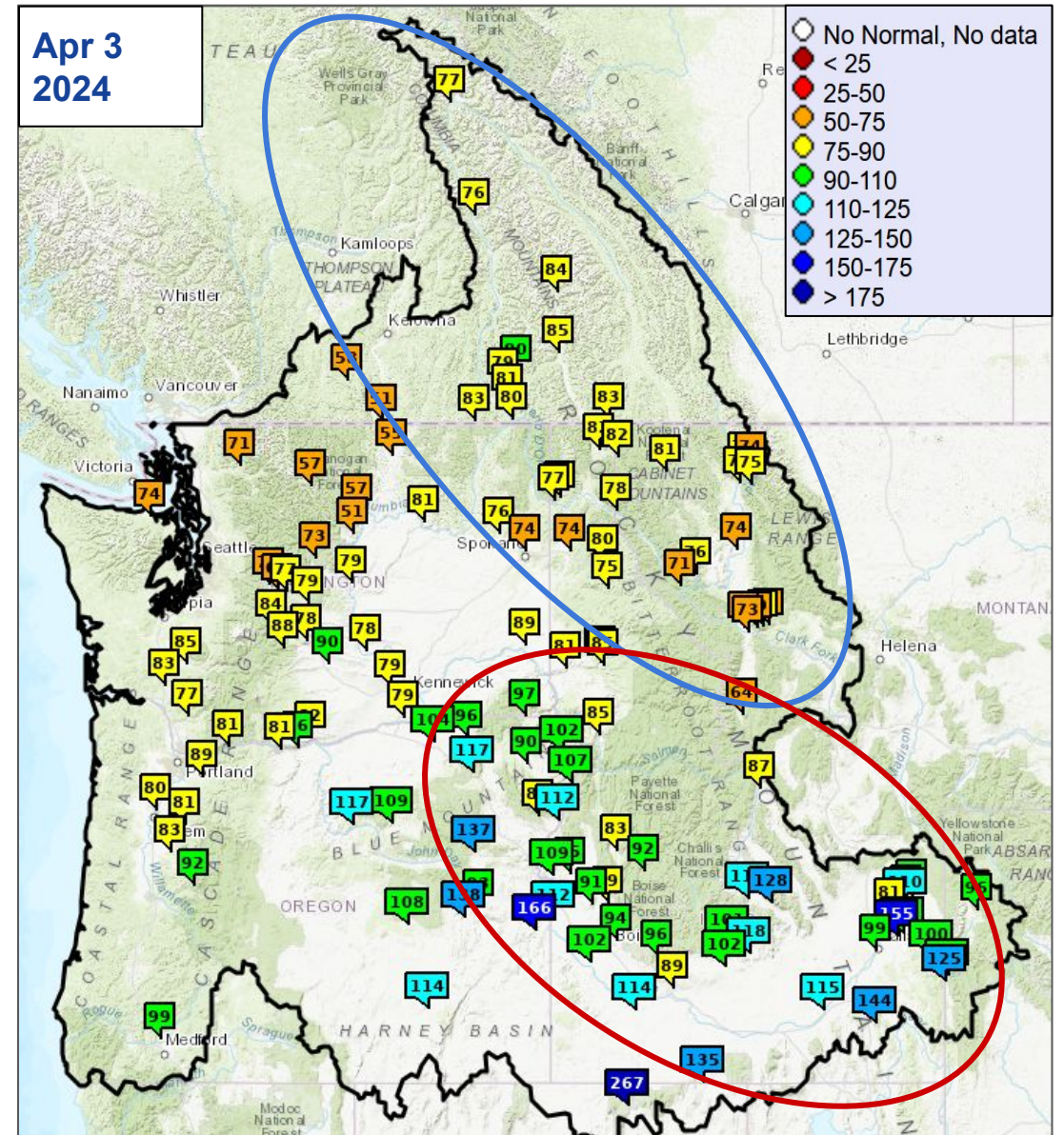
		<u>Δ since Mar 7</u>
Mica	77	-5
Duncan	84	-3
Queens Bay	85	-1
Libby	81	2
Hungry Horse	75	1
Grand Coulee	81	-2

Snake River Basin

American Falls	115	-3
Lucky Peak	94	-9
Dworshak	76	0
Lower Granite	89	2

Lower Columbia Basin

The Dalles	81	-2
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Natural Water Supply Forecasts

% Normal Apr-Sep Volume

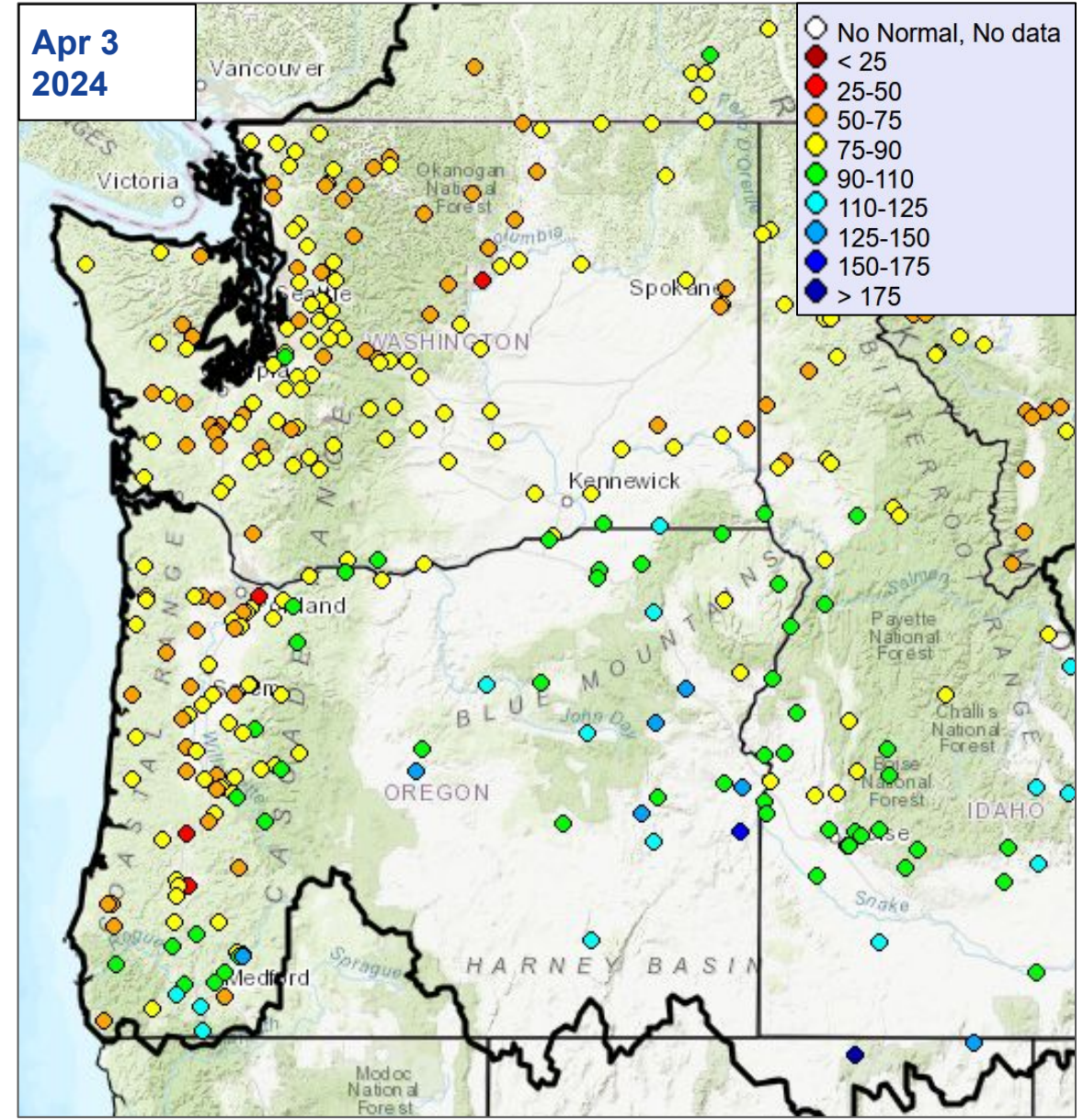
Washington

Δ since Mar 7

Skagit near Mt Vernon	70	-13
Dungeness near Sequim	74	-15
Chehalis at Porter	74	-16
Okanogan at Malott	55	-4
Methow near Pateros	57	-8
Yakima at Parker	83	-5
Walla Walla near Touchet	93	10

Oregon

Willamette at Salem	78	-13
Rogue at Raygold	101	-16
Umatilla at Pendleton	104	7
Grande Ronde at Troy	97	1
Crooked near Prineville	136	14
Owyhee Dam	165	17





ESP10 Water Supply Forecast

COLUMBIA - THE DALLES DAM (TDAO3) Forecasts for Water Year 2024

Official Water Supply
ESP with 10 Days QPF Ensemble: 2024-04-03 Issued: 2024-04-03

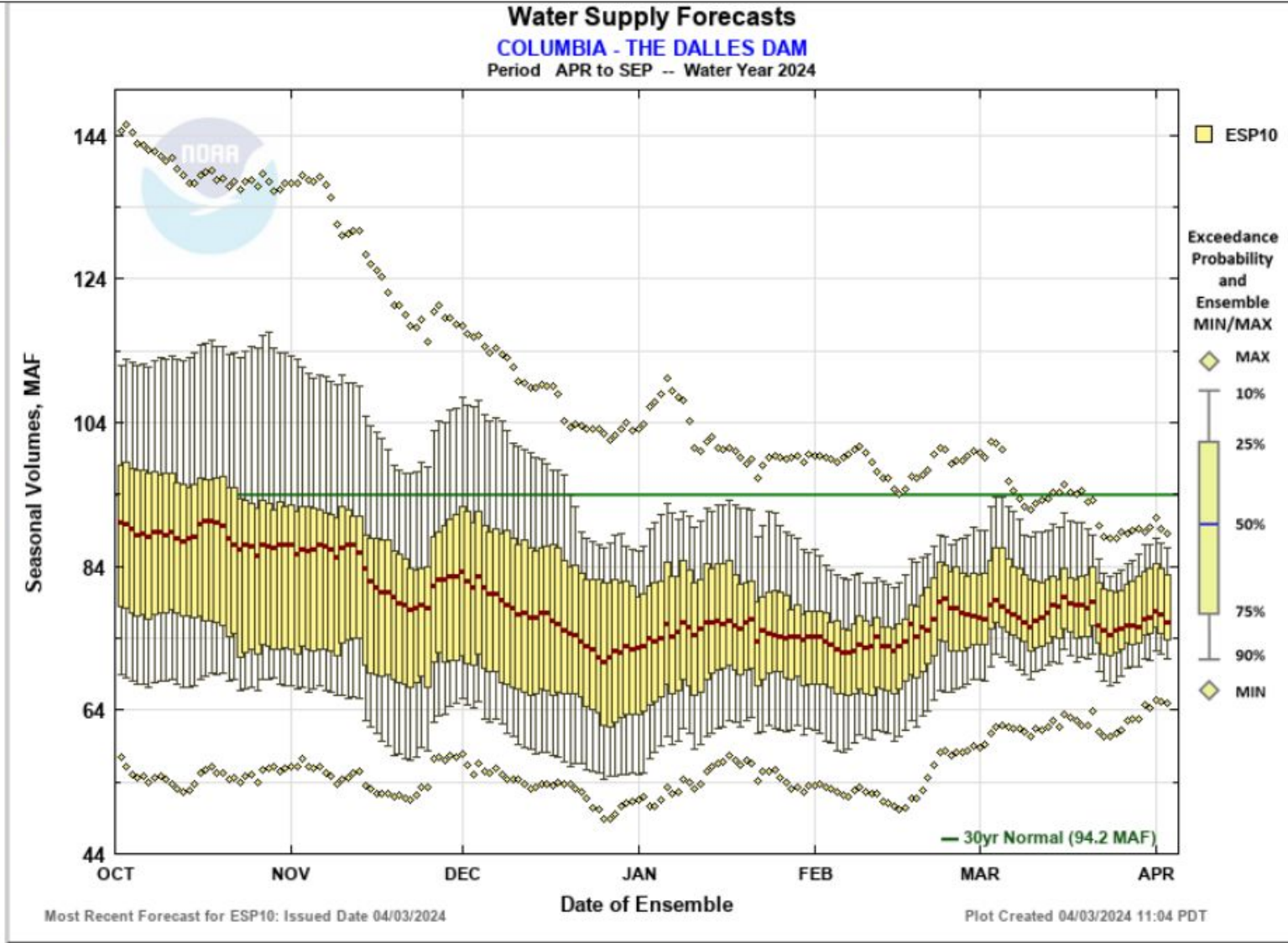
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	71432	76391	81	86831	94166
APR-JUL	59432	65544	80	75298	81933
APR-AUG	66697	71691	80	82134	89196
JAN-SEP	90752	95711	83	106151	115946
JAN-JUL	78753	84865	82	94618	103714
OCT-SEP	104006	108965	82	119405	132314

Experimental Water Supply
HEFS with 15 days EQPF Ensemble: 2024-04-03 Issued: 2024-04-03

APR-SEP	70742	78065	83	87136	94166
APR-JUL	60669	66897	82	75429	81933
APR-AUG	66226	72880	82	82448	89196
JAN-SEP	90062	97386	84	106456	115946
JAN-JUL	79990	86217	83	94750	103714
OCT-SEP	103317	110640	84	119711	132314

Reference
ESP with 0 Days QPF Ensemble: 2024-04-03 Issued: 2024-04-03

APR-SEP	69629	77189	82	84821	94166
APR-JUL	59906	65862	80	73251	81933
APR-AUG	65525	72175	81	80081	89196
JAN-SEP	88950	96509	83	104141	115946
JAN-JUL	79226	85183	82	92571	103714
OCT-SEP	102204	109763	83	117395	132314

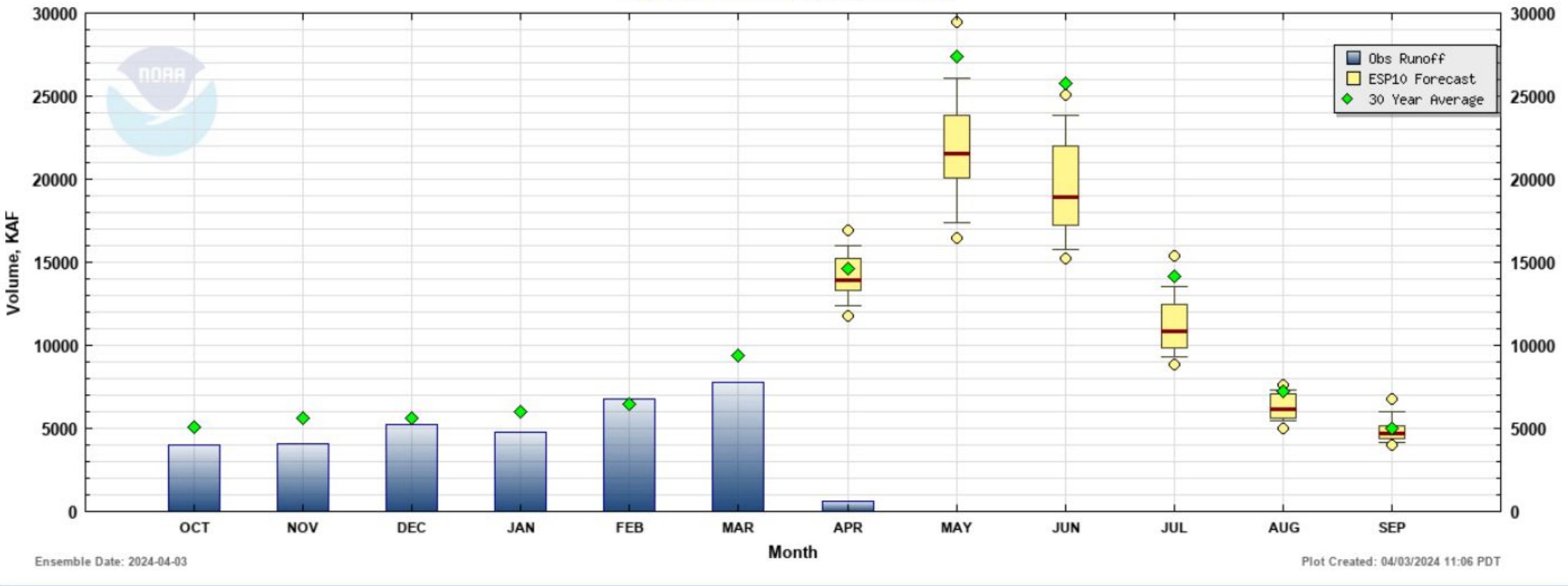


Max Scale
 Scale To Data
 Scale To Last 45 Days
 Show Min/Max Ensemble Volume
 Show Tooltips Help



ESP10 Monthly Water Supply Forecast

Water Supply Volume Monthly Forecasts (ESP10) for Water Year 2024
(TDA03) COLUMBIA - THE DALLES DAM



Ensemble Date: 2024-04-03

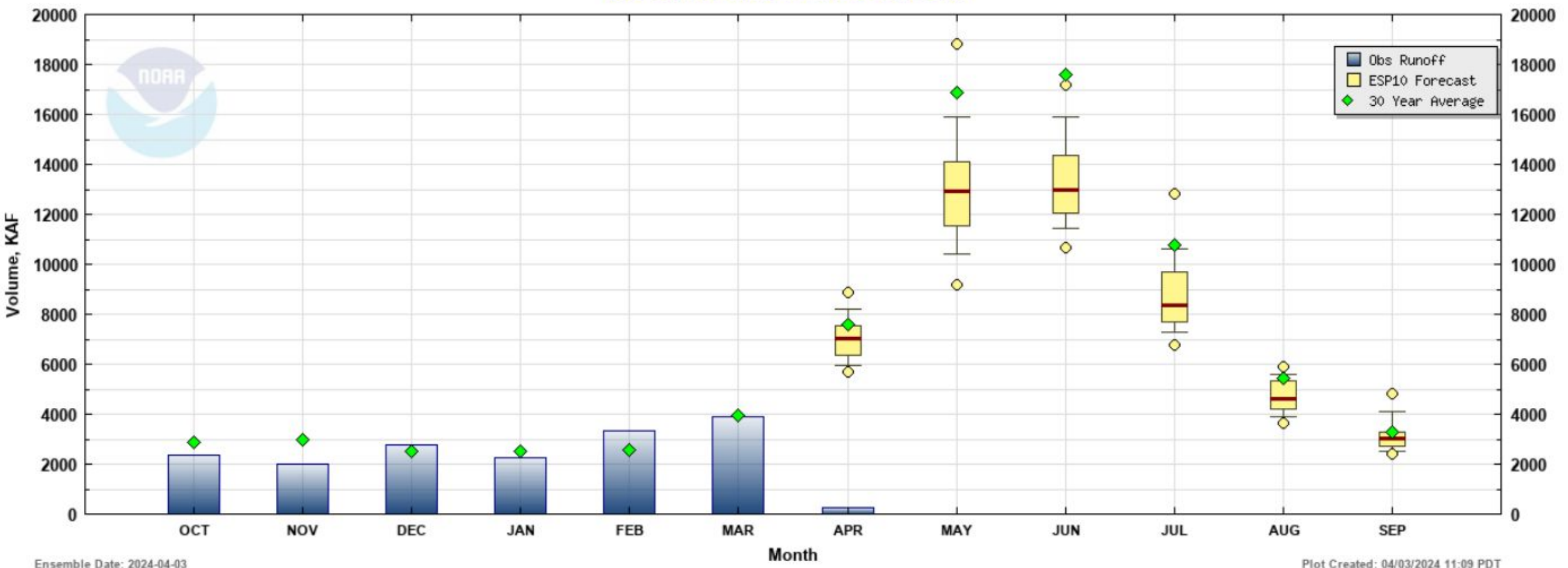
Plot Created: 04/03/2024 11:06 PDT

nwrfc.noaa.gov/water_supply/monthly/monthly_forecasts.php?id=TDA03



ESP10 Monthly Water Supply Forecast

Water Supply Volume Monthly Forecasts (ESP10) for Water Year 2024
(GCDW1) COLUMBIA - GRAND COULEE DAM

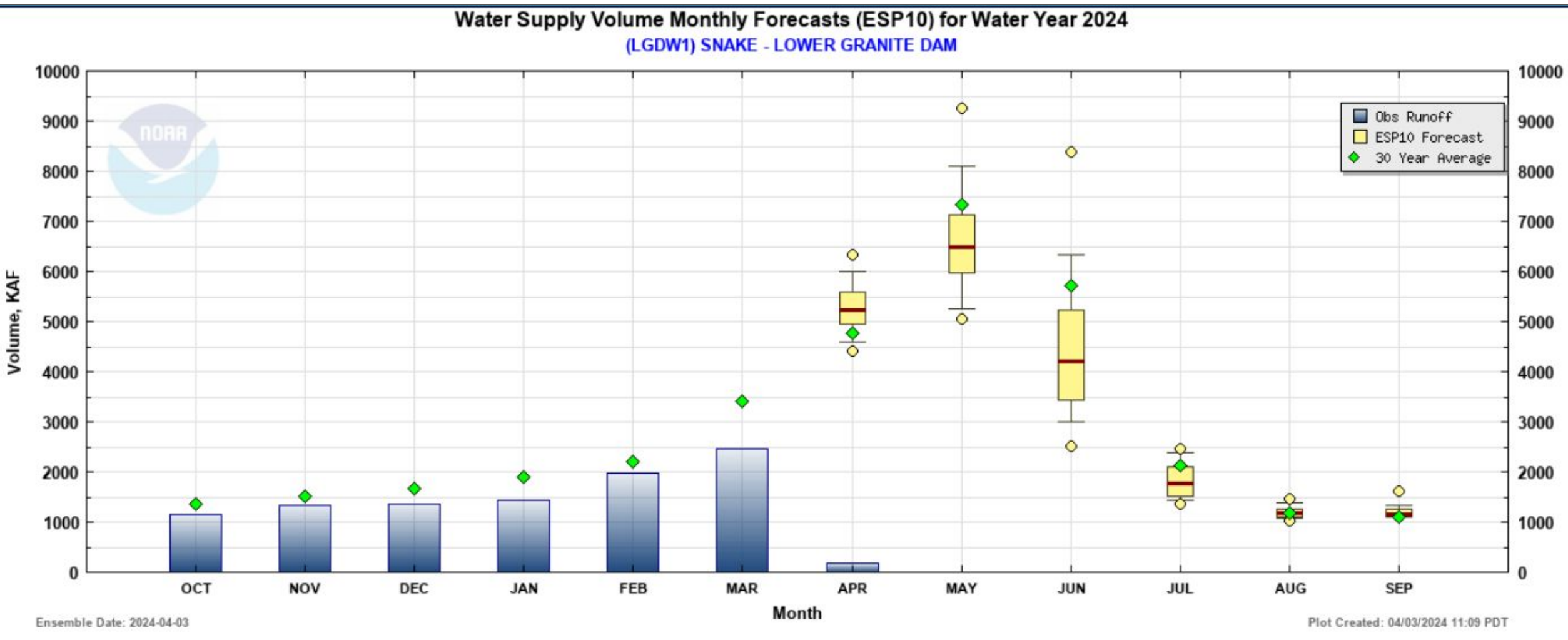


Ensemble Date: 2024-04-03

Plot Created: 04/03/2024 11:09 PDT

nwrfc.noaa.gov/water_supply/monthly/monthly_forecasts.php?id=GCDW1

ESP10 Monthly Water Supply Forecast



nwrfc.noaa.gov/water_supply/monthly/monthly_forecasts.php?id=LGDW1

Water Supply Forecast Rankings (Descending Order)

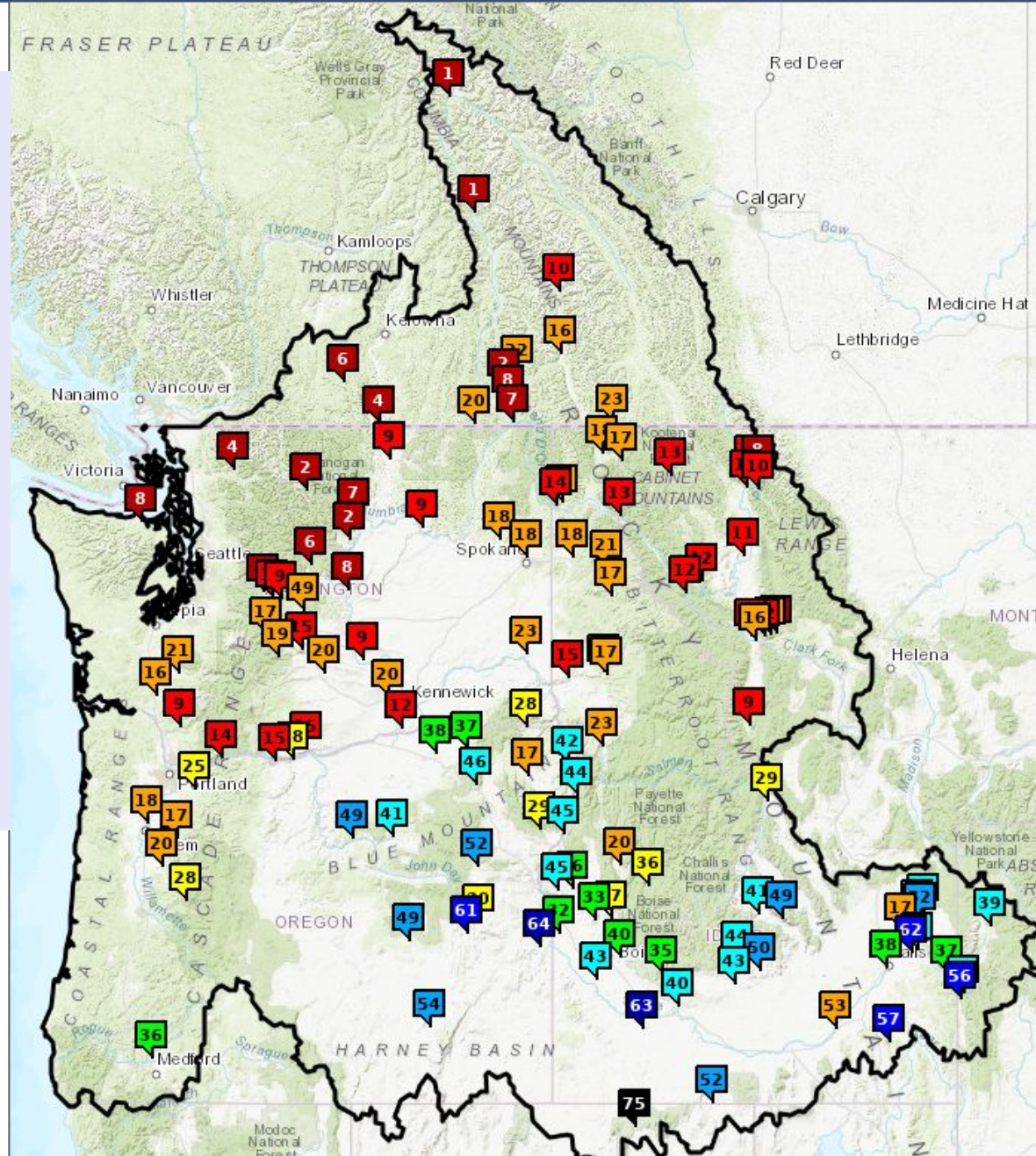
ESP Water Supply Forecast

Period: APR-SEP

Rank (Descending)

Marker Color Shows Exceedance (%)

- No data
- 0-10
- 10-20
- 20-30
- 30-40
- 40-50
- 50-60
- 60-70
- 70-80
- 80-90
- 90-100



76-year history



Key Takeaways

- Water year to date precipitation and current snowpack are stratified geographically, with well below normal conditions in the northern, mountainous areas and near to well above normal conditions in the south
- Some warm spells this past month have melted off mid-to-lower elevation snow
- Water supply forecasts largely mimic precipitation and snow conditions with extremely dry forecasts in the north (Canadian portion of the Columbia River Basin) and very wet forecasts in the south



Schedule for Live Water Supply Briefings

May	Jun
2	TBD

All presentations held at 10:00 am Pacific Time unless noted otherwise

[Click here for Registration](#)



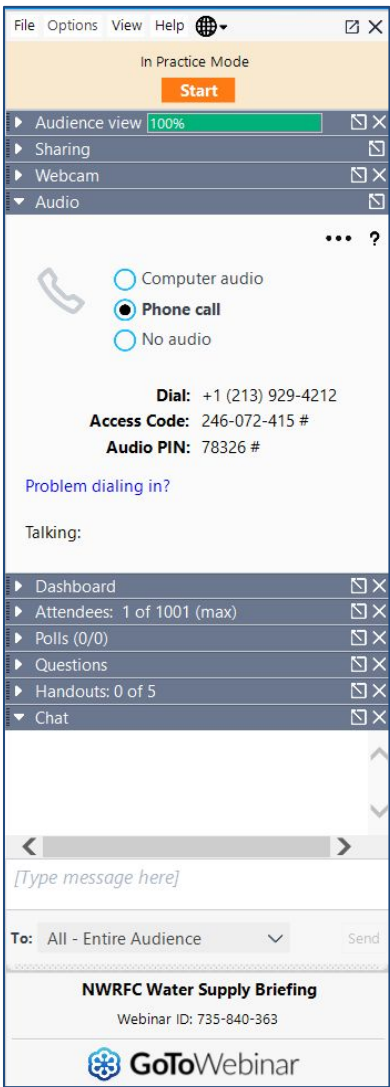
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To ask a question using your phone, enter the AUDIO PIN followed by the # sign.

The AUDIO PIN was provided when you logged into the webinar. If you need to enter the PIN after you are connected, try #PIN#.

