Northwest River Forecast Center

March 2024 Water Supply Briefing

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NWRFC.watersupply@noaa.gov

Webinar Phone Number: (631) 992-3221
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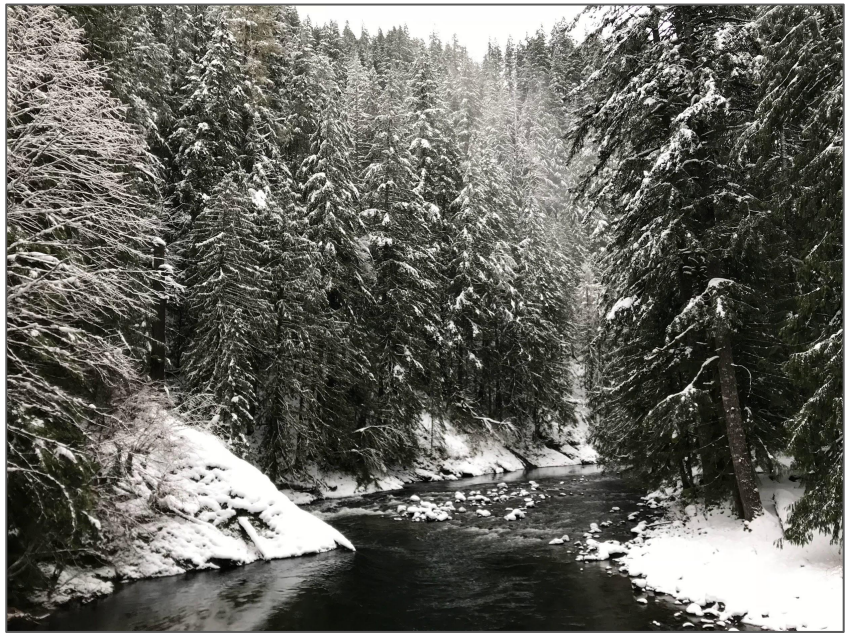
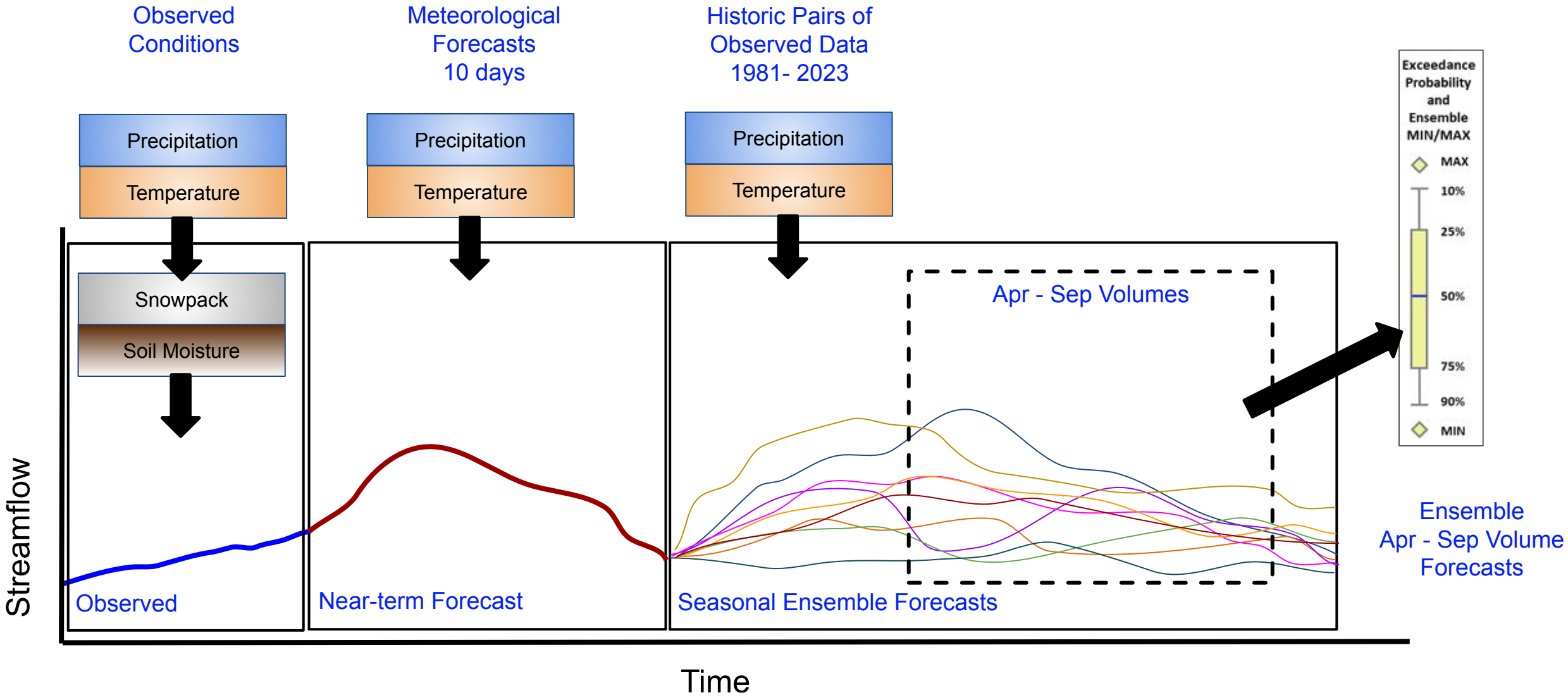


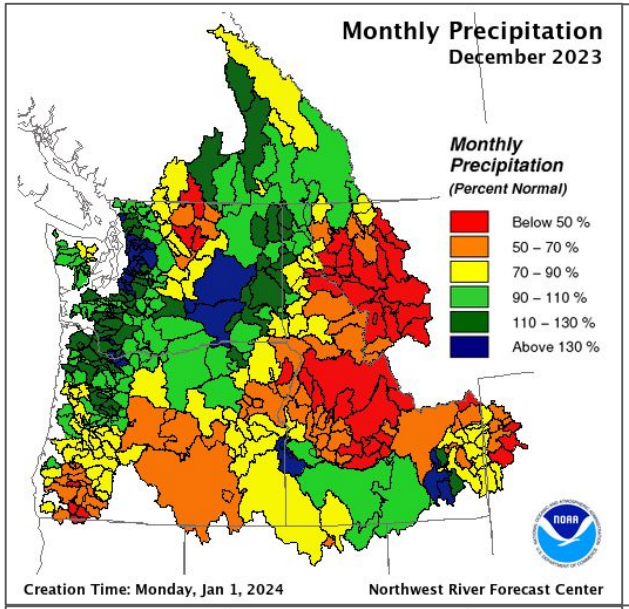
Takeaways

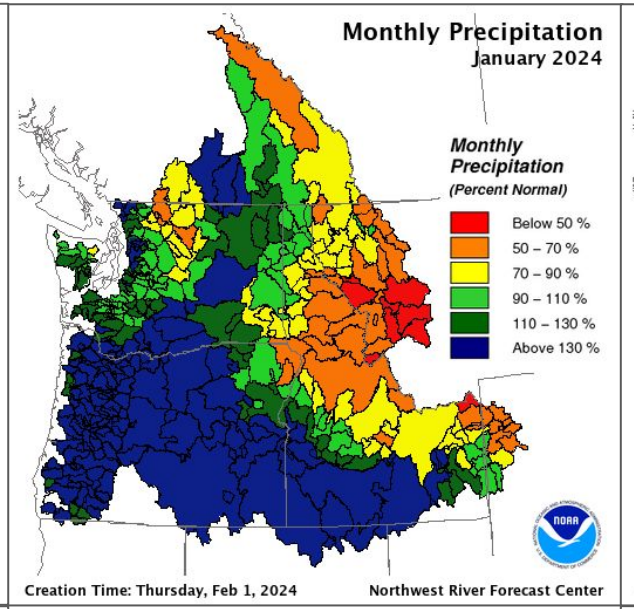
- Wetter than normal February and start of March led to increases in snowpack, observed runoff, and water supply forecasts relative to normal, with some exceptions
- Snowpack and observed runoff continue to be below normal in the north and above normal in the south
- The near term forecast has higher than normal precipitation west of the Cascades to contrast lower than normal precipitation east
- Apr-Sep volume forecasts are a mix of well above to well below normal with higher forecasts in the south

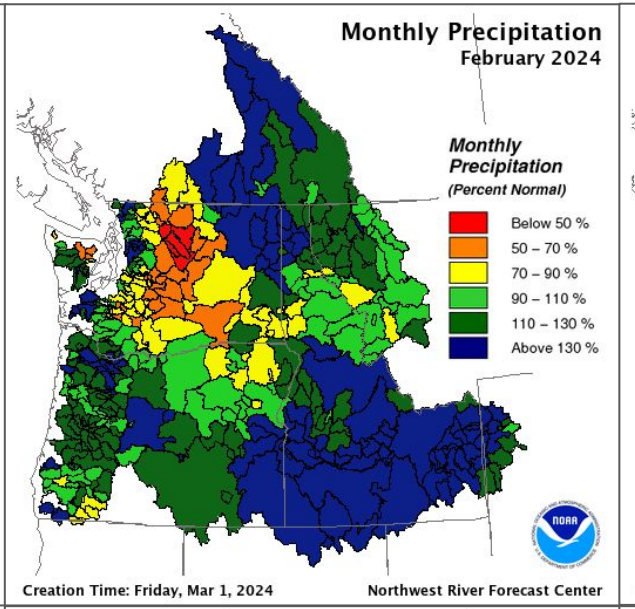
NWRFC Forecast Technique: Ensemble Streamflow Prediction

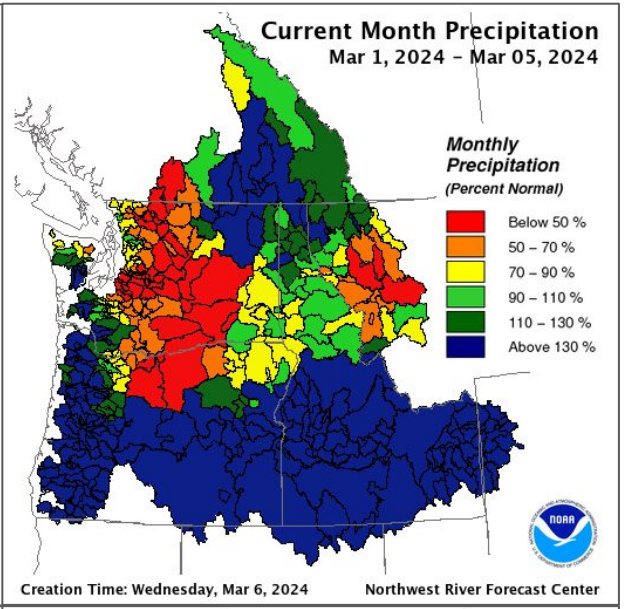


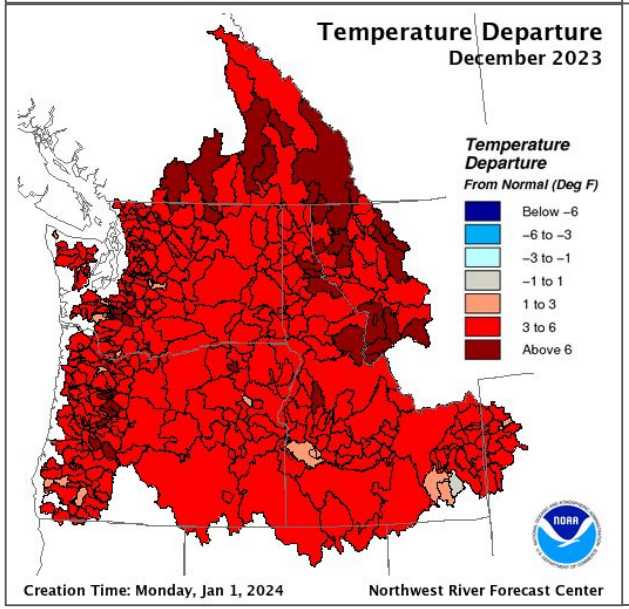
Monthly Precipitation and Temperature Departure

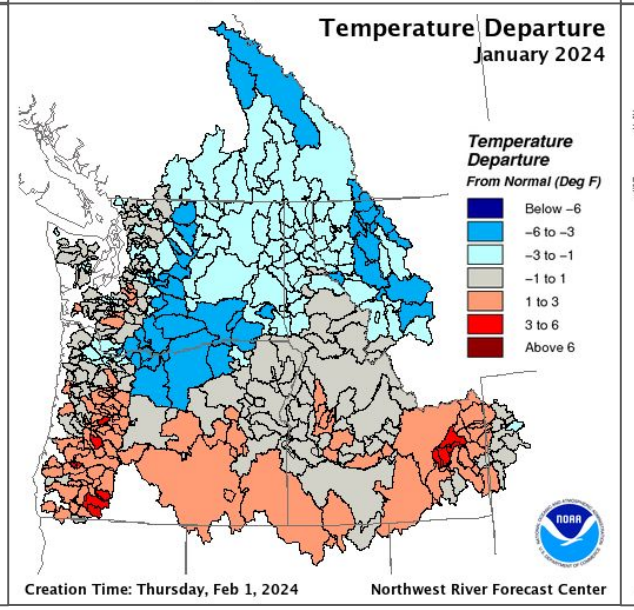


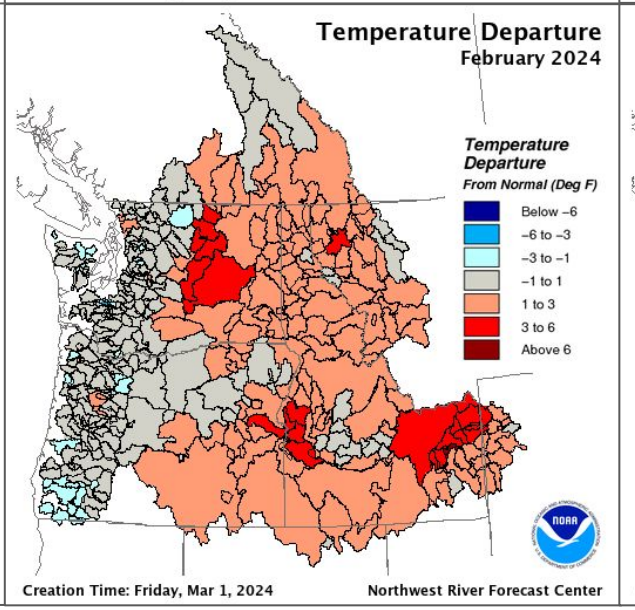


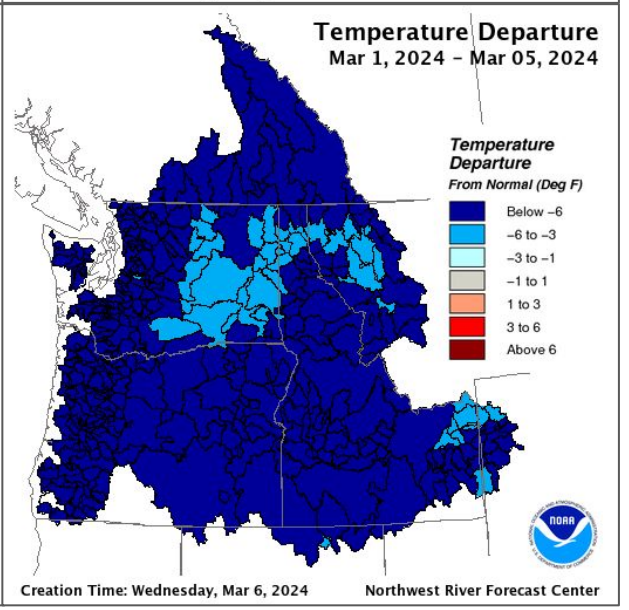






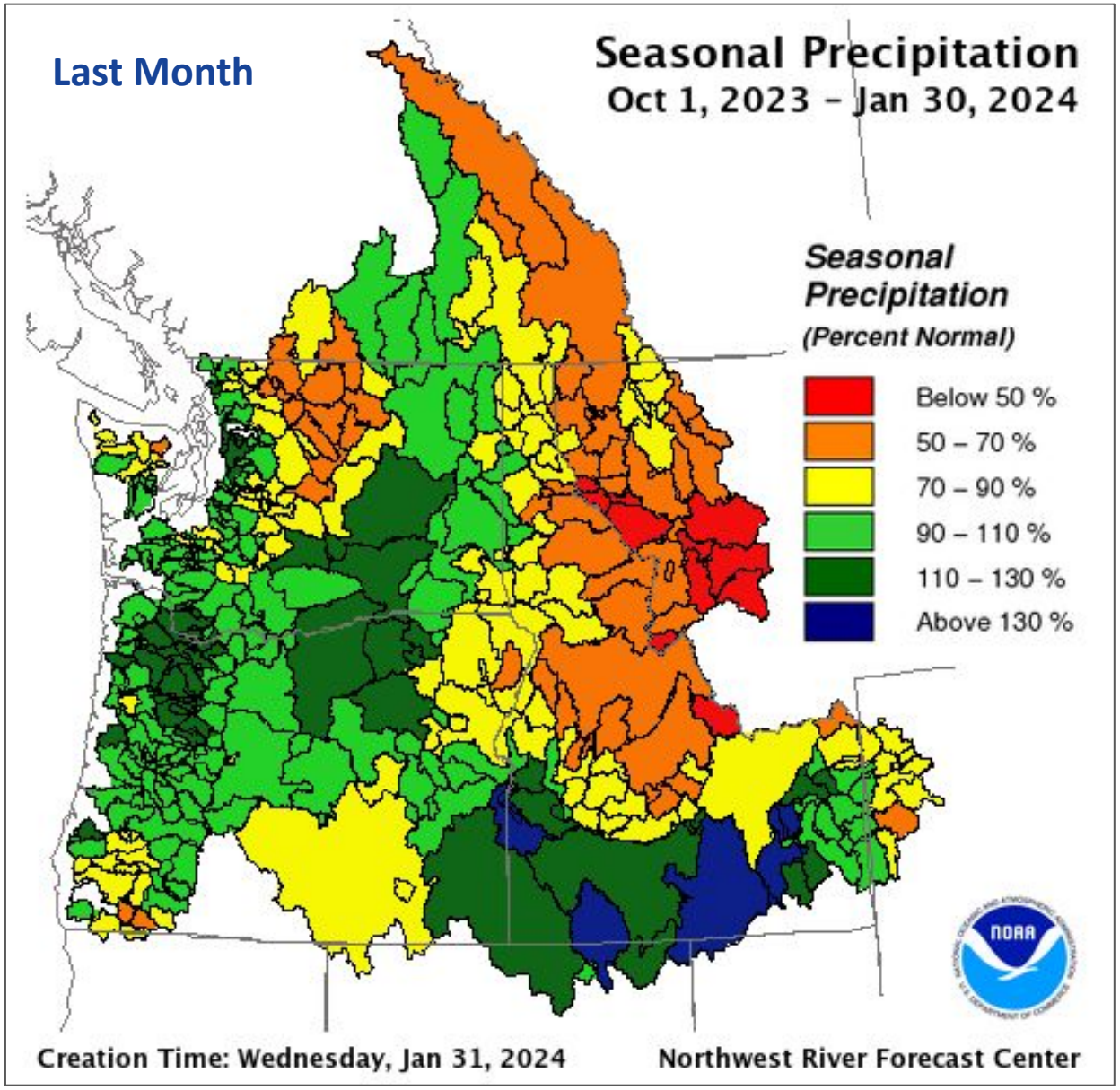


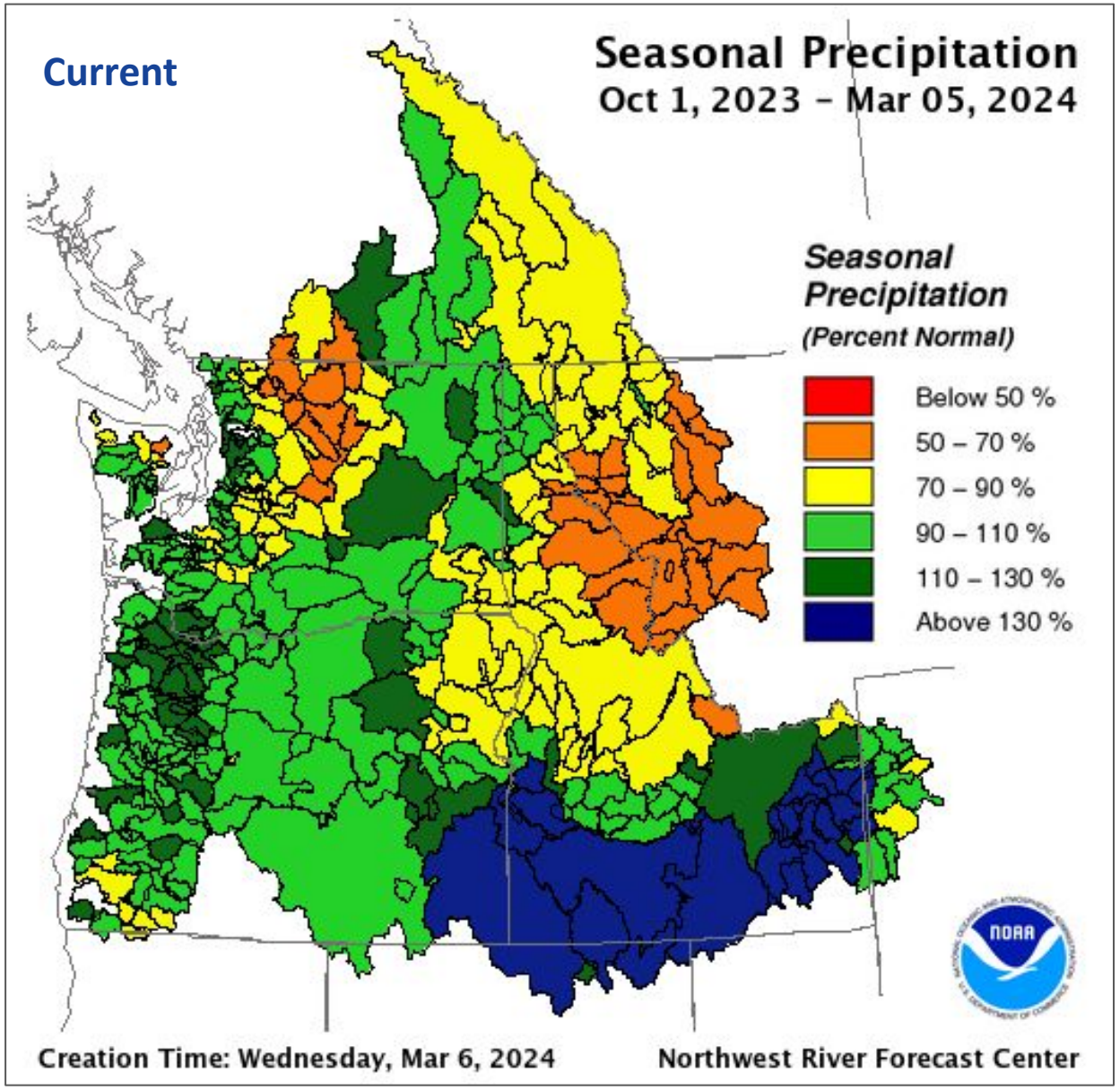




nwrfc.noaa.gov/water_supply/wy_summary/wy_summary.php?tab=2

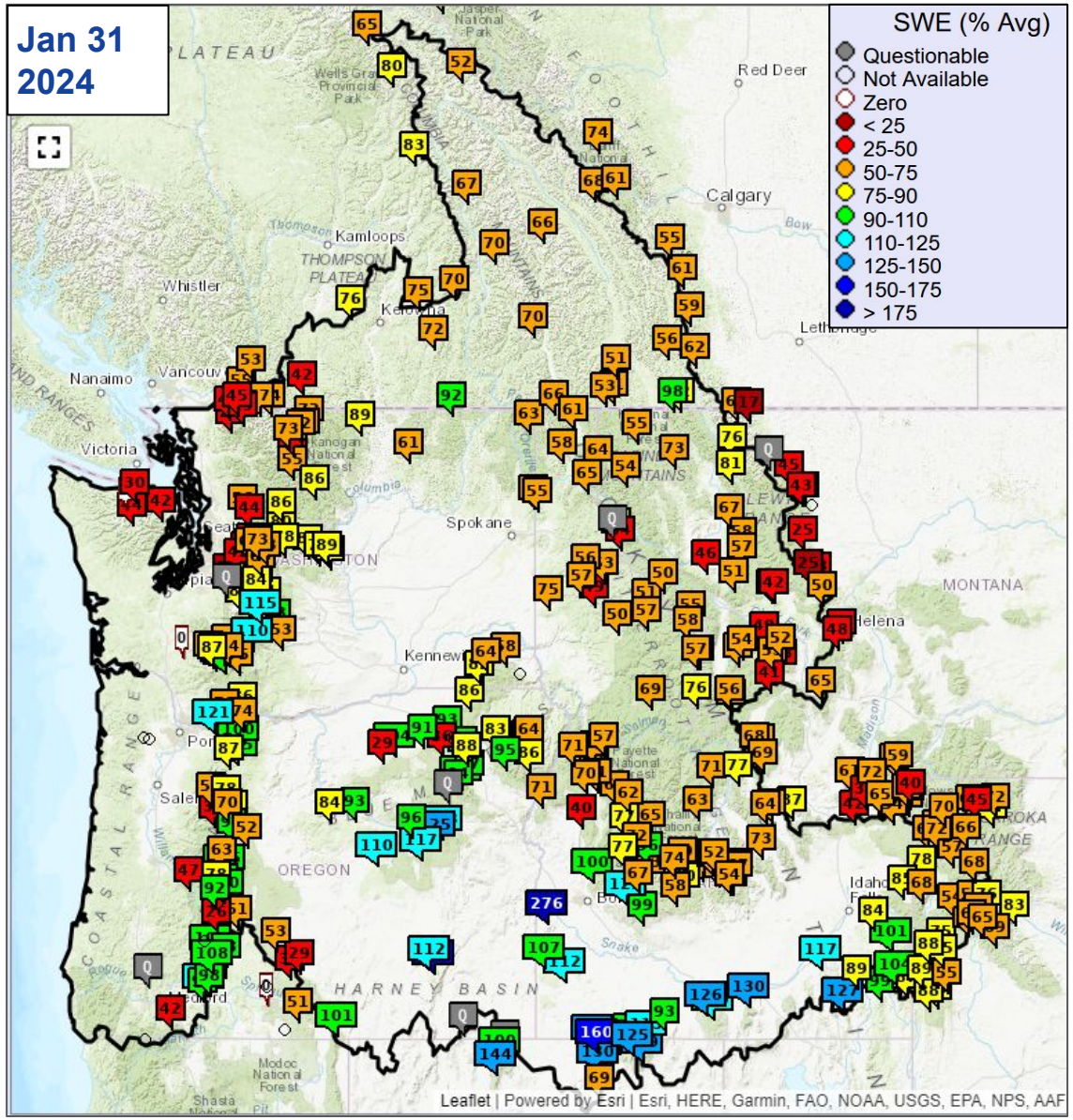
Water Year to Date Precipitation

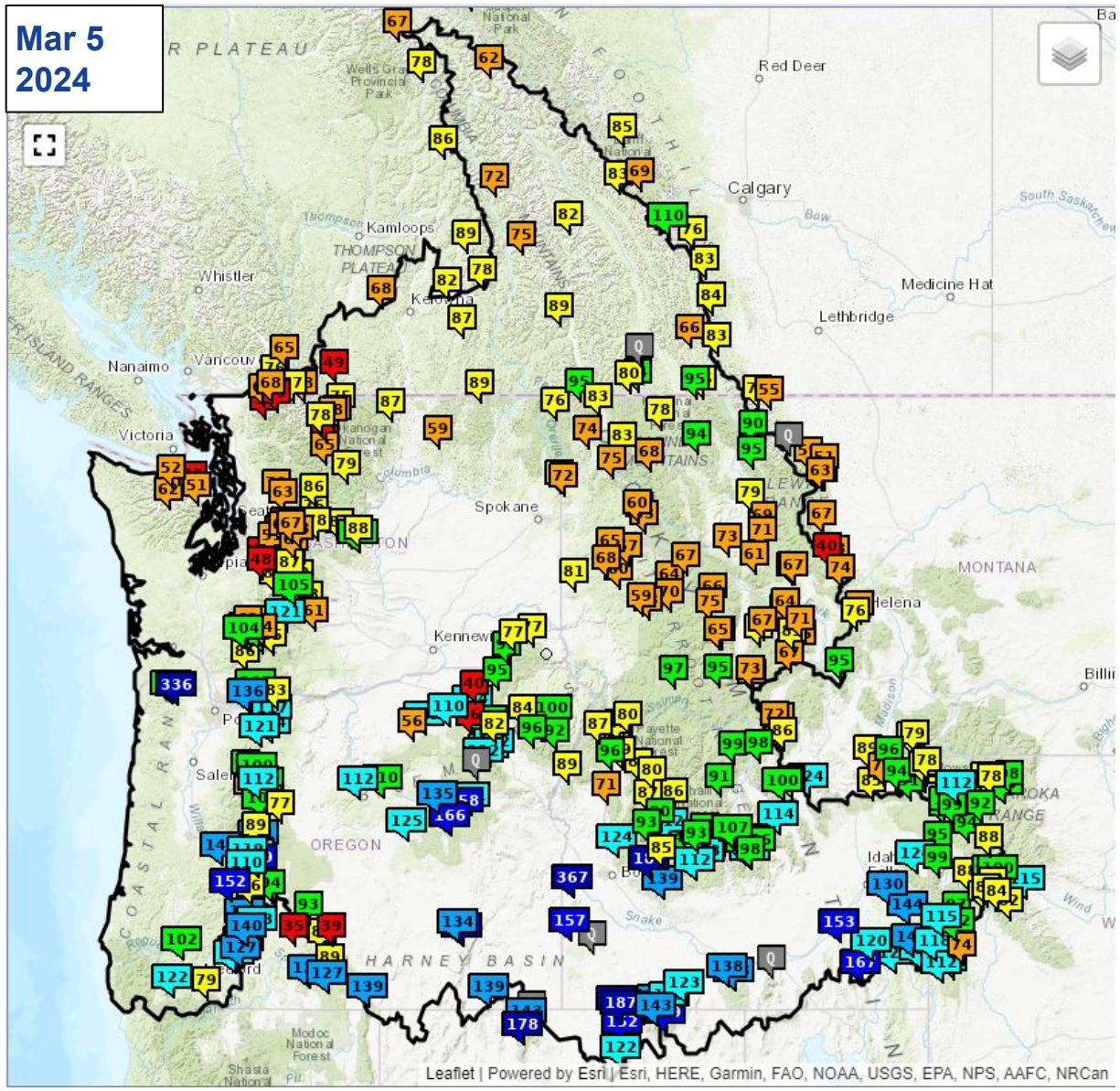




nwrfc.noaa.gov/water_supply/wy_summary/wy_summary.php?tab=2

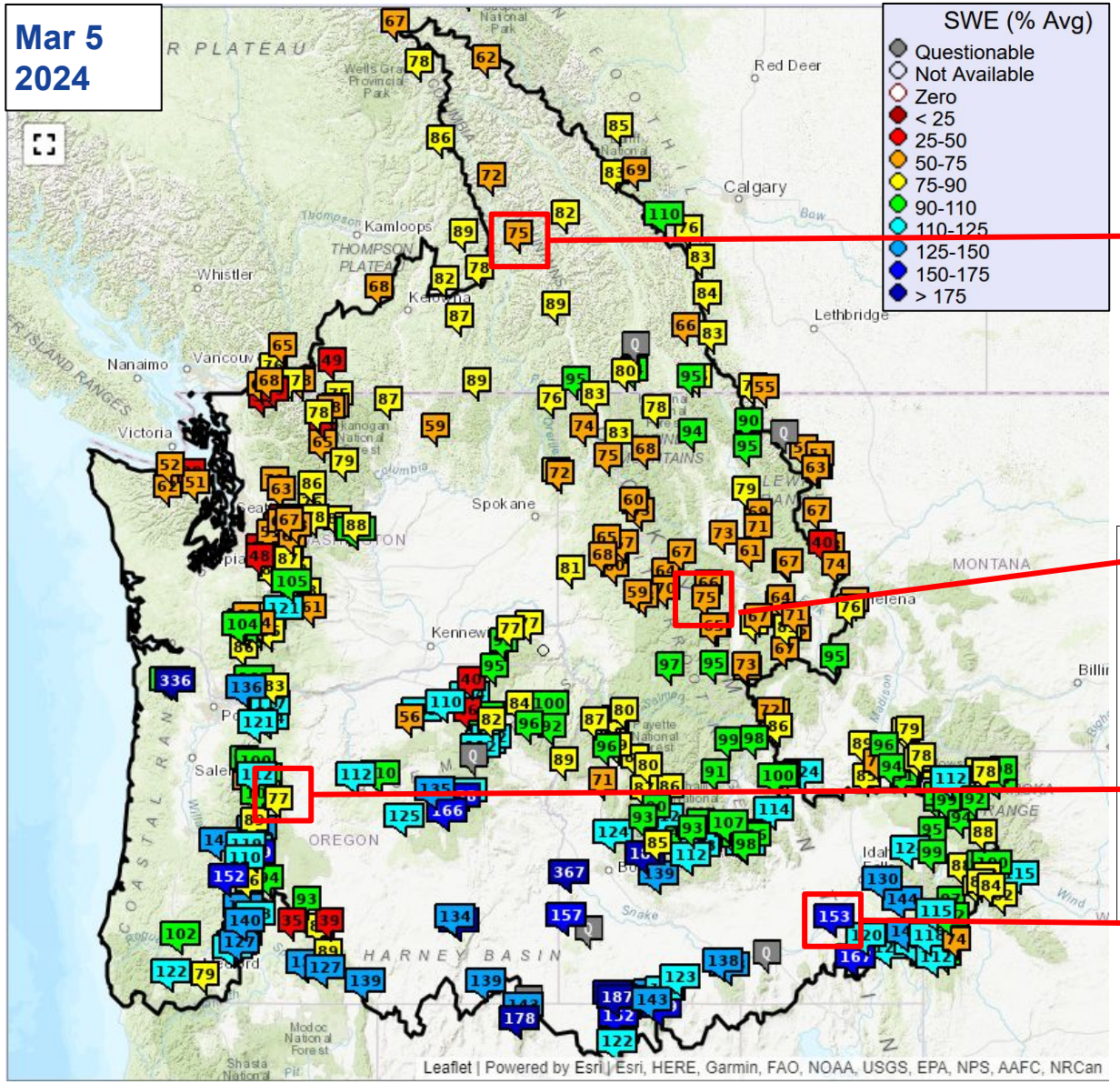
Snowpack

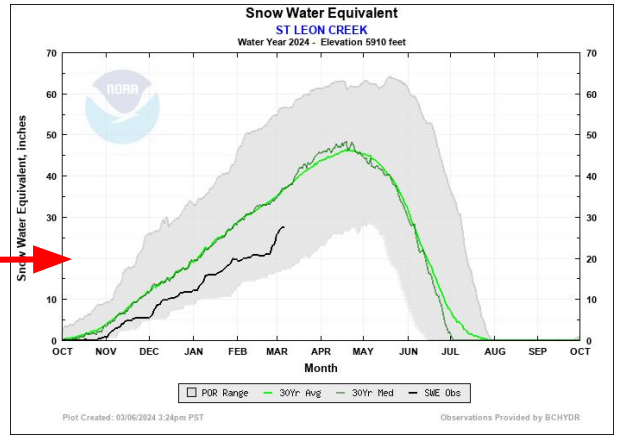


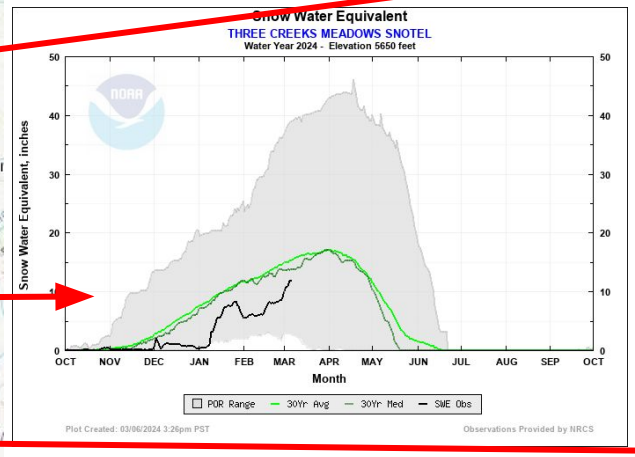


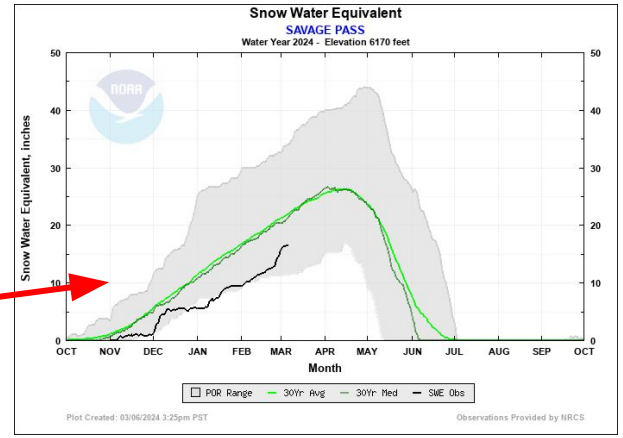
Snow data from Natural Resources Conservation Service, BC Hydro, Ministry of Environment and Climate Change Strategy, and Alberta Environment and Parks.

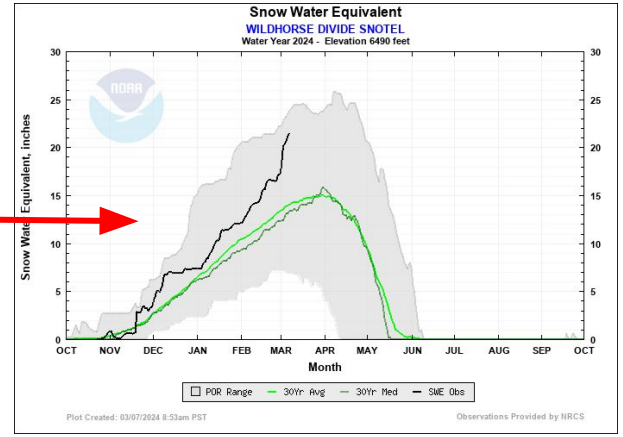
Snowpack











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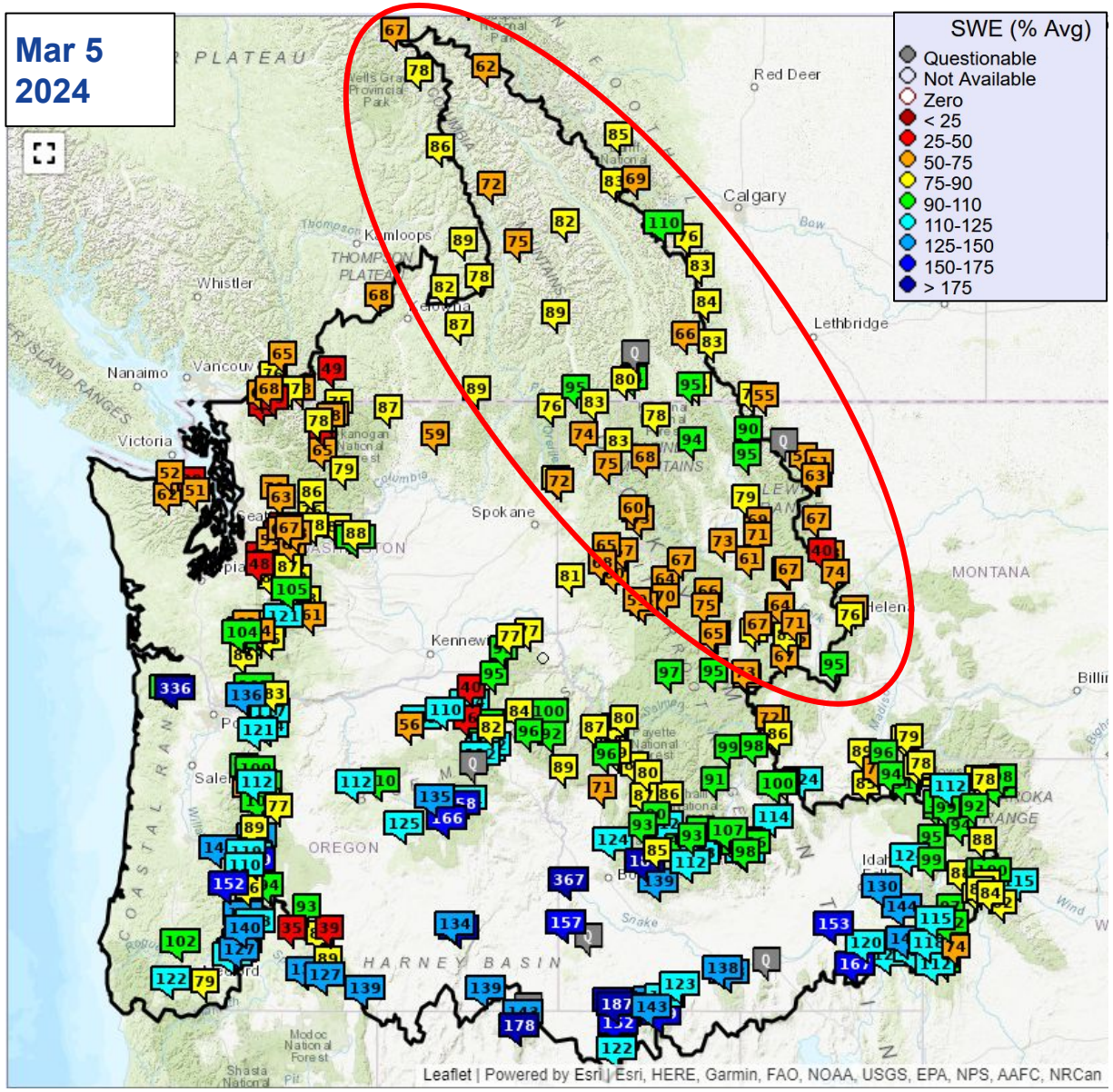
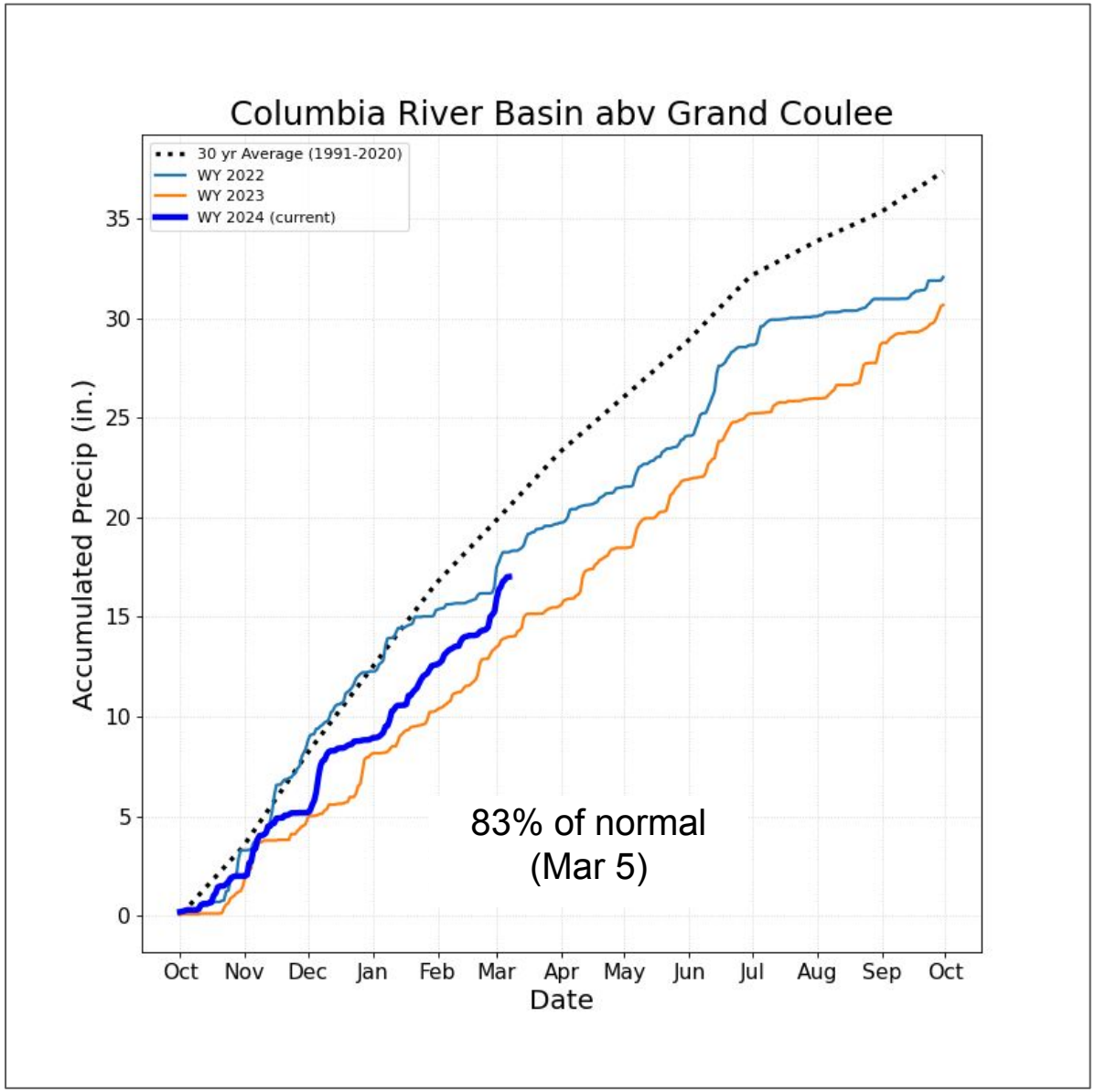
Snowpack and Precipitation





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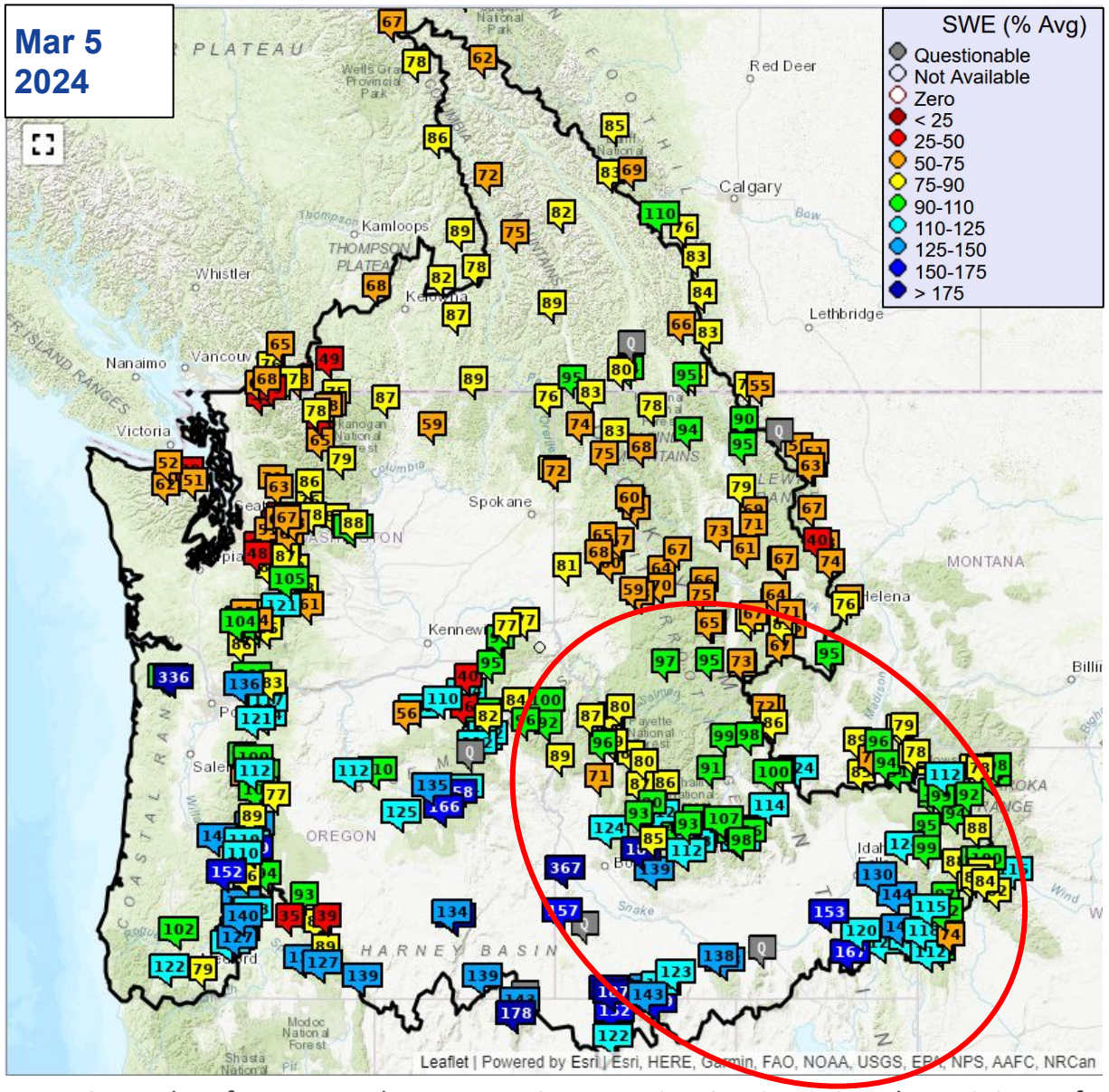
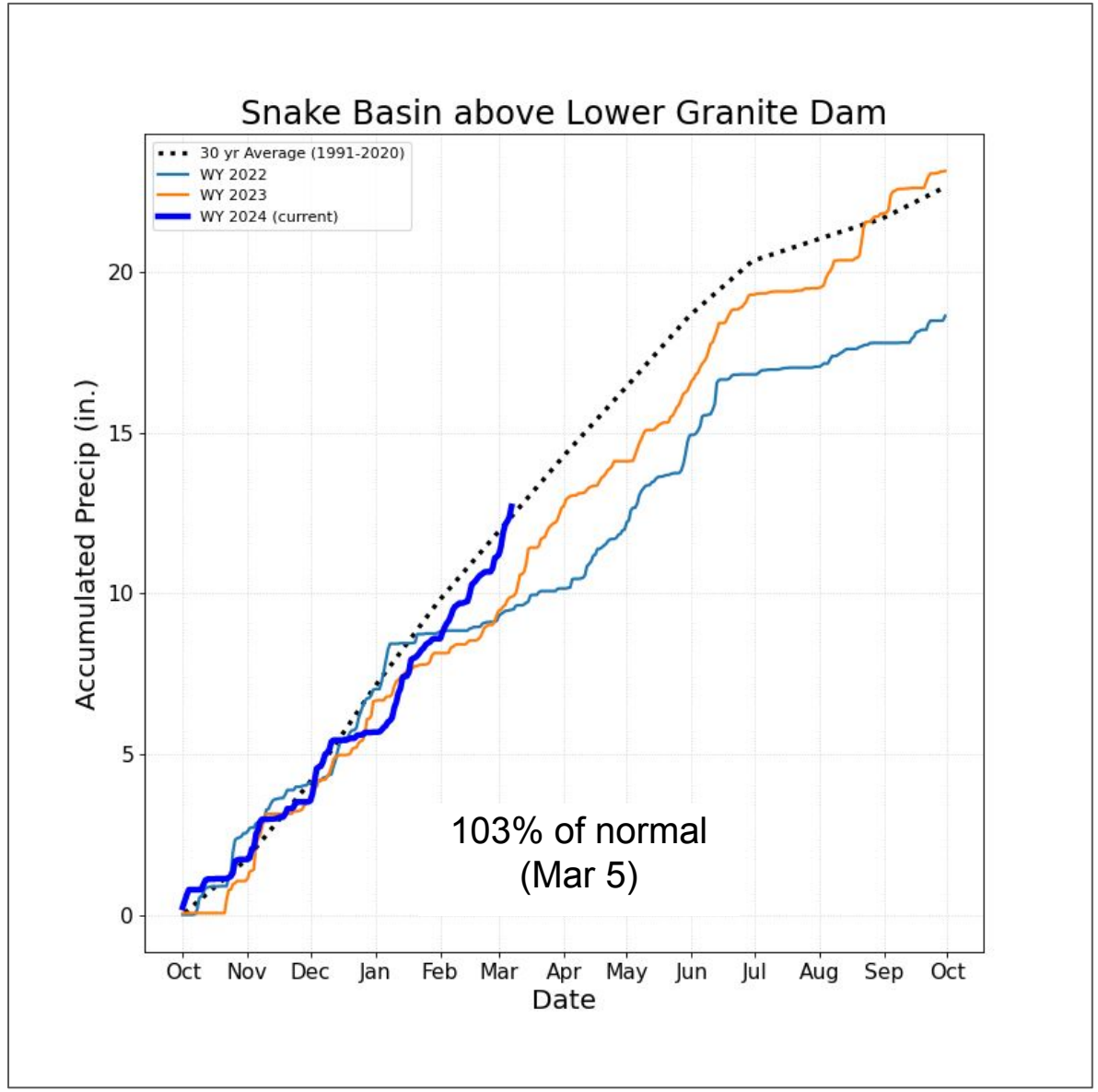
Precip averages from PRISM, OSU and PCIC.

Snowpack and Precipitation





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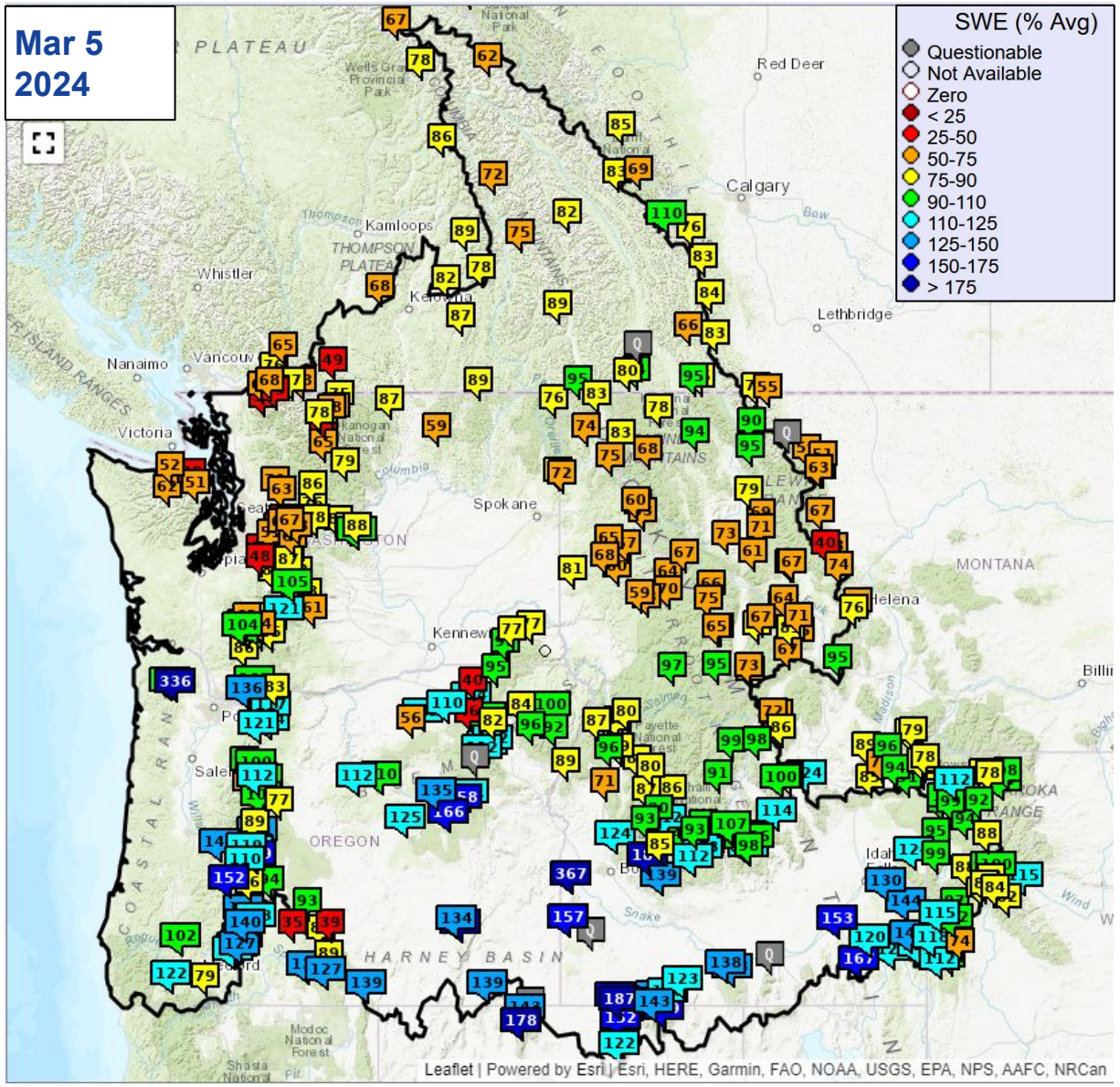
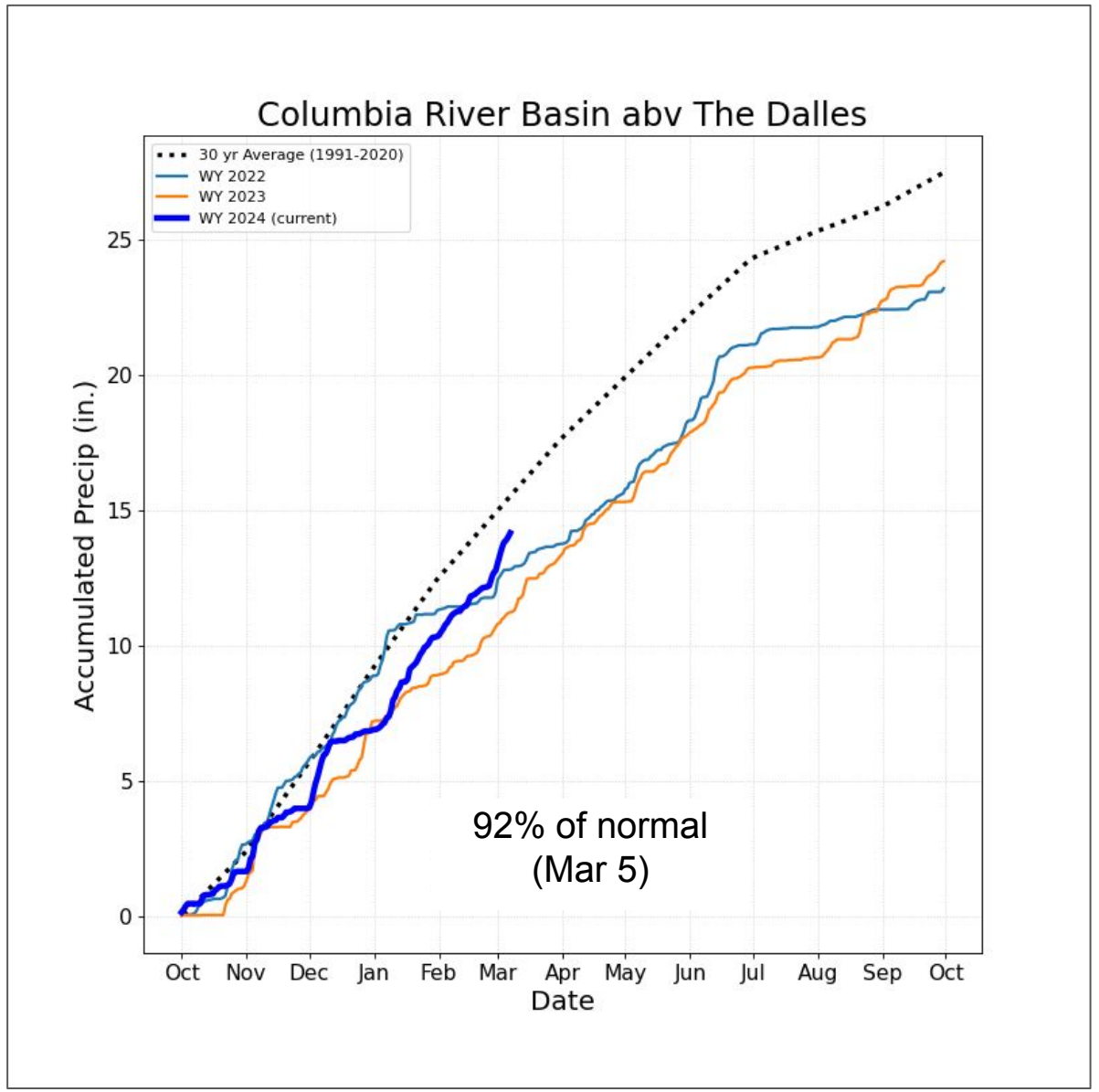
Snowpack and Precipitation





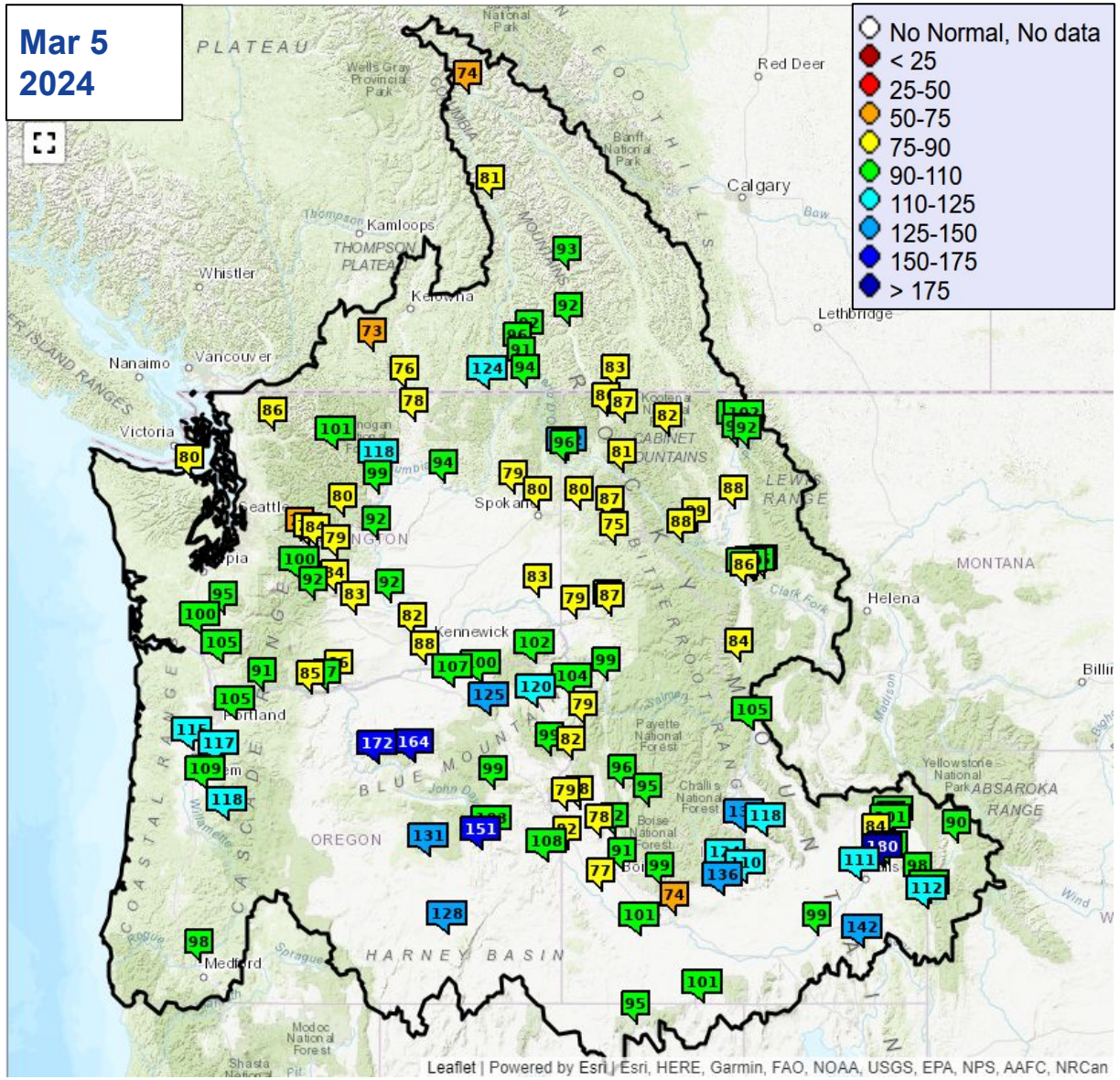
Snow data from Natural Resources Conservation Service, BC Hydro, Ministry of Environment and Climate Change Strategy, and Alberta Environment and Parks.

Precip averages from PRISM, OSU and PCIC.

Water Year to Date Adjusted Runoff

% Normal Runoff Oct 1 - Mar 5

Upper Columbia Basin		**Δ since Feb 1**
Mica	74	2
Duncan	93	4
Queens Bay	92	7
Libby	82	3
Hungry Horse	92	5
Grand Coulee	94	9
Snake River Basin		
American Falls	99	2
Lucky Peak	91	-2
Dworshak	71	7
Lower Granite	83	2
Lower Columbia Basin		
The Dalles	85	5

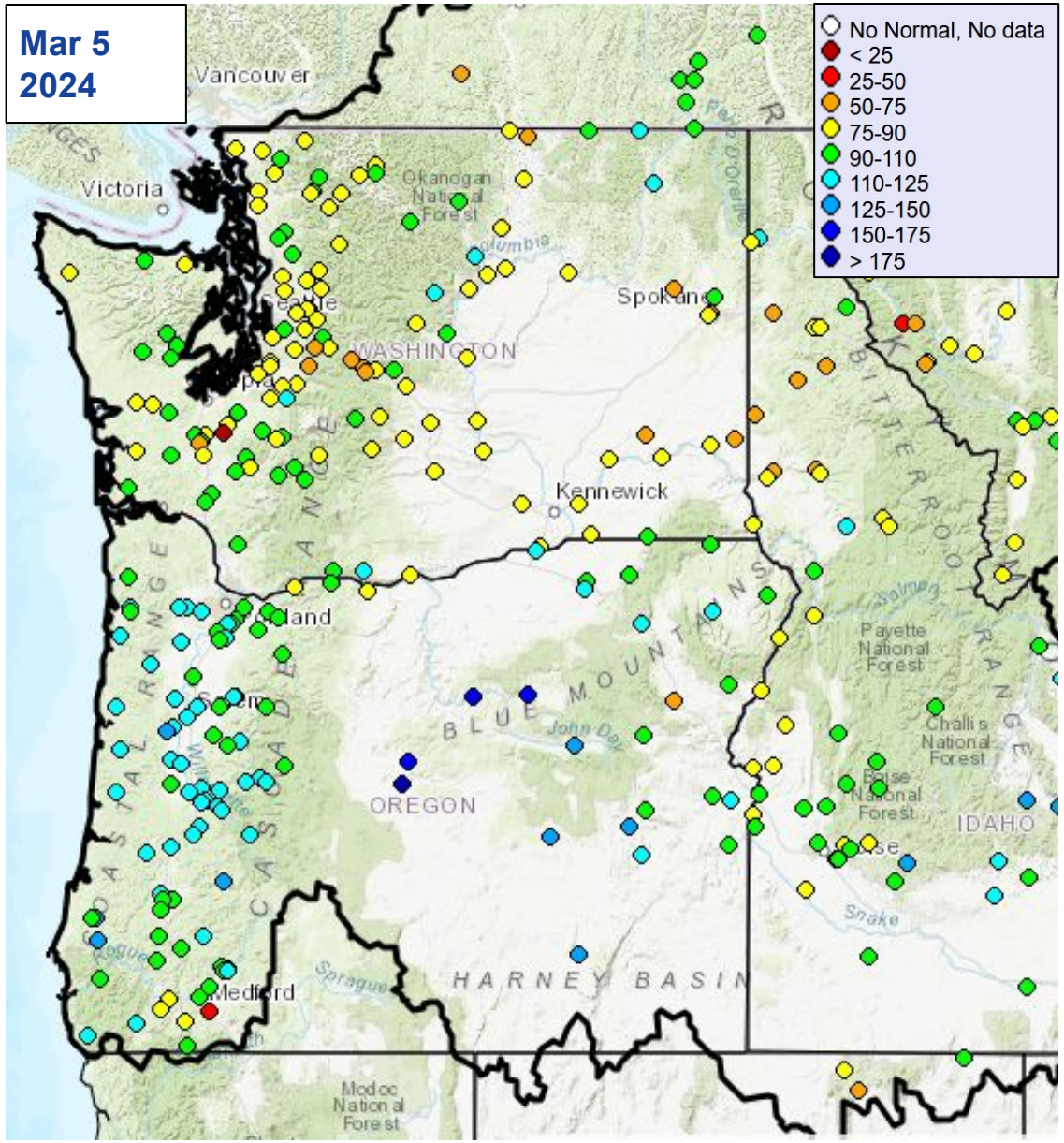


nwrfc.noaa.gov/ws/index.html?version=20190313v1

Water Year to Date Natural Runoff

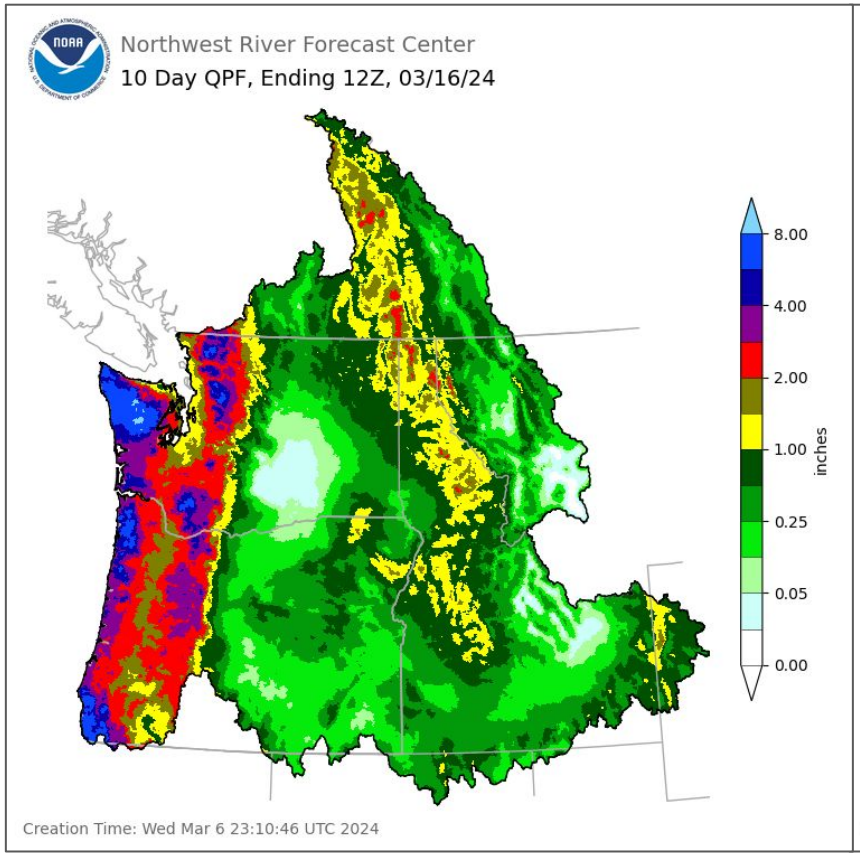
% Normal Runoff Oct 1 - Mar 5

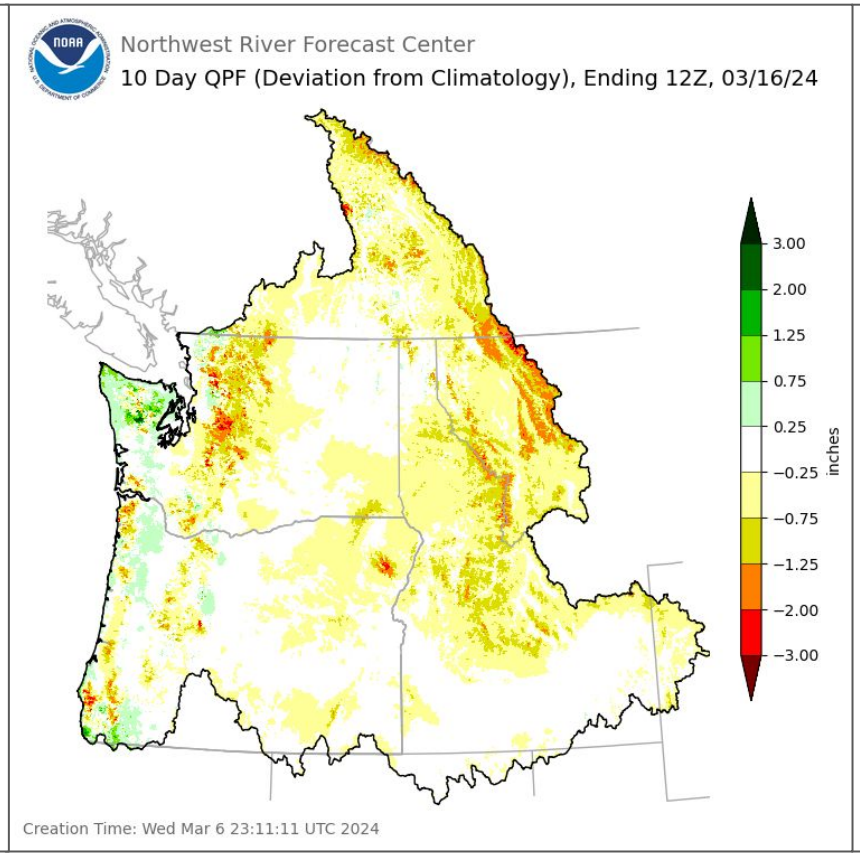
Washington		**Δ since Feb 1**
Skagit near Mt Vernon	82	5
Dungeness near Sequim	79	7
Chehalis at Porter	90	1
Okanogan at Malott	79	6
Methow near Pateros	118	14
Yakima at Parker	81	7
Walla Walla near Touchet	88	-8
Oregon		
Willamette at Salem	104	-1
Rogue at Raygold	98	3
Umatilla at Pendleton	104	-11
Grande Ronde at Troy	100	3
Crooked near Prineville	195	11
Owyhee Dam	106	22

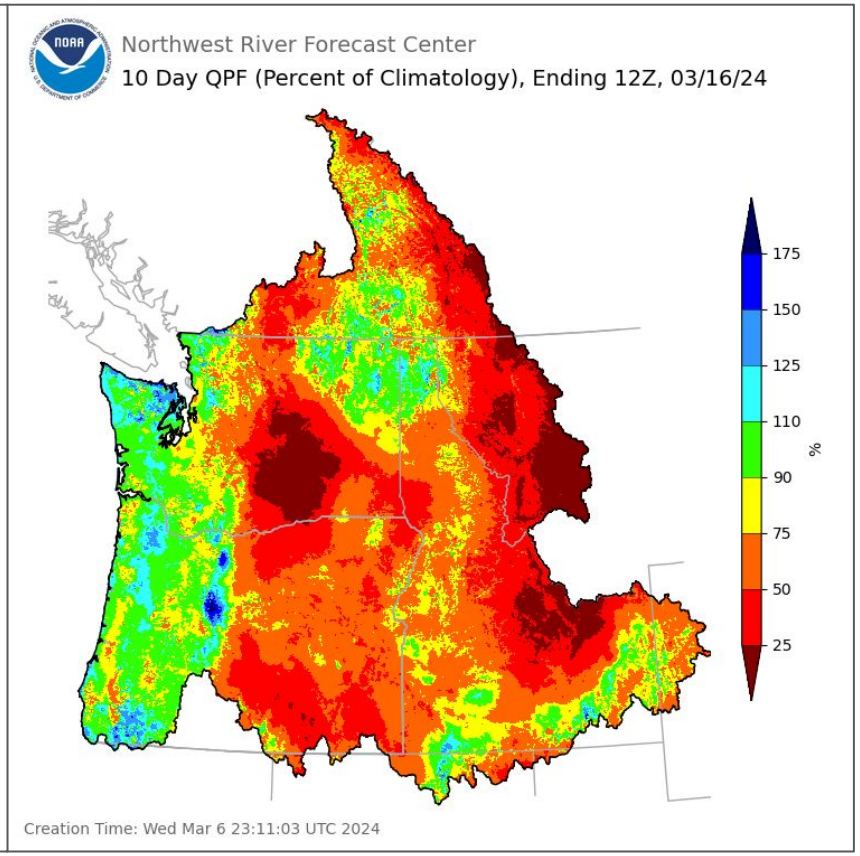


nwrfc.noaa.gov/natural/index.html?version=20190313v1

10 Day Precipitation Forecast used in ESP10







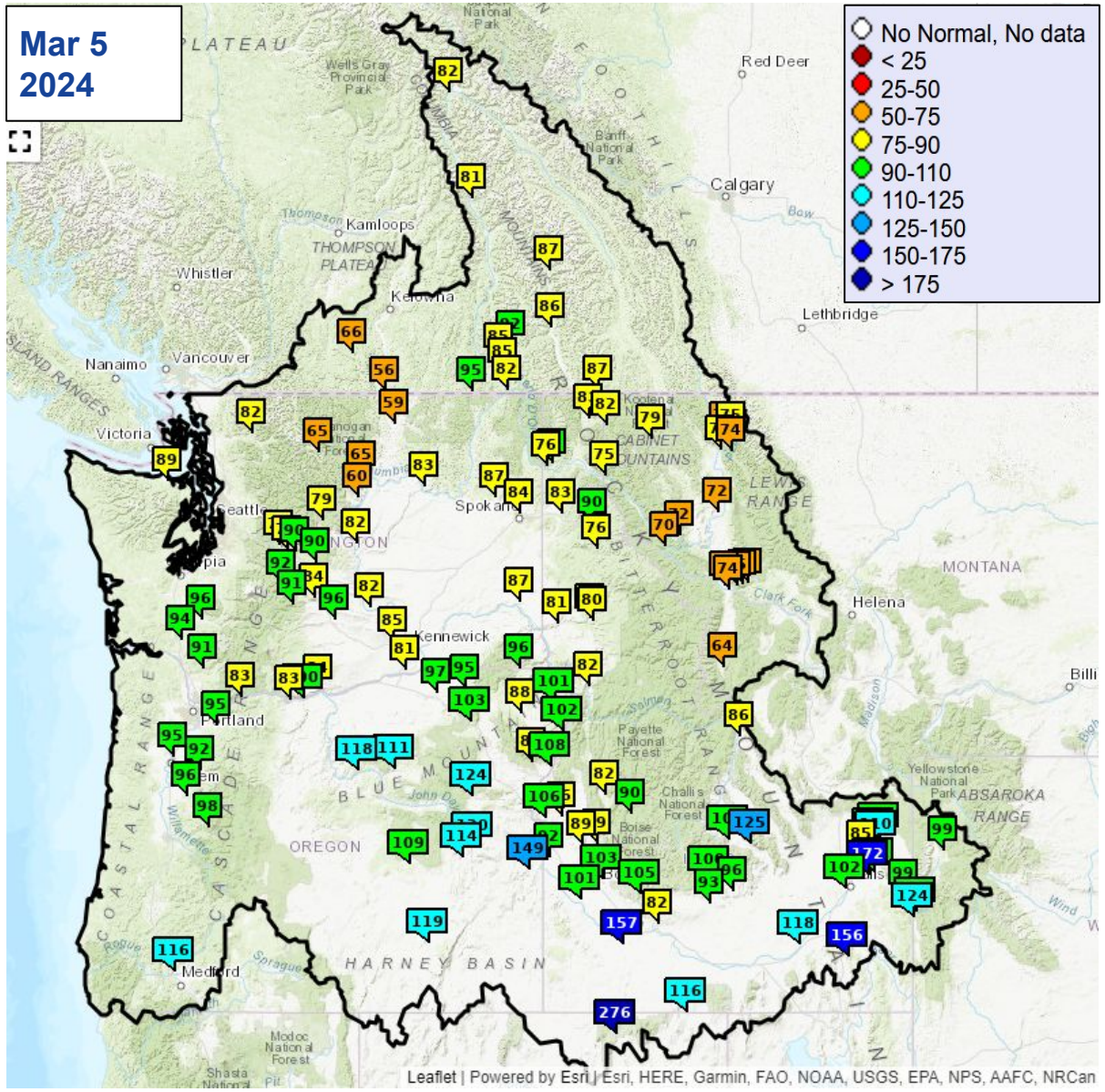
Quantitative Precipitation Forecast (QPF) Sources:

- 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

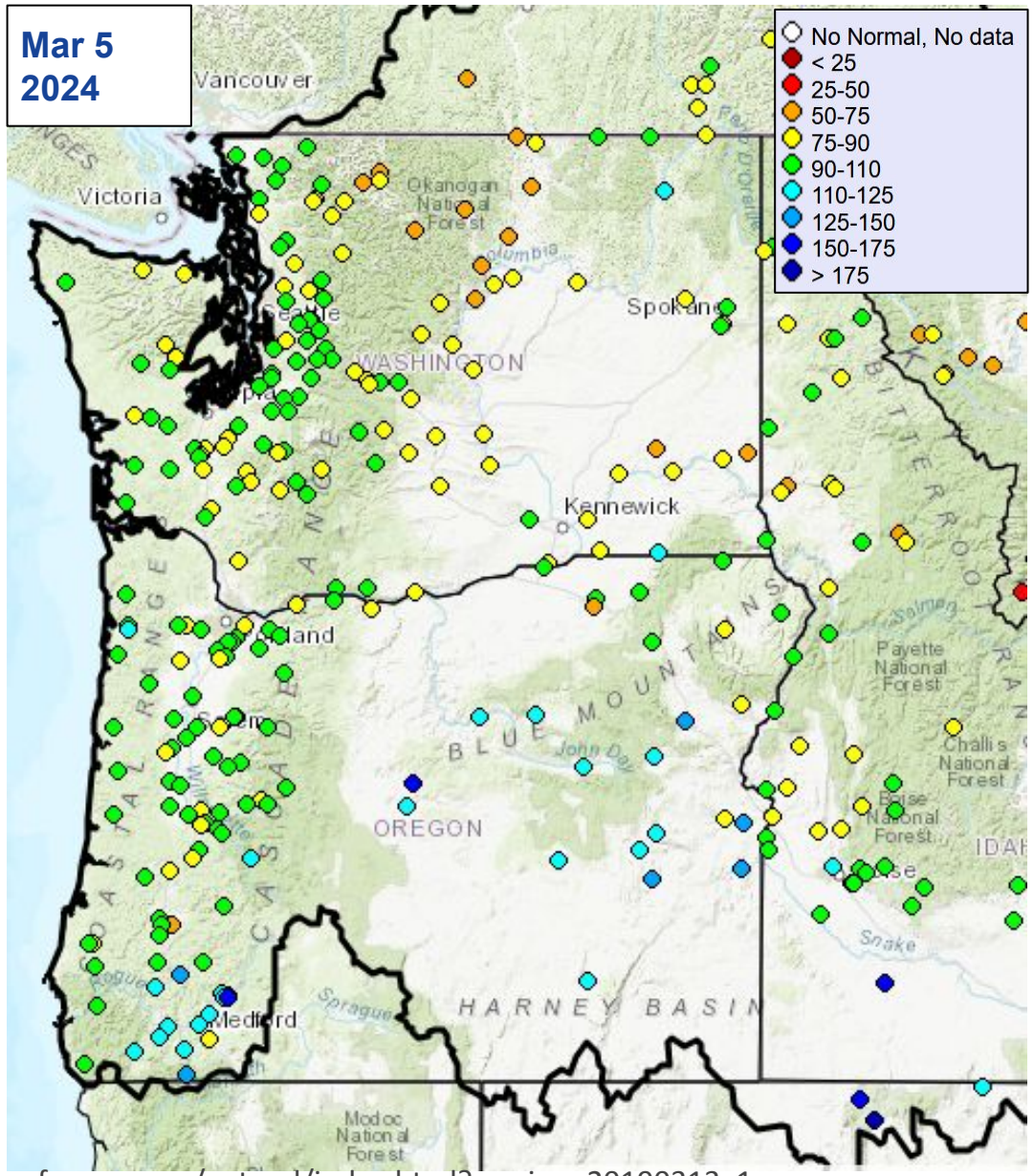
		Δ since Feb 1
Upper Columbia Basin		
Mica	82	9
Duncan	87	3
Queens Bay	86	2
Libby	79	2
Hungry Horse	74	0
Grand Coulee	83	6
Snake River Basin		
American Falls	118	26
Lucky Peak	103	5
Dworshak	76	4
Lower Granite	87	4
Lower Columbia Basin		
The Dalles	83	4



nwrfc.noaa.gov/ws/index.html?version=20190313v1

Natural Water Supply Forecasts

% Normal Apr-Sep Volume		
Washington		**Δ since Feb 1**
Skagit near Mt Vernon	83	4
Dungeness near Sequim	89	2
Chehalis at Porter	90	4
Okanogan at Malott	59	-4
Methow near Pateros	65	-5
Yakima at Parker	88	1
Walla Walla near Touchet	83	-15
Oregon		
Willamette at Salem	91	3
Rogue at Raygold	117	12
Umatilla at Pendleton	97	8
Grande Ronde at Troy	96	3
Crooked near Prineville	122	59
Owyhee Dam	148	29



nwrfc.noaa.gov/natural/index.html?version=20190313v1

ESP10 Water Supply Forecast

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

Official Water Supply
ESP with 10 Days QPF **Ensemble:** 2024-03-06 **Issued:** 2024-03-06

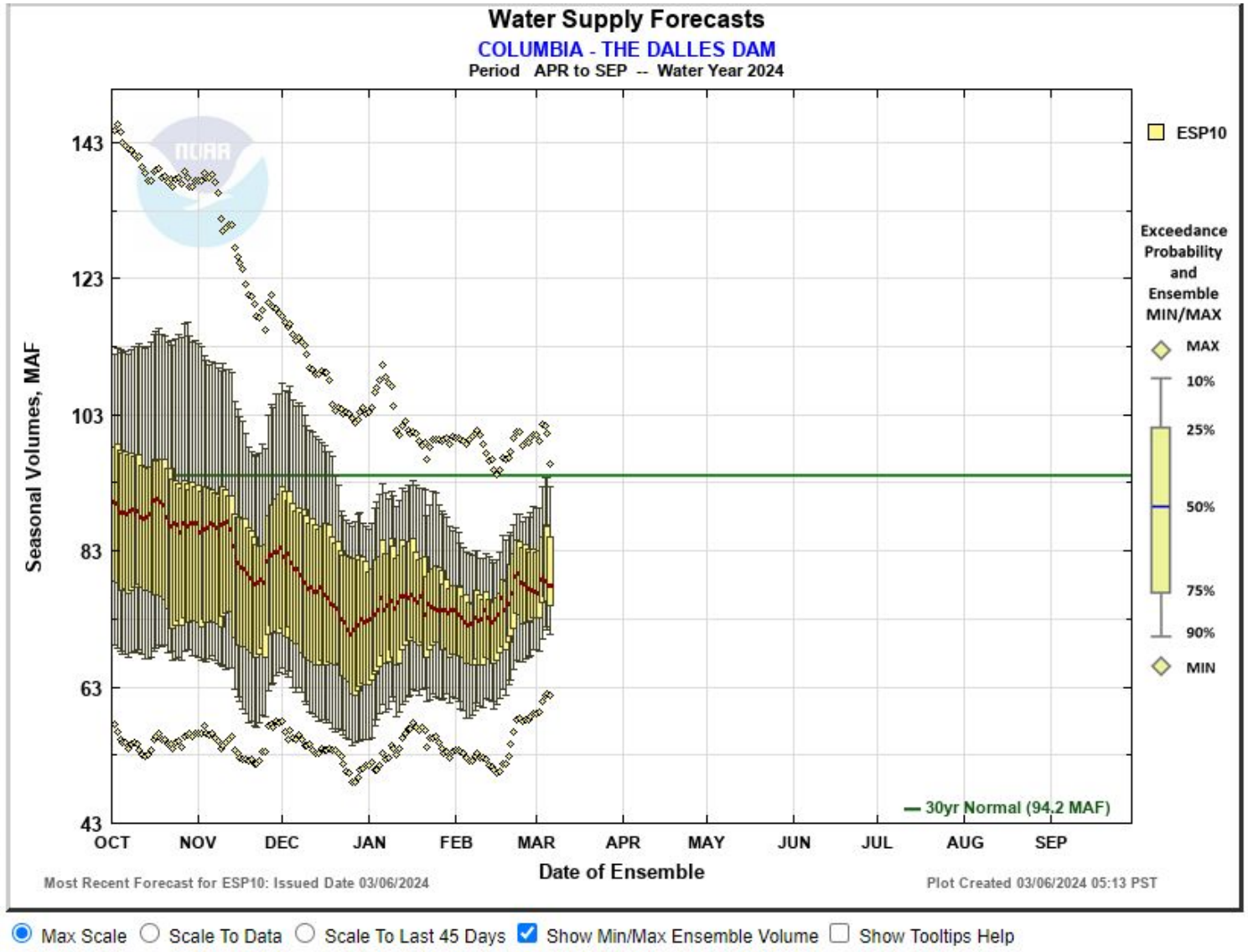
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	70847	77885	83	92585	94166
APR-JUL	60759	66319	81	80000	81933
APR-AUG	66194	73228	82	87673	89196
JAN-SEP	90795	96961	84	112596	115946
JAN-JUL	80335	86063	83	99940	103714
OCT-SEP	104049	110215	83	125850	132314

Experimental Water Supply
HEFS with 15 days EQPF **Ensemble:** 2024-03-06 **Issued:** 2024-03-06

APR-SEP	68314	80393	85	89583	94166
APR-JUL	57839	67502	82	77333	81933
APR-AUG	63133	75081	84	84516	89196
JAN-SEP	89005	99612	86	110463	115946
JAN-JUL	79329	88049	85	98572	103714
OCT-SEP	102259	112866	85	123717	132314

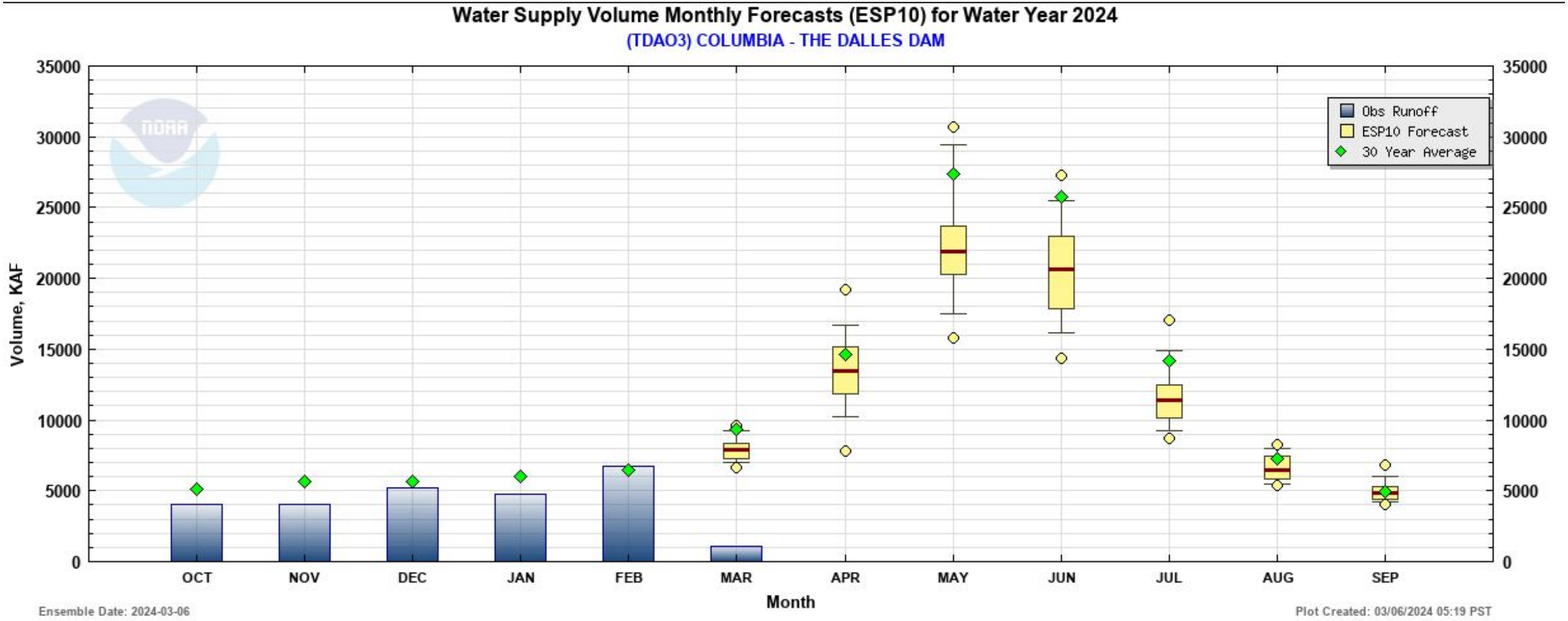
Reference
ESP with 0 Days QPF **Ensemble:** 2024-03-06 **Issued:** 2024-03-06

APR-SEP	68348	81540	87	90438	94166
APR-JUL	57521	69910	85	77643	81933
APR-AUG	63171	76440	86	84708	89196
JAN-SEP	88469	101109	87	112805	115946
JAN-JUL	78976	90146	87	100243	103714
OCT-SEP	101723	114363	86	126060	132314



nwrfc.noaa.gov/water_supply/ws_forecasts.php?id=TDAO3

ESP10 Water Supply Forecast



nwrfc.noaa.gov/water_supply/monthly/monthly_forecasts.php?id=TDAO3

ESP10 Water Supply Forecast

COLUMBIA - GRAND COULEE DAM (GCDW1)
Forecasts for Water Year 2024

Official Water Supply

ESP with 10 Days QPF ***Ensemble:*** 2024-03-06 ***Issued:*** 2024-03-06

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	46521	51102	83	56531	61483
APR-JUL	38545	43024	82	48435	52774
APR-AUG	43276	48075	83	53512	58186
JAN-SEP	56089	60591	86	65963	70457
JAN-JUL	47503	52429	85	57820	61749
OCT-SEP	63174	67676	86	73048	78842

Experimental Water Supply

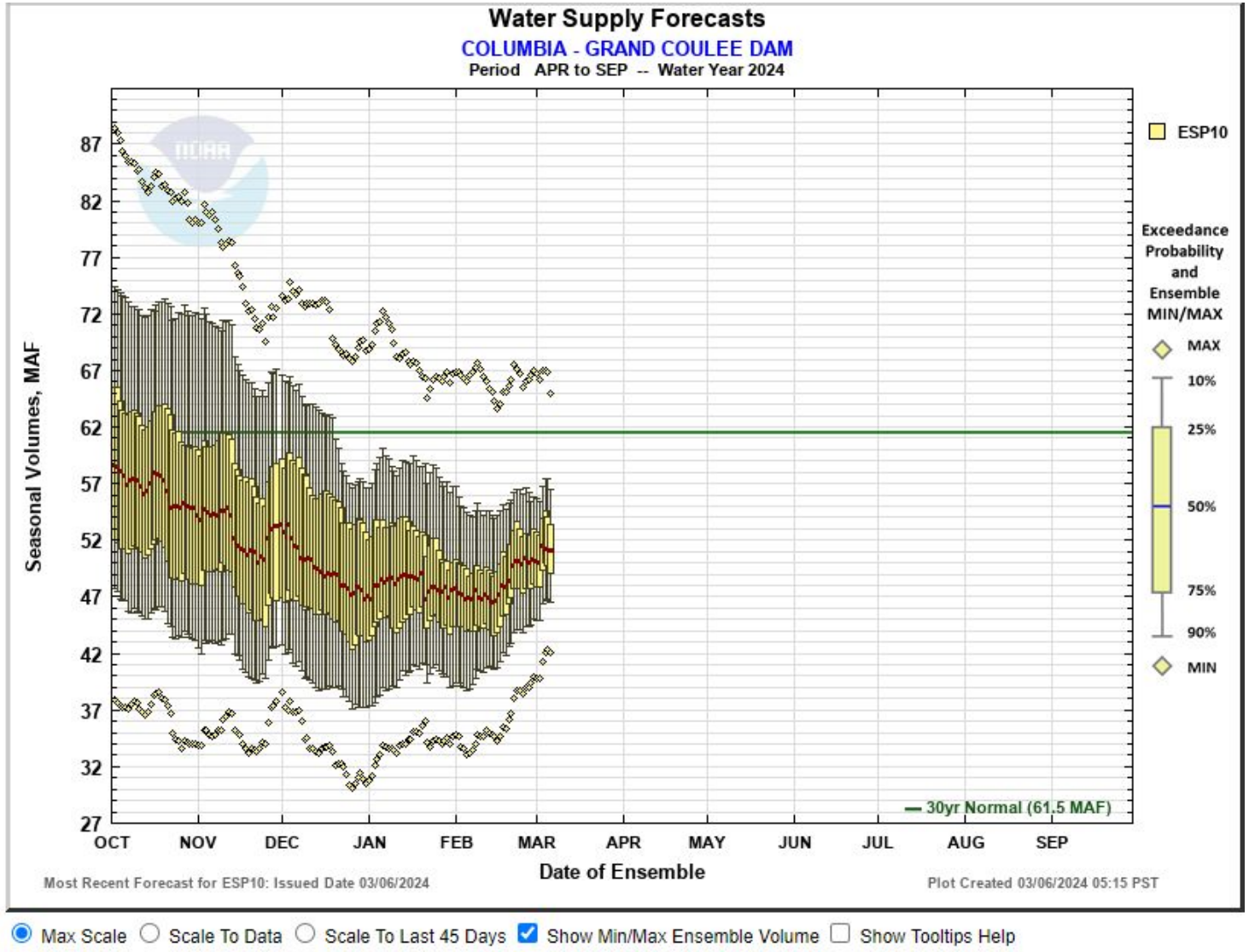
HEFS with 15 days EQPF ***Ensemble:*** 2024-03-06 ***Issued:*** 2024-03-06

APR-SEP	45739	51946	84	57291	61483
APR-JUL	38484	44019	83	48562	52774
APR-AUG	42690	48926	84	53672	58186
JAN-SEP	55341	61241	87	67652	70457
JAN-JUL	47952	53778	87	58169	61749
OCT-SEP	62426	68326	87	74737	78842

Reference

ESP with 0 Days QPF ***Ensemble:*** 2024-03-06 ***Issued:*** 2024-03-06

APR-SEP	46118	52292	85	58641	61483
APR-JUL	38502	44572	84	48962	52774
APR-AUG	43017	49284	85	54989	58186
JAN-SEP	55384	62195	88	68209	70457
JAN-JUL	48070	54115	88	58561	61749
OCT-SEP	62469	69280	88	75294	78842



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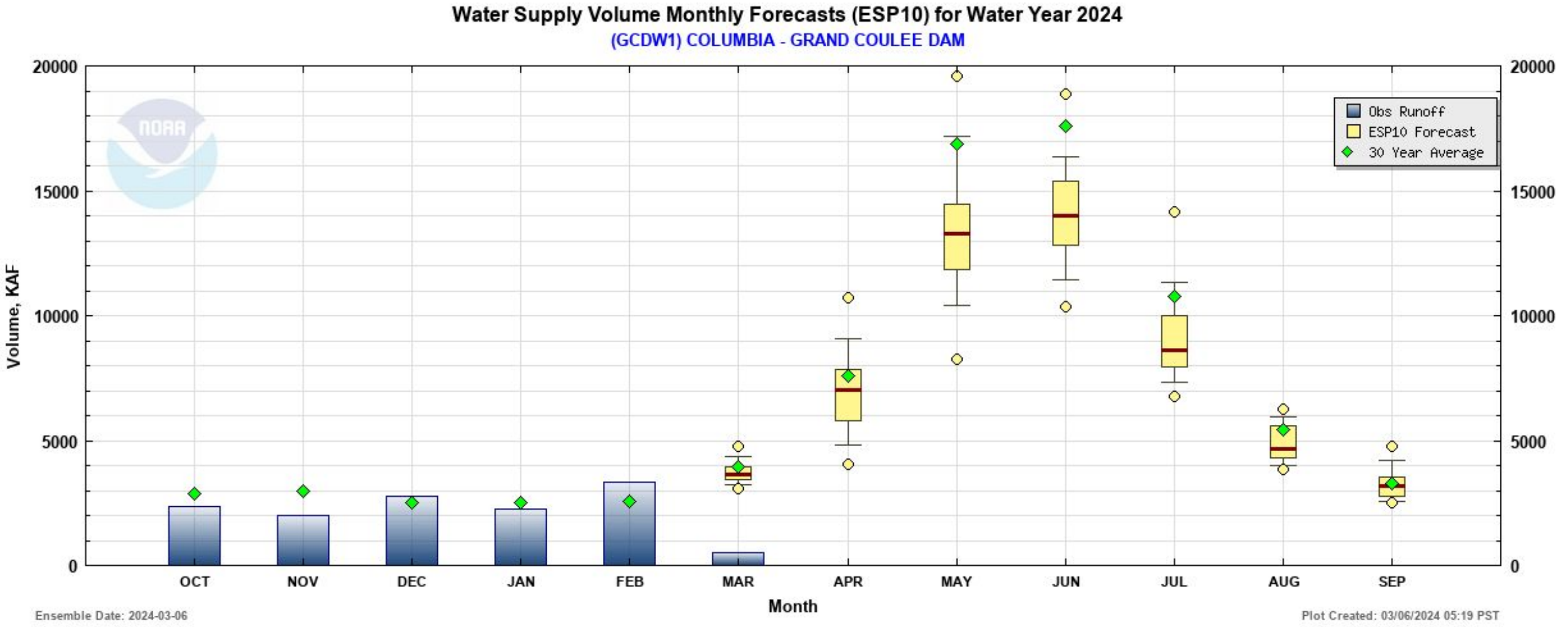
ESP10 Water Supply Forecast



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

ESP10 Water Supply Forecast

SNAKE - LOWER GRANITE DAM (LGDW1)
Forecasts for Water Year 2024

Official Water Supply

ESP with 10 Days QPF ***Ensemble:*** 2024-03-06 ***Issued:*** 2024-03-06

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	16528	19384	87	25783	22232
APR-JUL	14366	17112	86	23200	19946
APR-AUG	15420	18258	86	24559	21121
JAN-SEP	22619	25555	86	32441	29736
JAN-JUL	20503	23163	84	29961	27450
OCT-SEP	26464	29400	86	36286	34287

Experimental Water Supply

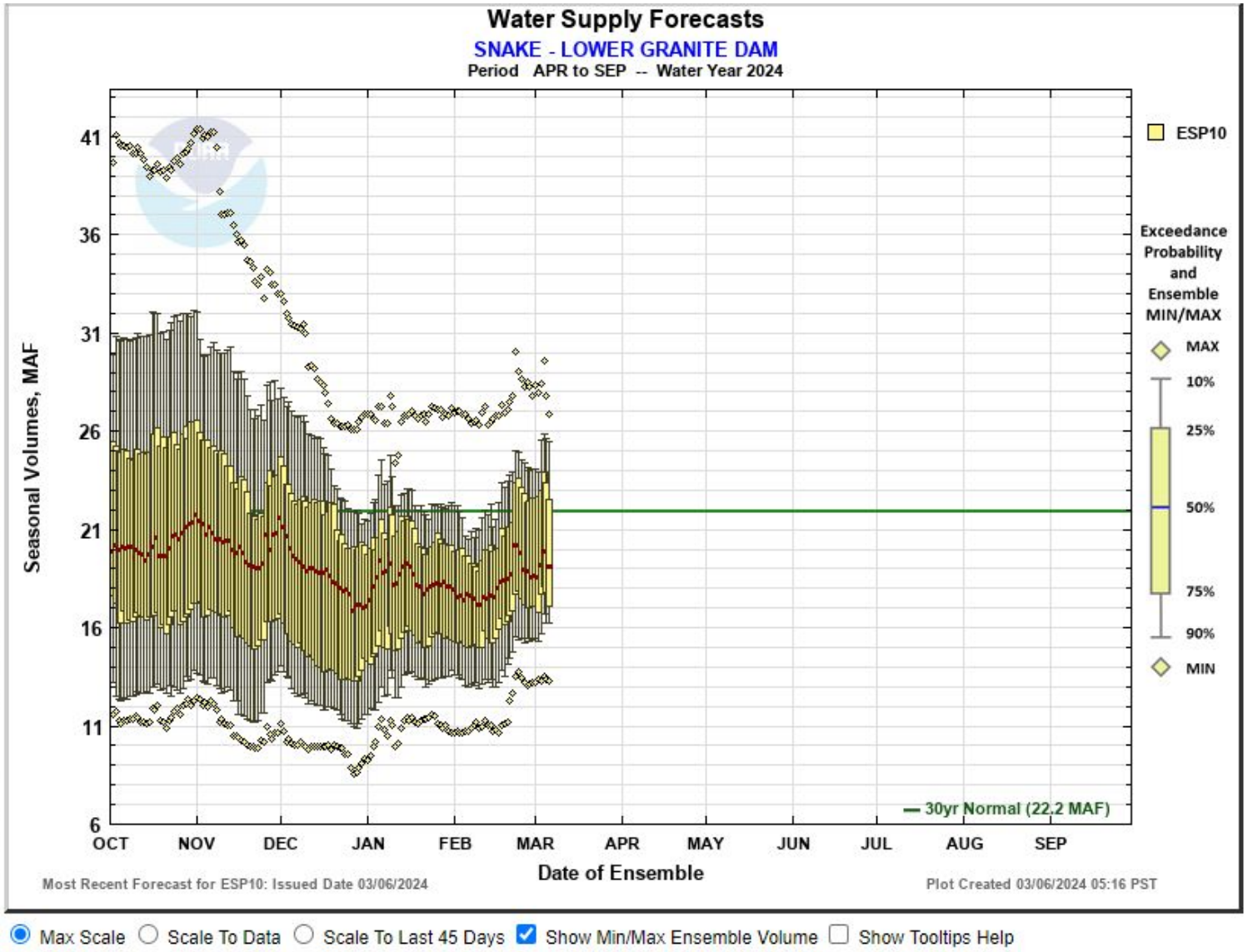
HEFS with 15 days EQPF ***Ensemble:*** 2024-03-06 ***Issued:*** 2024-03-06

APR-SEP	15686	19377	87	24037	22232
APR-JUL	13601	16941	85	21287	19946
APR-AUG	14608	18088	86	22697	21121
JAN-SEP	22062	26046	88	30926	29736
JAN-JUL	19949	23392	85	28089	27450
OCT-SEP	25907	29891	87	34771	34287

Reference

ESP with 0 Days QPF ***Ensemble:*** 2024-03-06 ***Issued:*** 2024-03-06

APR-SEP	15438	20476	92	24821	22232
APR-JUL	13368	18092	91	22013	19946
APR-AUG	14370	19293	91	23481	21121
JAN-SEP	22110	26974	91	31973	29736
JAN-JUL	20019	24592	90	29127	27450
OCT-SEP	25955	30819	90	35817	34287



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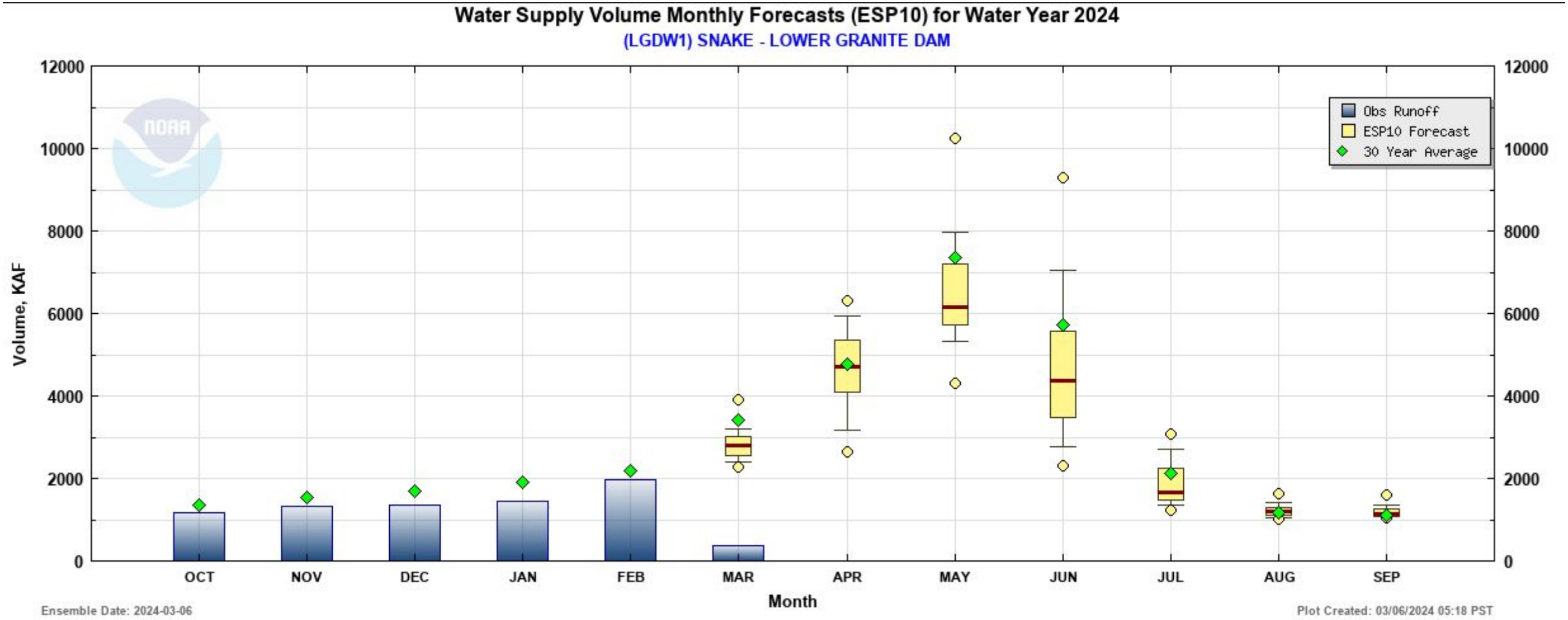
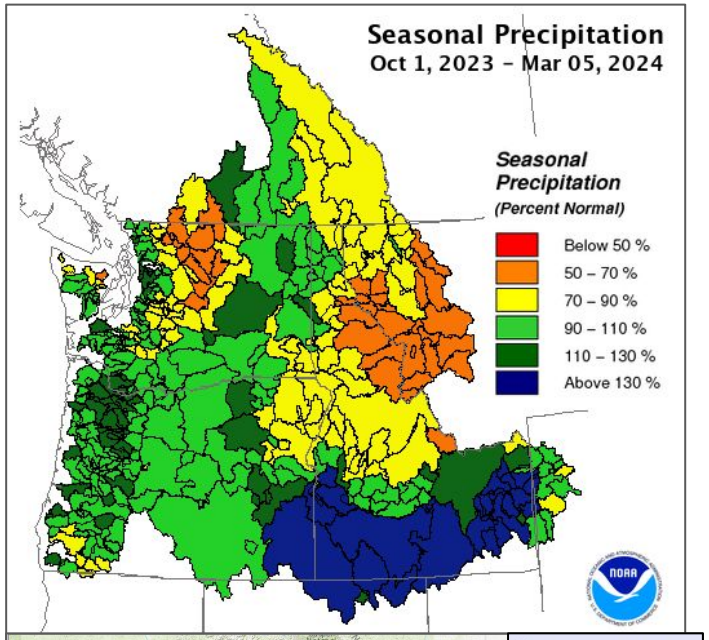


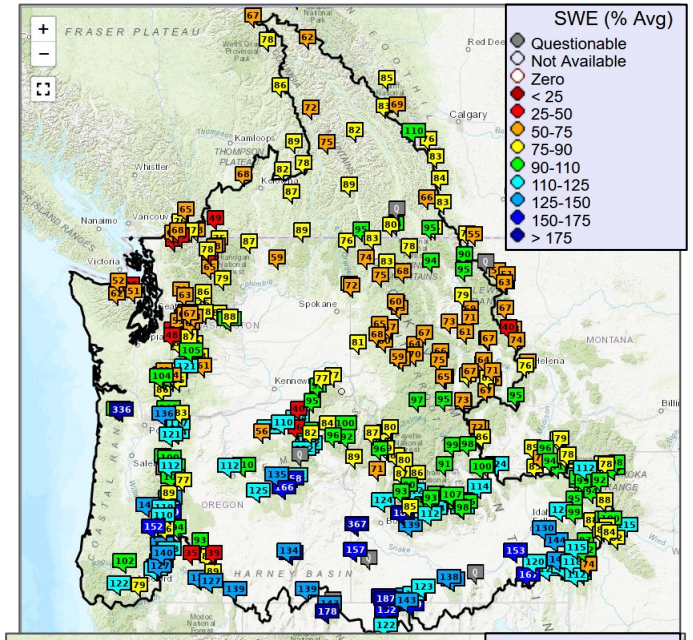
nwrfc.noaa.gov/water_supply/monthly/monthly_forecasts.php?id=LGDW1

SWE, Precip, Runoff and Water Supply Forecasts

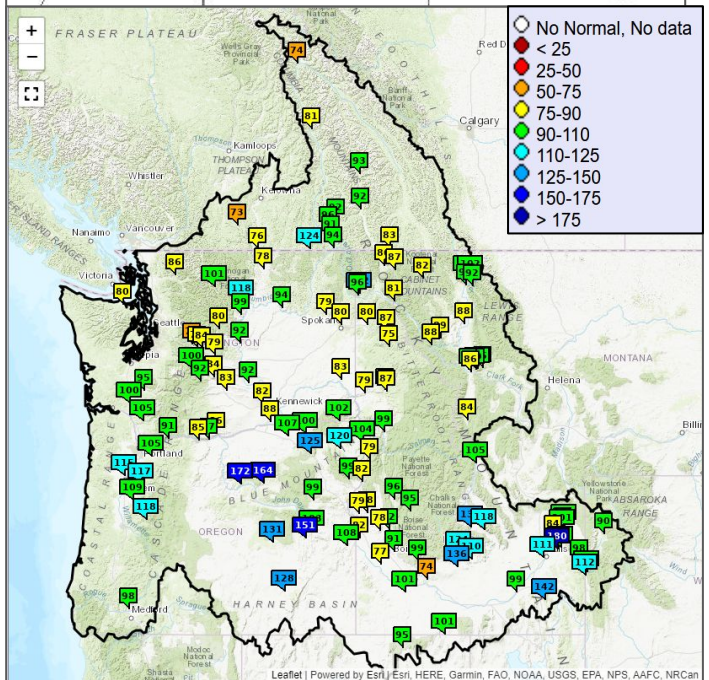
Oct - Mar 5 Precipitation



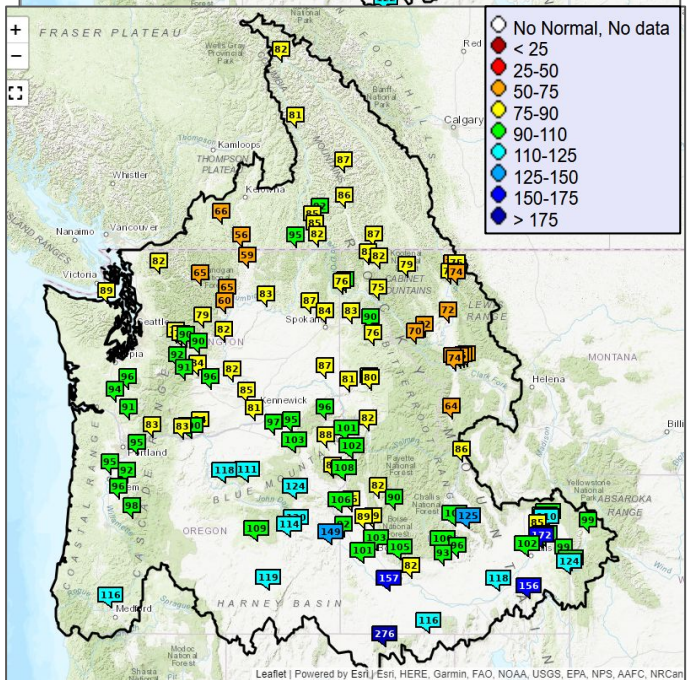
Mar 5 SWE



Oct - Mar 5 Runoff



Apr - Sep Forecasts



Takeaways

- Wetter than normal February and start of March led to increases in snowpack, observed runoff, and water supply forecasts relative to normal, with some exceptions
- Snowpack and observed runoff continue to be below normal in the north and above normal in the south
- The near term forecast has higher than normal precipitation west of the Cascades to contrast lower than normal precipitation east
- Apr-Sep volume forecasts are a mix of well above to well below normal with higher forecasts in the south

Schedule for Live Water Supply Briefings

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

Click here for Registration

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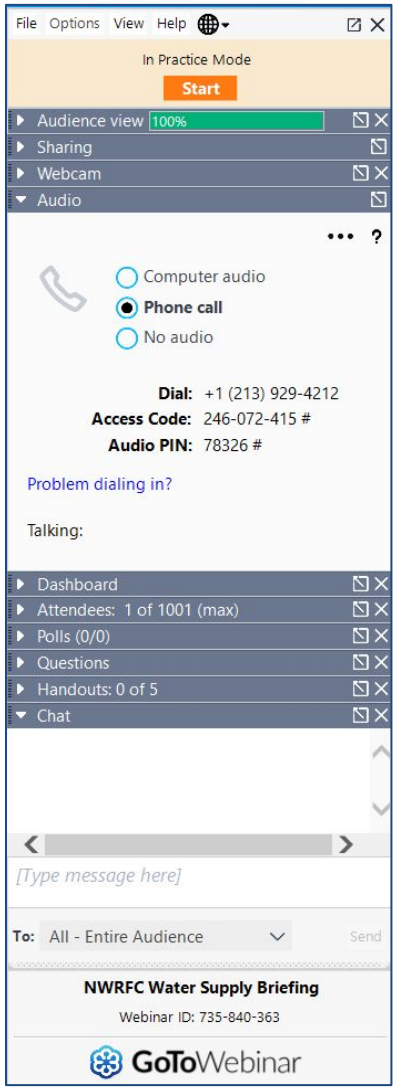
Questions?



Type questions in the webinar chat box or use the 'Raise Hand' function.

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#.

Extra Slides

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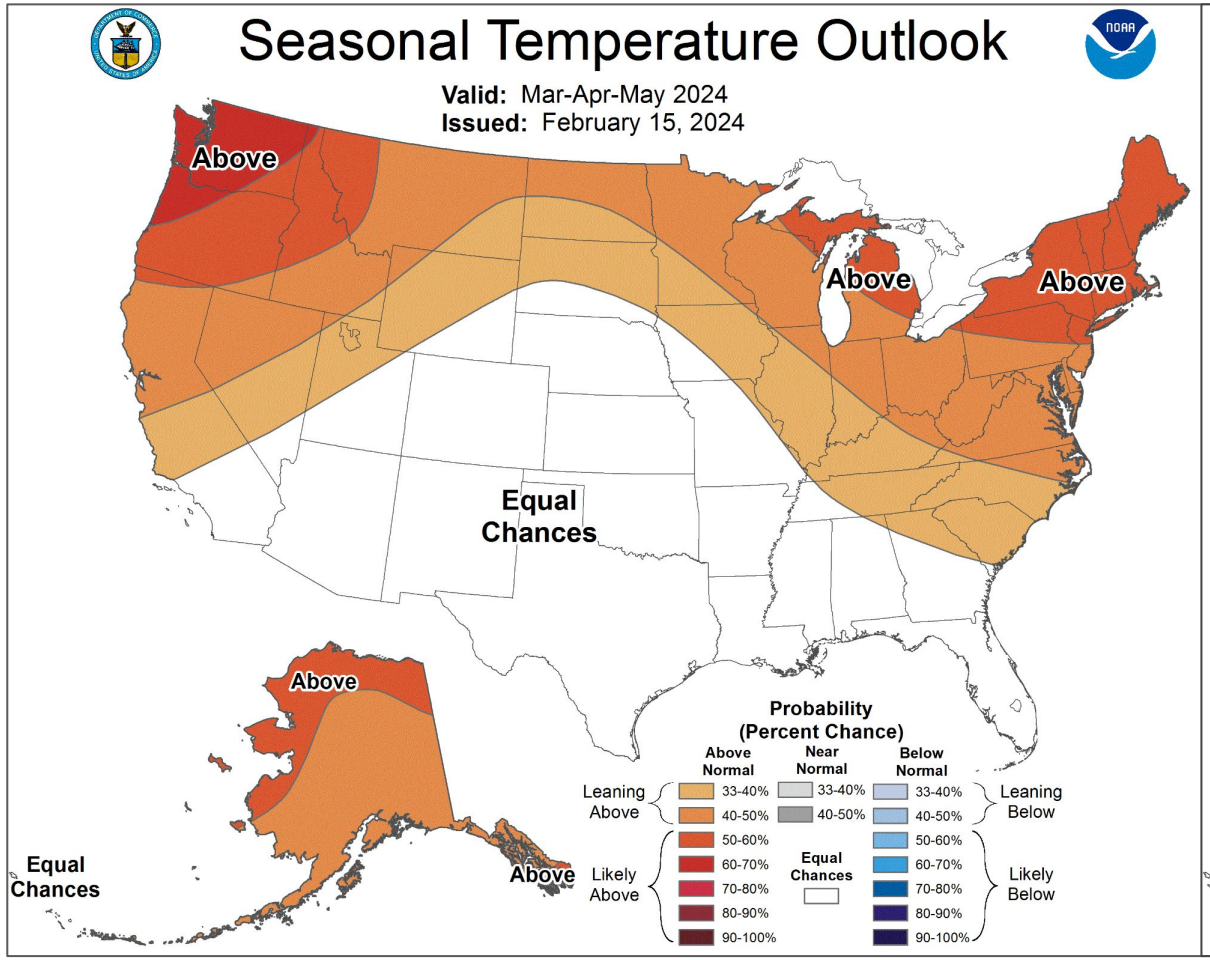
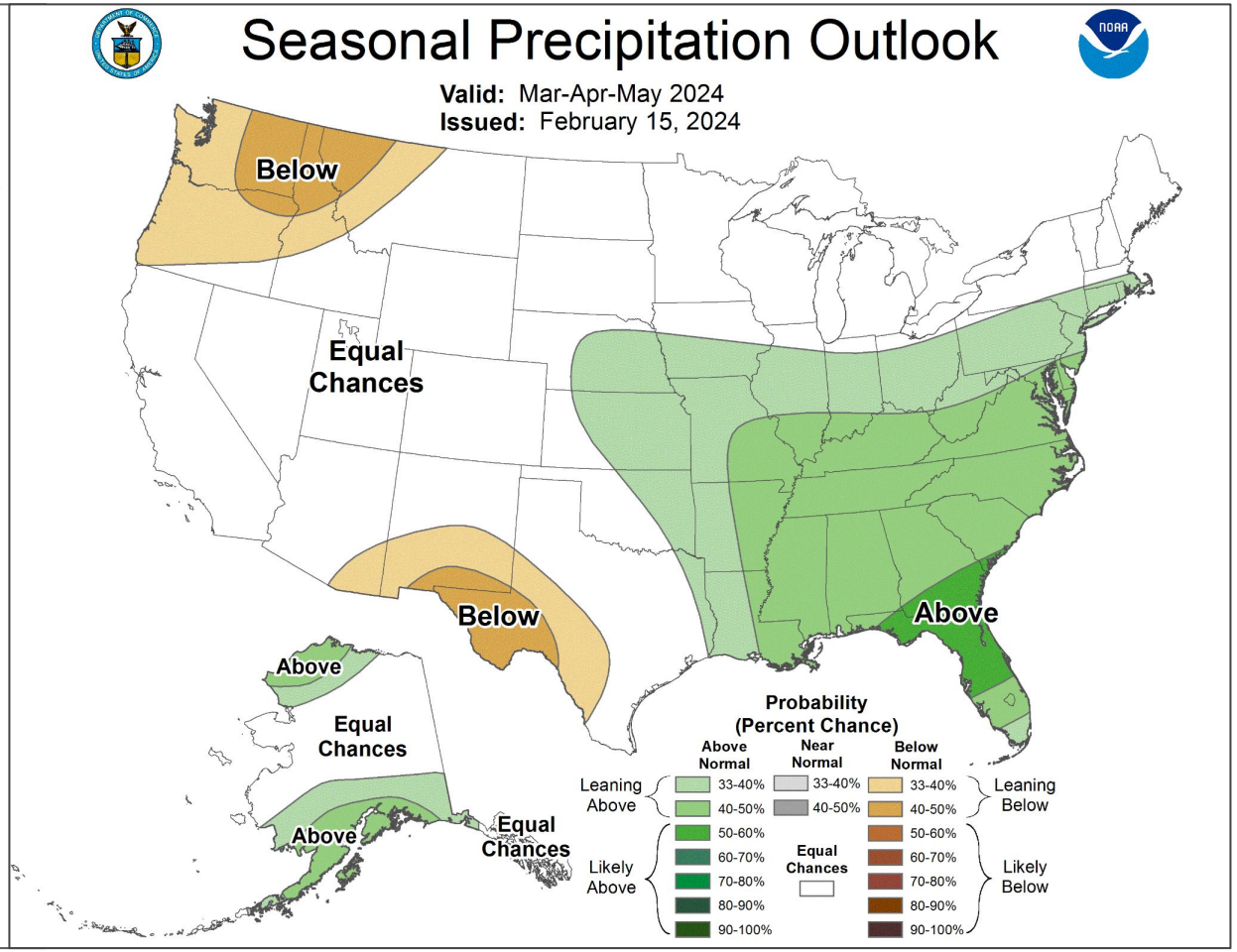
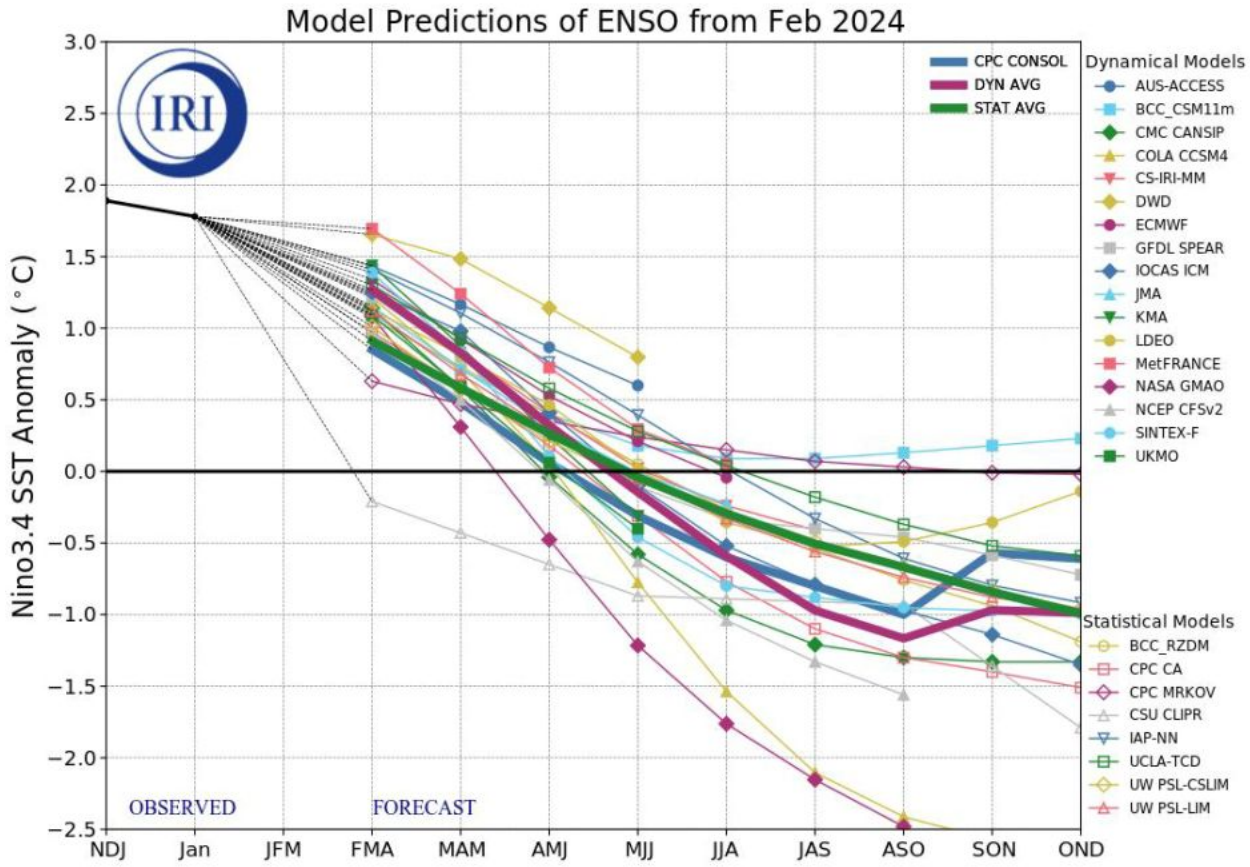
Climate Prediction Center Seasonal Outlook





cpc.ncep.noaa.gov

Climate Prediction Center Model Predictions



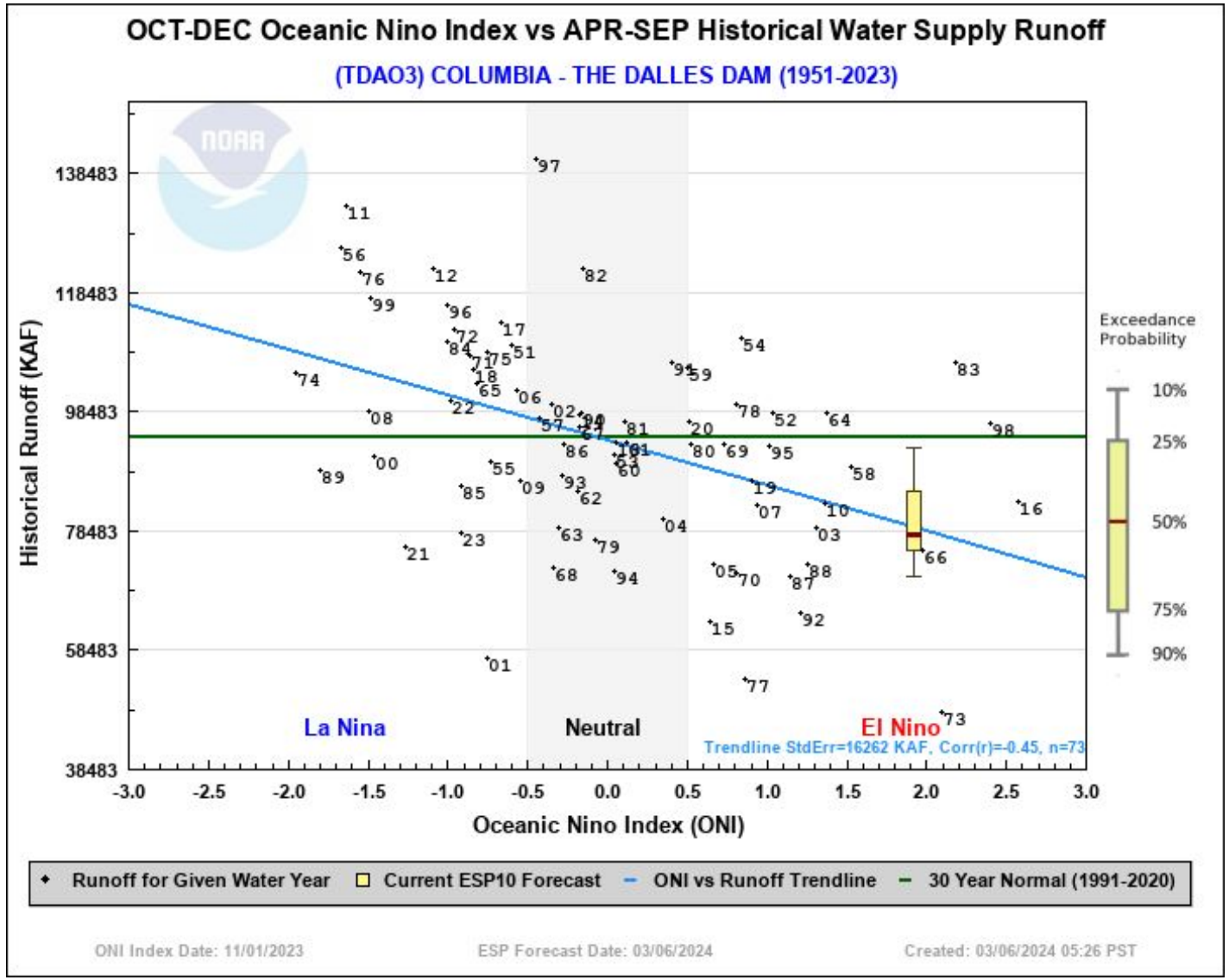
The majority of models indicate El Niño will persist through March-May 2024 and then transition to ENSO-neutral during April-June 2024.

After a brief period of ENSO-neutral conditions, most models indicate a transition to La Niña around June-August 2024.

Figure provided by the International Research Institute (IRI) for Climate and Society (updated 19 February 2024).

cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

Oceanic Niño Index vs. Apr - Sep Runoff Volumes



nwrfc.noaa.gov/runoff/enso/enso_runoff_analysis.php?id=TDAO3&wstype=WS