

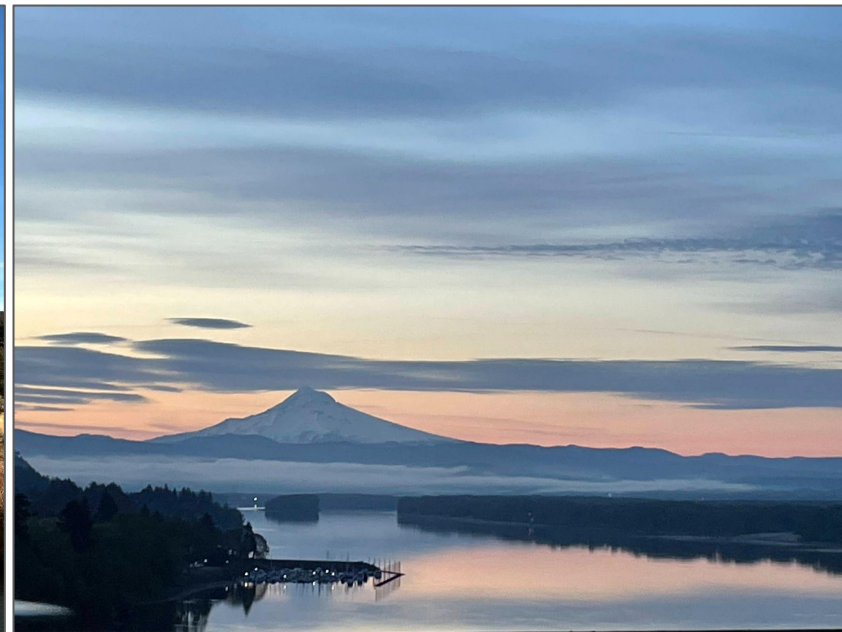


Northwest River Forecast Center

April 2025 Water Supply Briefing

Henry Pai, Senior Hydrologist
NWRFC.watersupply@noaa.gov

April 3, 2025

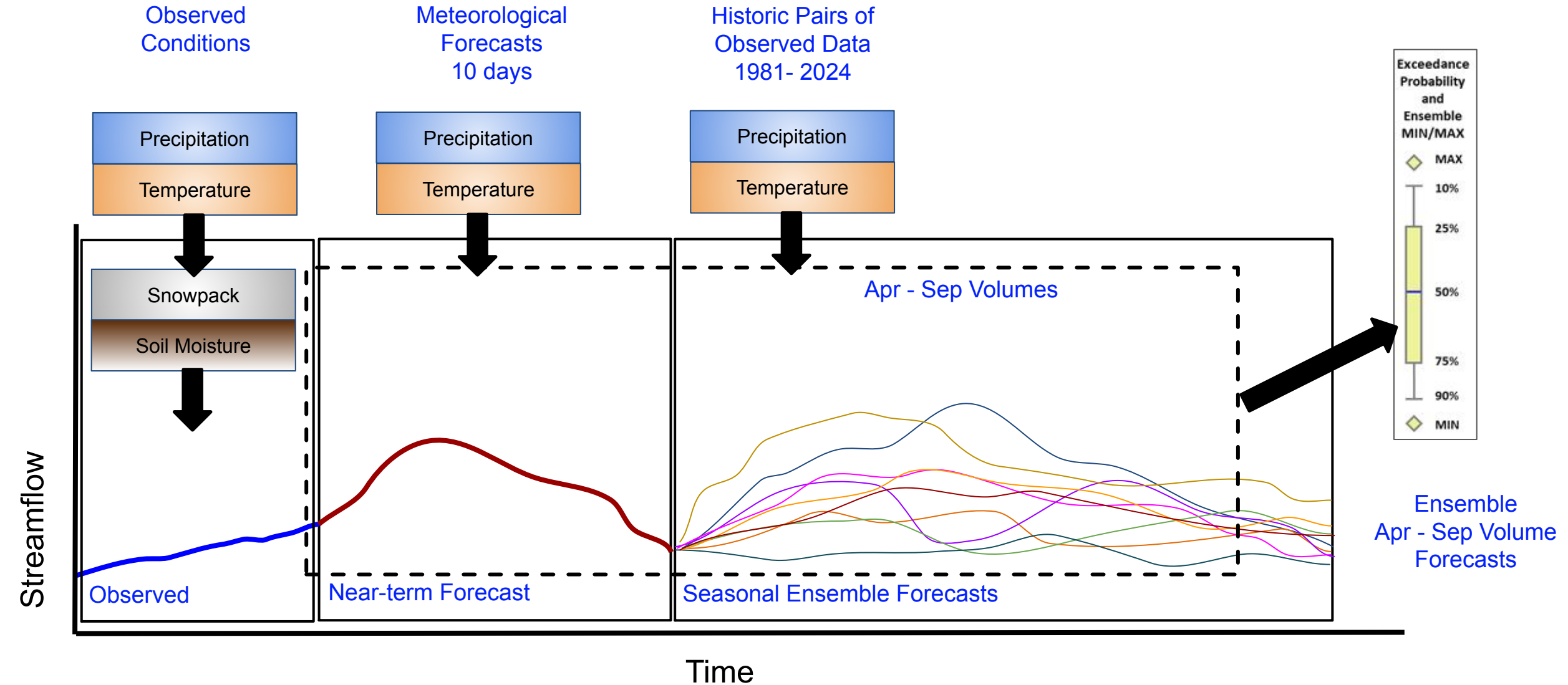




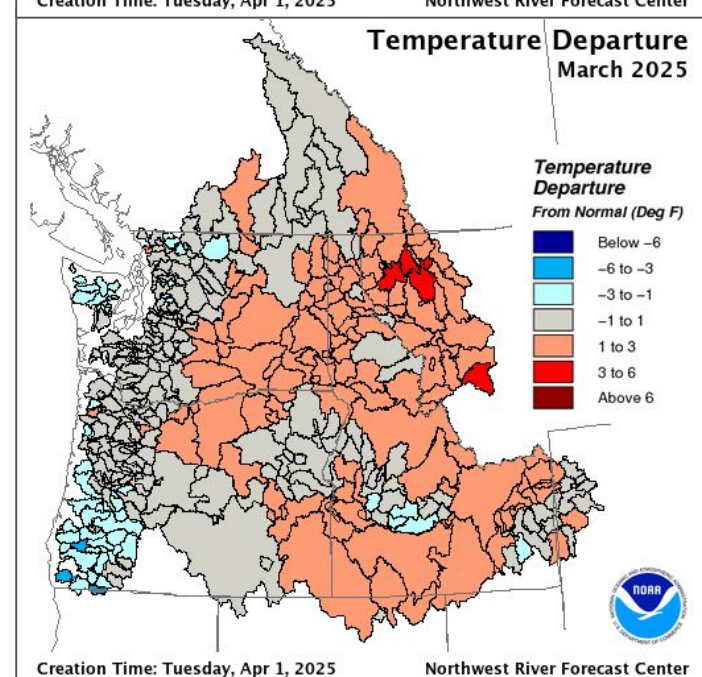
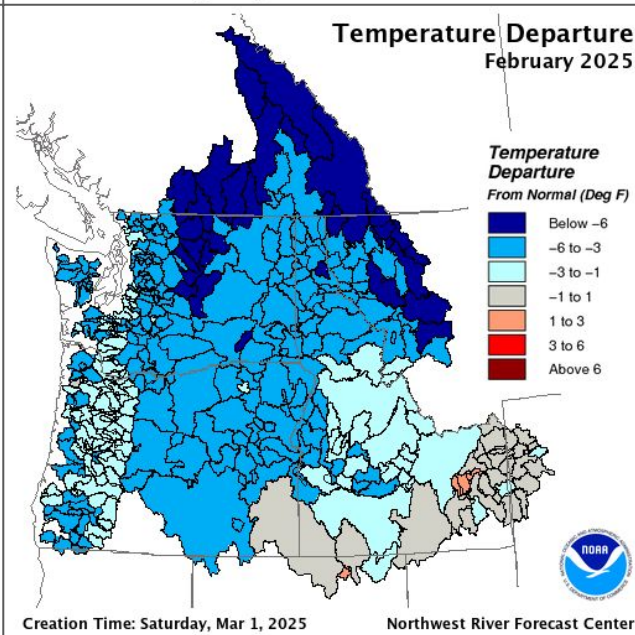
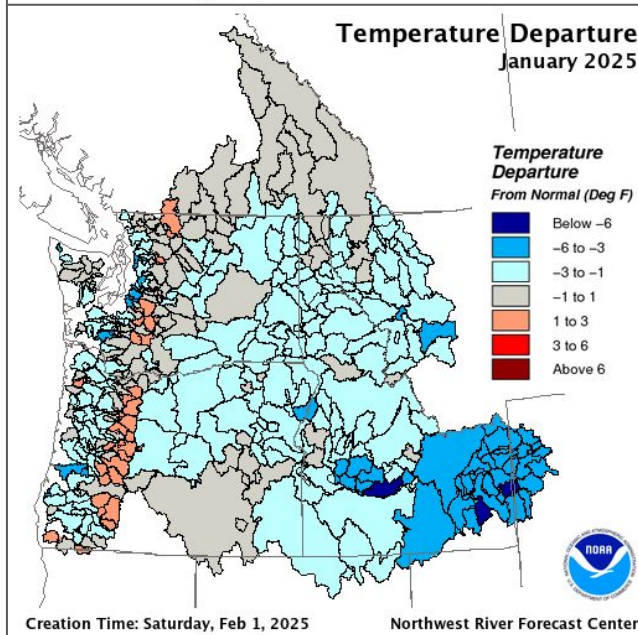
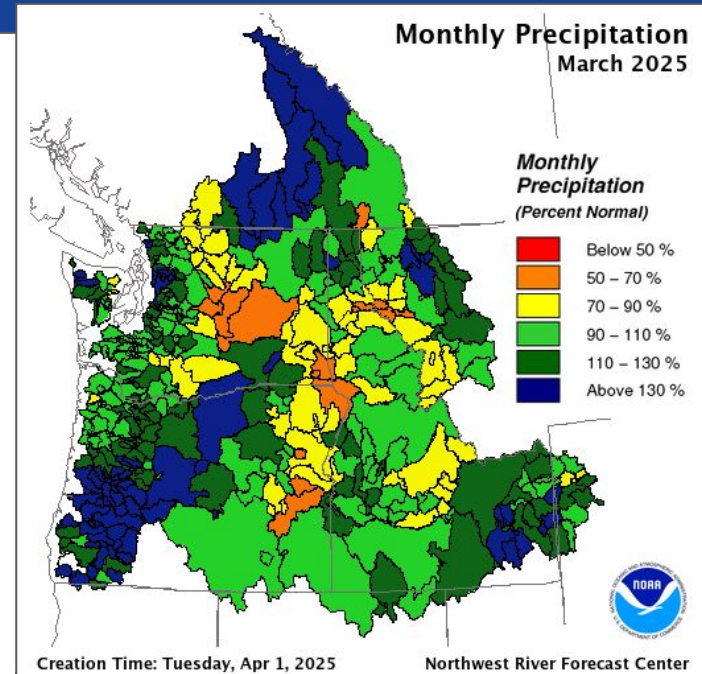
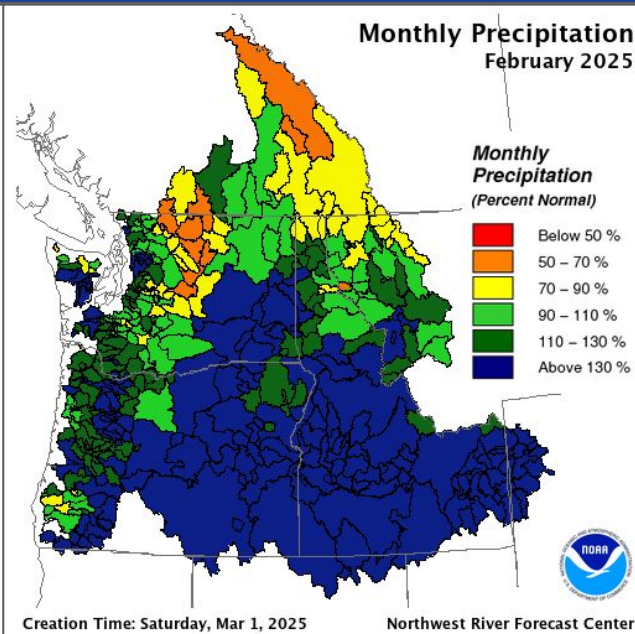
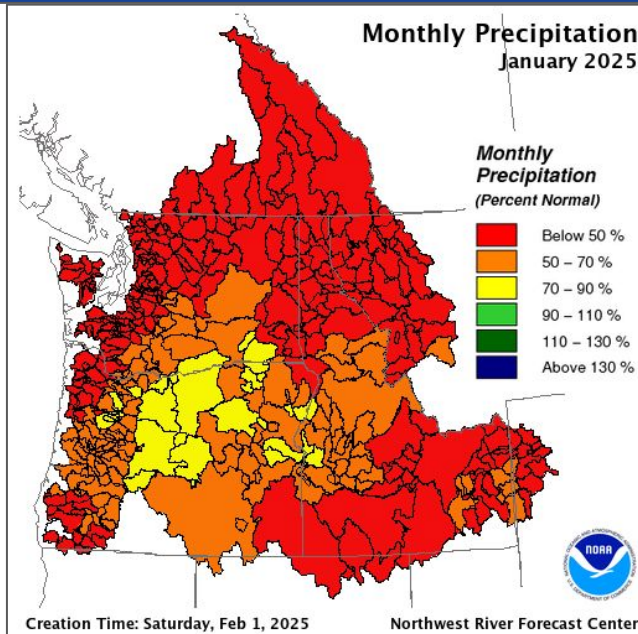
Key Takeaways

- March was mostly warmer with near or wetter than normal precipitation, leading to some earlier runoff but also improving water supply forecasts.
- Snowpack managed to largely increase in percent of average since last month, but did melt out some low elevation snow.
- Observed runoff largely increased basinwide with few exceptions.
- Water supply forecasts mostly showed increases with the most in the northern region flowing off the west of the Rockies.

NWRFC Forecast Technique: Ensemble Streamflow Prediction



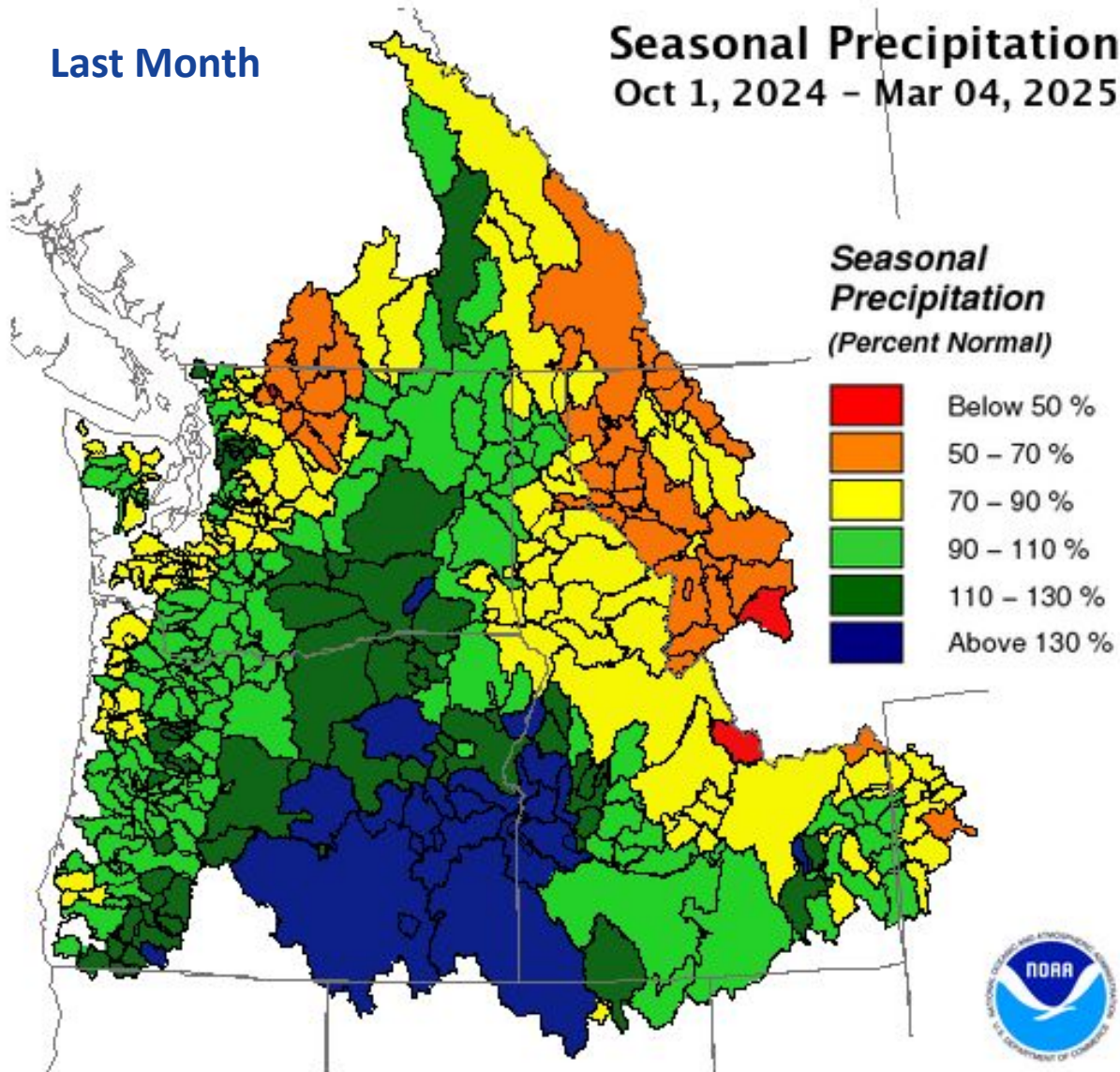
Observed Monthly Precipitation and Temperature



Water Year Precipitation

Last Month

Seasonal Precipitation
Oct 1, 2024 – Mar 04, 2025

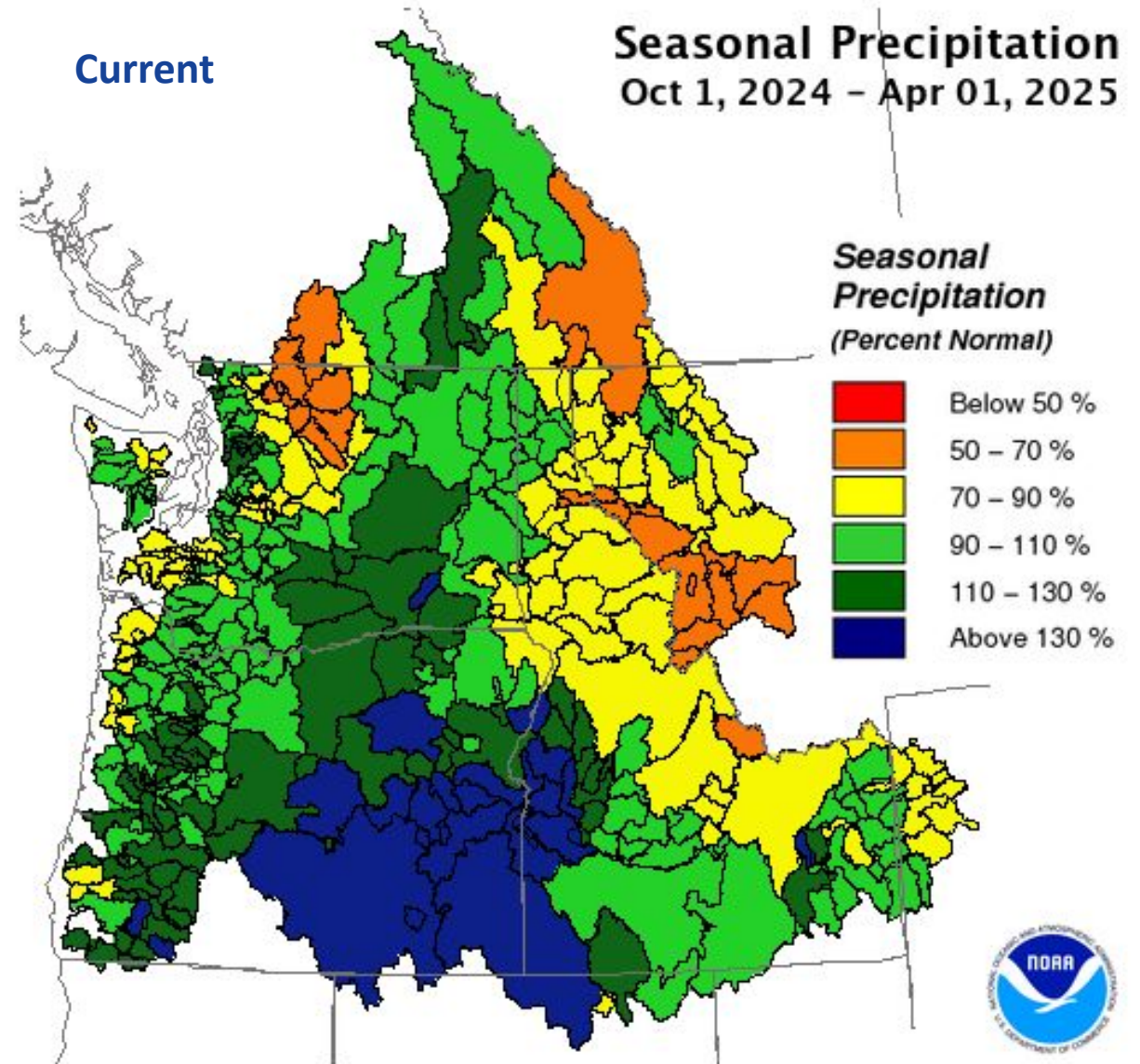


Creation Time: Wednesday, Mar 5, 2025

Northwest River Forecast Center

Current

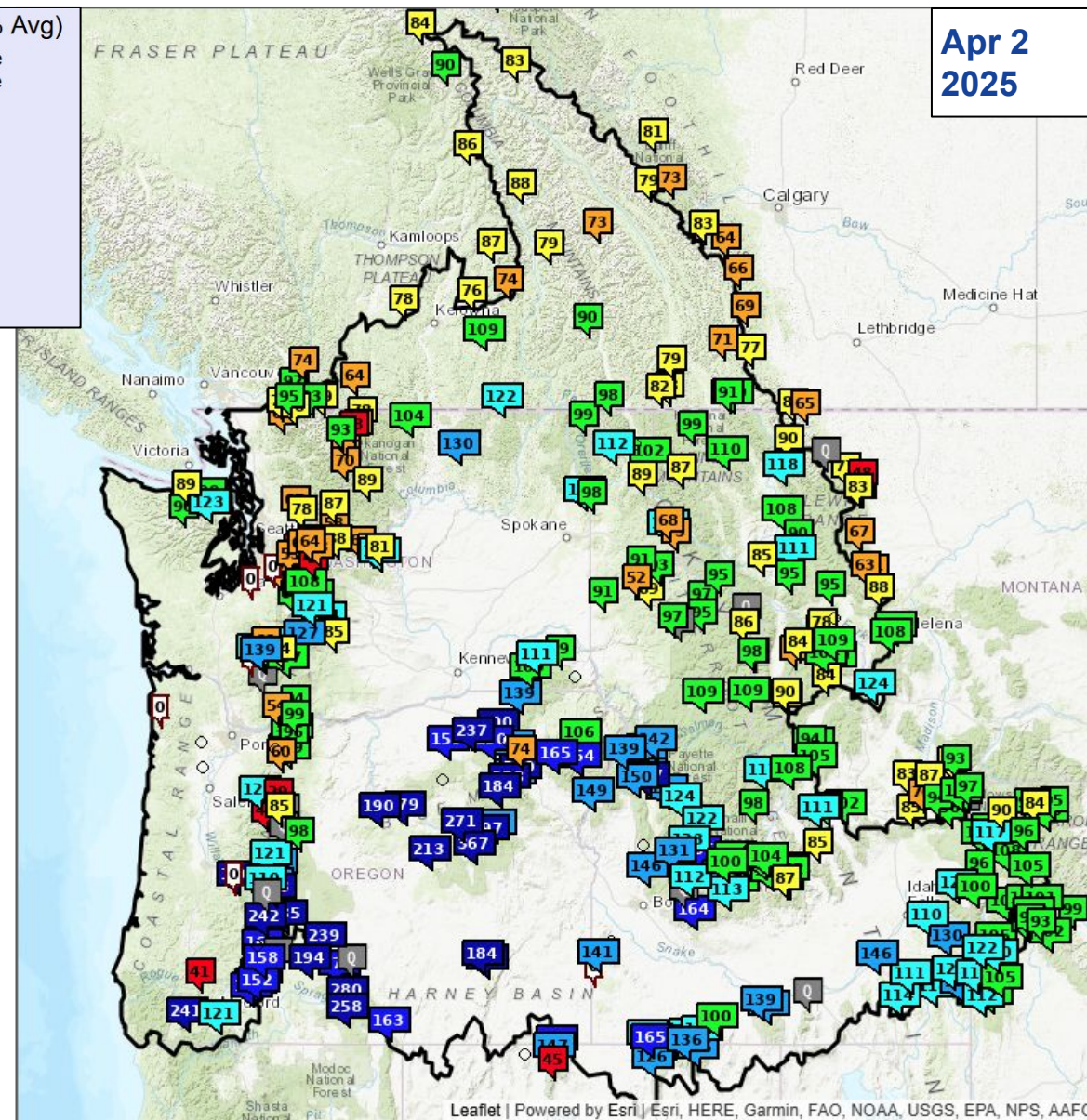
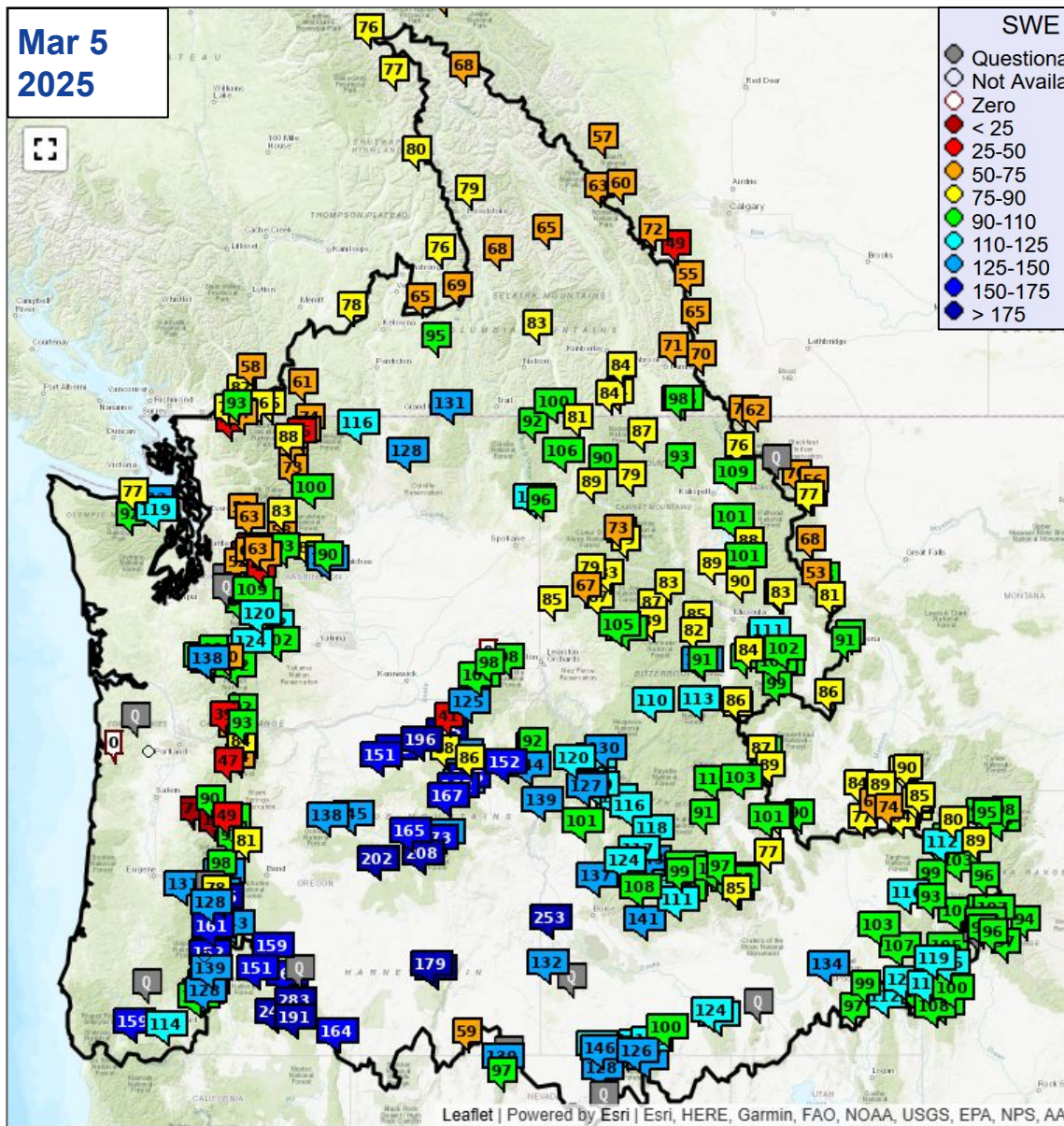
Seasonal Precipitation
Oct 1, 2024 – Apr 01, 2025



Creation Time: Wednesday, Apr 2, 2025

Northwest River Forecast Center

Snowpack



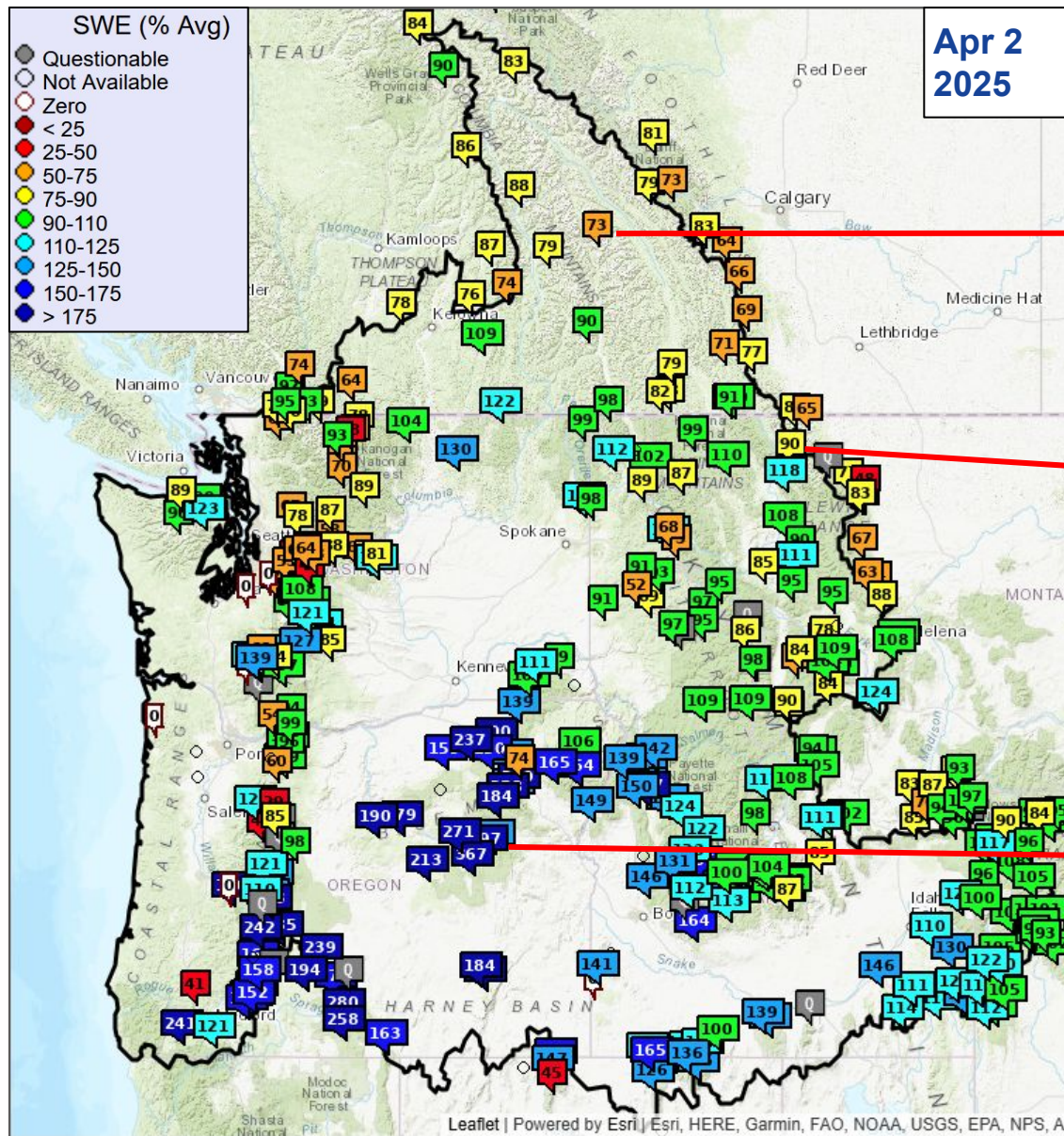
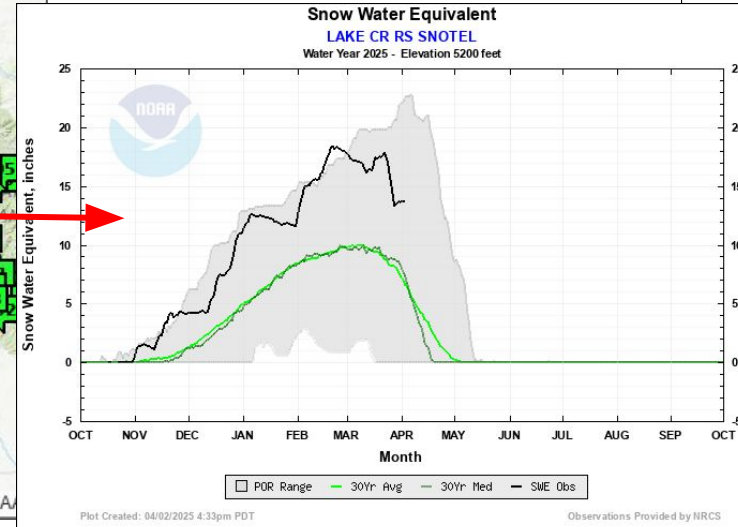
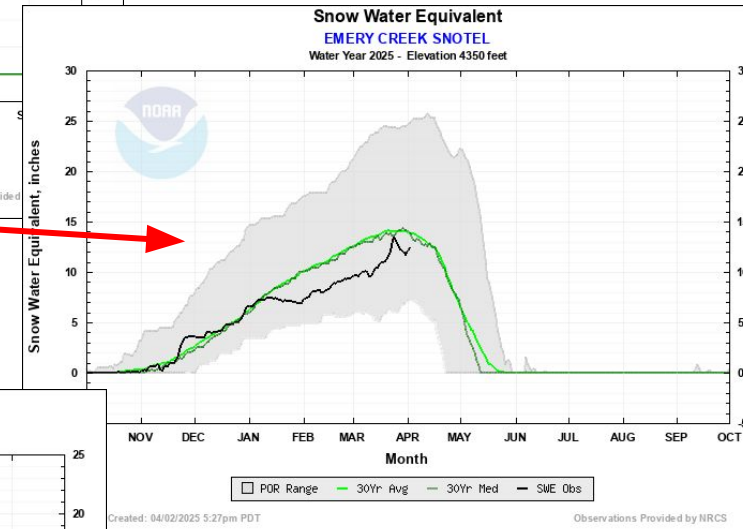
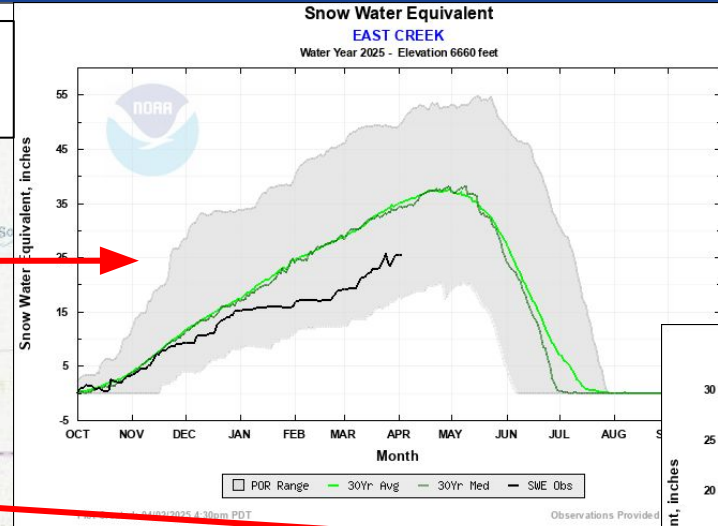
Snow data from Natural Resources Conservation Service, BC Hydro, Ministry of Environment and Climate Change Strategy, and Alberta Environment and Parks.

Snowpack

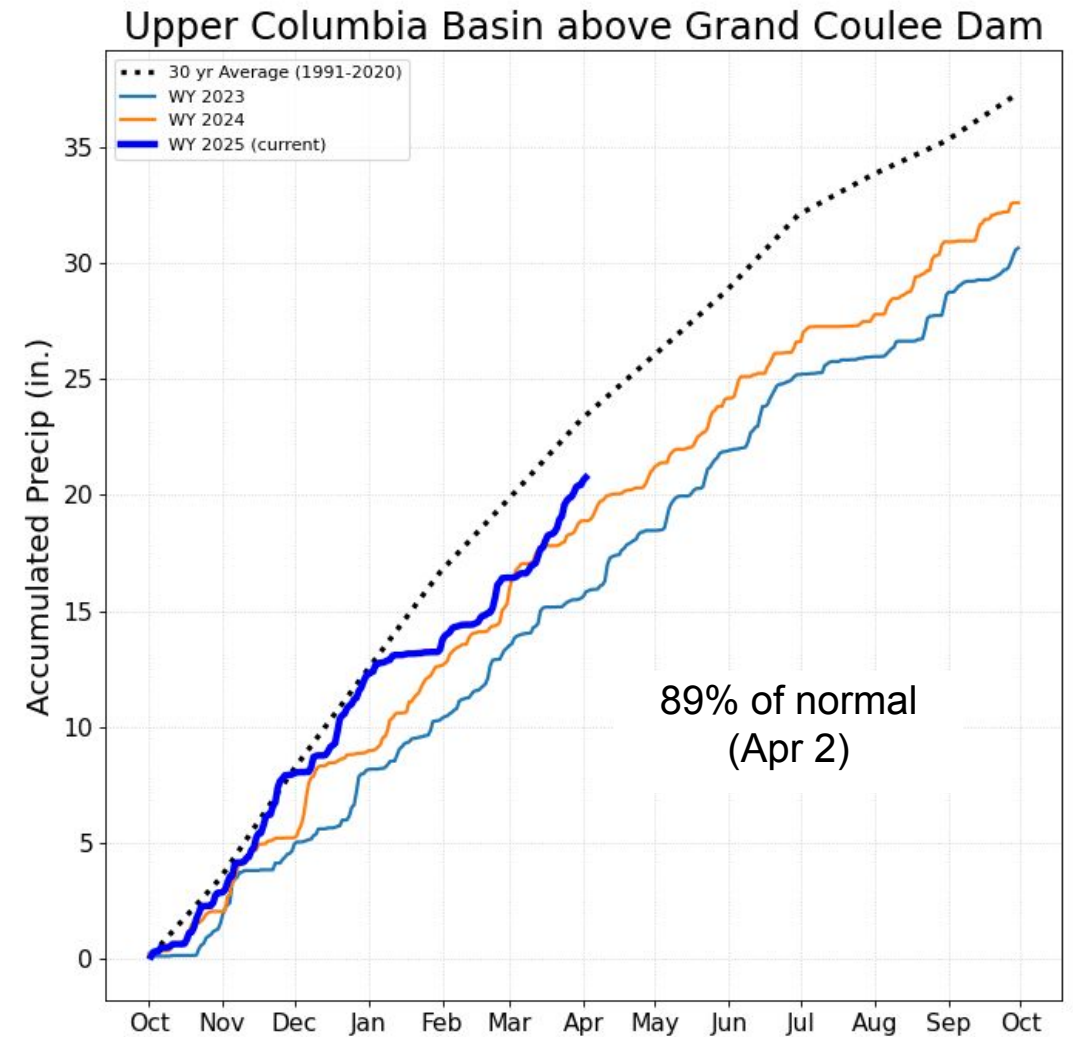
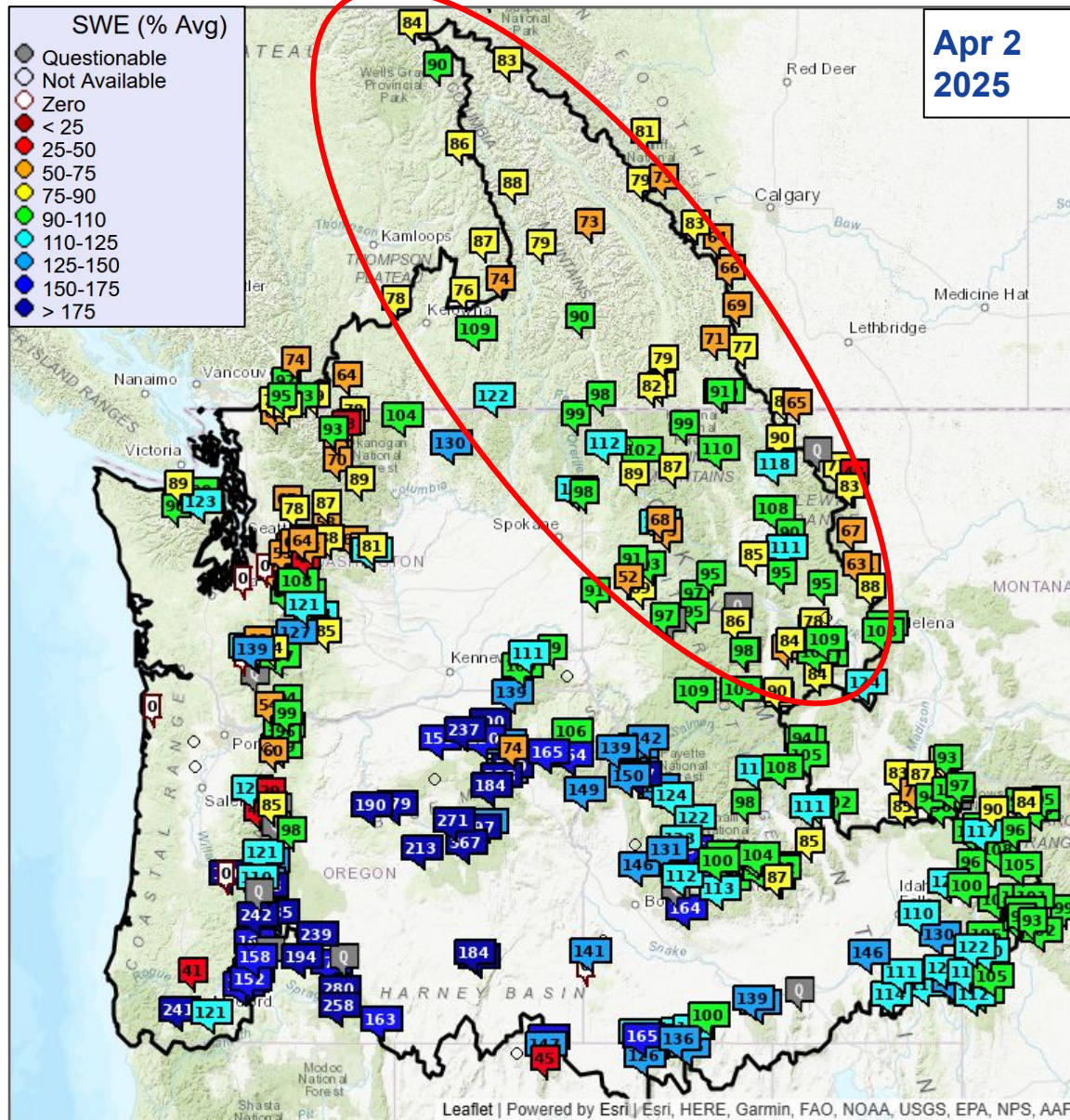
Apr 2
2025

SWE (% Avg)

- Questionable
- Not Available
- Zero
- < 25
- 25-50
- 50-75
- 75-90
- 90-110
- 110-125
- 125-150
- 150-175
- > 175



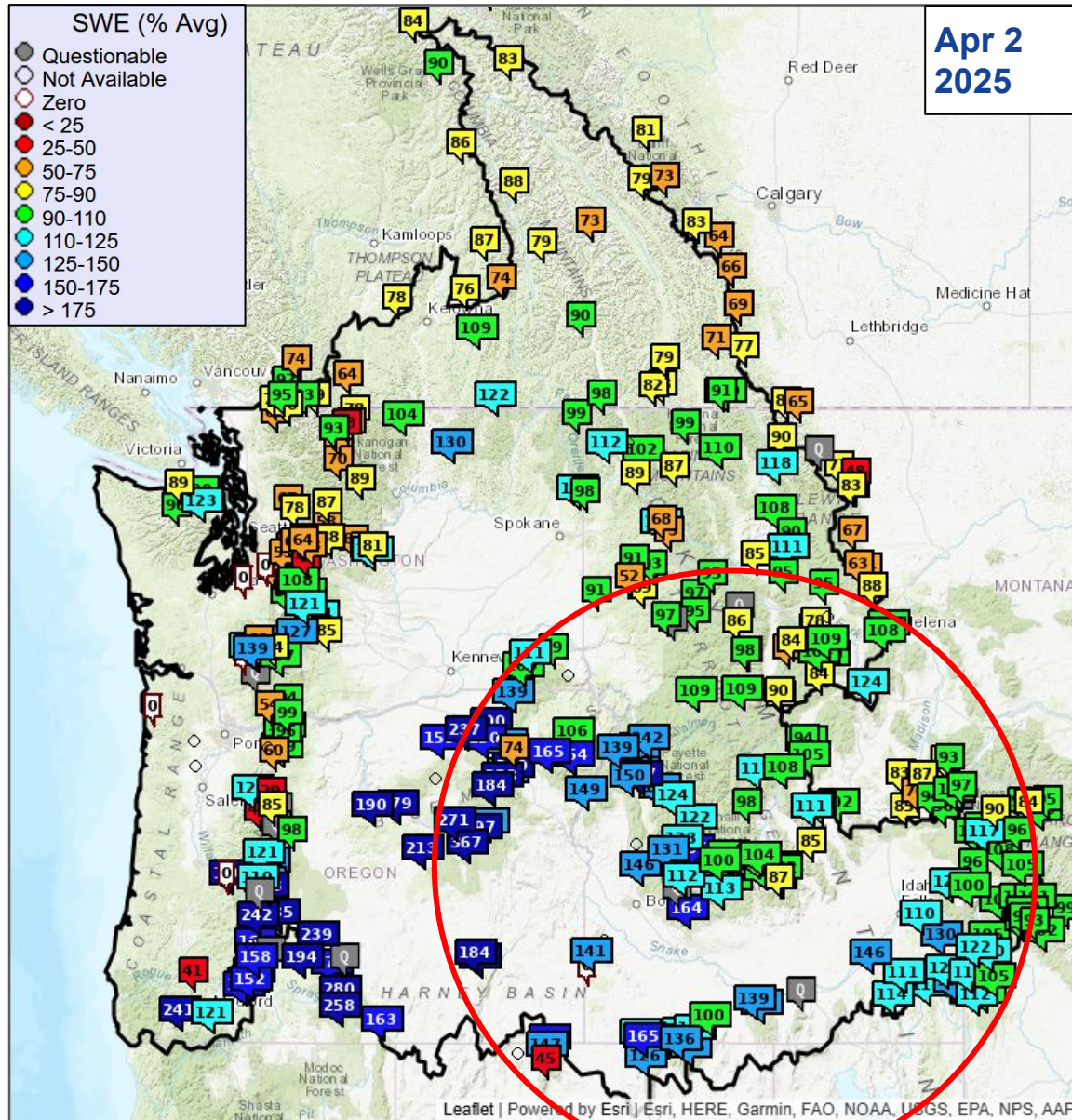
Snowpack and Precipitation



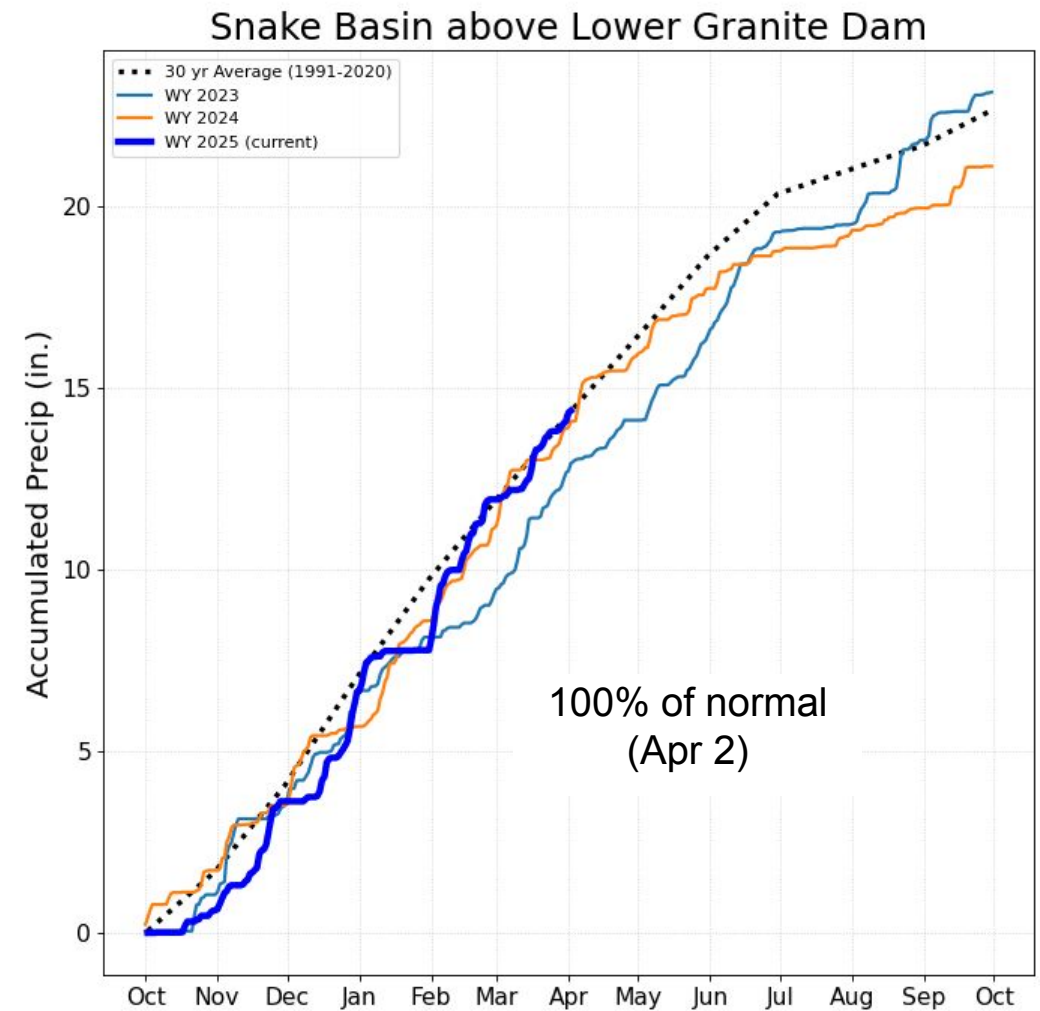
Snow data from Natural Resources Conservation Service, BC Hydro, Ministry of Environment and Climate Change Strategy, and Alberta Environment and Parks.

Precip averages from PRISM, OSU and PCIC.

Snowpack and Precipitation

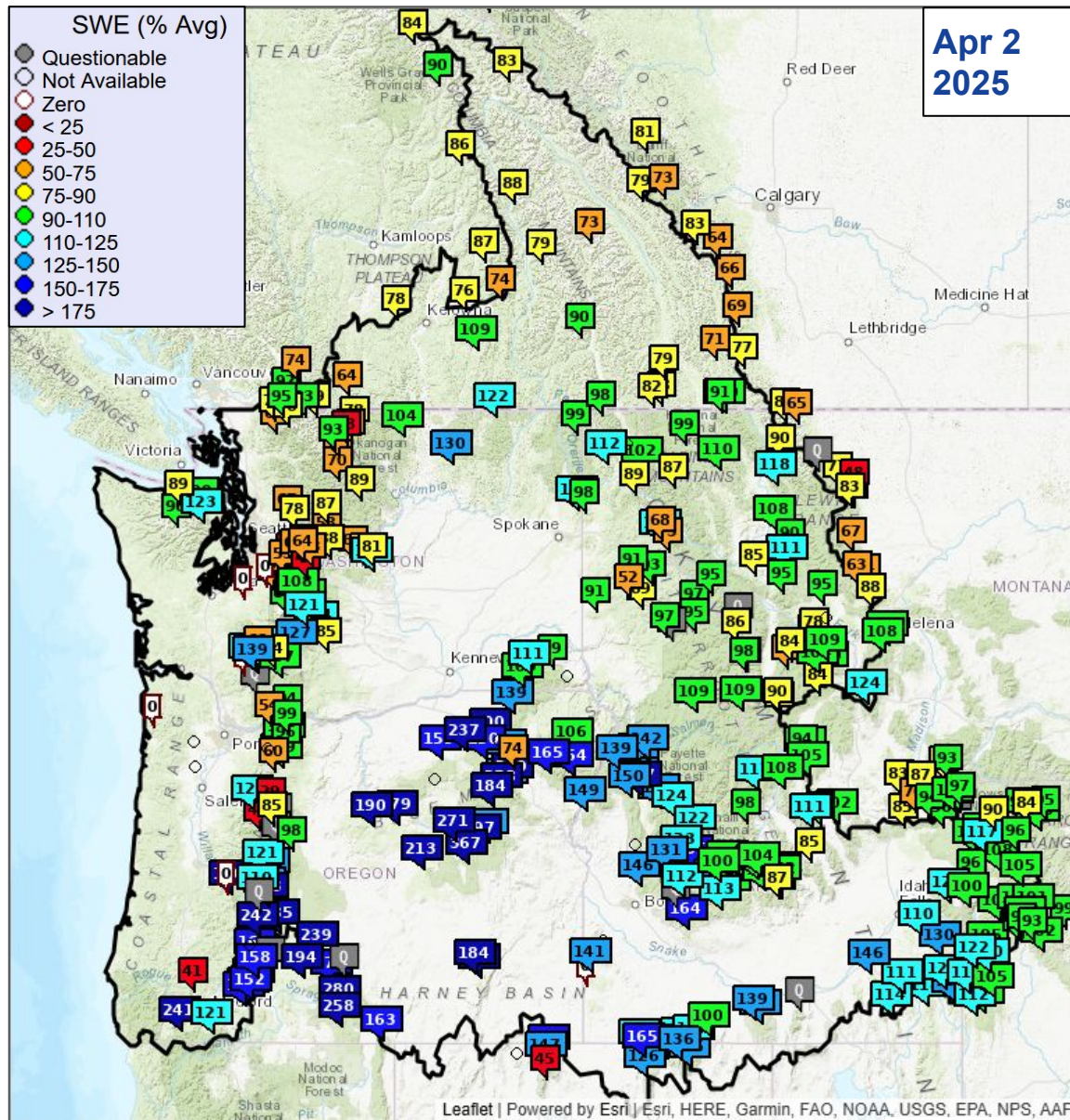


Snow data from Natural Resources Conservation Service, BC Hydro, Ministry of Environment and Climate Change Strategy, and Alberta Environment and Parks.

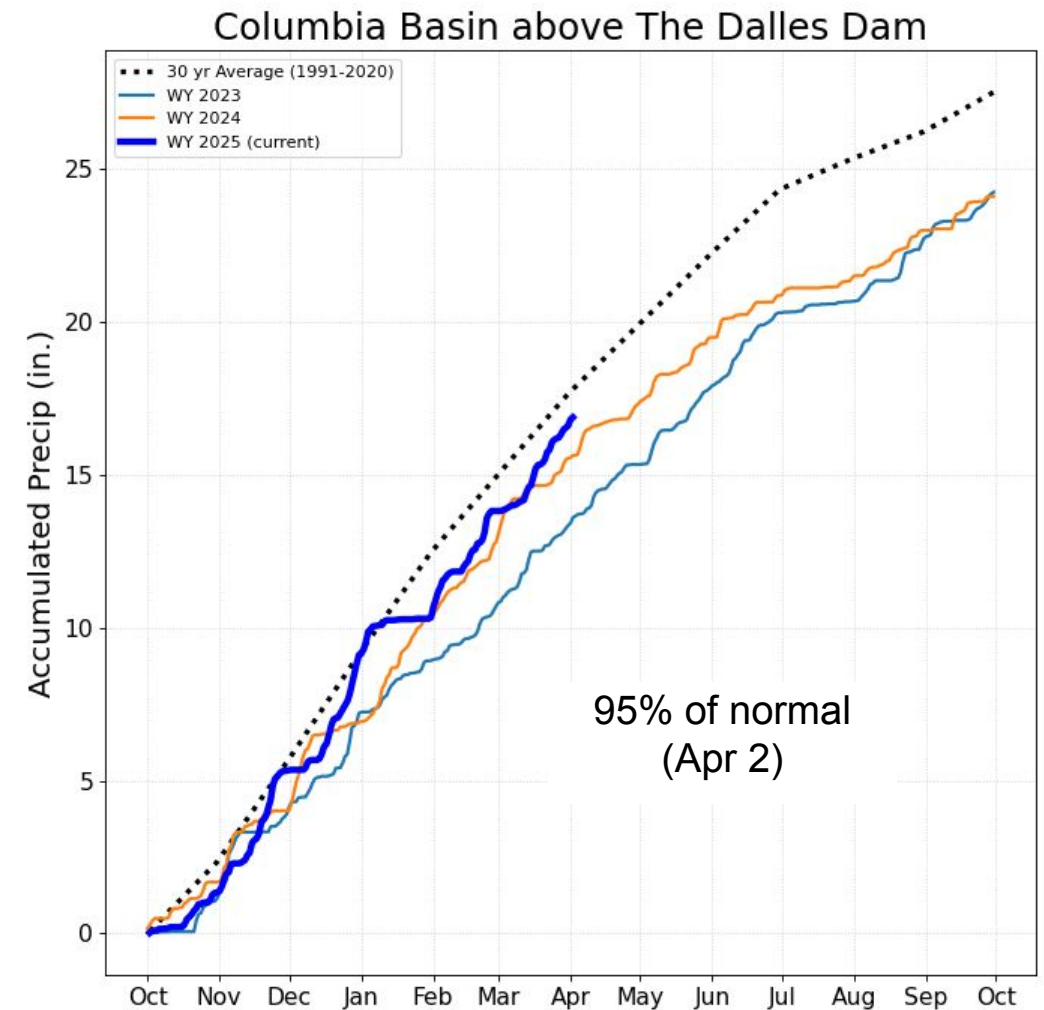


Precip averages from PRISM, OSU and PCIC.

Snowpack and Precipitation



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



Precip averages from PRISM, OSU and PCIC.

Water Year to Date Adjusted Observed Runoff

% Normal Runoff Oct 1 - April 2

Upper Columbia Basin

Δ since Mar 5

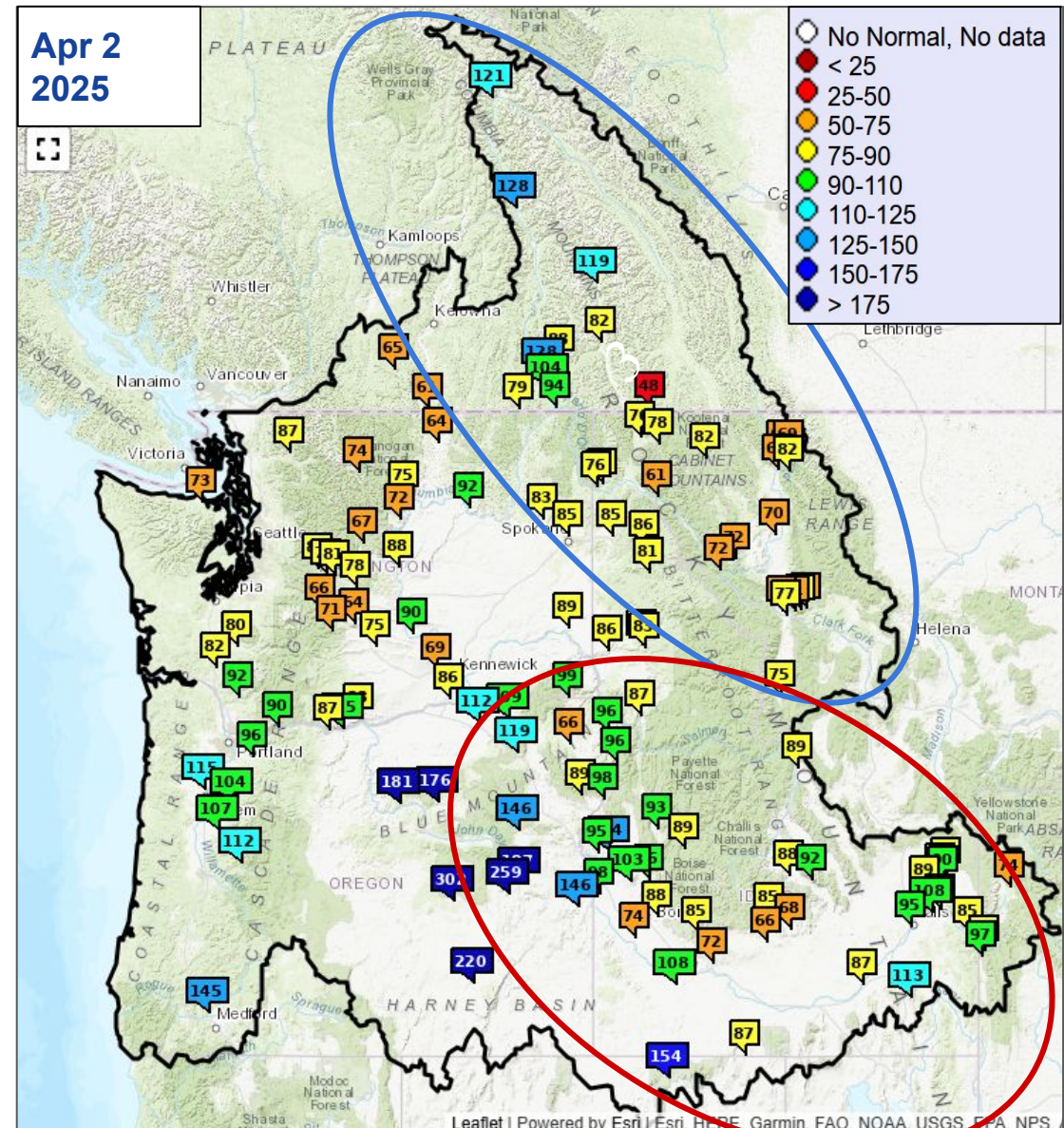
Mica	121	-1
Duncan	119	0
Queens Bay	82	2
Libby	82	0
Hungry Horse	82	22
Grand Coulee	92	4

Snake River Basin

American Falls	87	1
Lucky Peak	88	9
Dworshak	87	16
Lower Granite	89	9

Lower Columbia Basin

The Dalles	87	6
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Water Year to Date Natural Observed Runoff

% Normal Runoff Oct 1 - Apr 2

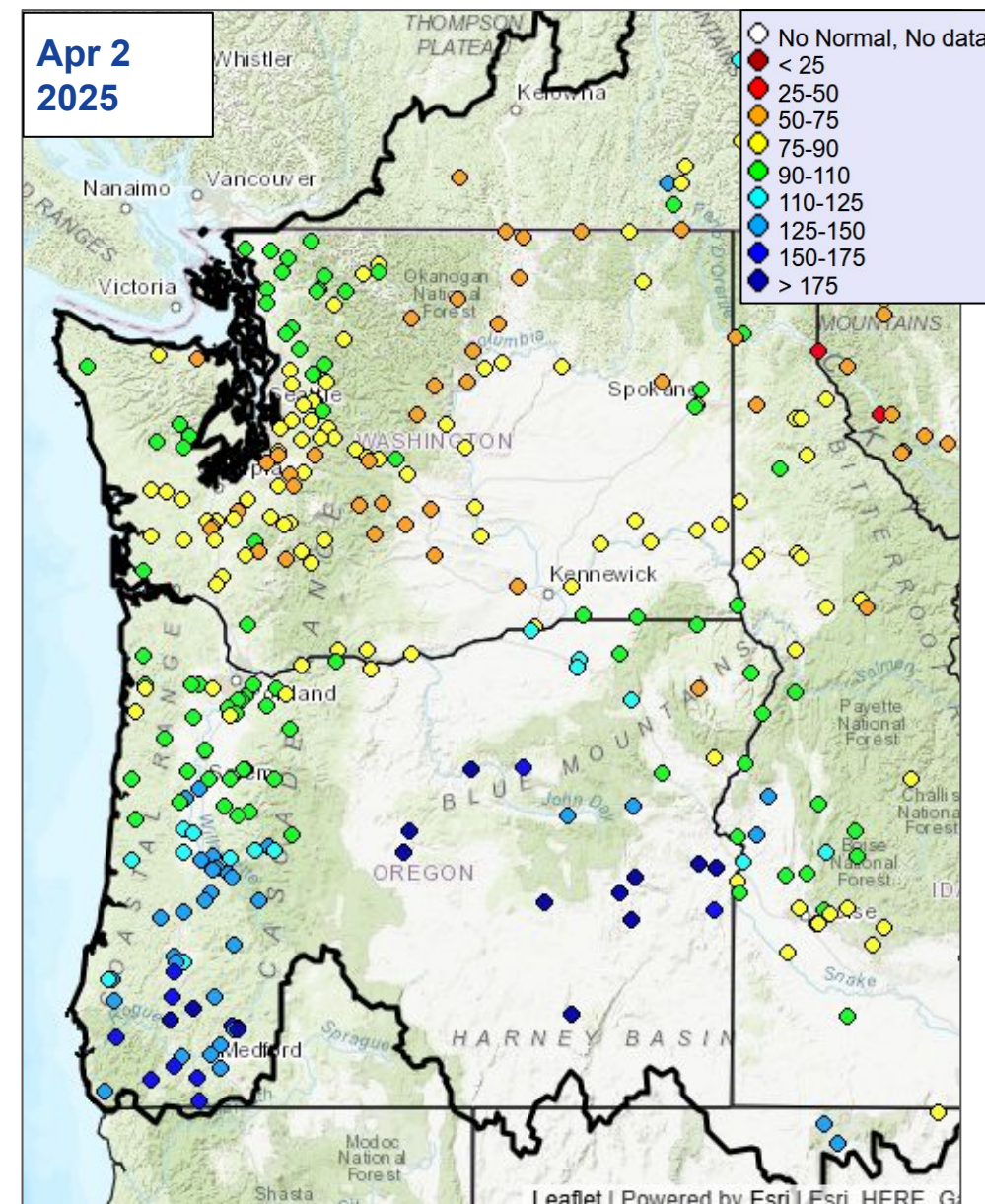
Washington

Δ since Mar 5

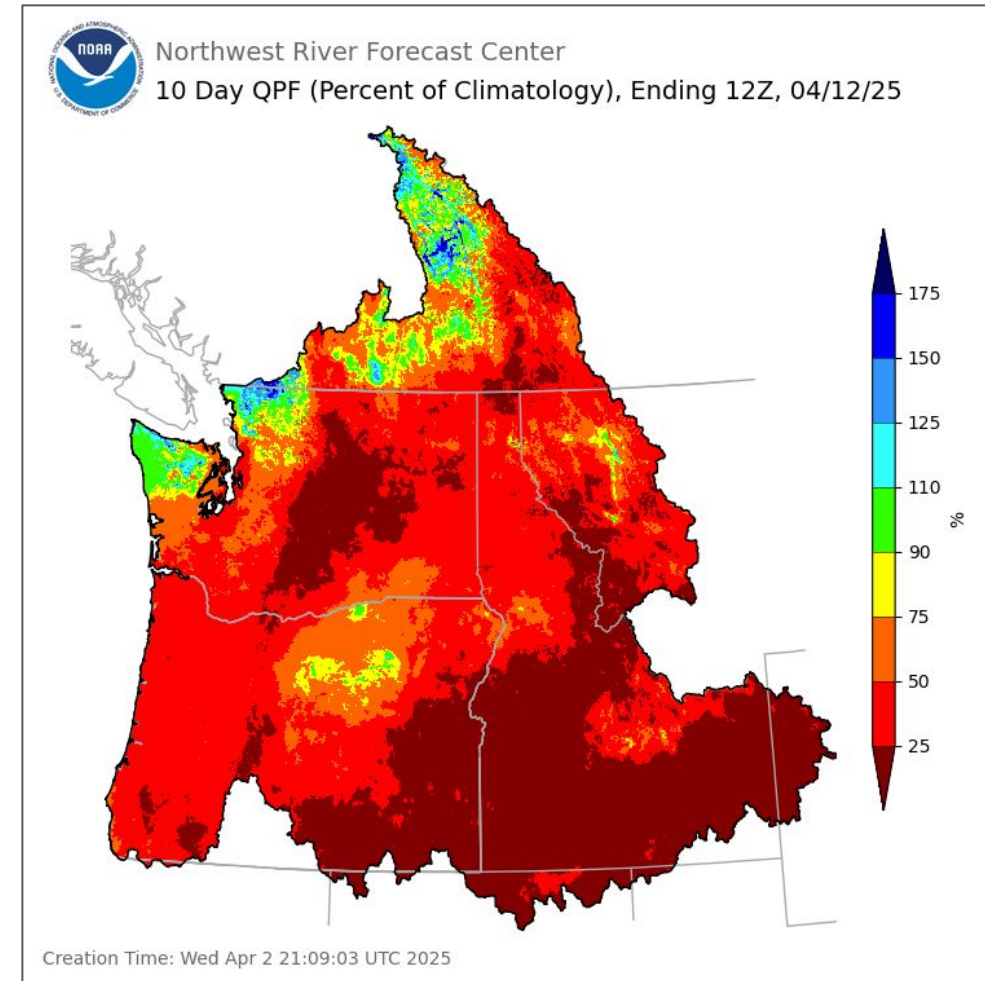
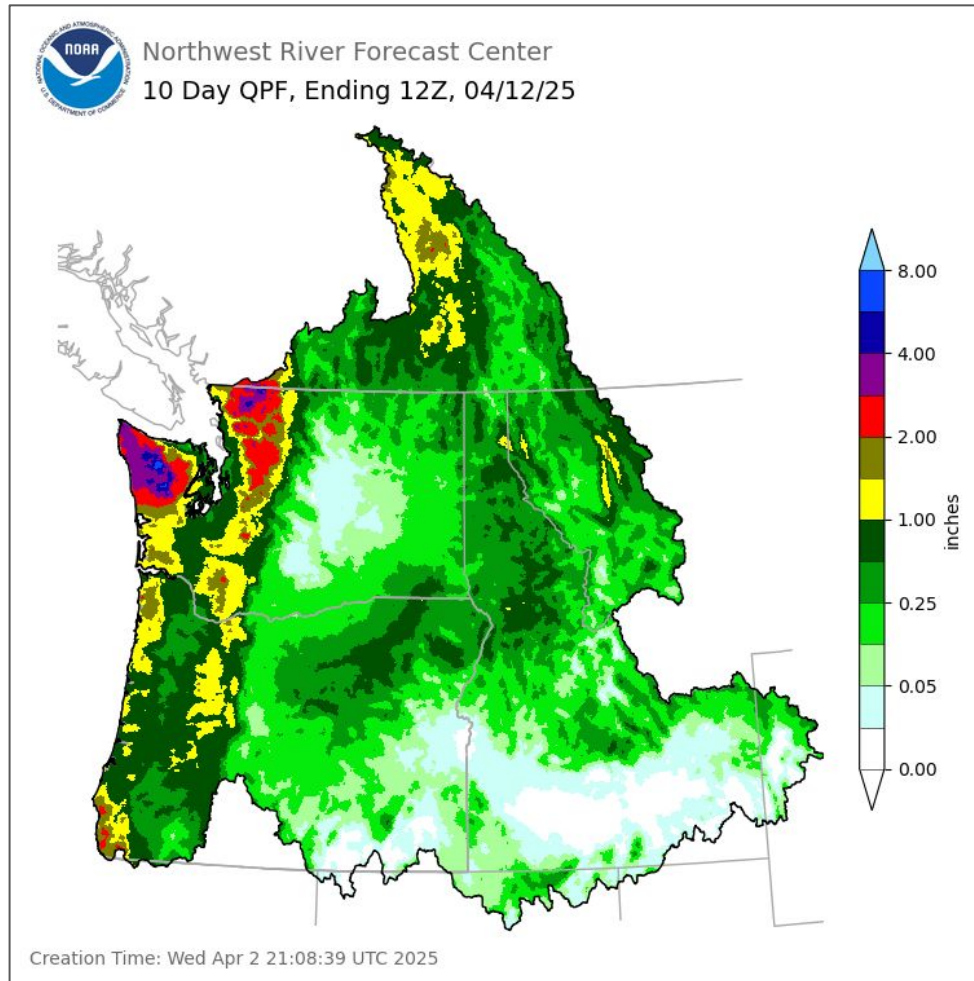
Skagit near Mt Vernon	92	8
Dungeness near Sequim	73	4
Chehalis at Porter	78	3
Okanogan at Malott	69	2
Methow near Pateros	74	9
Yakima at Parker	73	20
Walla Walla near Touchet	91	13

Oregon

Willamette at Salem	106	8
Rogue at Raygold	146	5
Umatilla at Pendleton	111	5
Grande Ronde at Troy	97	15
Crooked near Prineville	249	31
Owyhee Dam	153	-11



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

Δ since Mar 5

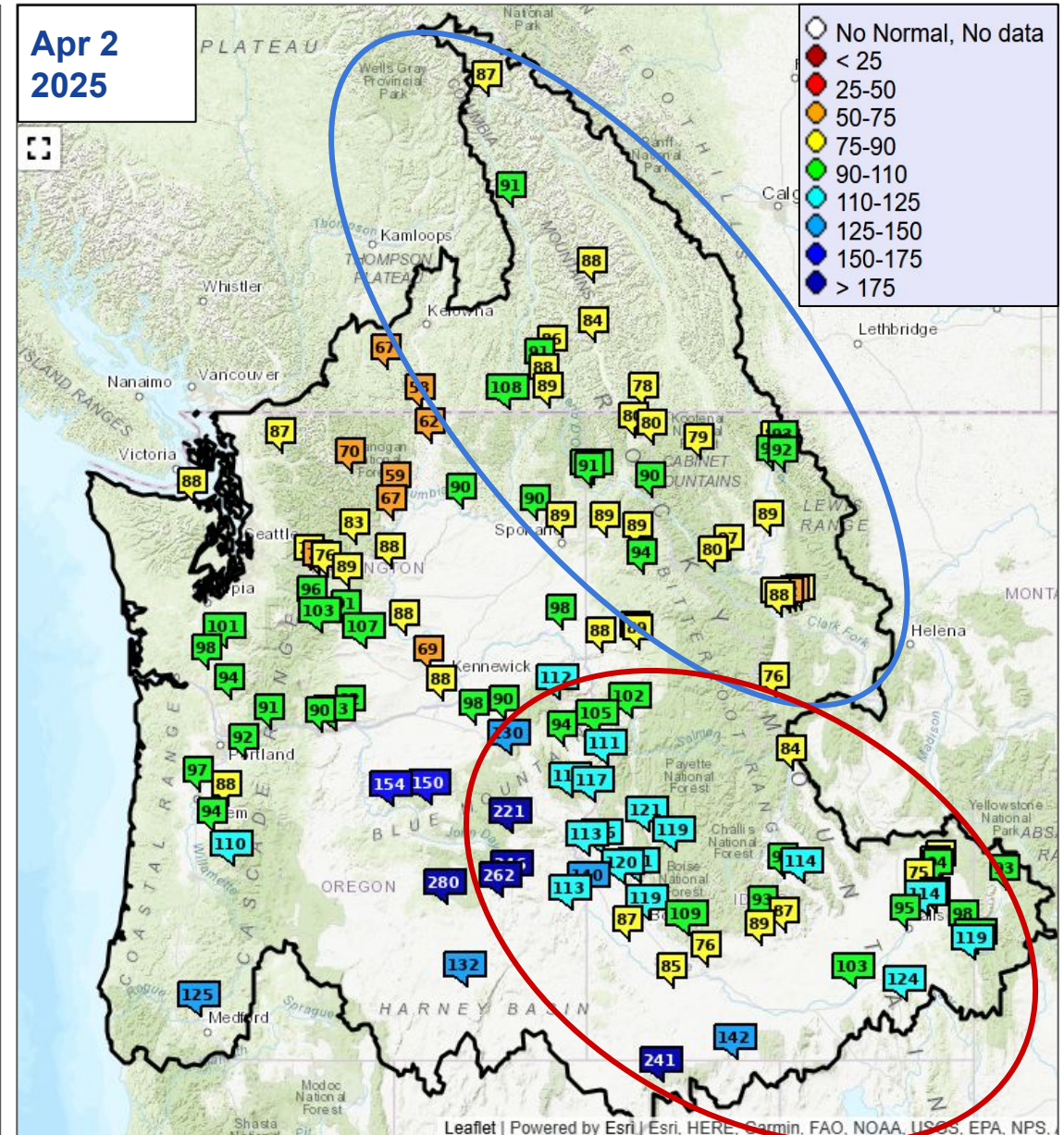
Mica	87	5
Duncan	88	10
Queens Bay	84	8
Libby	79	7
Hungry Horse	92	12
Grand Coulee	90	9

Snake River Basin

American Falls	103	6
Lucky Peak	119	7
Dworshak	91	2
Lower Granite	98	-3

Lower Columbia Basin

The Dalles	90	5
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Natural Water Supply Forecasts

% Normal Apr-Sep Volume

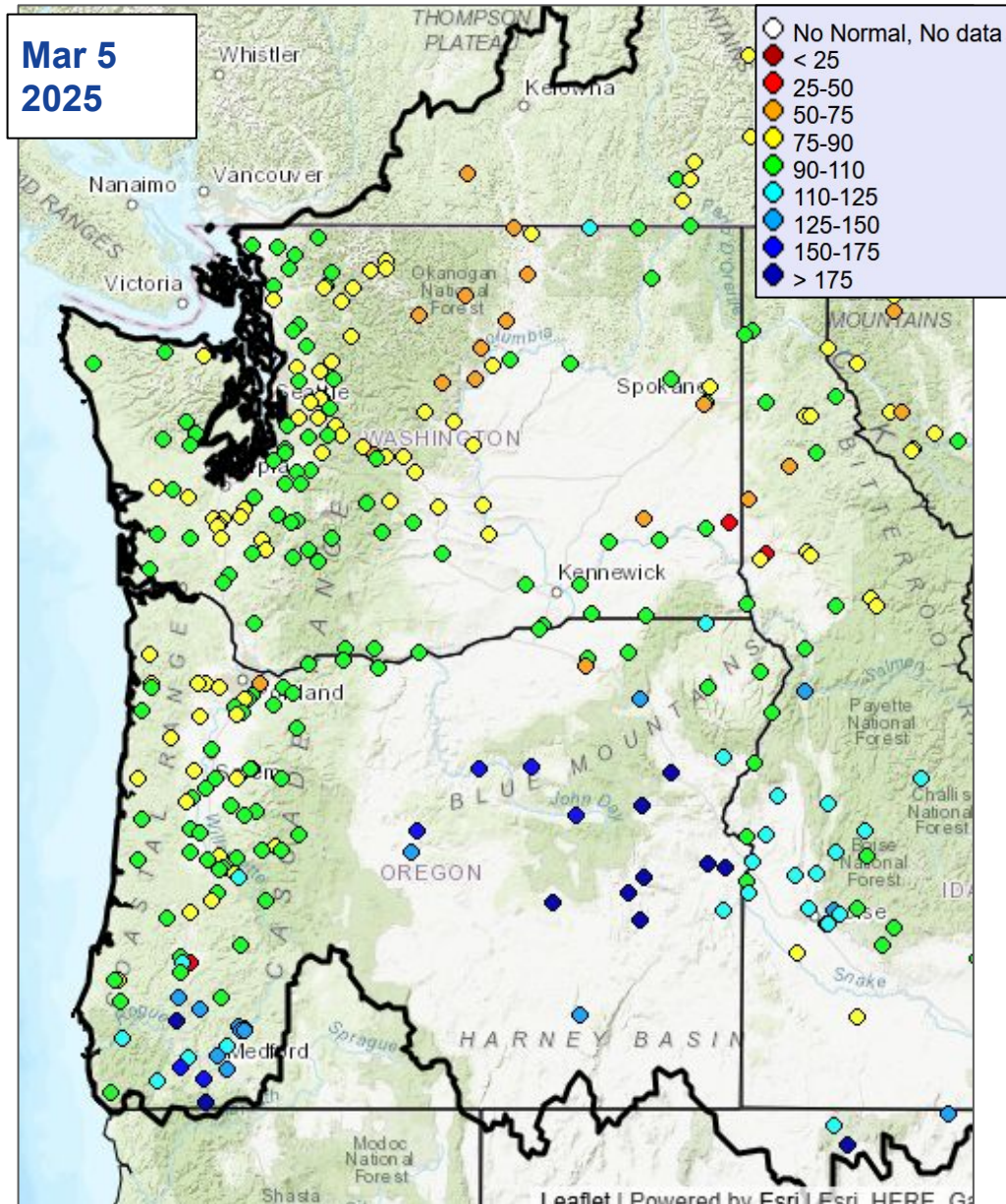
Washington

Δ since Mar 5

Skagit near Mt Vernon	89	4
Dungeness near Sequim	87	8
Chehalis at Porter	86	-1
Okanogan at Malott	62	5
Methow near Pateros	59	8
Yakima at Parker	99	0
Walla Walla near Touchet	90	9

Oregon

Willamette at Salem	93	6
Rogue at Raygold	125	1
Umatilla at Pendleton	98	-9
Grande Ronde at Troy	112	-6
Crooked near Prineville	147	4
Owyhee Dam	113	-18





ESP10 Water Supply Forecast

COLUMBIA - GRAND COULEE DAM (GCDW1) Forecasts for Water Year 2025

Official Water Supply

ESP with 10 Days QPF Ensemble: 2025-04-02 Issued: 2025-04-02

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	51220	55488	90	60286	61483
APR-JUL	42391	46828	89	51704	52774
APR-AUG	47659	52169	90	57206	58186
JAN-SEP	58950	63218	90	68016	70457
JAN-JUL	50121	54558	88	59434	61749
OCT-SEP	67248	71516	91	76314	78842

Experimental Water Supply

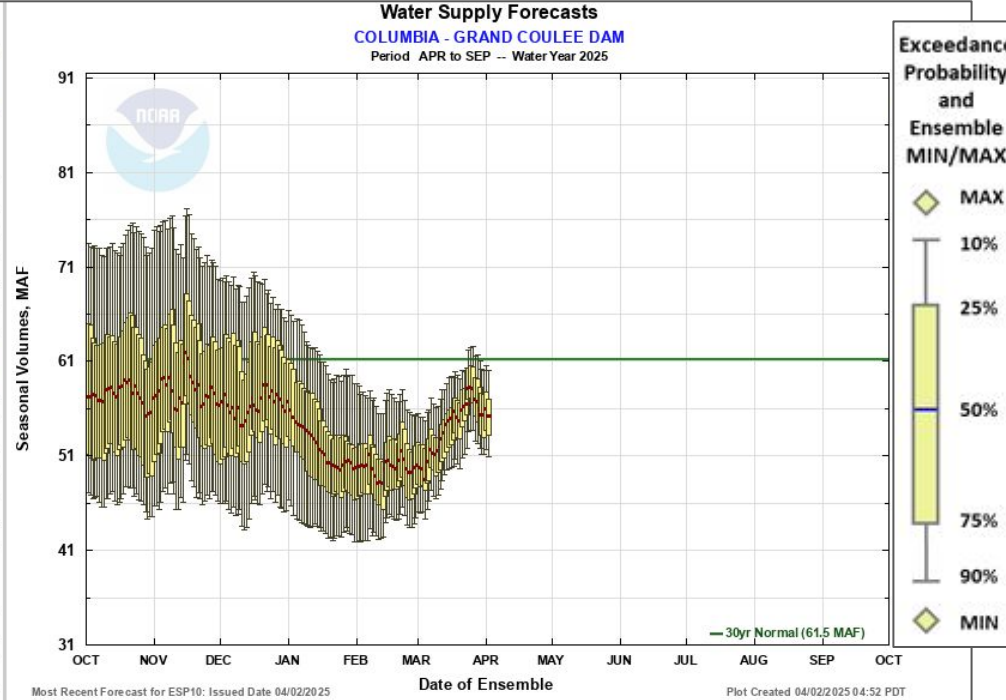
HEFS with 15 days EQPF Ensemble: 2025-04-02 Issued: 2025-04-02

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	51413	56106	91	60728	61483
APR-JUL	42659	47478	90	52157	52774
APR-AUG	47644	52792	91	57453	58186
JAN-SEP	59143	63836	91	68458	70457
JAN-JUL	50389	55208	89	59887	61749
OCT-SEP	67441	72134	91	76756	78842

Reference

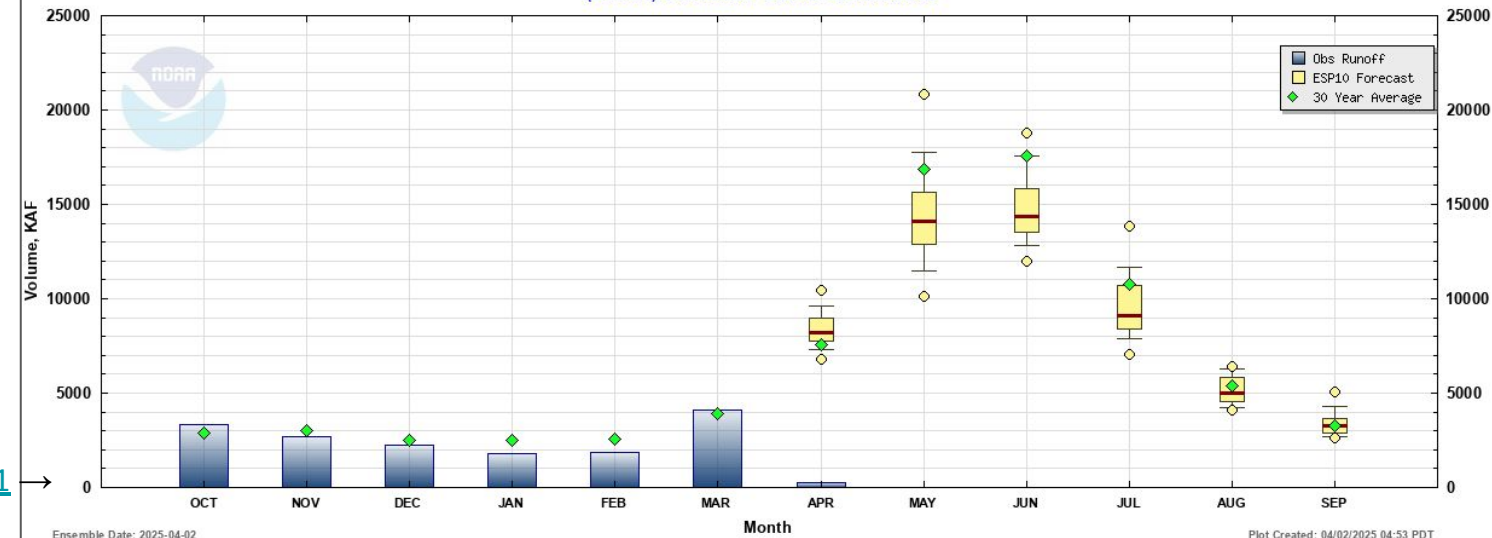
ESP with 0 Days QPF Ensemble: 2025-04-02 Issued: 2025-04-02

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	51479	56304	92	60190	61483
APR-JUL	42665	47630	90	52048	52774
APR-AUG	47665	52838	91	57082	58186
JAN-SEP	59209	64034	91	67920	70457
JAN-JUL	50395	55360	90	59778	61749
OCT-SEP	67507	72332	92	76218	78842



☒ Max Scale ☐ Scale To Data ☐ Scale To Last 45 Days ☐ Show Min/Max En

Water Supply Volume Monthly Forecasts (ESP10) for Water Year 2025 (GCDW1) COLUMBIA - GRAND COULEE DAM



[↑ nwrfc.noaa.gov/water_supply/ws_forecasts.php?id=GCDW1](https://nwrfc.noaa.gov/water_supply/ws_forecasts.php?id=GCDW1)

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



ESP10 Water Supply Forecast

SNAKE - LOWER GRANITE DAM (LGDW1) Forecasts for Water Year 2025

Official Water Supply
ESP with 10 Days QPF Ensemble: 2025-04-02 Issued: 2025-04-02

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	20326	21841	98	26370	22232
APR-JUL	17791	19225	96	23484	19946
APR-AUG	19091	20580	97	25027	21121
JAN-SEP	27444	28960	97	33489	29736
JAN-JUL	24909	26343	96	30603	27450
OCT-SEP	31023	32538	95	37067	34287

Experimental Water Supply

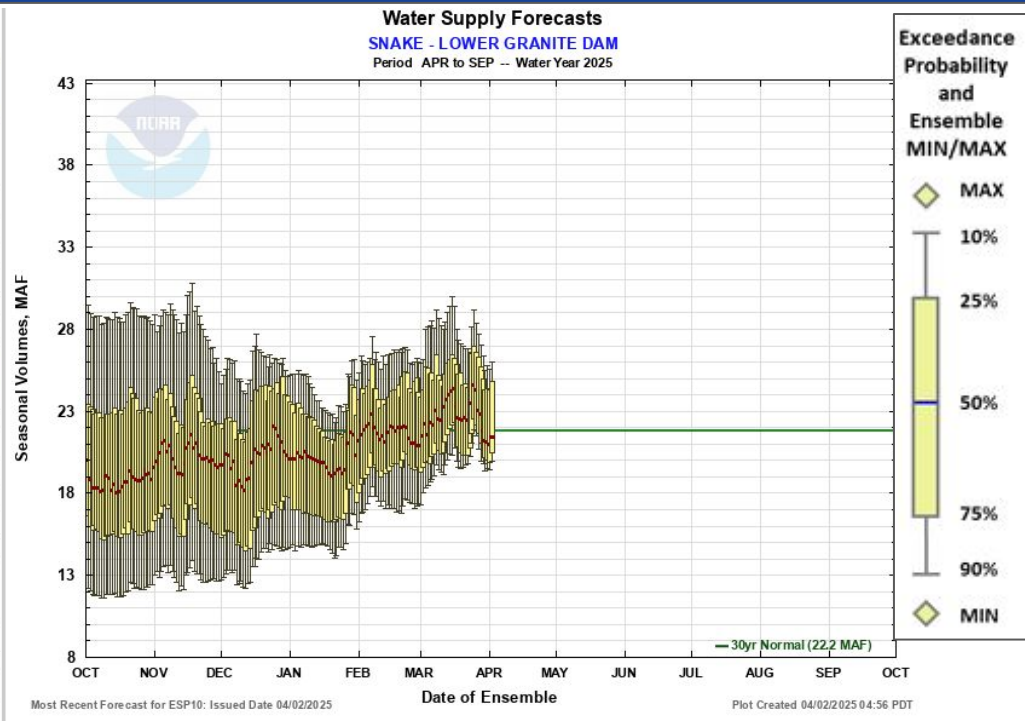
HEFS with 15 days EQPF Ensemble: 2025-04-02 Issued: 2025-04-02

APR-SEP	20515	22659	102	27143	22232
APR-JUL	18054	20032	100	24302	19946
APR-AUG	19306	21412	101	25836	21121
JAN-SEP	27633	29778	100	34262	29736
JAN-JUL	25173	27150	99	31421	27450
OCT-SEP	31212	33356	97	37840	34287

Reference

ESP with 0 Days QPF Ensemble: 2025-04-02 Issued: 2025-04-02

APR-SEP	20840	23798	107	27786	22232
APR-JUL	18371	20990	105	24924	19946
APR-AUG	19629	22442	106	26417	21121
JAN-SEP	27958	30917	104	34904	29736
JAN-JUL	25489	28108	102	32042	27450
OCT-SEP	31537	34495	101	38483	34287

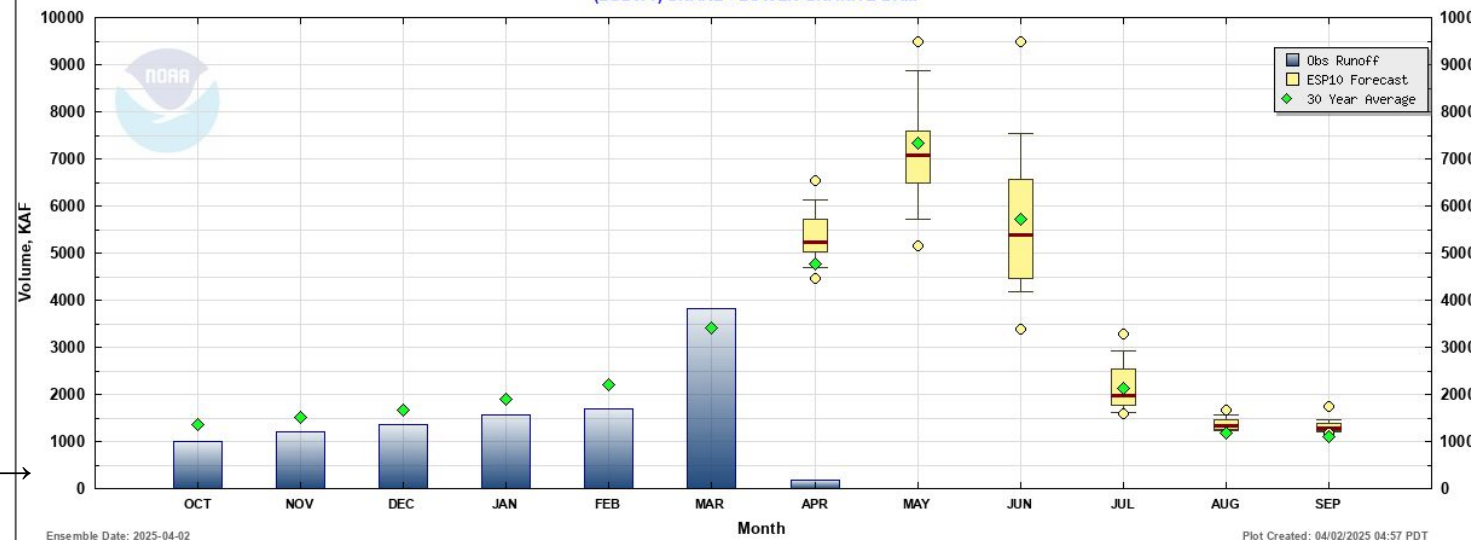


Most Recent Forecast for ESP10: Issued Date 04/02/2025
☒ Max Scale ☐ Scale To Data ☐ Scale To Last 45 Days ☐ Show Min/Max E

↑ nwrfc.noaa.gov/water_supply/ws_forecasts.php?id=LGDW1

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

Water Supply Volume Monthly Forecasts (ESP10) for Water Year 2025 (LGDW1) SNAKE - LOWER GRANITE DAM



Ensemble Date: 2025-04-02
Plot Created: 04/02/2025 04:57 PDT



ESP10 Monthly Water Supply Forecast

COLUMBIA - THE DALLES DAM (TDAO3) Forecasts for Water Year 2025

Official Water Supply

ESP with 10 Days QPF Ensemble: 2025-04-02 Issued: 2025-04-02

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	79898	85186	90	95952	94166
APR-JUL	67836	73944	90	83432	81933
APR-AUG	75066	80278	90	91118	89196
JAN-SEP	99139	104427	90	115193	115946
JAN-JUL	87077	93185	90	102672	103714
OCT-SEP	113214	118502	90	129268	132314

Experimental Water Supply

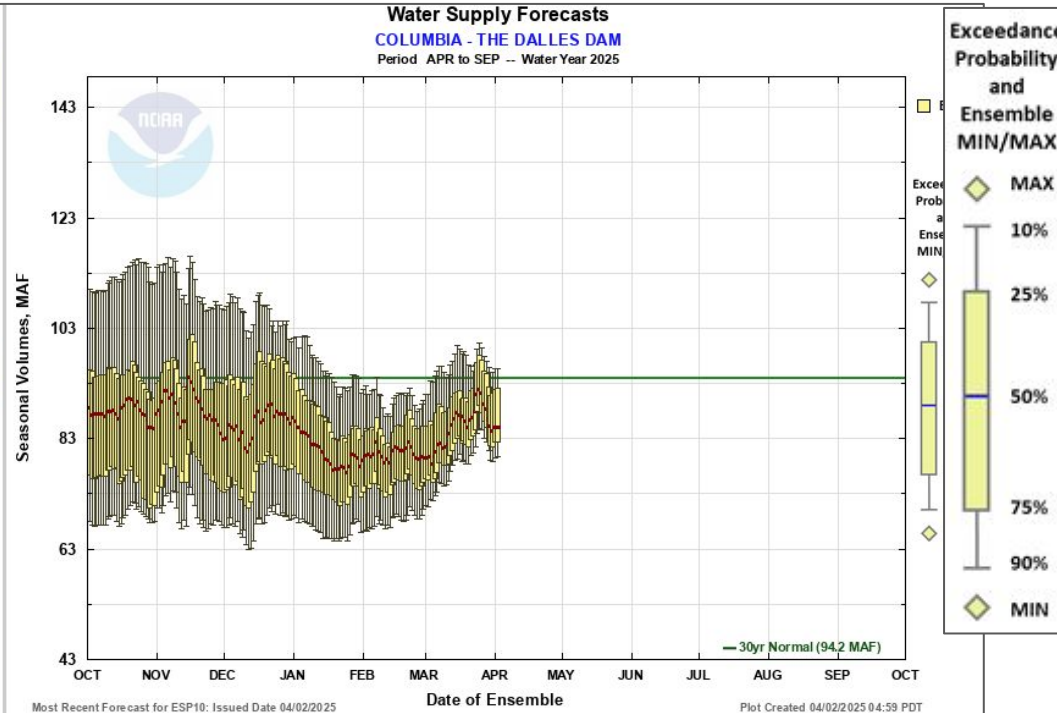
HEFS with 15 days EQPF Ensemble: 2025-04-02 Issued: 2025-04-02

APR-SEP	81603	86929	92	95728	94166
APR-JUL	69894	75408	92	83141	81933
APR-AUG	76649	81852	92	90579	89196
JAN-SEP	100844	106170	92	114969	115946
JAN-JUL	89135	94649	91	102382	103714
OCT-SEP	114919	120245	91	129044	132314

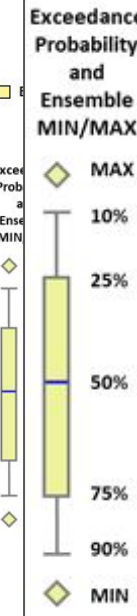
Reference

ESP with 0 Days QPF Ensemble: 2025-04-02 Issued: 2025-04-02

APR-SEP	81461	88200	94	96674	94166
APR-JUL	70446	76220	93	83571	81933
APR-AUG	77032	82787	93	91450	89196
JAN-SEP	100702	107441	93	115915	115946
JAN-JUL	89687	95460	92	102812	103714
OCT-SEP	114777	121516	92	129990	132314

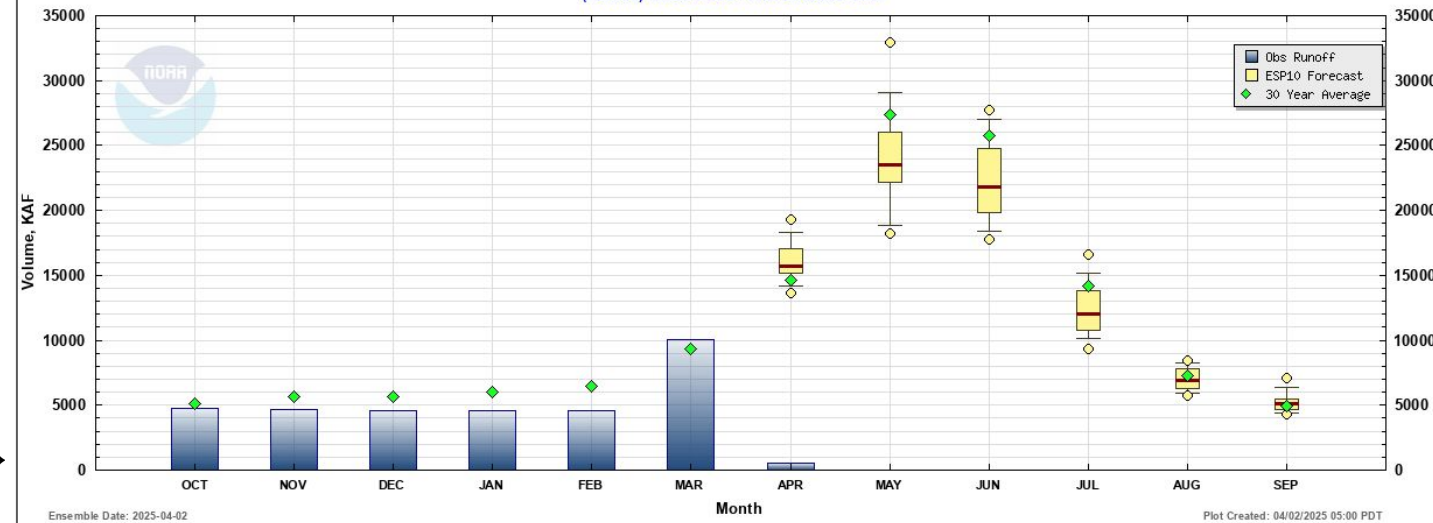


● Max Scale ○ Scale To Data ○ Scale To Last 45 Days □ Show Min/Max Ensemble



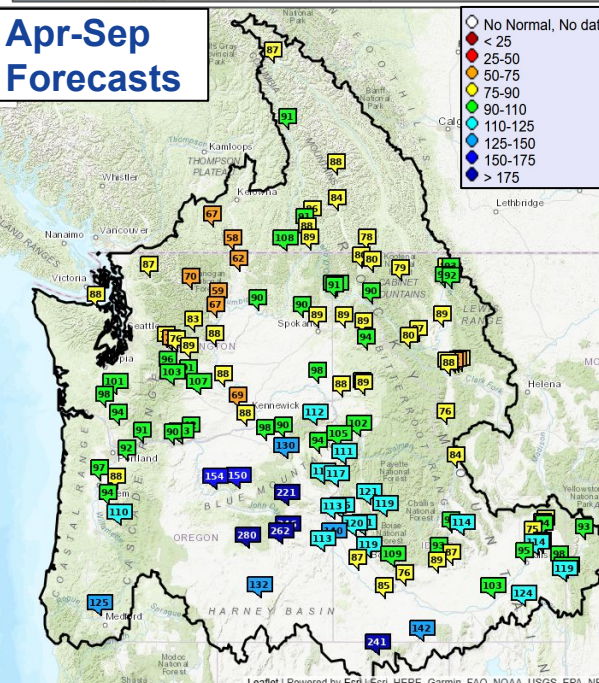
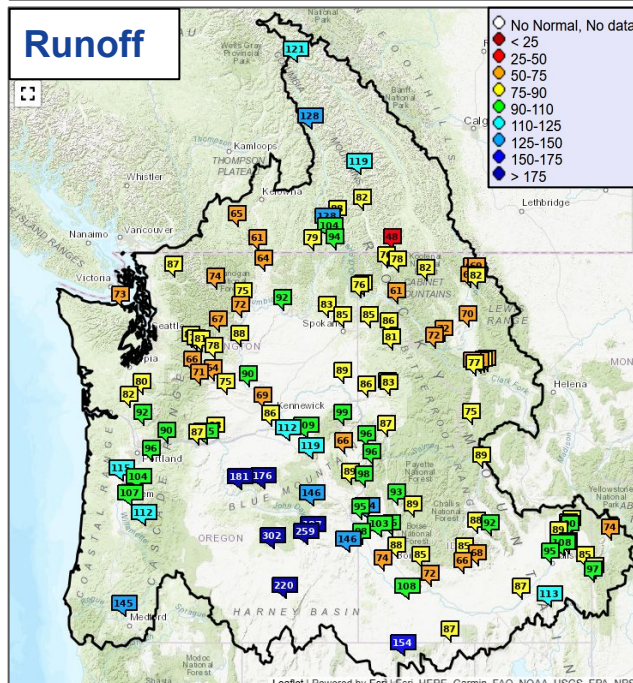
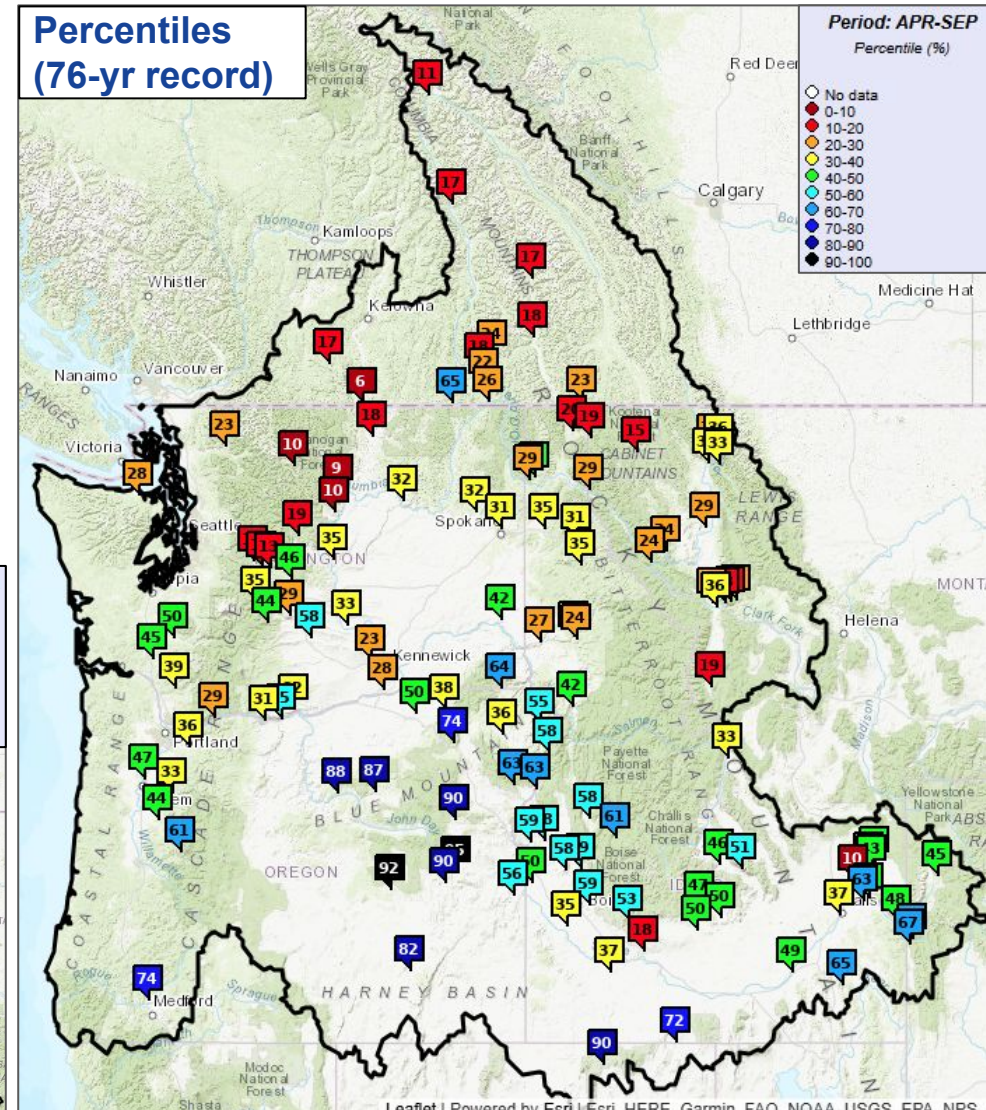
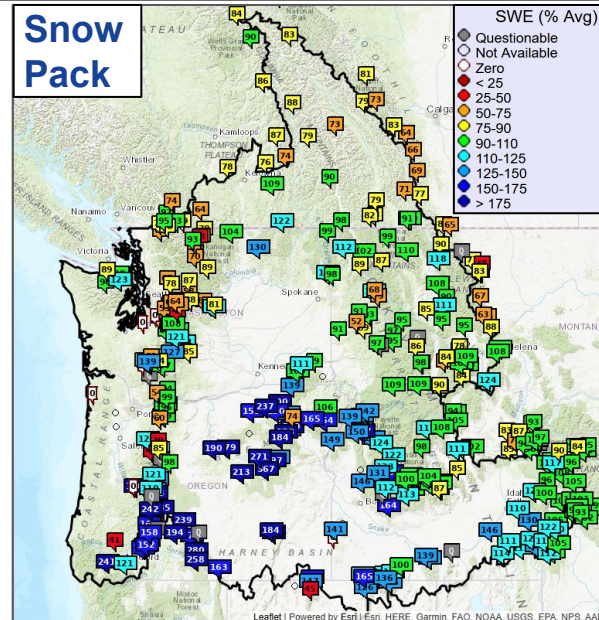
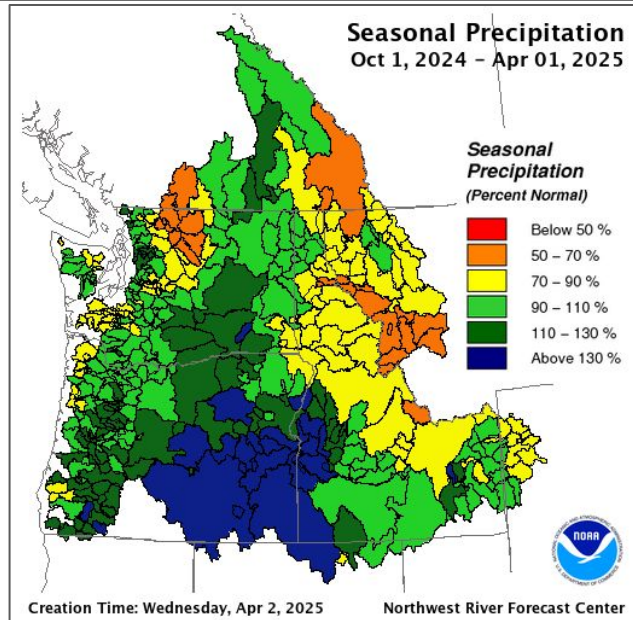
nwrfc.noaa.gov/water_supply/ws_forecasts.php?id=TDAO3

Water Supply Volume Monthly Forecasts (ESP10) for Water Year 2025 (TDAO3) COLUMBIA - THE DALLES DAM



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

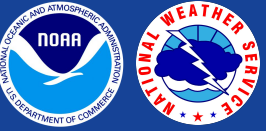
Precipitation, Snow Pack, Runoff and Water Supply Forecasts





Key Takeaways

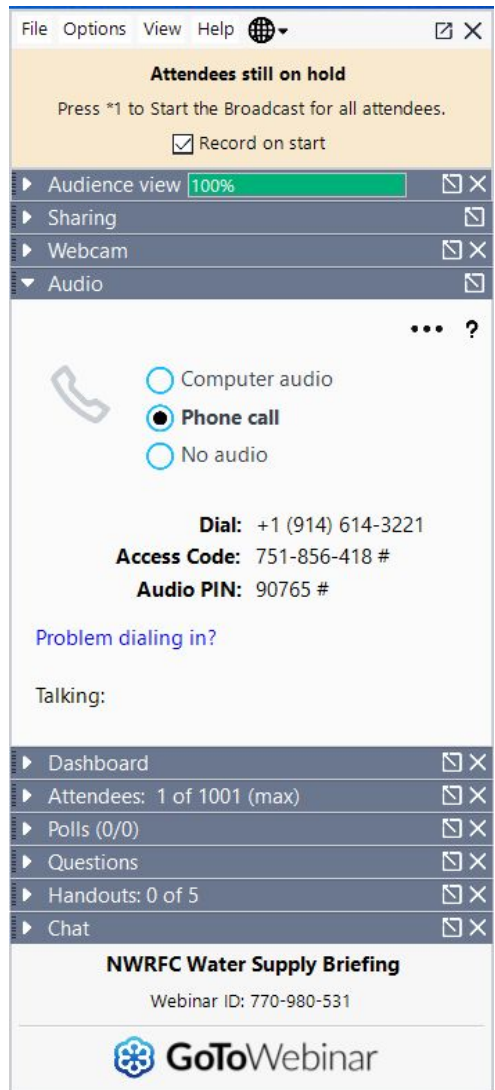
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- Water supply forecasts mostly showed increases with the most in the northern region flowing off the west of the Rockies.



Northwest River Forecast Center Briefings

Monthly Water Supply Briefings First Thursday of Each Month
nwrfc.noaa.gov/water_supply/ws_schd.cgi

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

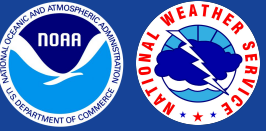


Type questions in the webinar chat or use the 'Raise Hand' function.

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



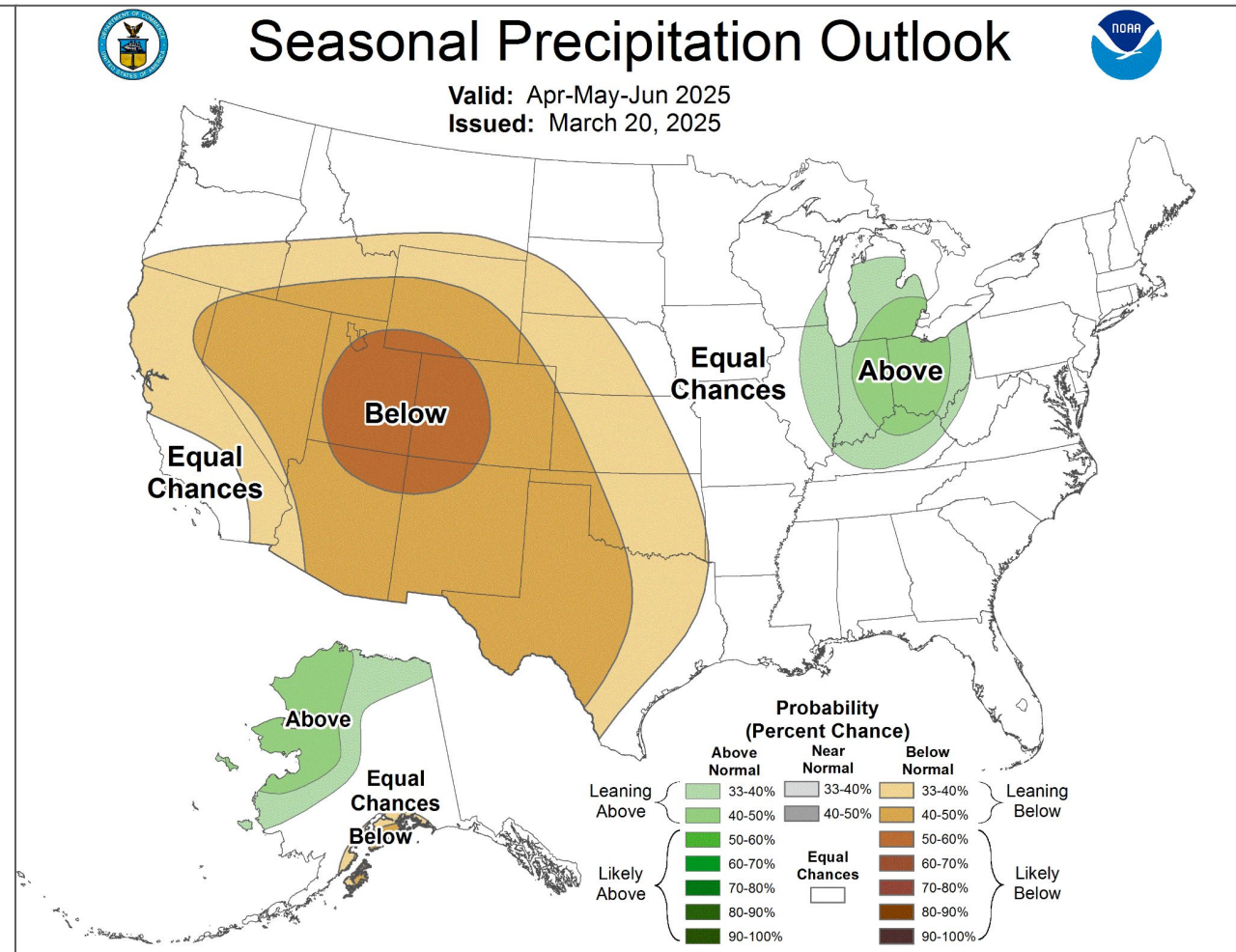
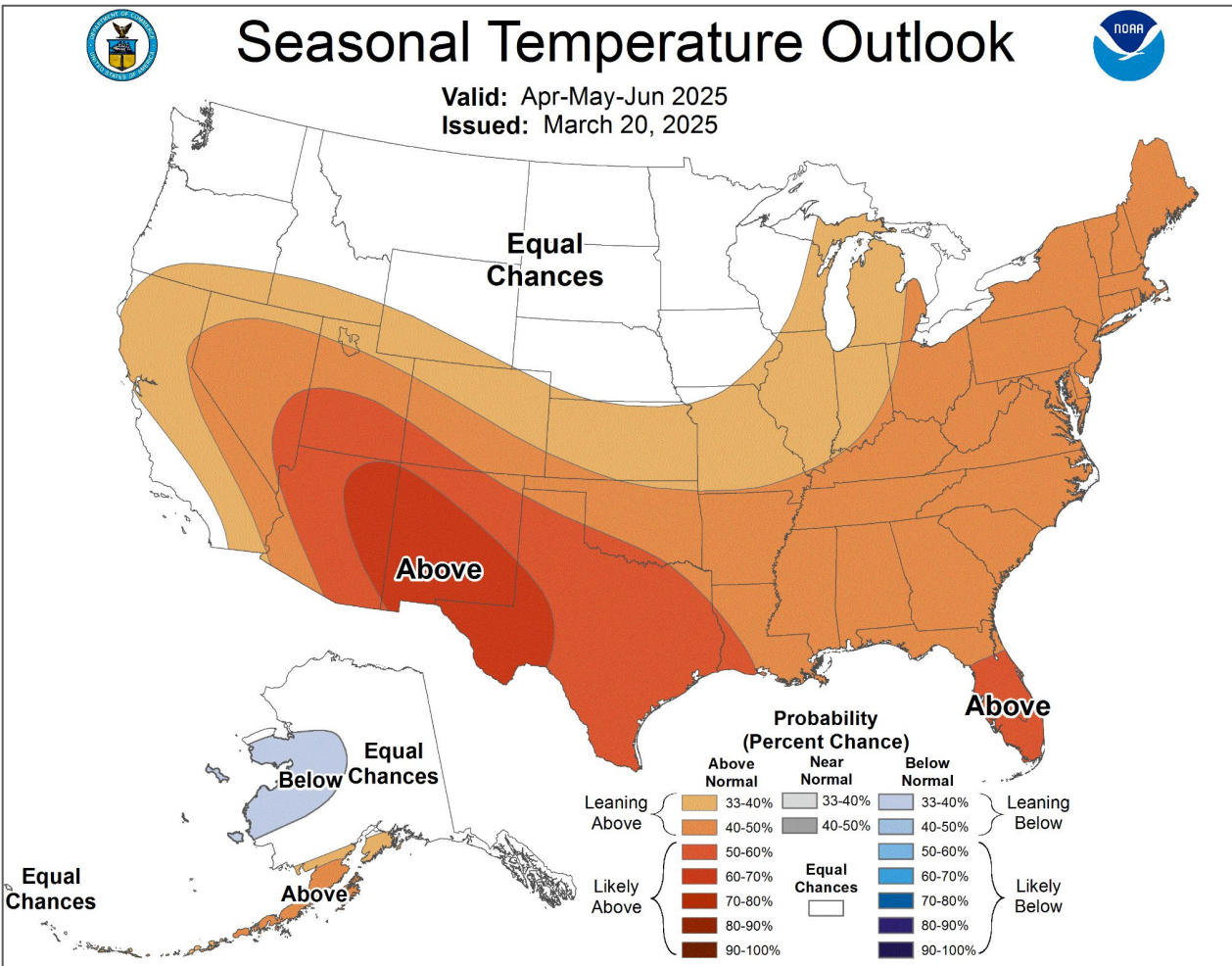
nwrfc.watersupply@noaa.gov



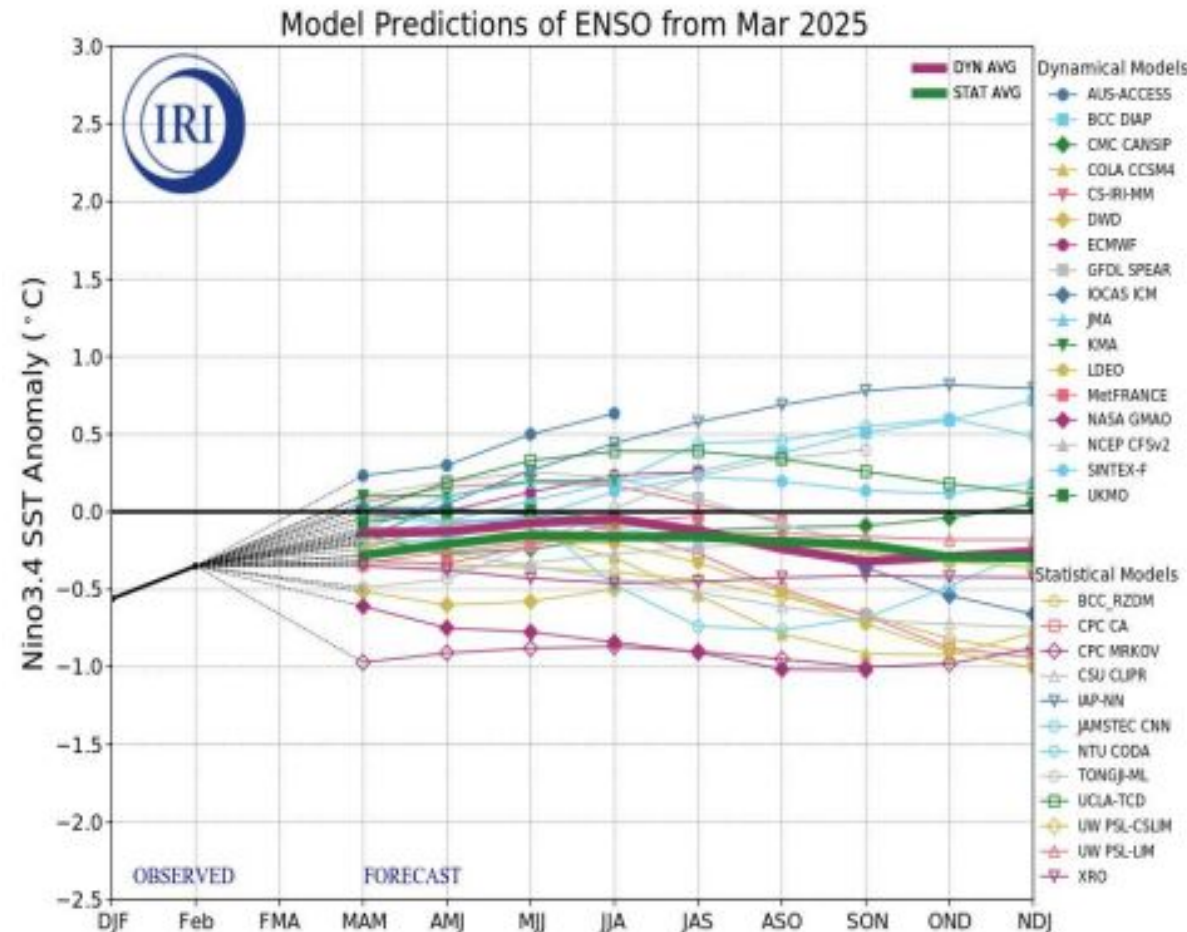
(503) 326-7291



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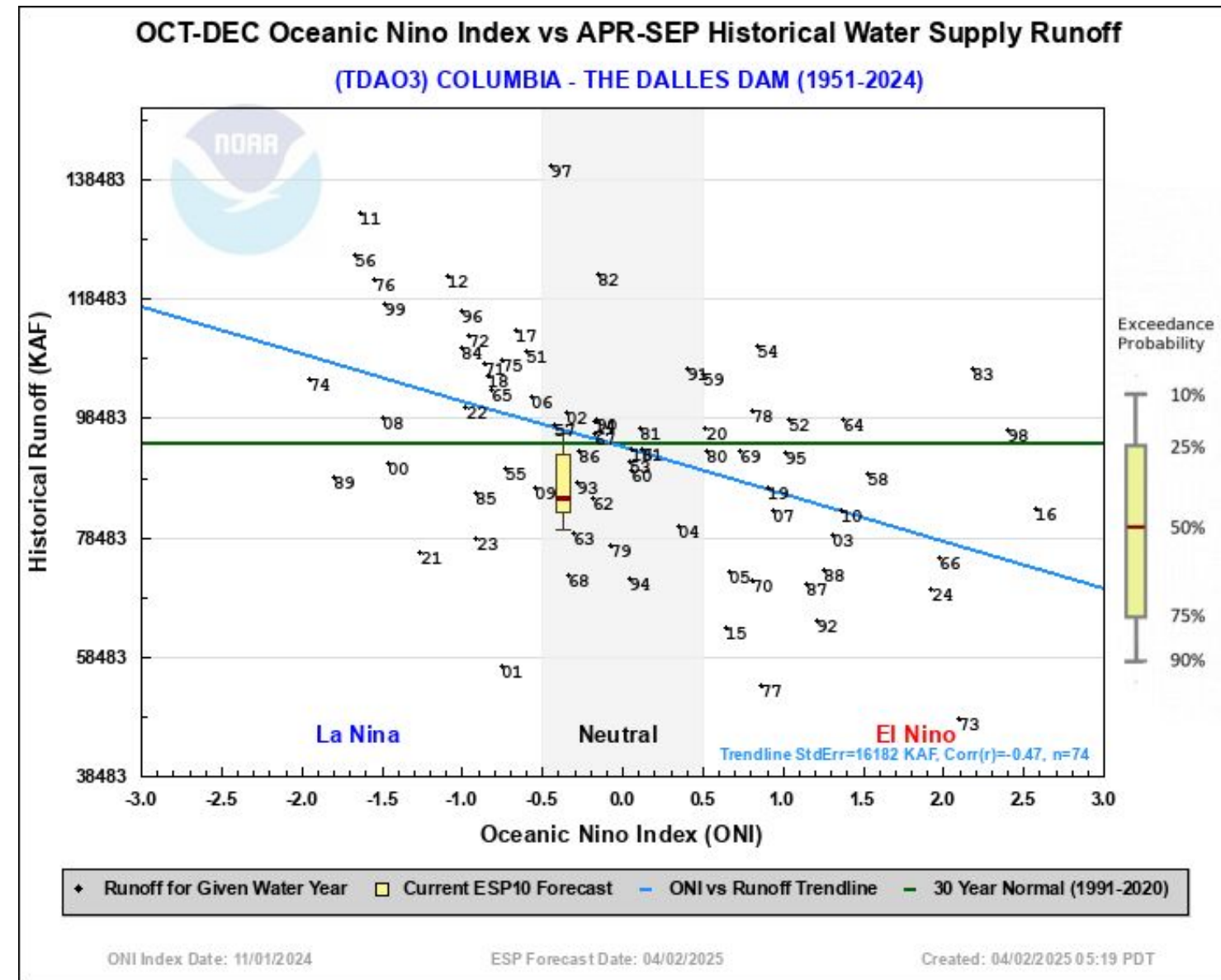
ENSO predictions

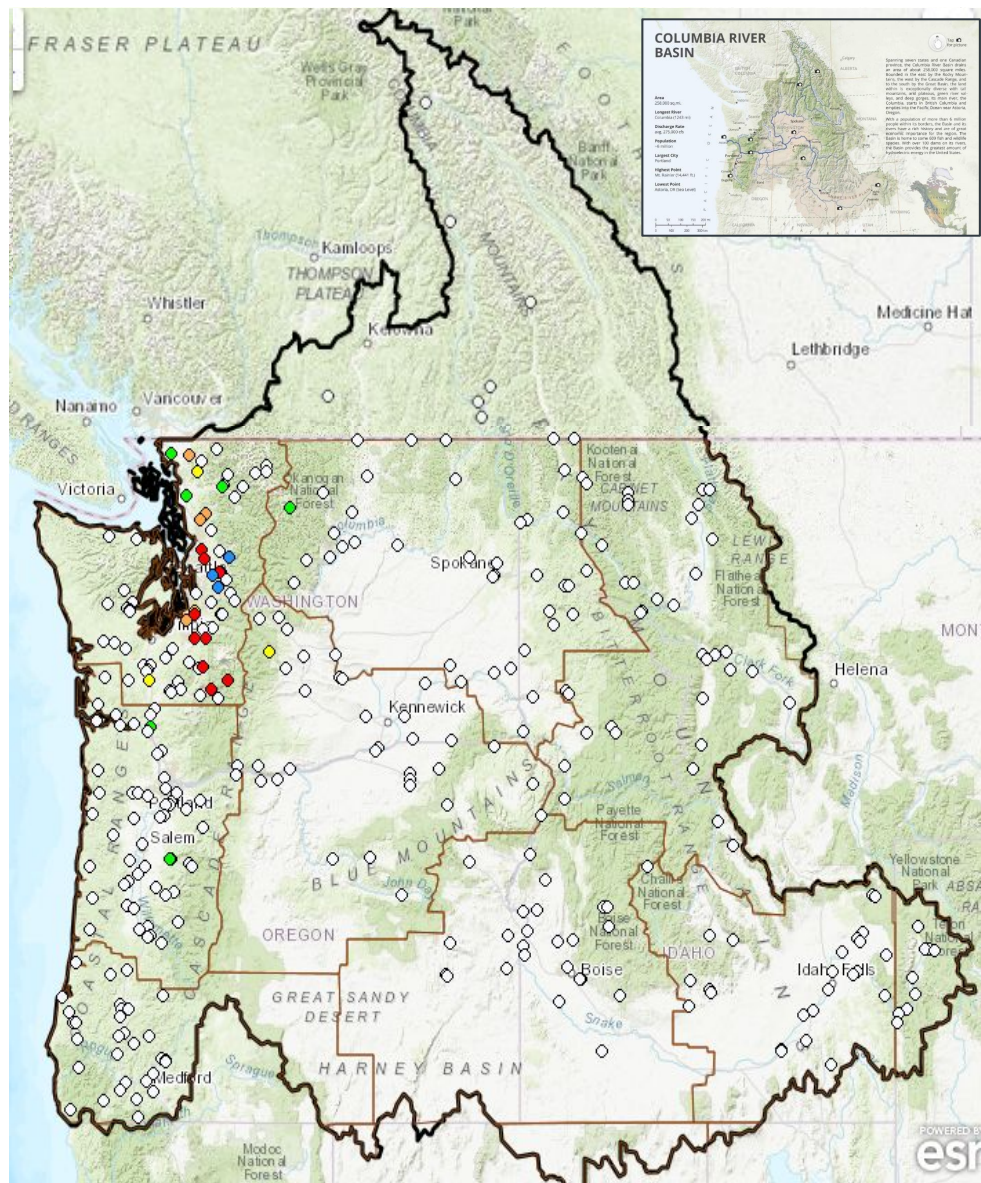


Most models favor ENSO-neutral to prevail into the Northern Hemisphere fall 2025.

Figure provided by the International Research Institute (IRI) for Climate and Society (updated 19 March 2025).

ENSO predictions





326,000 Square Miles

- 2 Countries, 6+ States
- 10 NWS WFOs

Forecast Service Suite

- ~ 400 river locations
- ~ 100 reservoirs
- Multiple time scales
- Deterministic & probabilistic

NWRFC forecast and services inform regional and local decisions:

- Water Management
 - USACE, USBR, Others
- Hydropower
- Flood Control
- Drought Planning
- River Commerce
- Species Protection

