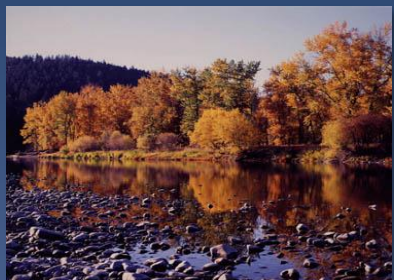




Northwest River Forecast Center



April 2021 Water Supply Briefing

Telephone Conference: (415) 930-5321
Audio Access Code: 524-795-021#

Ryan Lucas, PhD
NWRFC.watersupply@noaa.gov
(503) 326-7291

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



Water Supply Forecast Briefing Outline

Observed Conditions

- Temperature
- Precipitation
- Snowpack
- Runoff

Forecast Conditions

- 10 day precipitation forecasts
- Water Supply Forecasts

Additional Guidance

- Climate Prediction Center Outlook

Summary



Take Home Messages

Dry month of March brought seasonal precipitation down across the basin

- Upper Columbia now below normal for the water year
- Snake River remains below normal

March was a poor snow building month

- Benefited from temperatures generally being near to below normal
- SWE values generally held or built slightly across the basin

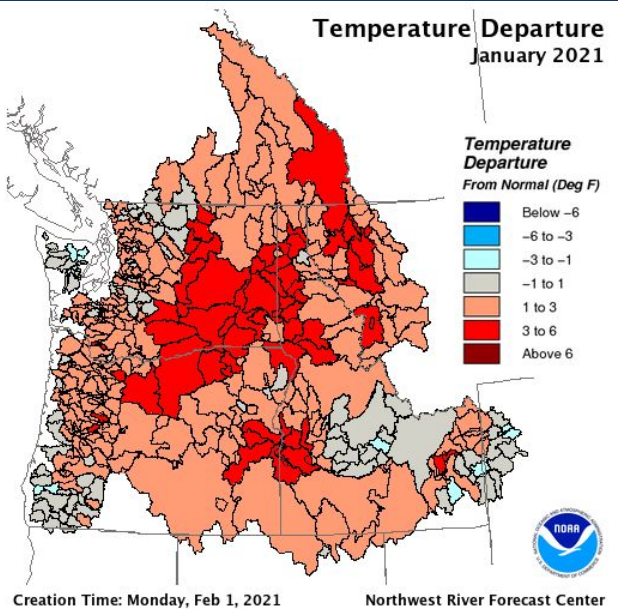
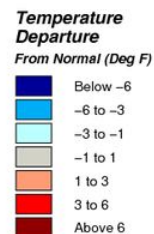
Water supply forecasts for April-September

- Near normal in the north
- Below normal in the south



Monthly Temperature Departure

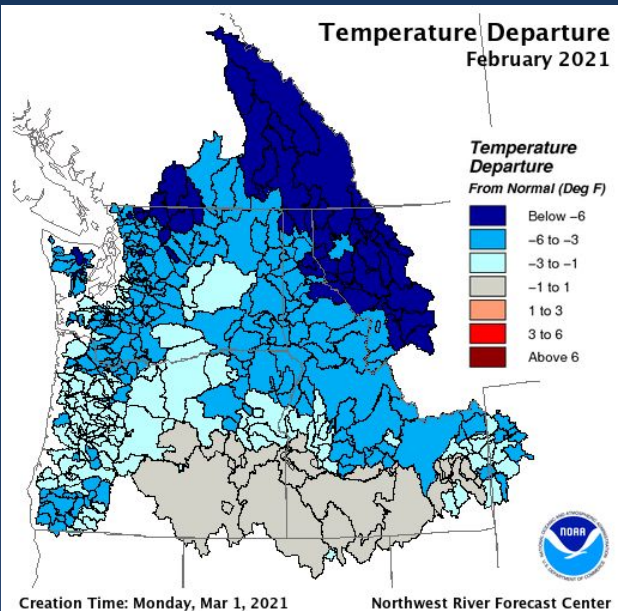
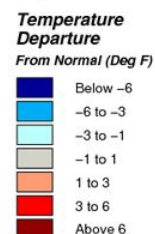
Temperature Departure
January 2021



Creation Time: Monday, Feb 1, 2021

Northwest River Forecast Center

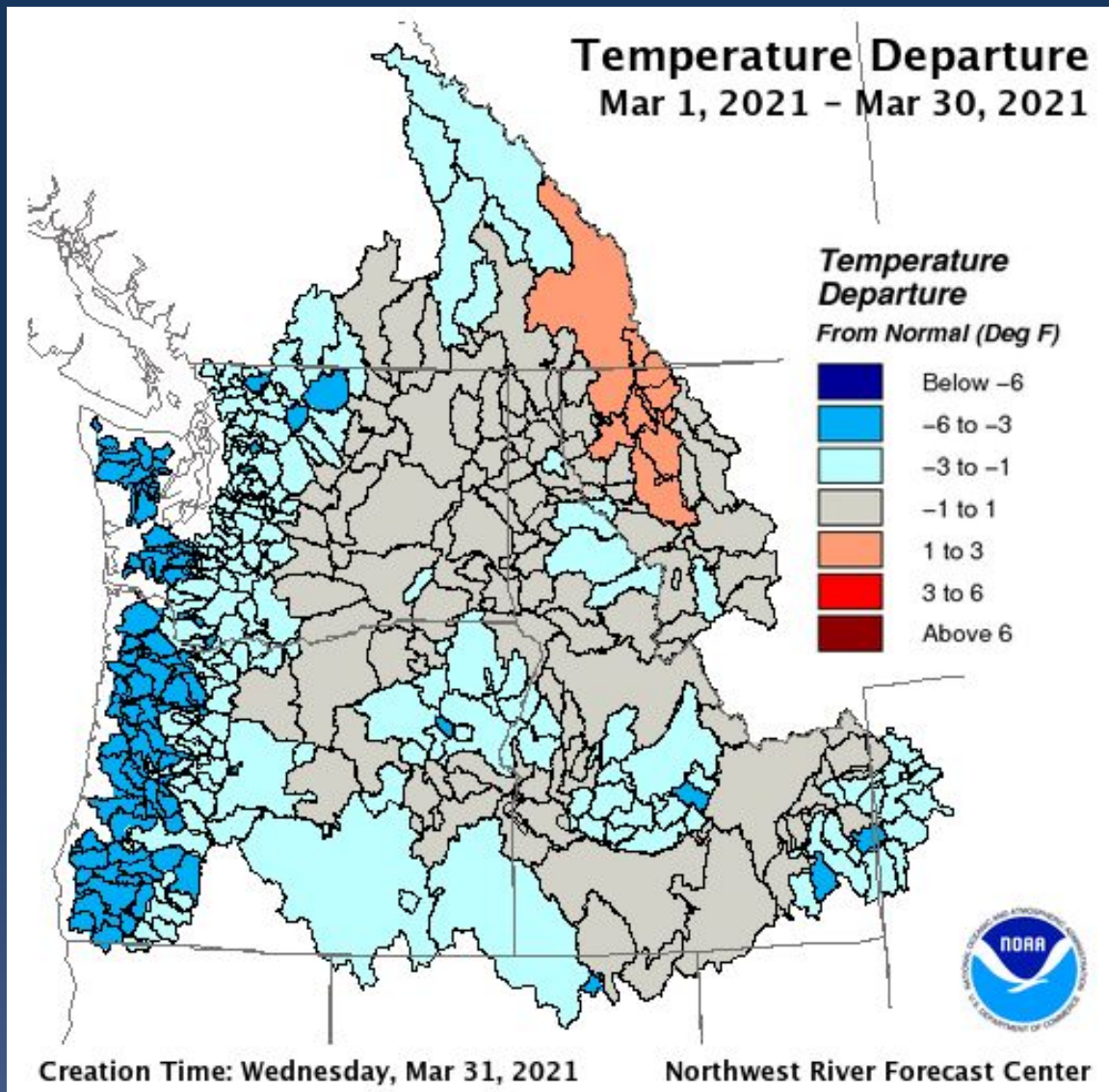
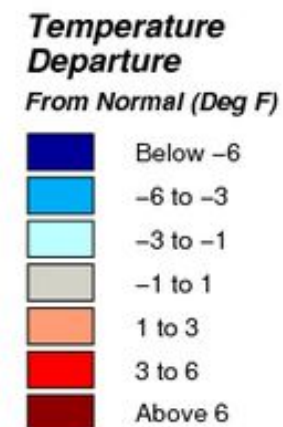
Temperature Departure
February 2021



Creation Time: Monday, Mar 1, 2021

Northwest River Forecast Center

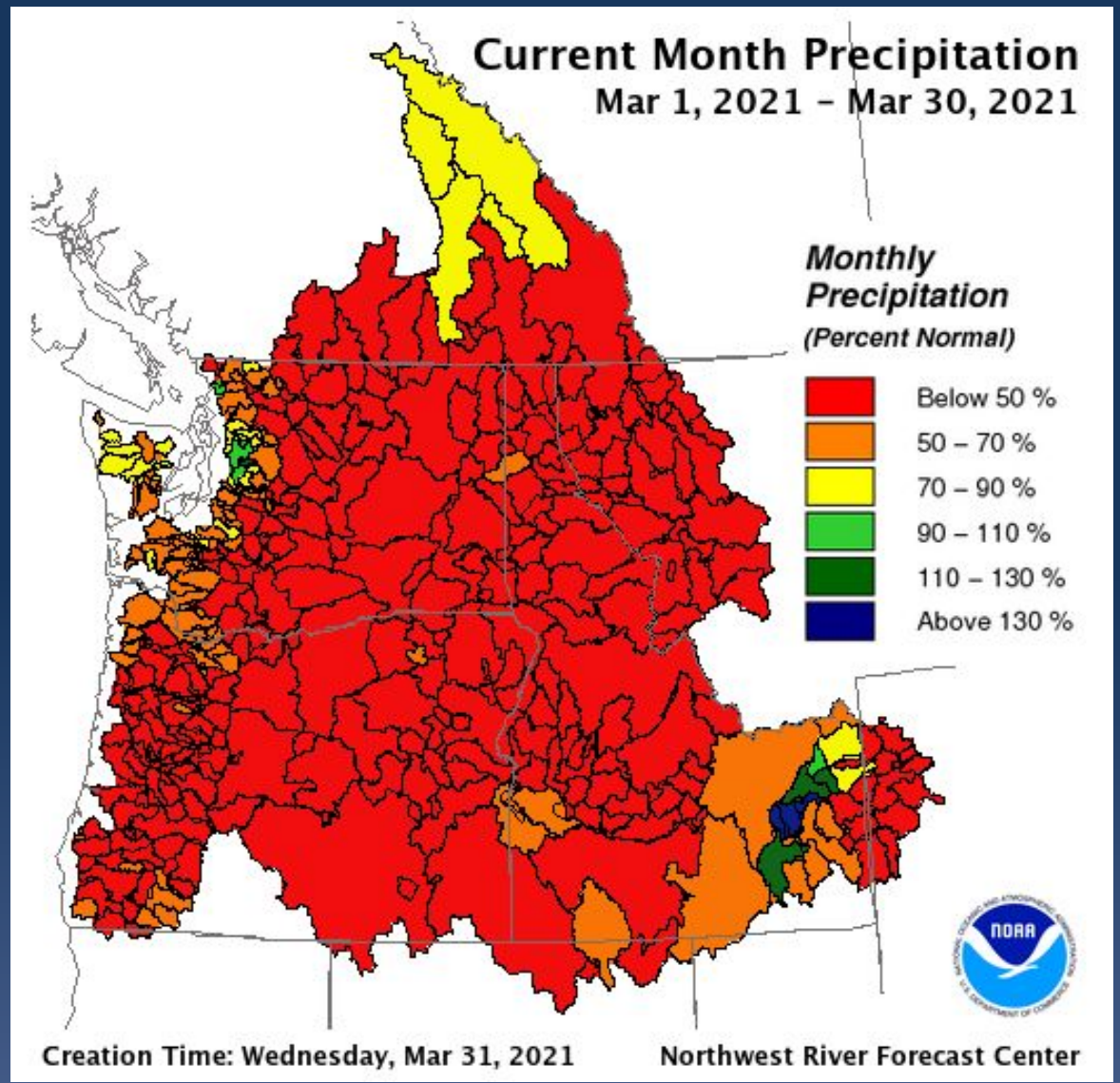
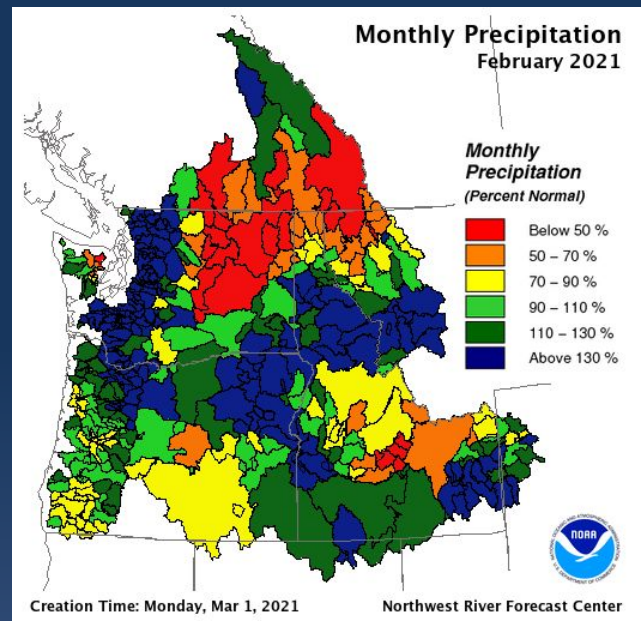
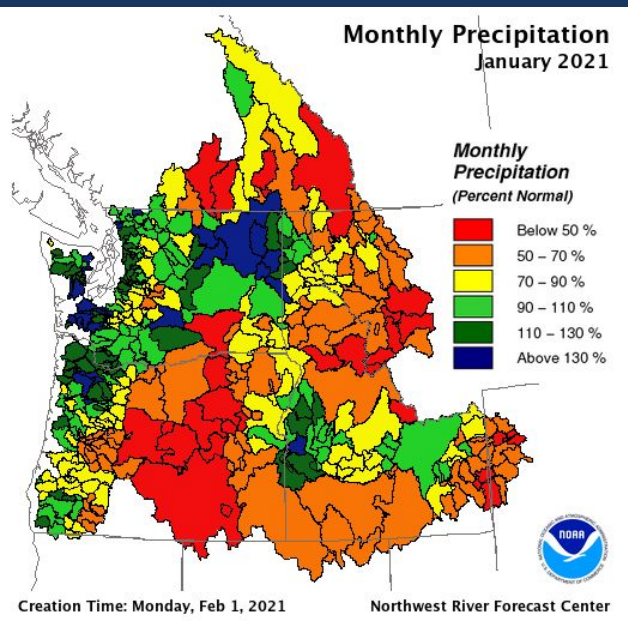
Temperature Departure
Mar 1, 2021 - Mar 30, 2021



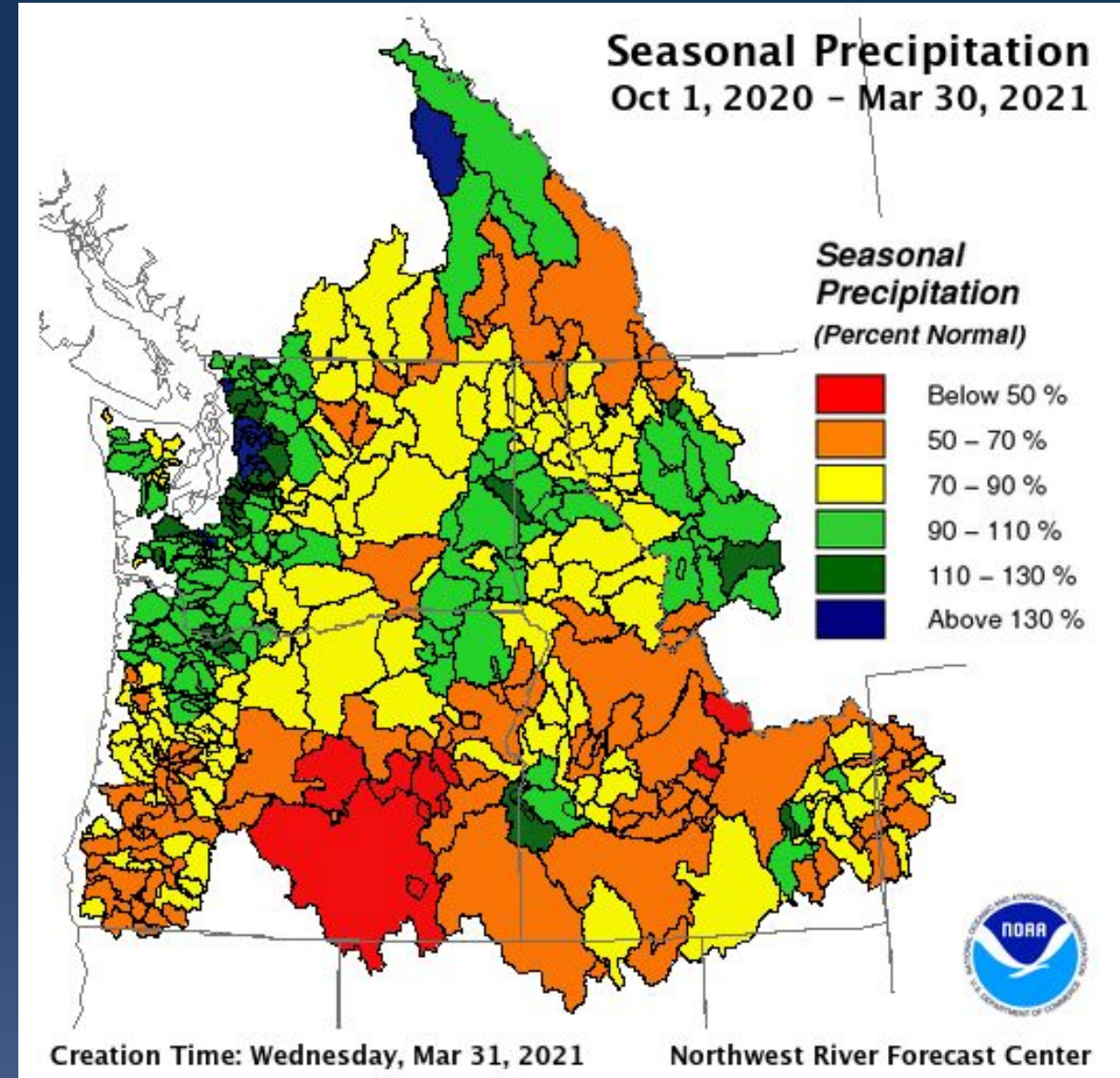
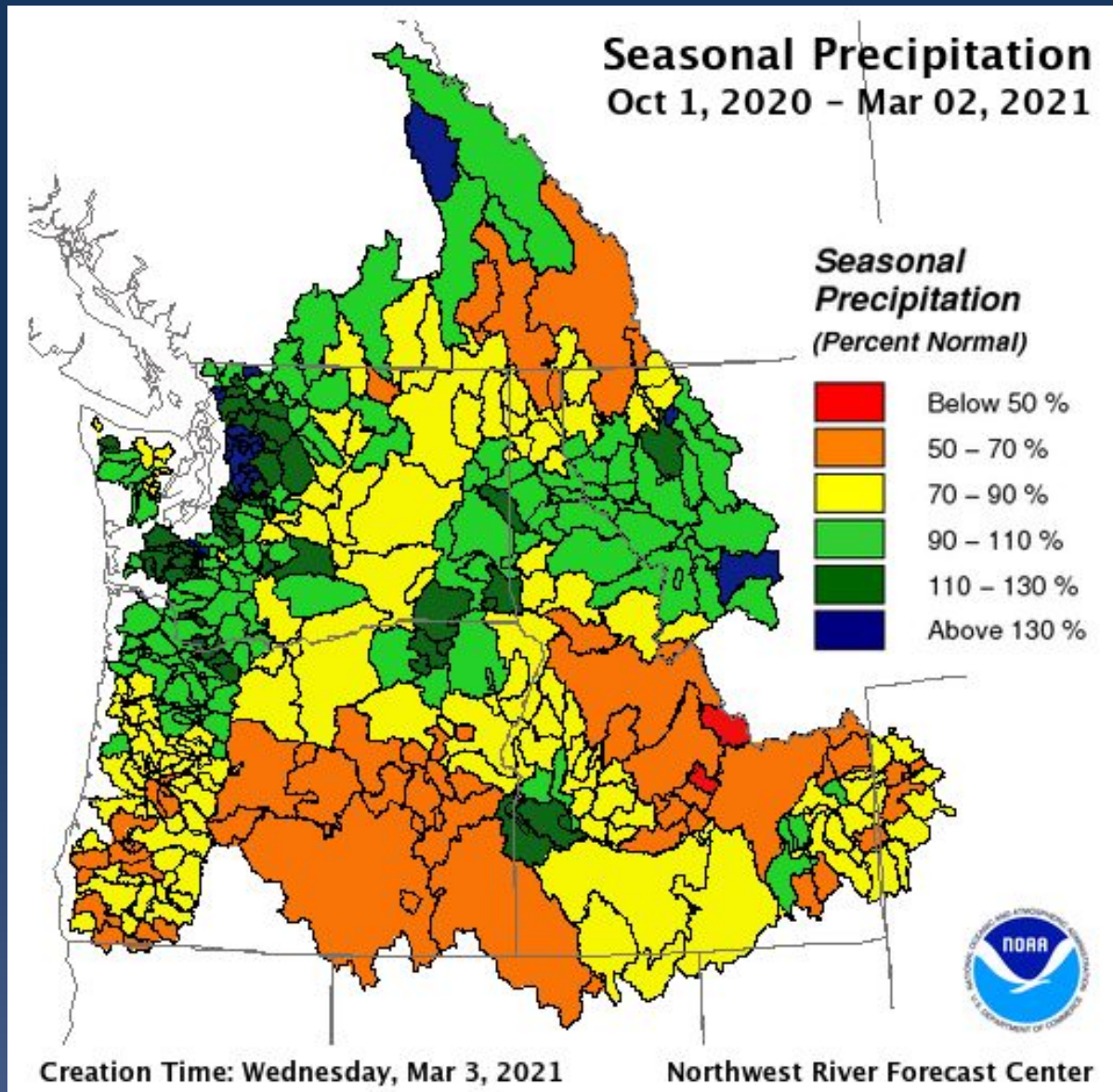
Creation Time: Wednesday, Mar 31, 2021

Northwest River Forecast Center

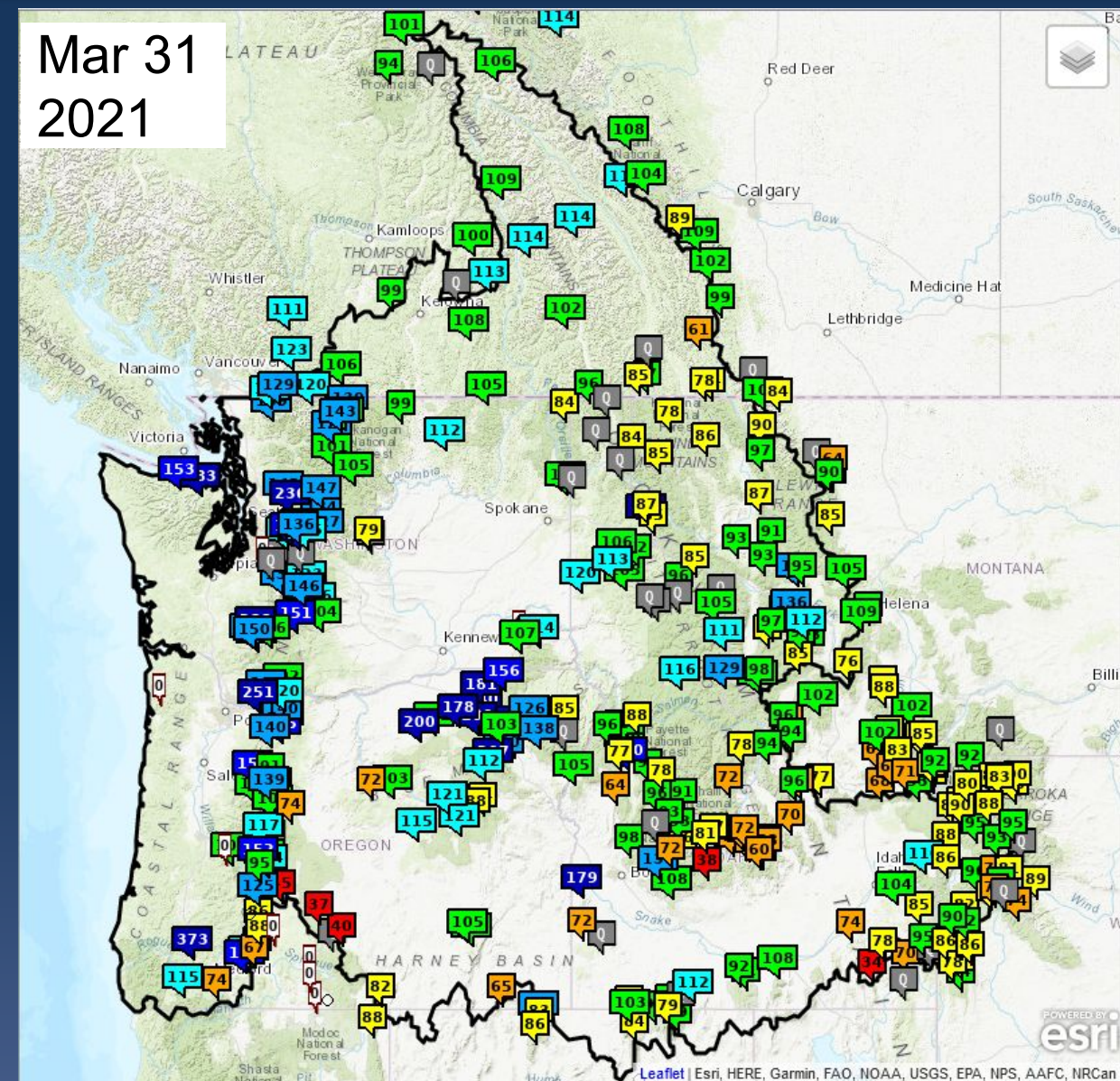
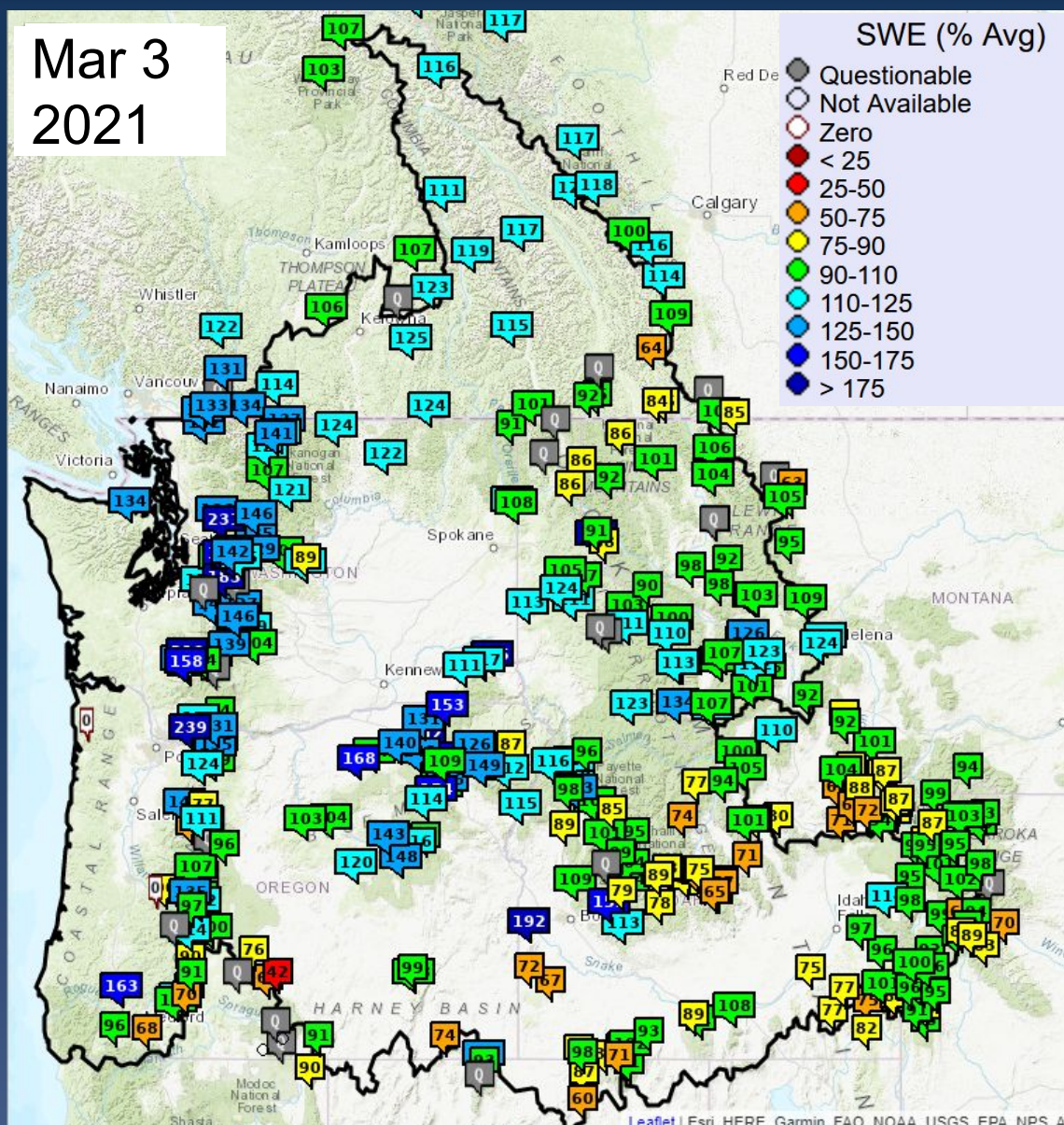
Monthly Precipitation



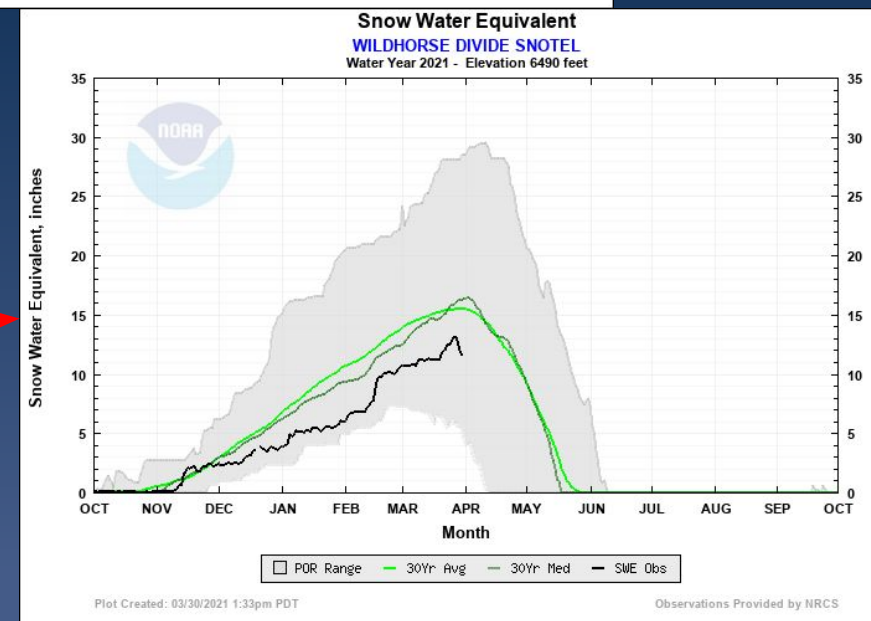
Water Year to Date Precipitation



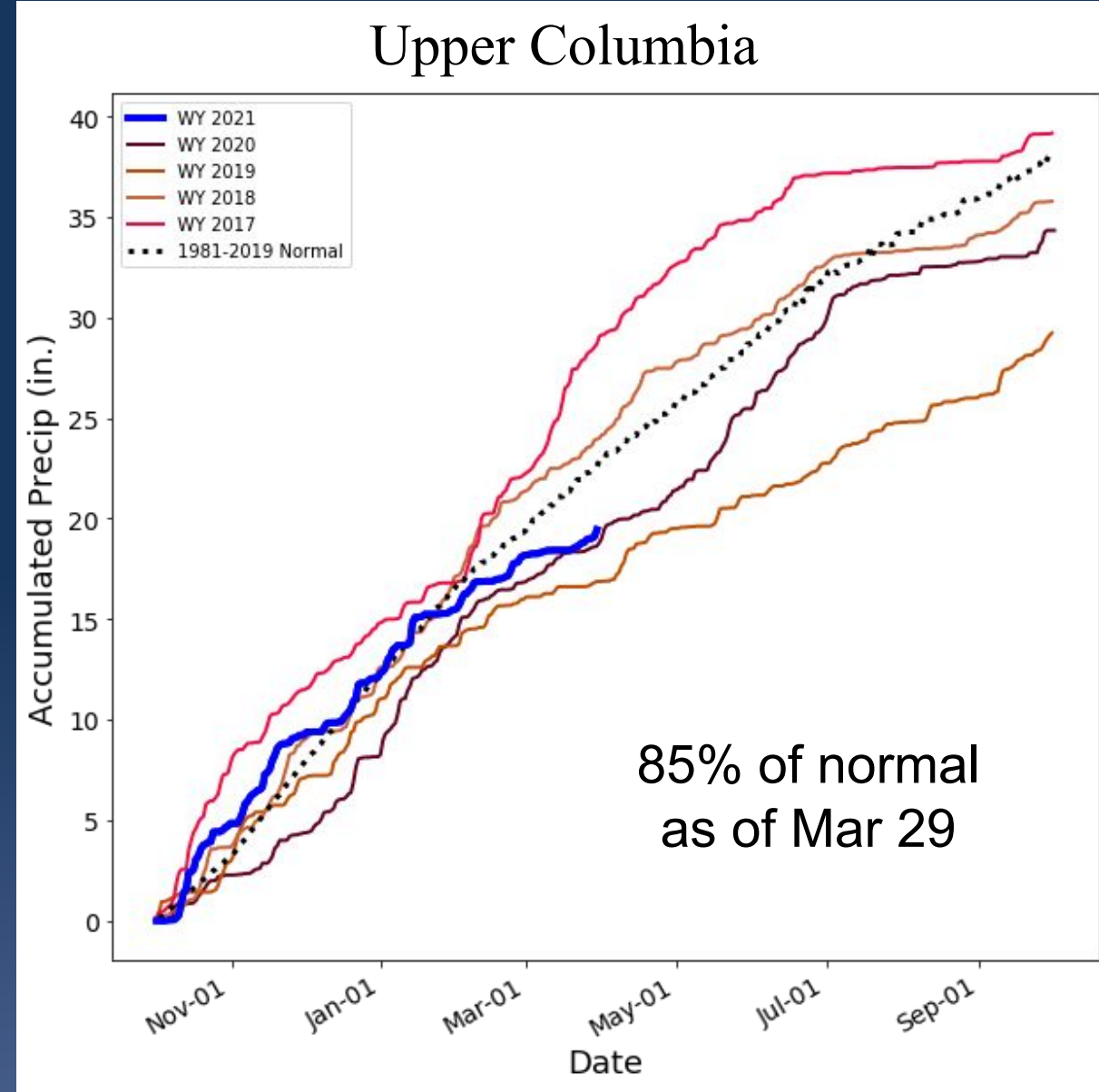
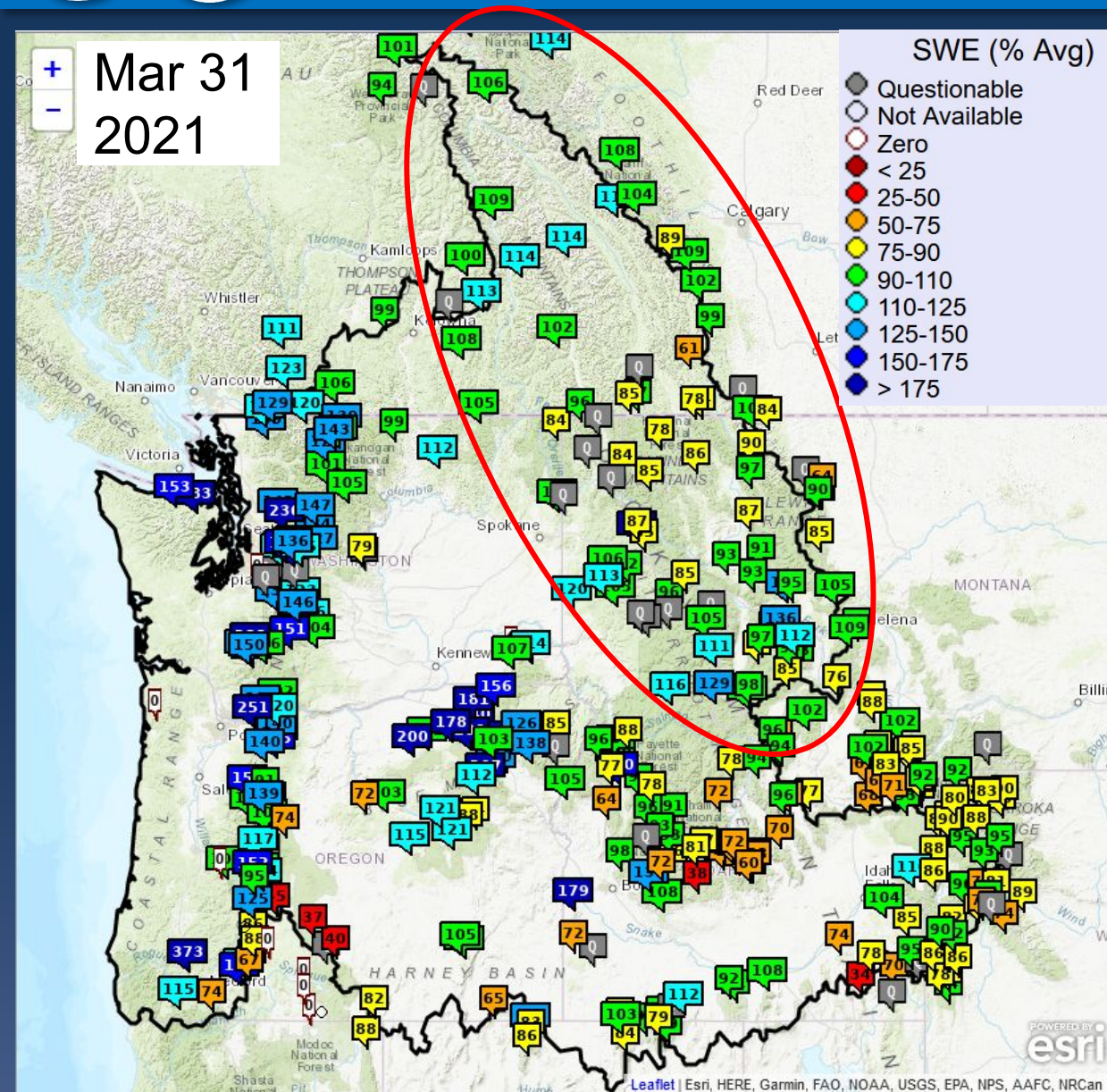
Snowpack



Snow data from NRCS, BC Hydro, and Alberta EP.

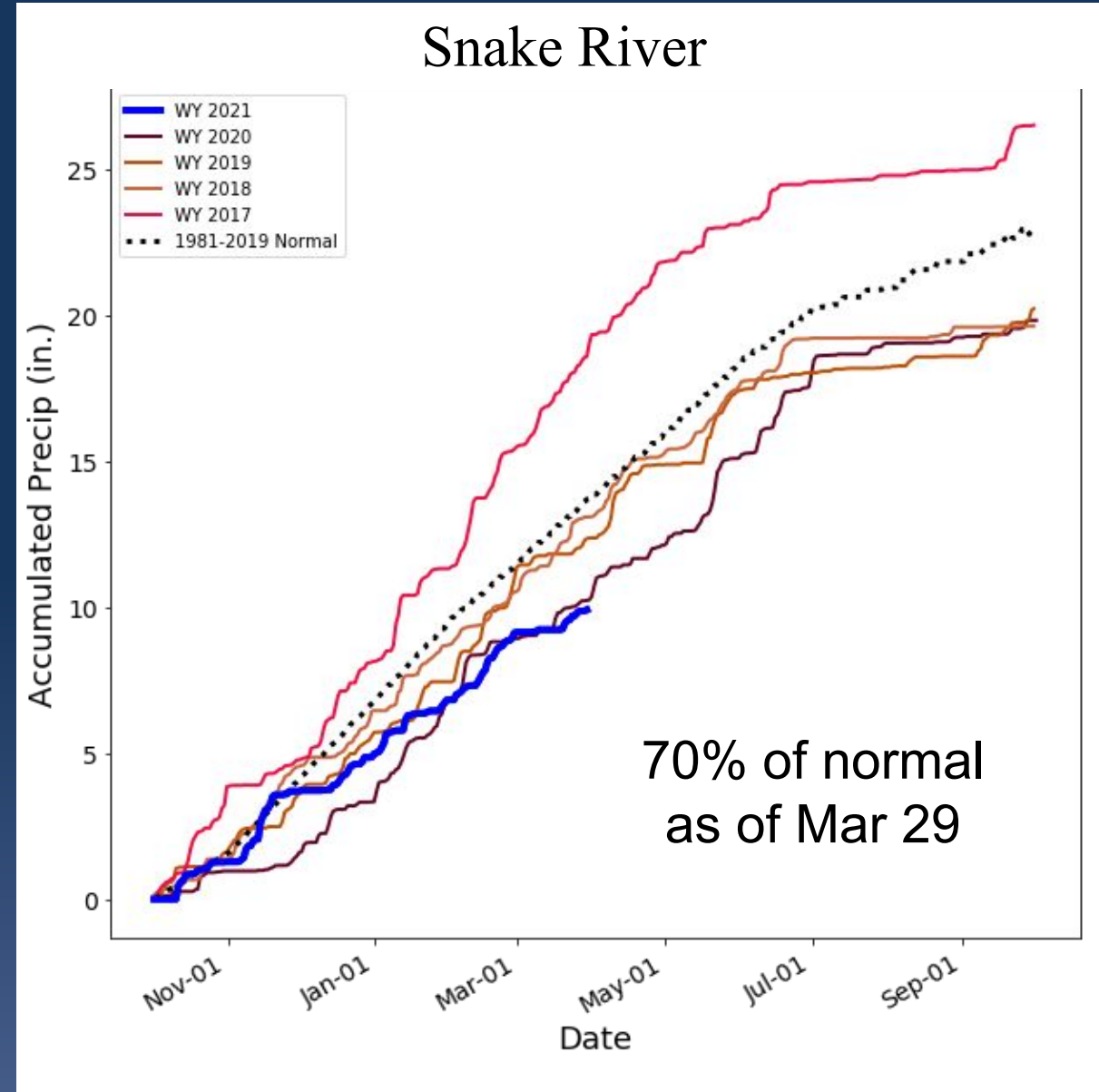
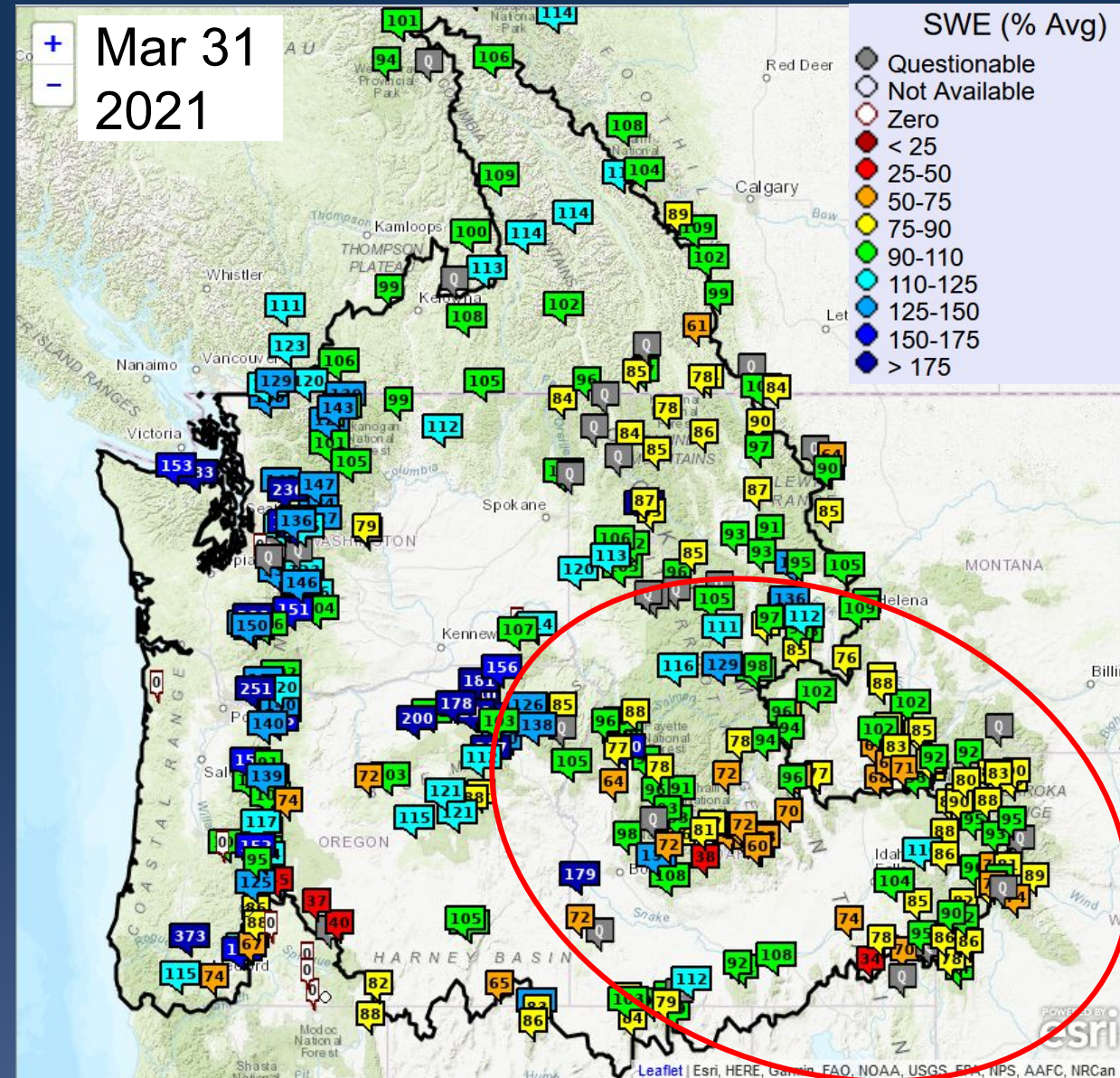


Snowpack and Seasonal Precipitation



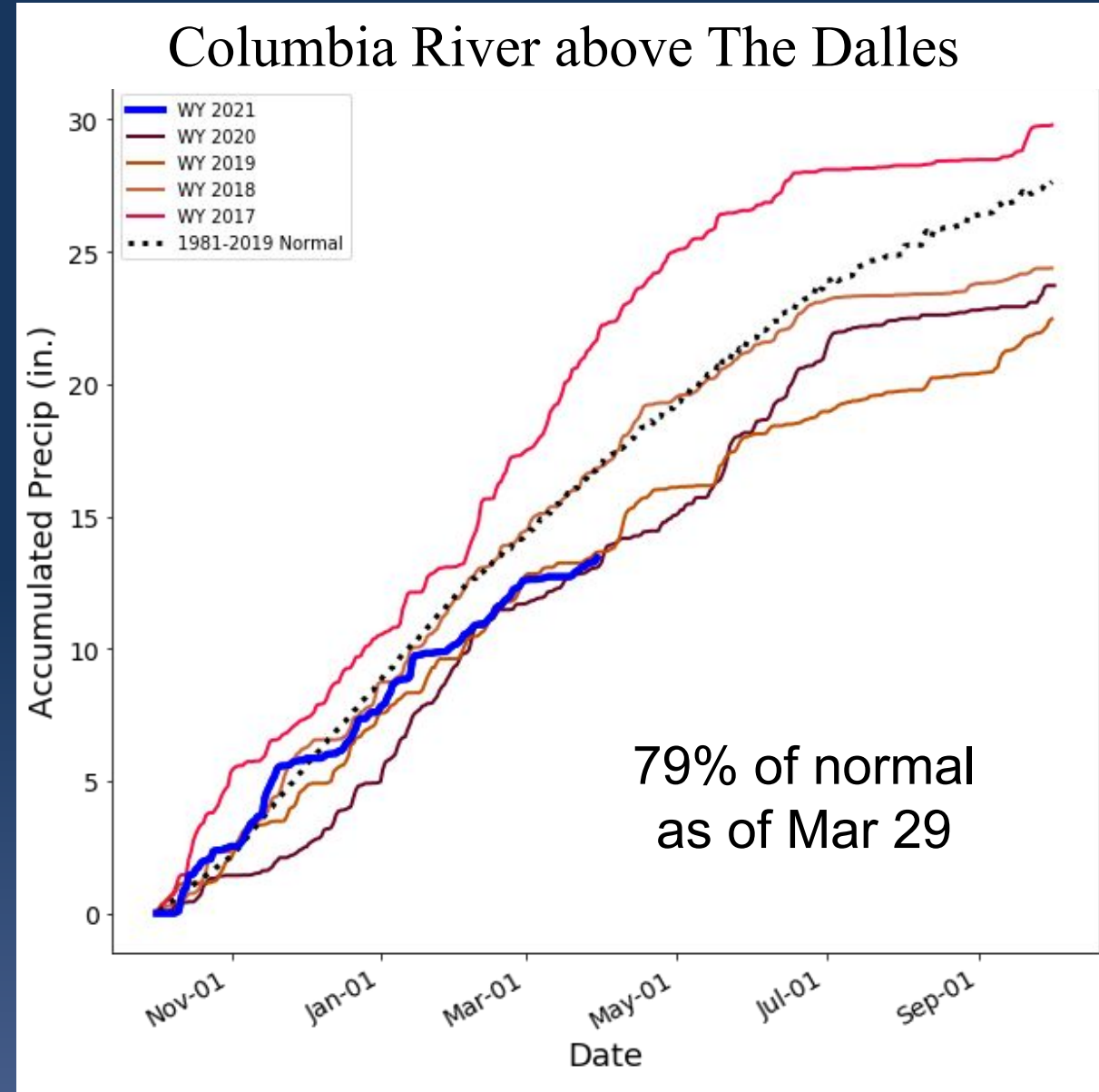
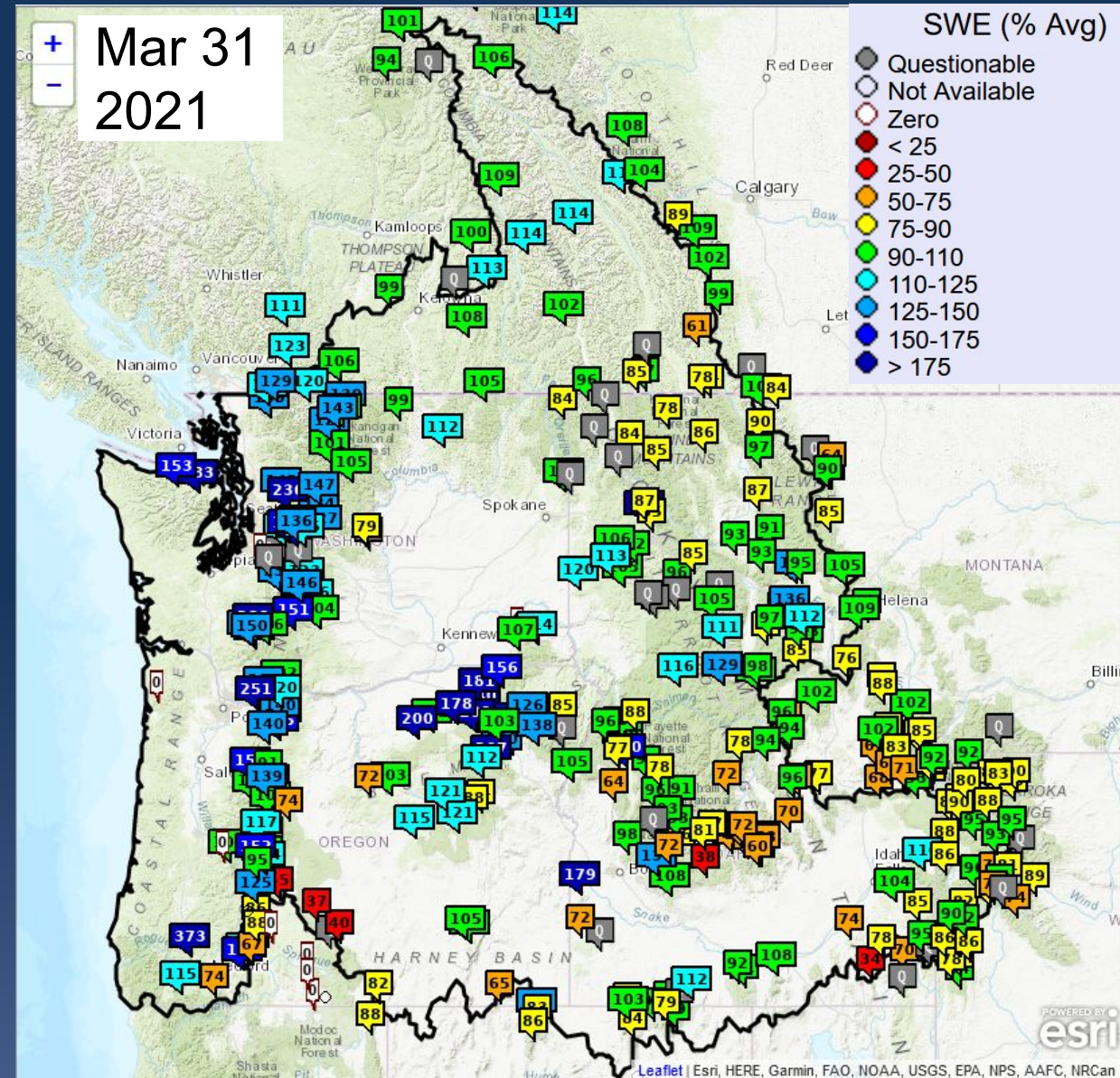
Snow data from NRCS, BC Hydro, and Alberta EP.

Snowpack and Seasonal Precipitation



Snow data from NRCS, BC Hydro, and Alberta EP.

Snowpack and Seasonal Precipitation

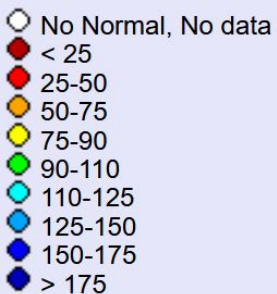


Snow data from NRCS, BC Hydro, and Alberta EP.



YTD Adjusted Runoff - East

Mar 31
2021



% Normal Runoff Oct 1- Mar 31

Upper Columbia Basin

Δ (since March 3)

Mica	123	-4
Duncan	115	-4
Queens Bay	83	-5
Libby	81	-2
Hungry Horse	116	-7
Grand Coulee	96	-7

Snake River Basin

American Falls	84	-1
Lucky Peak	76	-4
Dworshak	79	-6
Lower Granite	75	-1

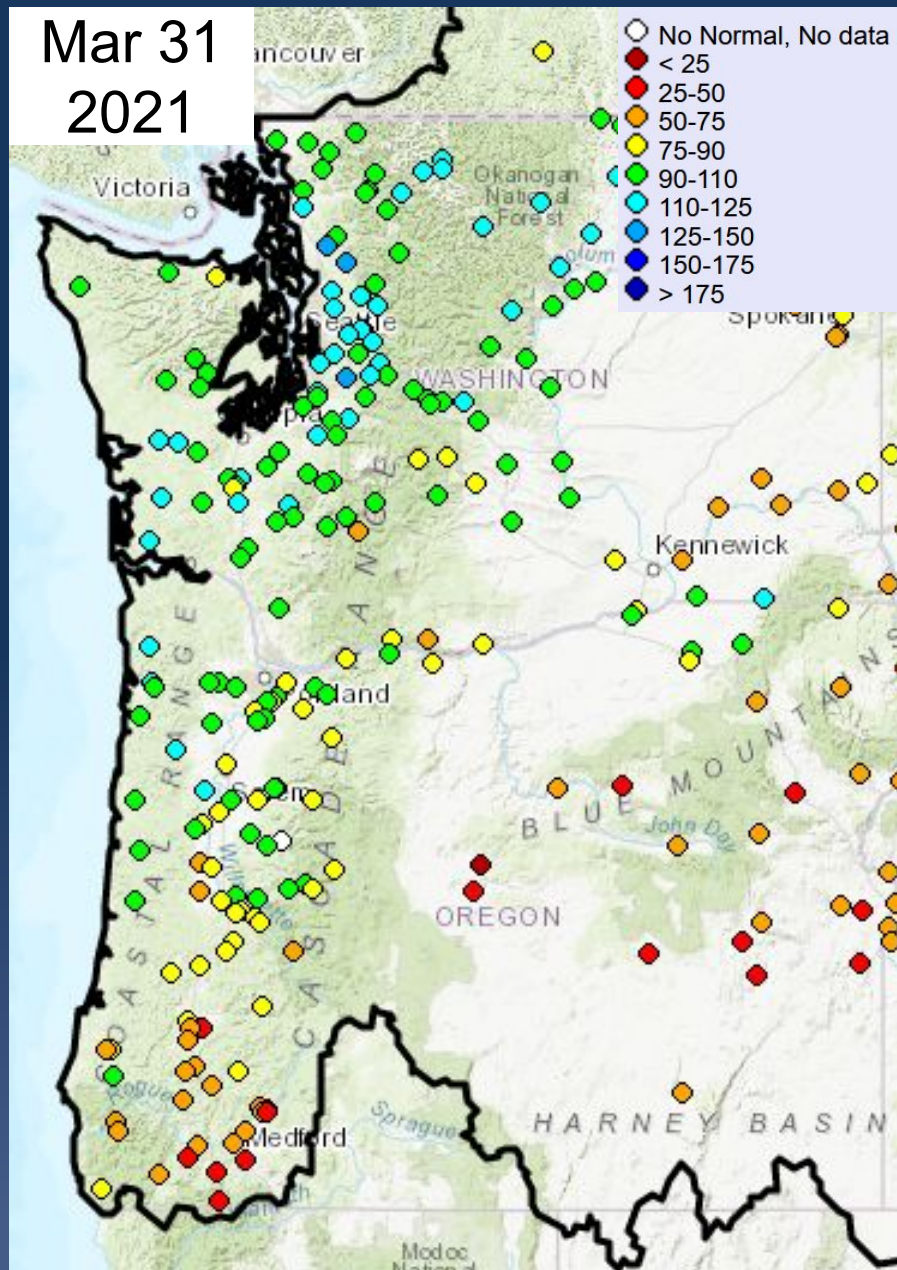
Lower Columbia Basin

The Dalles	82	-5
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YTD Adjusted Natural Runoff - OR,WA

Mar 31
2021



% Normal Runoff Oct 1- Mar 31

Washington

Δ (since Mar 3)

Skagit nr Mt Vernon	114	-7
Dungeness nr Sequim	81	-4
Chehalis at Porter	109	-7
Okanogan at Malott	124	-8
Methow nr Pateros	123	-6
Yakima at Parker	93	-8
Walla Walla nr Touchet	91	+2

Oregon

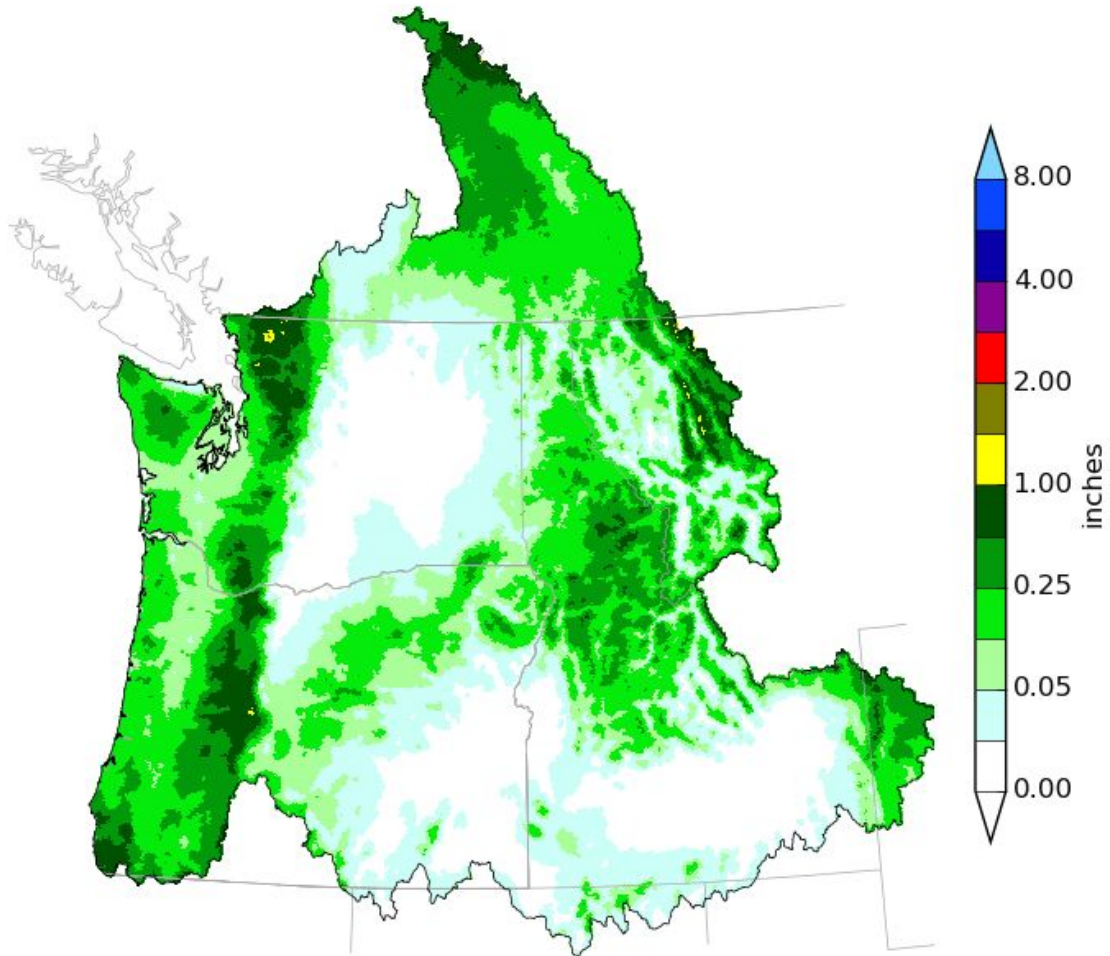
Willamette at Salem	81	-5
Rogue at Raygold	63	-2
Umatilla at Pendleton	102	+10
Grande Ronde at Troy	82	+4
Owyhee Dam	37	-7



Precipitation Forecast (March 31 - April 10)



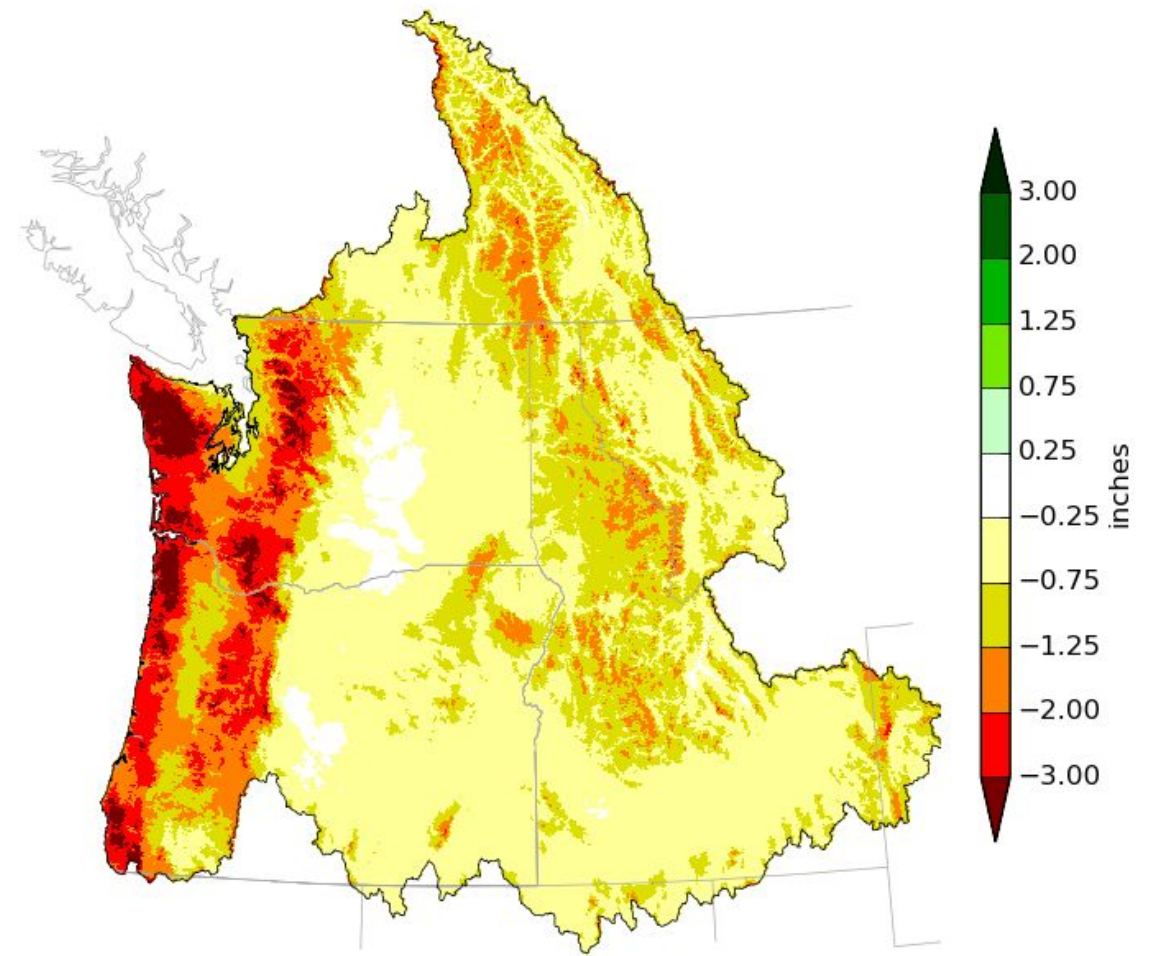
Northwest River Forecast Center
10 Day QPF, Ending 12Z, 04/10/21



Creation Time: Wed Mar 31 21:54:18 UTC 2021

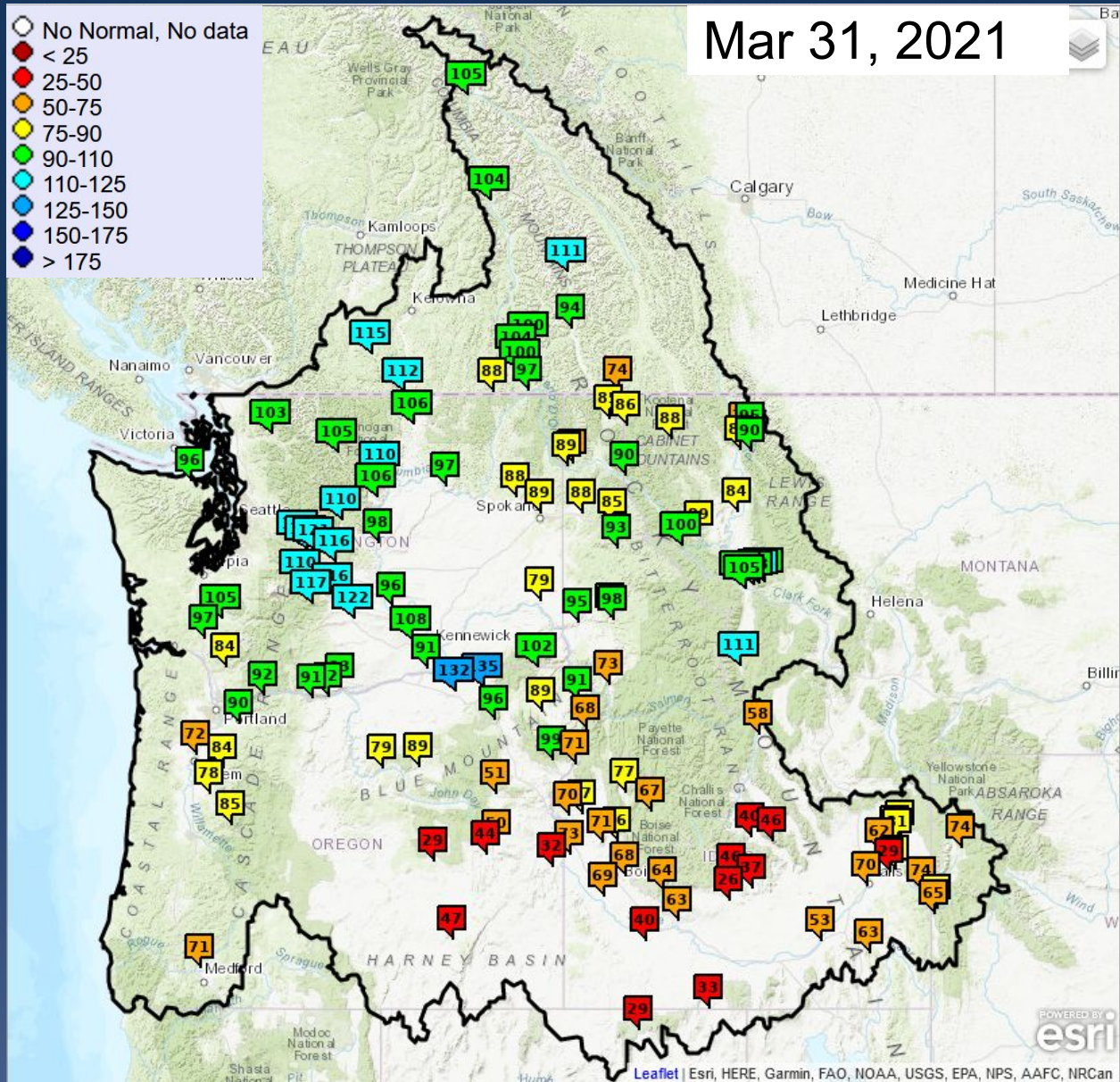


Northwest River Forecast Center
10 Day QPF (Deviation from Climatology), Ending 12Z, 04/10/21



Creation Time: Wed Mar 31 21:55:33 UTC 2021

ESP10 Water Supply Forecasts - East



% Normal Apr-Sep Volume

Upper Columbia Basin

Δ (since Mar 3)

Mica	105	+1
Duncan	111	+7
Queens Bay	94	+3
Libby	88	--
Hungry Horse	90	-5
Grand Coulee	97	-1

Snake River Basin

American Falls	53	-17
Lucky Peak	68	-5
Dworshak	93	-2
Lower Granite	79	-6

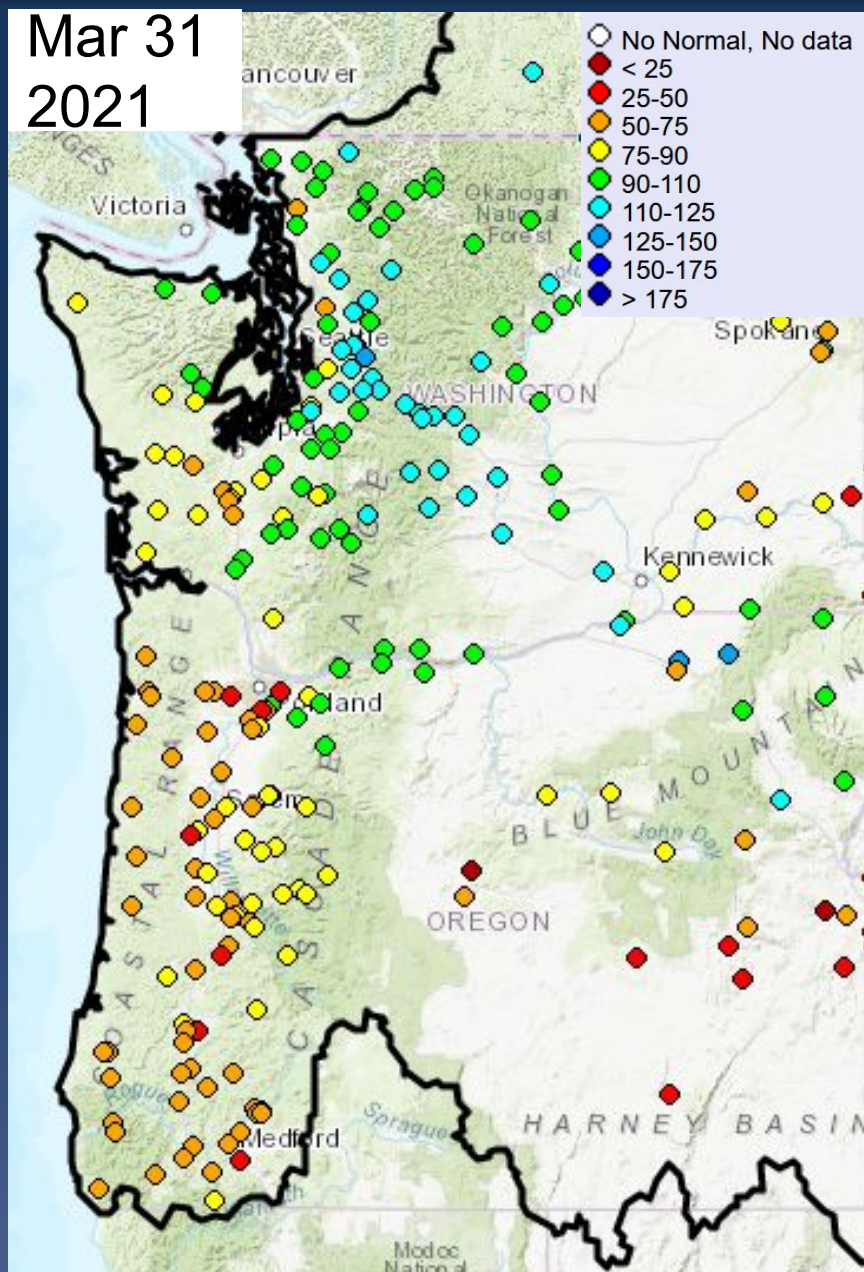
Lower Columbia Basin

The Dalles	91	-4
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ESP10 Natural Forecasts - OR, WA

Mar 31
2021



% Normal Apr -Sep Vol

Washington

		<u>Δ (since Mar 3)</u>
Skagit nr Mt Vernon	105	-6
Dungeness nr Sequim	96	-9
Chehalis at Porter	73	-19
Okanogan at Malott	104	-4
Methow nr Pateros	110	-6
Yakima at Parker	113	+1
Walla Walla nr Touchet	84	-16

Oregon

Willamette at Salem	71	-15
Rogue at Raygold	72	-12
Umatilla at Pendleton	129	+2
Grande Ronde R at Troy	102	-29
Owyhee Dam	32	-8



ESP10 Apr-Sep Water Supply Forecasts

COLUMBIA - GRAND COULEE DAM (GCDW1) Forecasts for Water Year 2021

Official Water Supply

ESP with 10 Days QPF Ensemble: 2021-03-31 Issued: 2021-03-31

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	53912	58352	97	63249	60110
APR-JUL	45070	48432	95	53575	51015
APR-AUG	50050	54546	96	59618	56763
JAN-SEP	61118	65558	95	70455	68694
JAN-JUL	52275	55638	93	60781	59599
OCT-SEP	69904	74344	97	79241	76824

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2021-03-31 Issued: 2021-03-31

APR-SEP	55284	59884	100	64460	60110
APR-JUL	46195	50357	99	55290	51015
APR-AUG	51398	56058	99	60750	56763
JAN-SEP	62490	67090	98	71667	68694
JAN-JUL	53402	57564	97	62496	59599
OCT-SEP	71276	75876	99	80453	76824

Reference

ESP with 0 Days QPF Ensemble: 2021-03-31 Issued: 2021-03-31

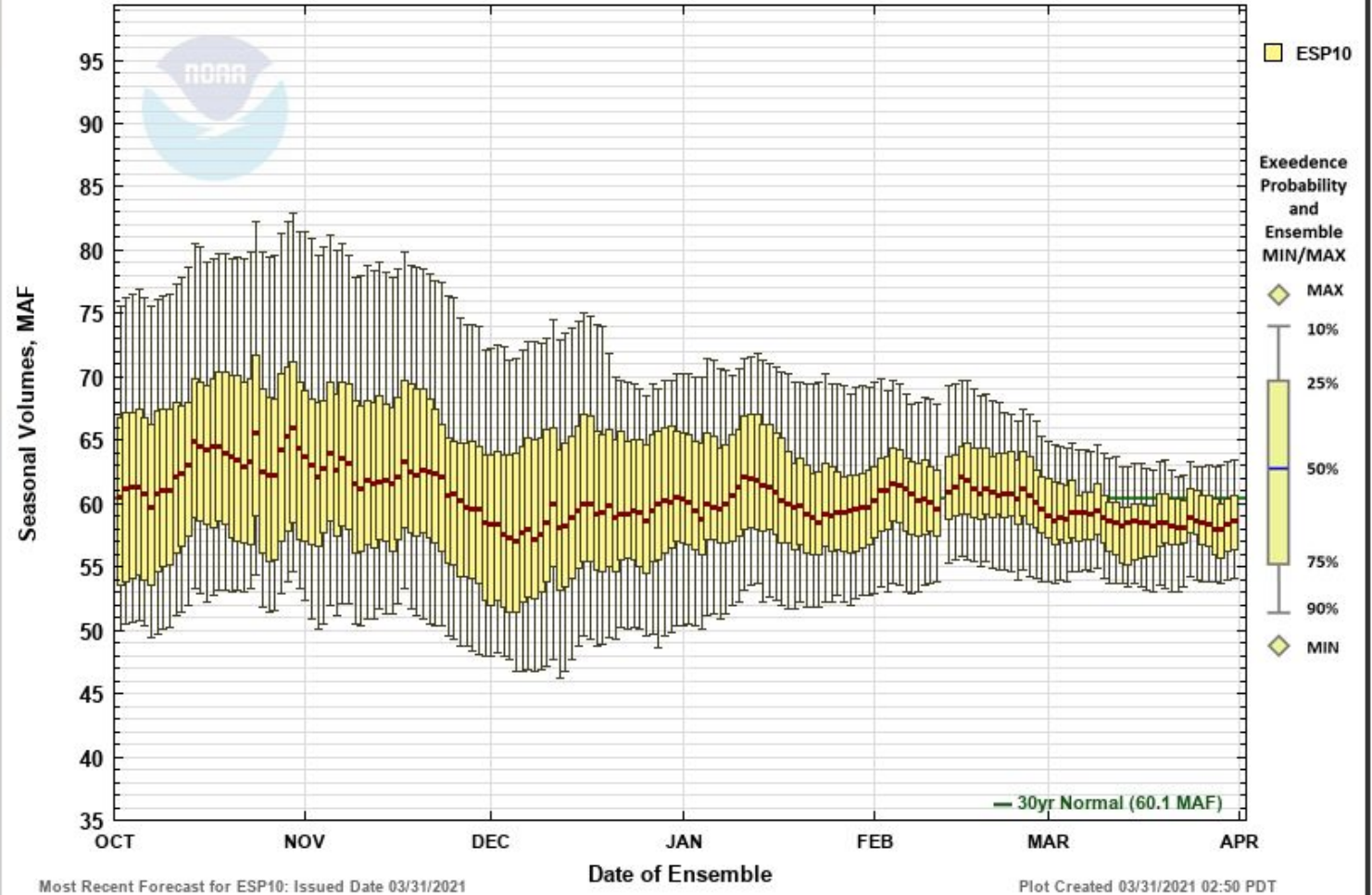
APR-SEP	55575	60706	101	65084	60110
APR-JUL	46518	50916	100	55463	51015
APR-AUG	51370	56927	100	61334	56763
JAN-SEP	62788	67913	99	72293	68694
JAN-JUL	53731	58126	98	62671	59599
OCT-SEP	71574	76699	100	81079	76824

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

Water Supply Forecasts

COLUMBIA - GRAND COULEE DAM

Period APR to SEP -- Water Year 2021



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



ESP10 Apr-Sep Water Supply Forecasts

SNAKE - LOWER GRANITE DAM (LGDW1) Forecasts for Water Year 2021

Official Water Supply

ESP with 10 Days QPF Ensemble: 2021-03-31 Issued: 2021-03-31

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	16089	17651	79	20782	22279
APR-JUL	13969	15270	77	18340	19848
APR-AUG	15013	16435	78	19598	21091
JAN-SEP	21263	22825	76	25956	29872
JAN-JUL	19143	20444	75	23513	27440
OCT-SEP	25360	26922	78	30053	34667

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2021-03-31 Issued: 2021-03-31

APR-SEP	16482	18275	82	22072	22279
APR-JUL	14329	15966	80	19412	19848
APR-AUG	15405	17107	81	20749	21091
JAN-SEP	21657	23449	78	27247	29872
JAN-JUL	19503	21141	77	24588	27440
OCT-SEP	25754	27547	79	31344	34667

Reference

ESP with 0 Days QPF Ensemble: 2021-03-31 Issued: 2021-03-31

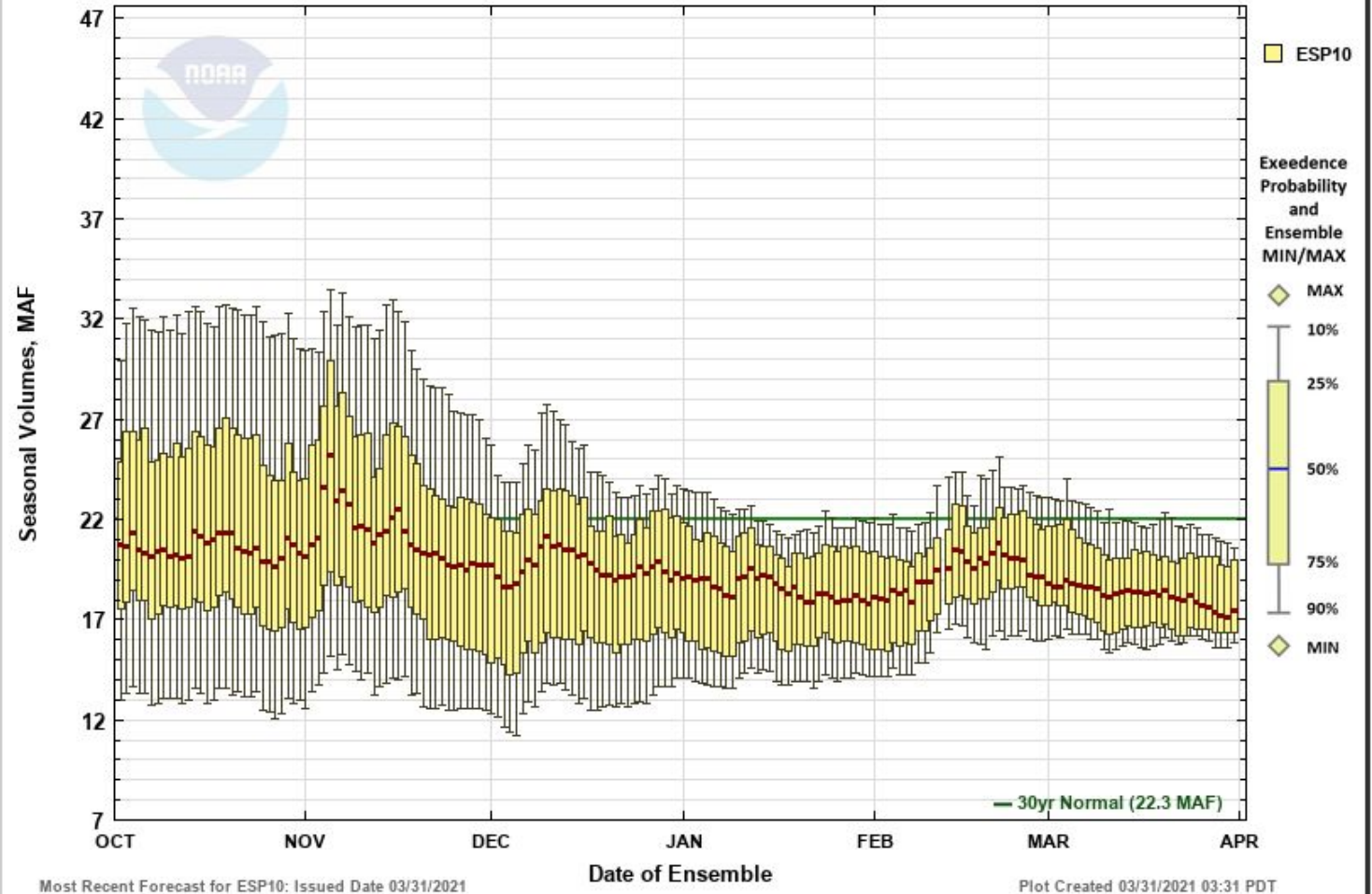
APR-SEP	16718	18982	85	22676	22279
APR-JUL	14625	16679	84	19959	19848
APR-AUG	15657	17897	85	21419	21091
JAN-SEP	21896	24160	81	27853	29872
JAN-JUL	19802	21855	80	25139	27440
OCT-SEP	25993	28257	82	31950	34667

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

Water Supply Forecasts

SNAKE - LOWER GRANITE DAM

Period APR to SEP -- Water Year 2021



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



ESP10 Apr-Sep Water Supply Forecasts

COLUMBIA - THE DALLES DAM (TDAO3) Forecasts for Water Year 2021

Official Water Supply

ESP with 10 Days QPF Ensemble: 2021-03-31 Issued: 2021-03-31

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	79209	84780	91	94591	92704
APR-JUL	67970	72757	91	81409	79855
APR-AUG	74606	79275	91	89440	87532
JAN-SEP	95188	100758	88	110569	114216
JAN-JUL	83948	88736	88	97388	101368
OCT-SEP	110358	115928	89	125739	130518

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2021-03-31 Issued: 2021-03-31

APR-SEP	81301	87929	95	96224	92704
APR-JUL	69639	75758	95	83419	79855
APR-AUG	76342	82740	95	90945	87532
JAN-SEP	97281	103909	91	112204	114216
JAN-JUL	85619	91740	91	99400	101368
OCT-SEP	112451	119079	91	127374	130518

Reference

ESP with 0 Days QPF Ensemble: 2021-03-31 Issued: 2021-03-31

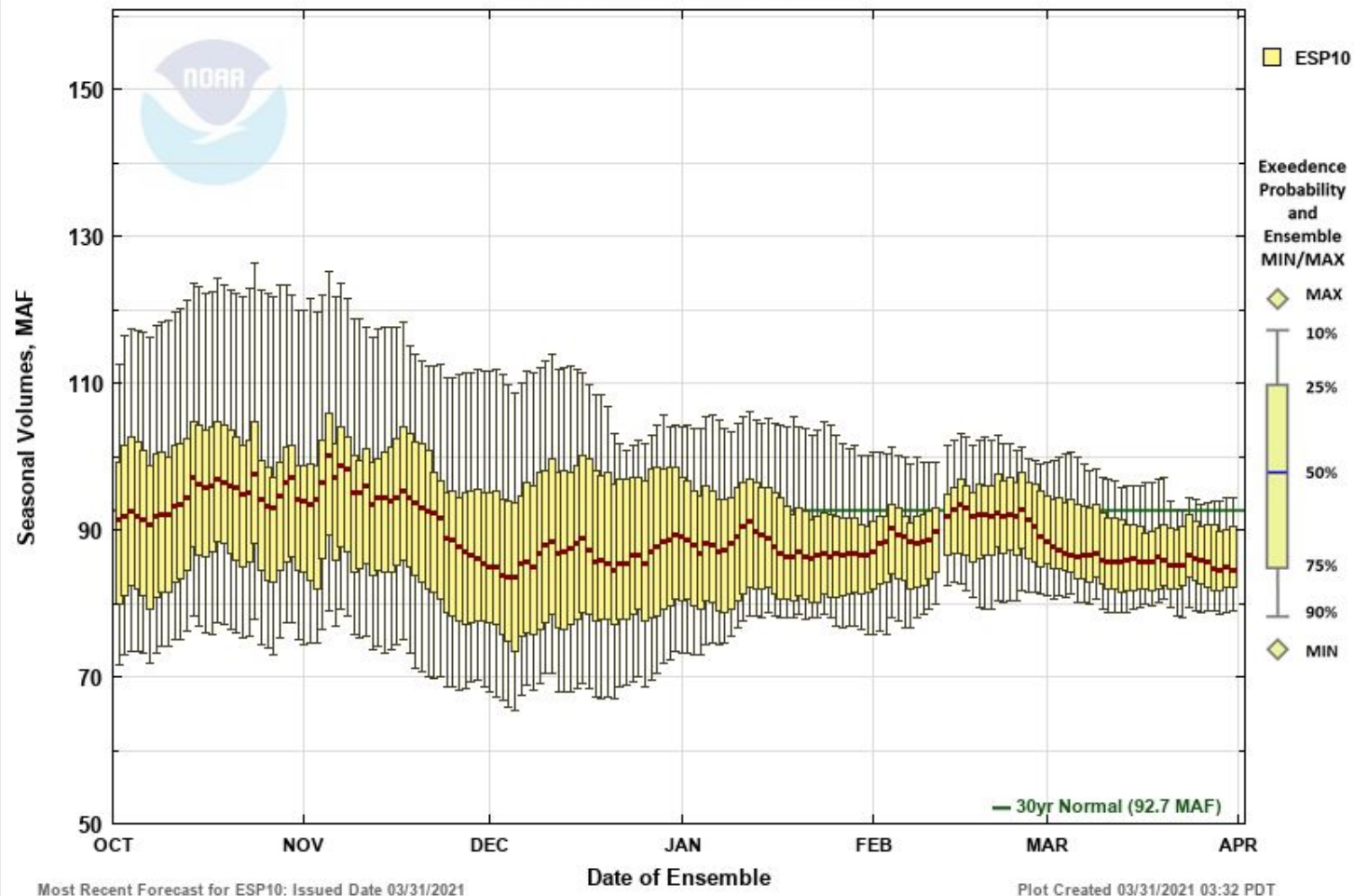
APR-SEP	83623	89223	96	97862	92704
APR-JUL	71190	76656	96	84762	79855
APR-AUG	78443	83702	96	92106	87532
JAN-SEP	99606	105210	92	113850	114216
JAN-JUL	87173	92643	91	100743	101368
OCT-SEP	114777	120380	92	129020	130518

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

Water Supply Forecasts

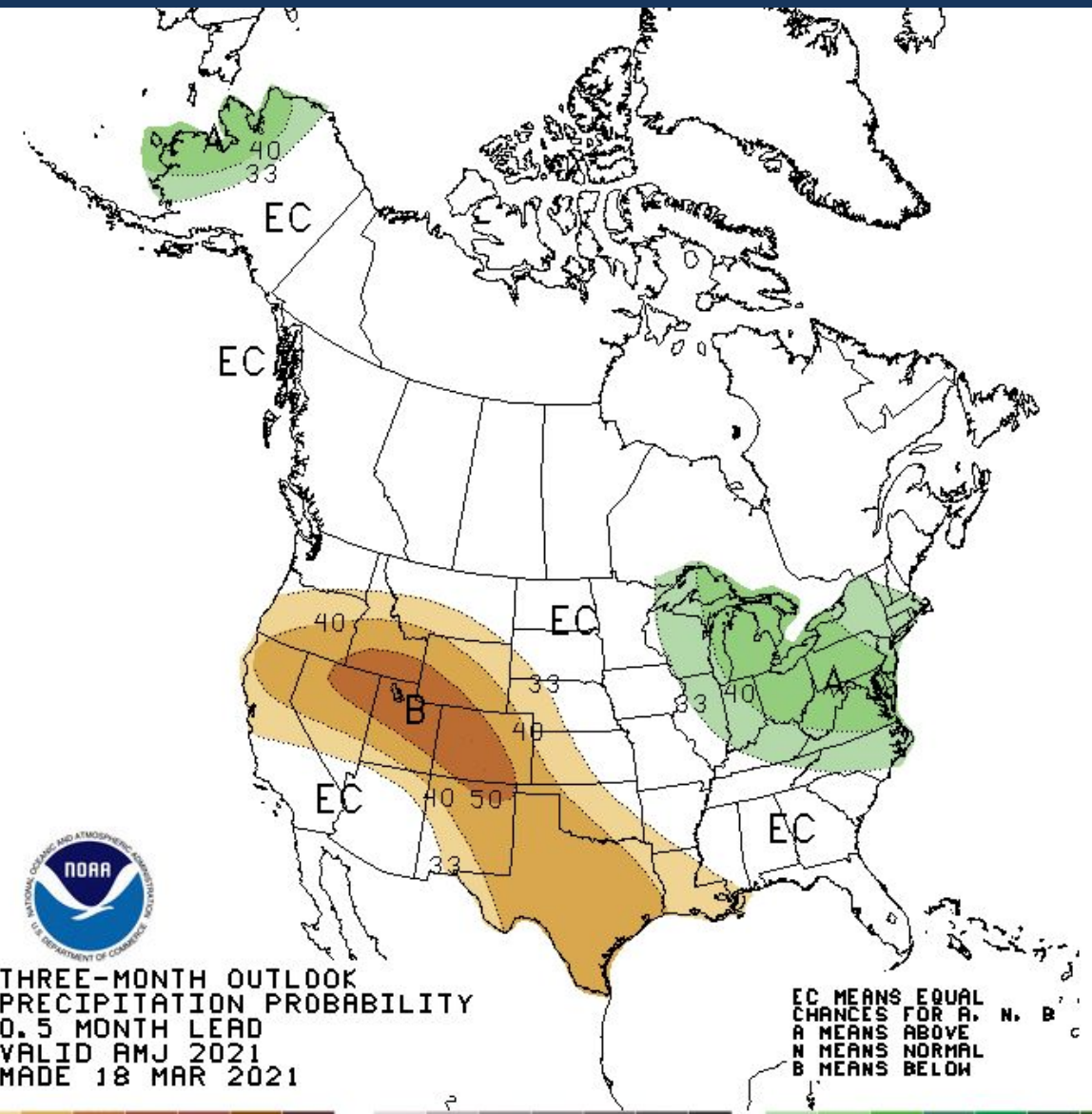
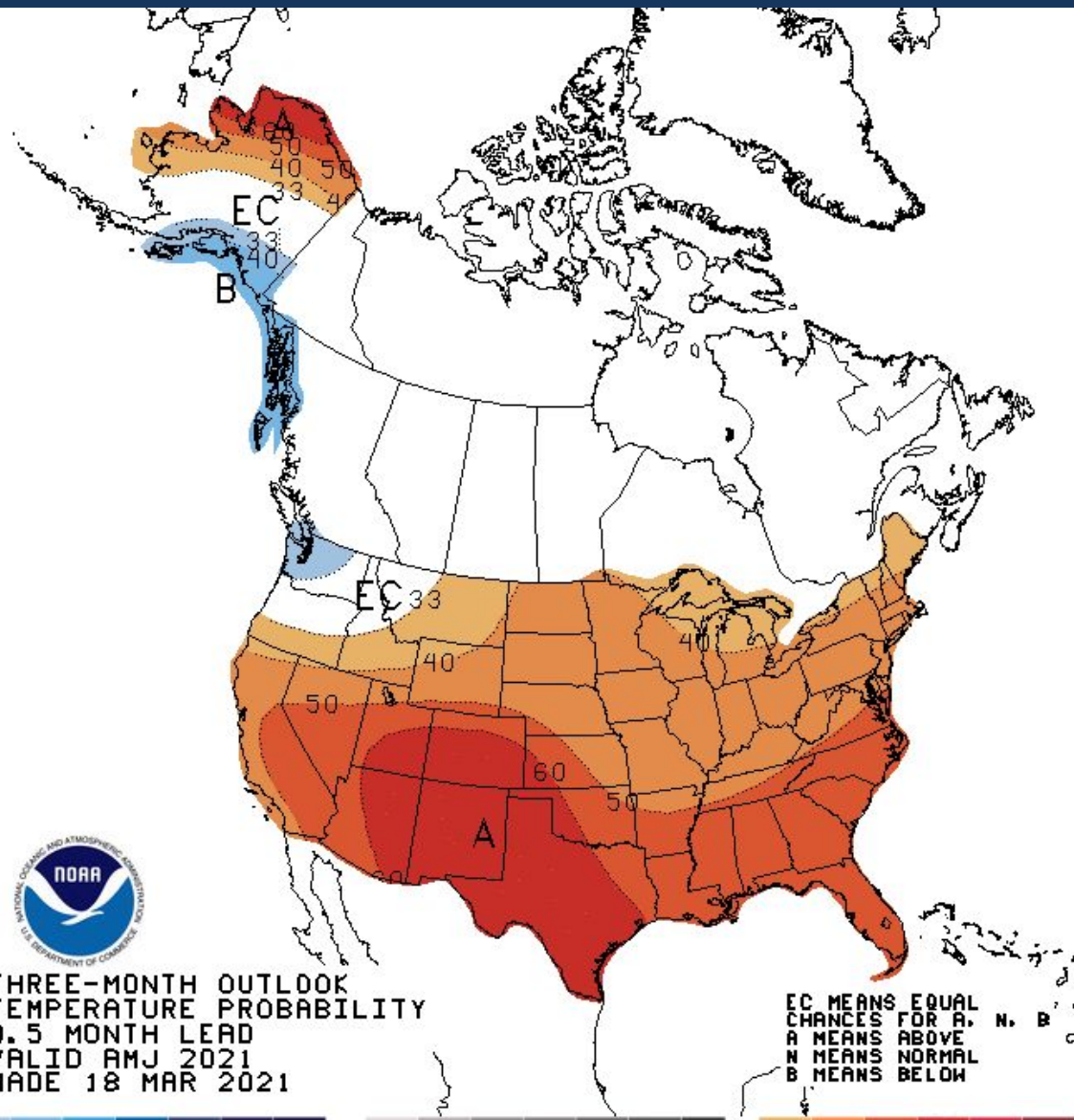
COLUMBIA - THE DALLES DAM

Period APR to SEP -- Water Year 2021





CPC Three-Month Outlook





Take Home Messages

Dry month of March brought seasonal precipitation down across the basin

- Upper Columbia now below normal for the water year
- Snake River remains below normal

March was a poor snow building month

- Benefited from temperatures generally being near to below normal
- SWE values generally held or built slightly across the basin

Water supply forecasts for April-September

- Near normal in the north
- Below normal in the south



Water Year 2021 Live Breifing Schedule

May

6

All presentations held at 10:00 am PST/PDT unless noted otherwise

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(same for each month's brief):
(415) 930 - 5321

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524-795-021#



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You will be muted until the presenter unmutes you. If you have a question, use the 'Raise Hand' function to let us know to unmute your phone.

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(503) 326-7291

