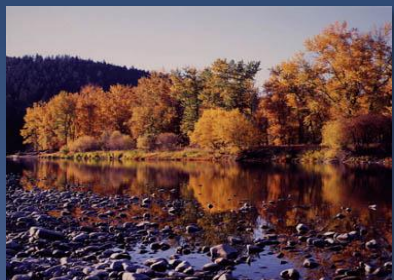




Northwest River Forecast Center



March 2021 Water Supply Briefing

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

Amy Burke
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

Water year precipitation thus far

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

Snowpack

- Snowpack increased more than average during February across most of our domain

Water supply forecasts for April-September

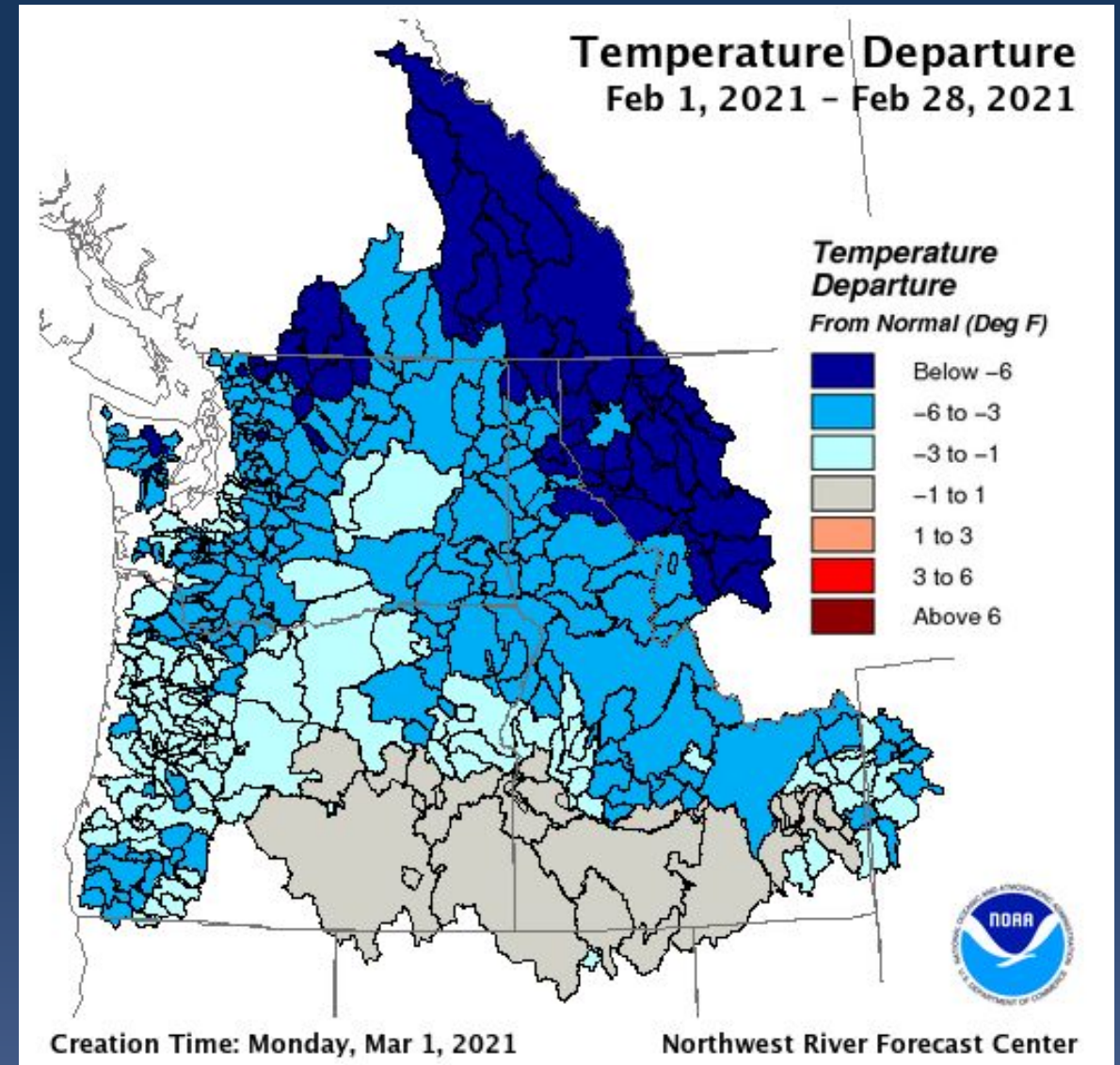
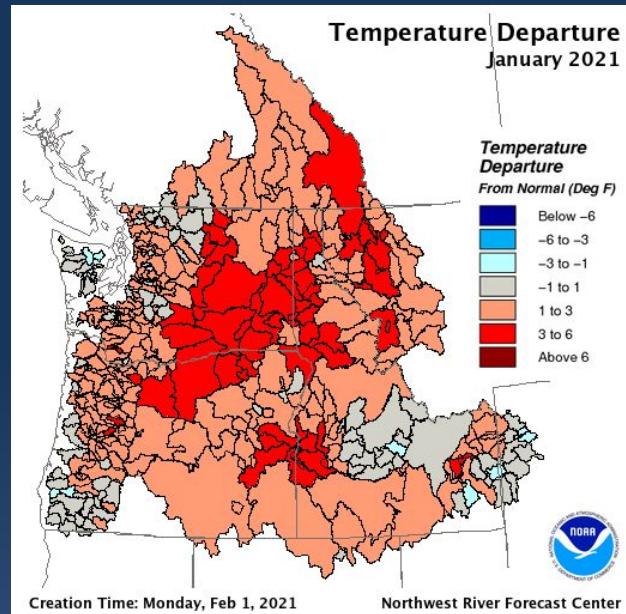
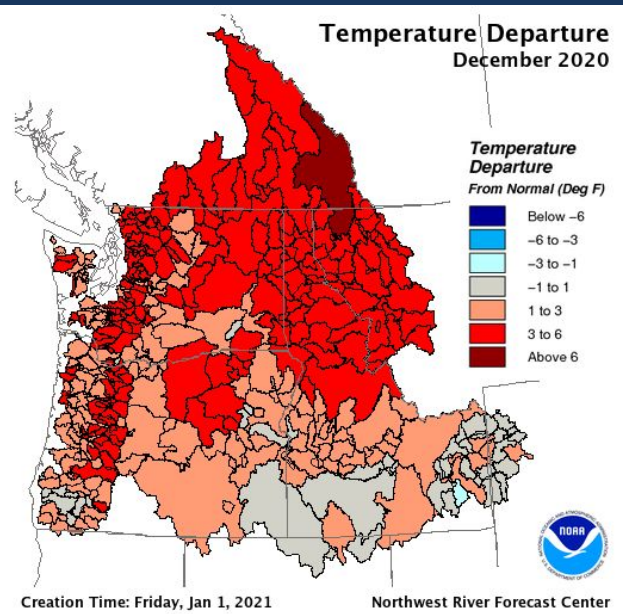
- Near normal in the north
- Below normal in the south

Additional guidance

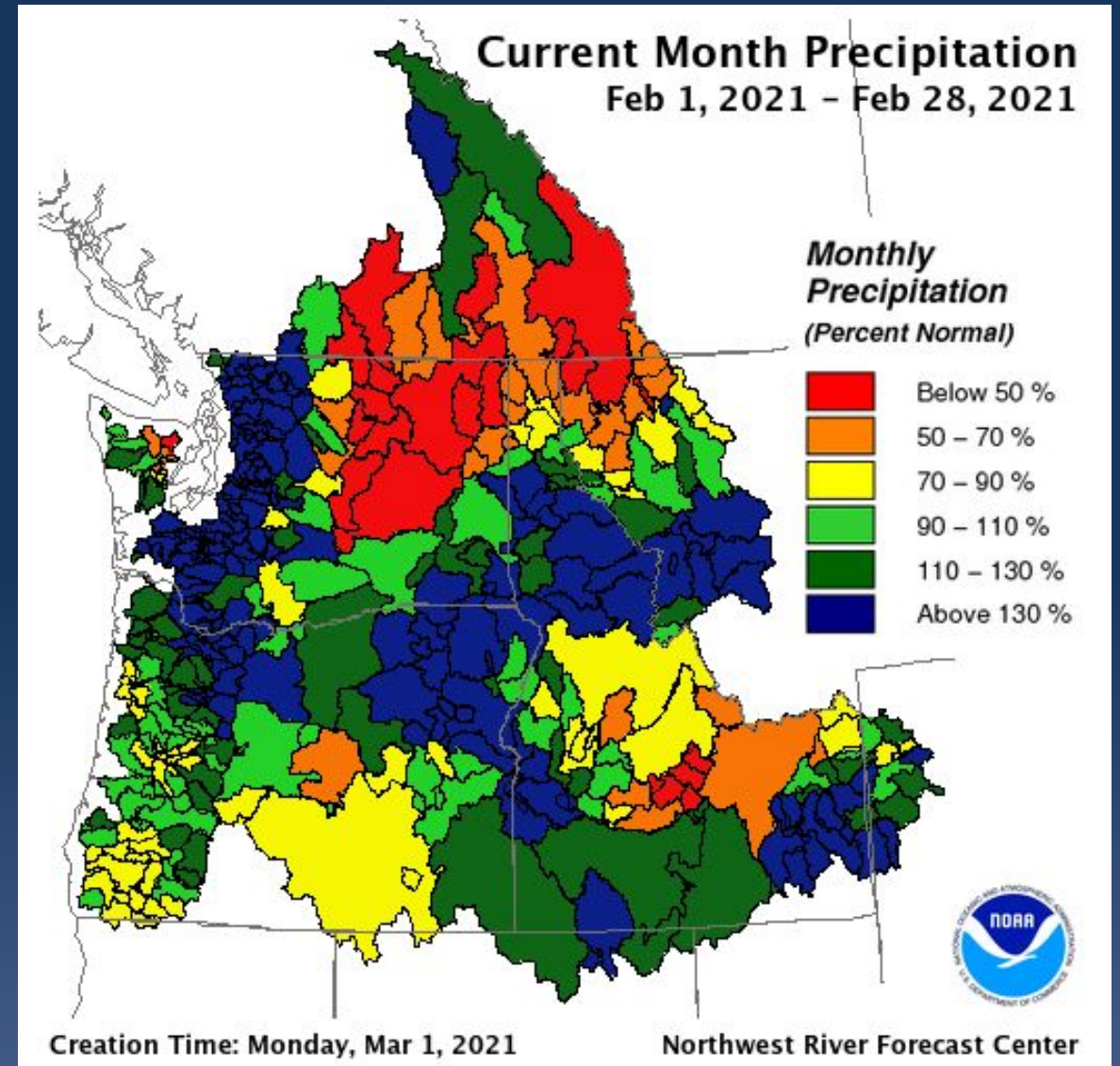
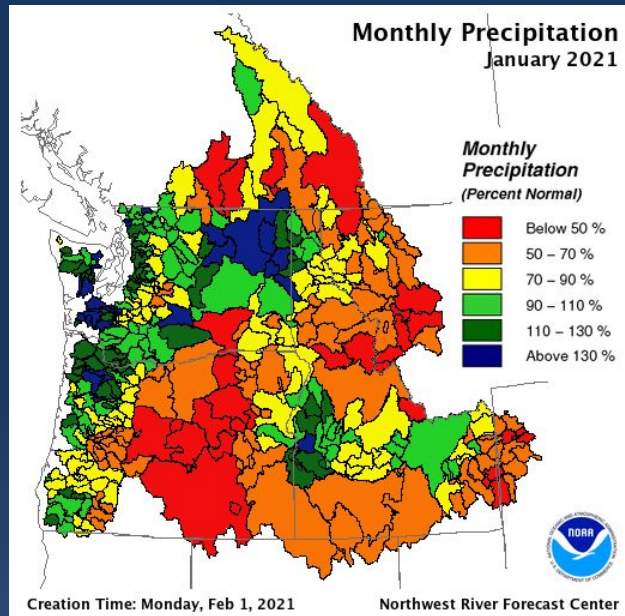
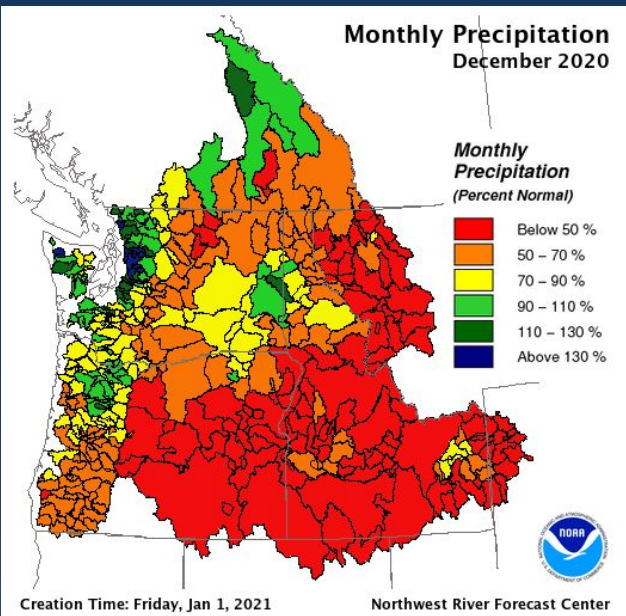
- NOAA Climate Prediction Center calling for increased chances of wet and cold conditions in WA; equal chances in the rest of the domain
- La Nina weakly correlated to higher runoff



Monthly Temperature Departure

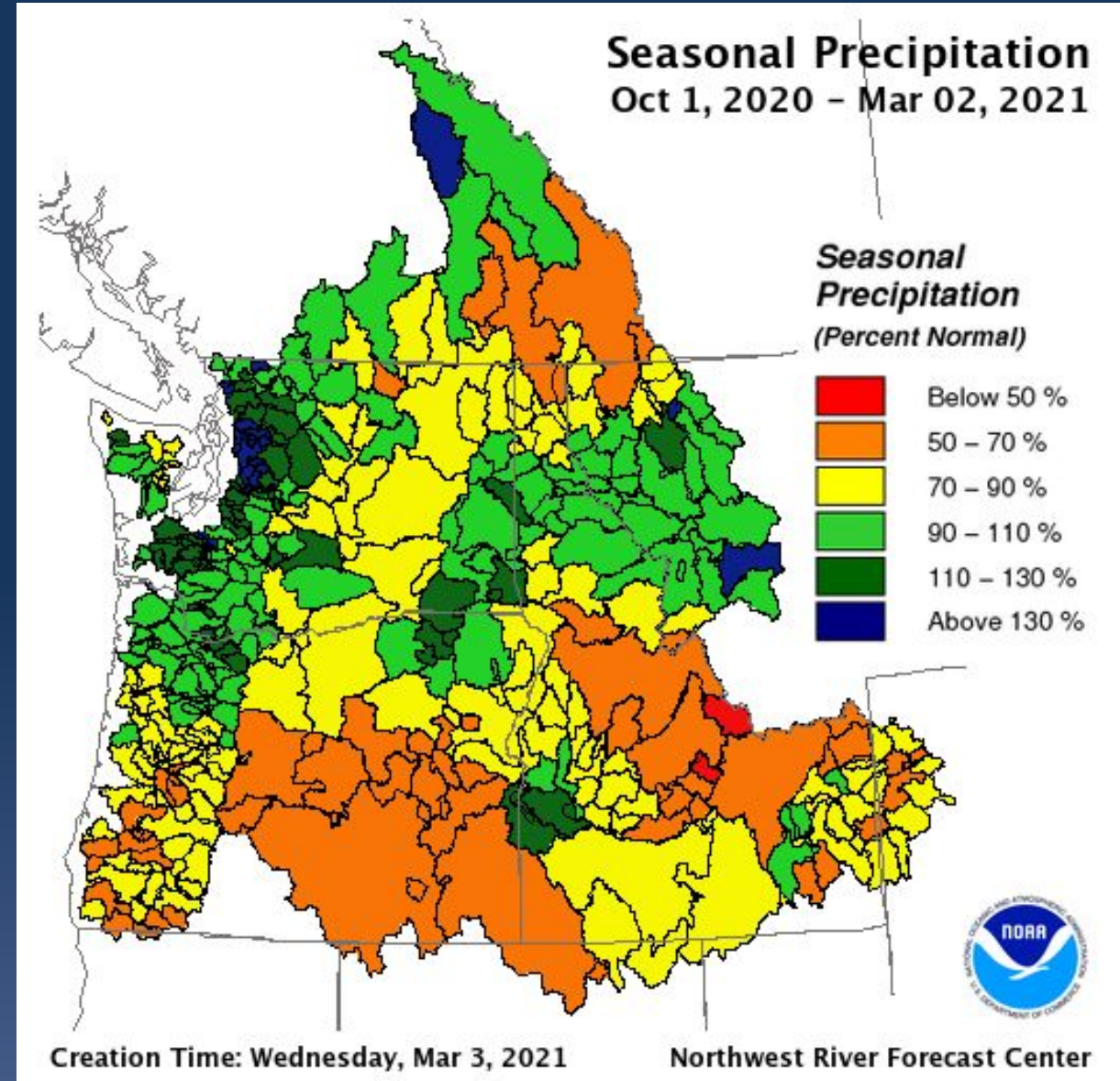
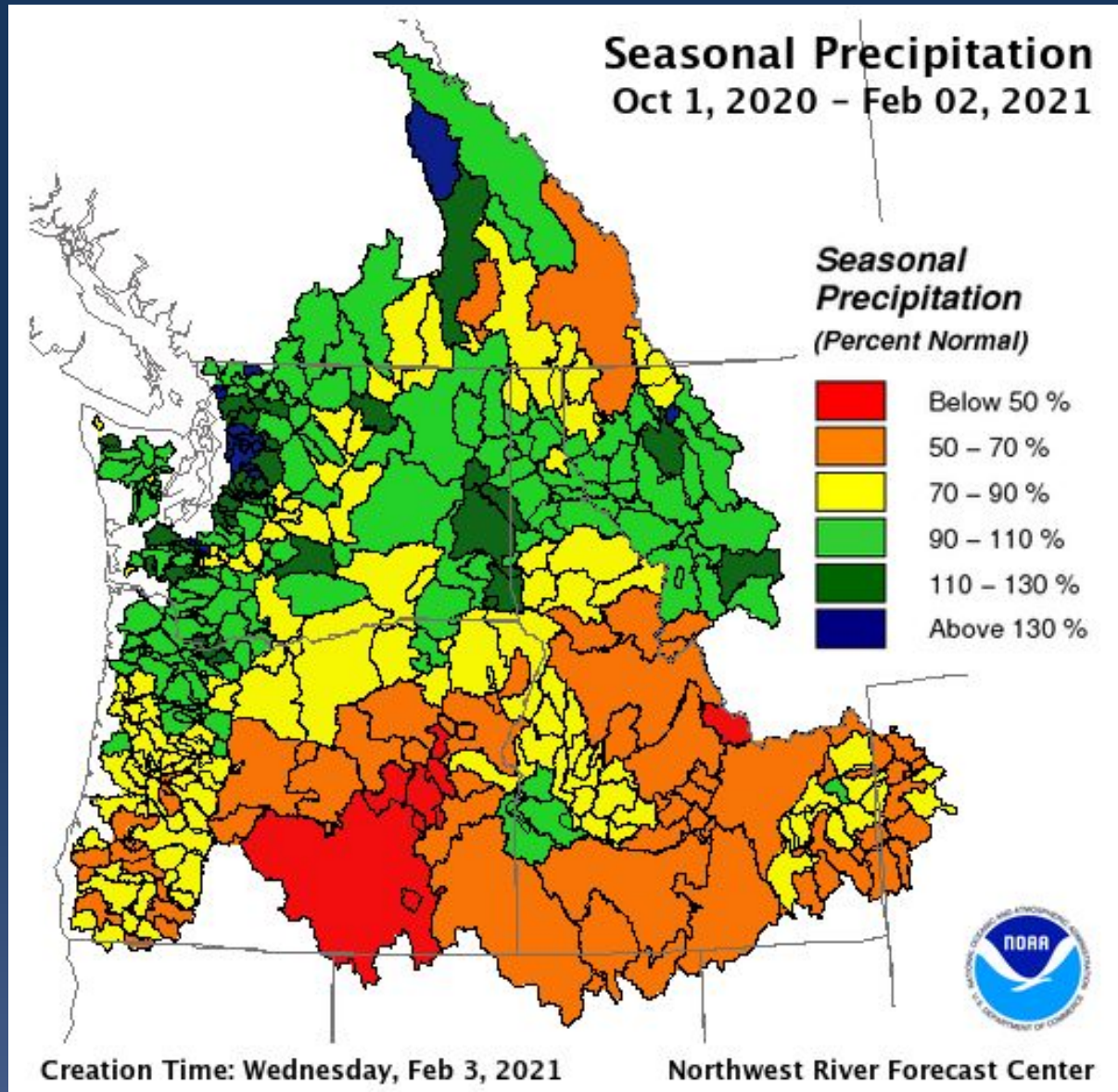


Monthly Precipitation



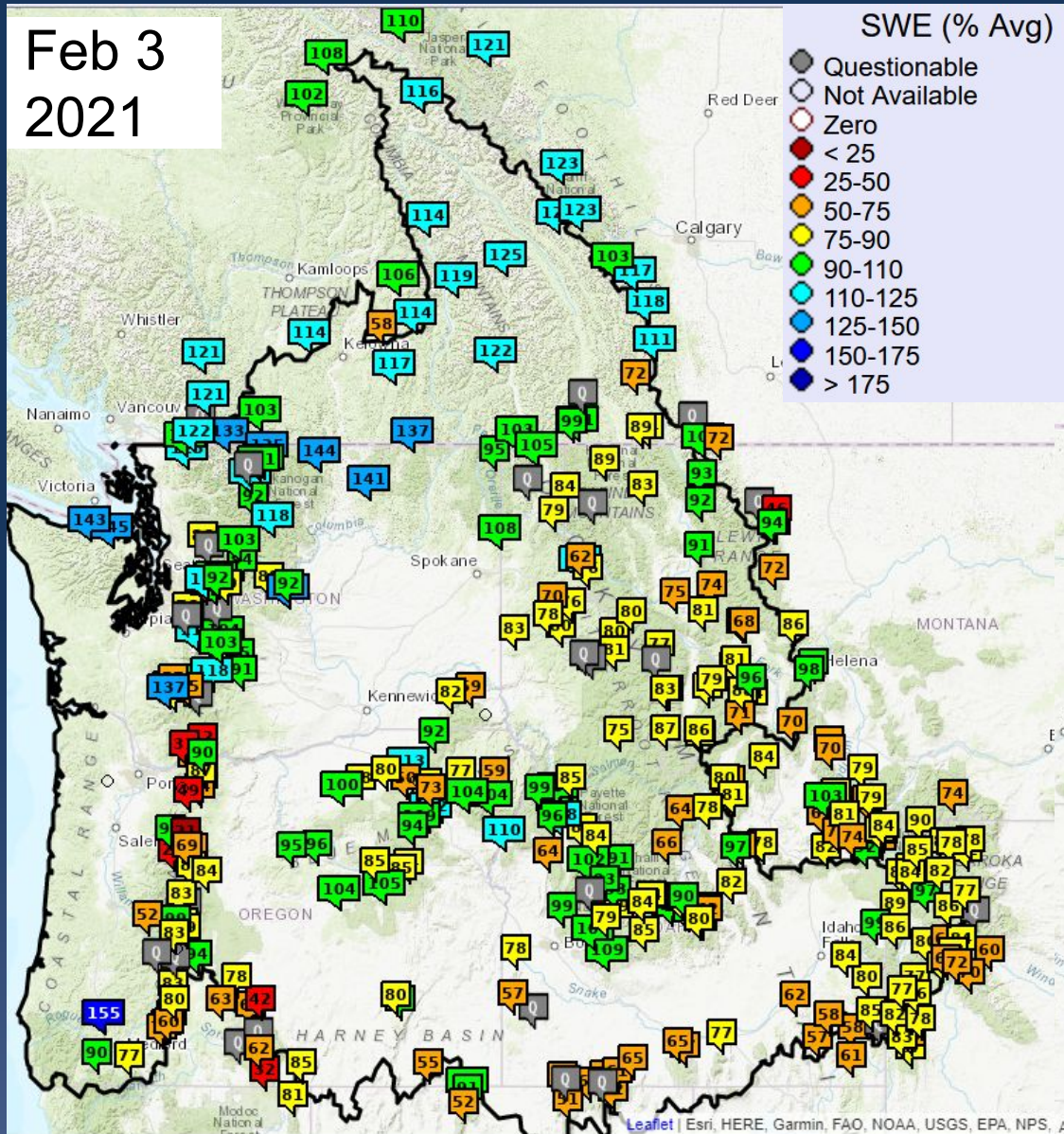


Water Year to Date Precipitation

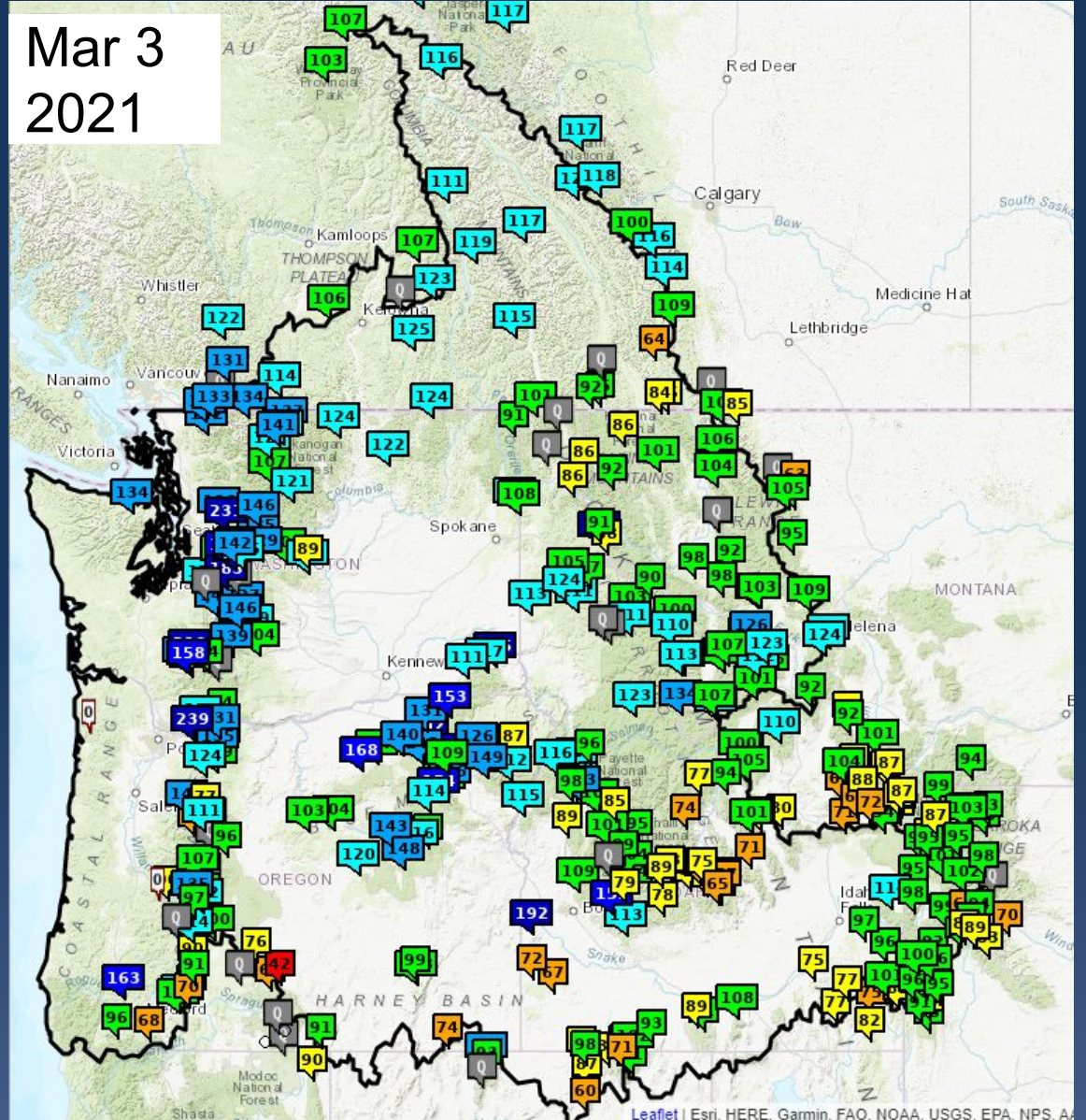


Snowpack

Feb 3
2021



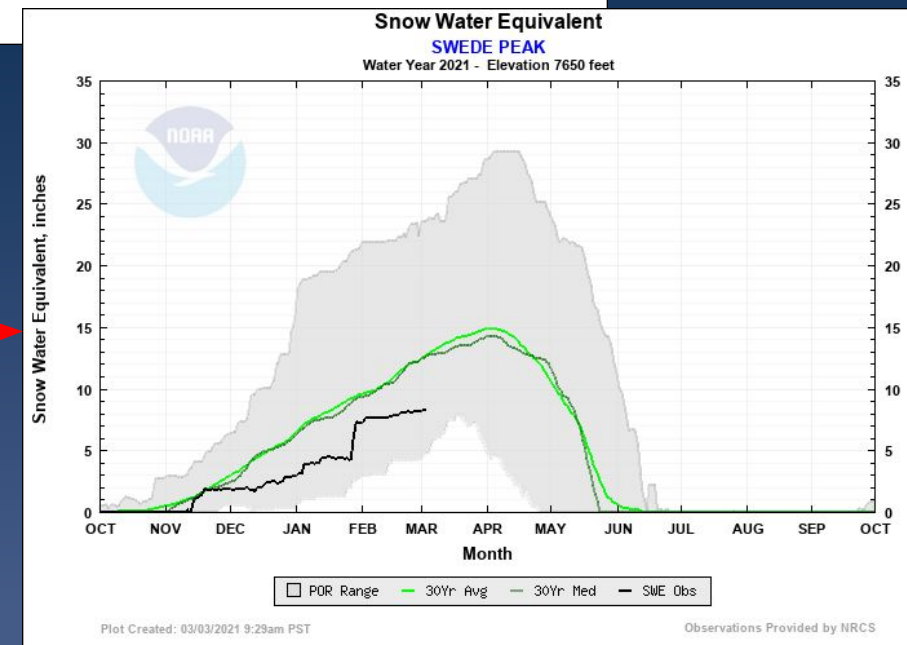
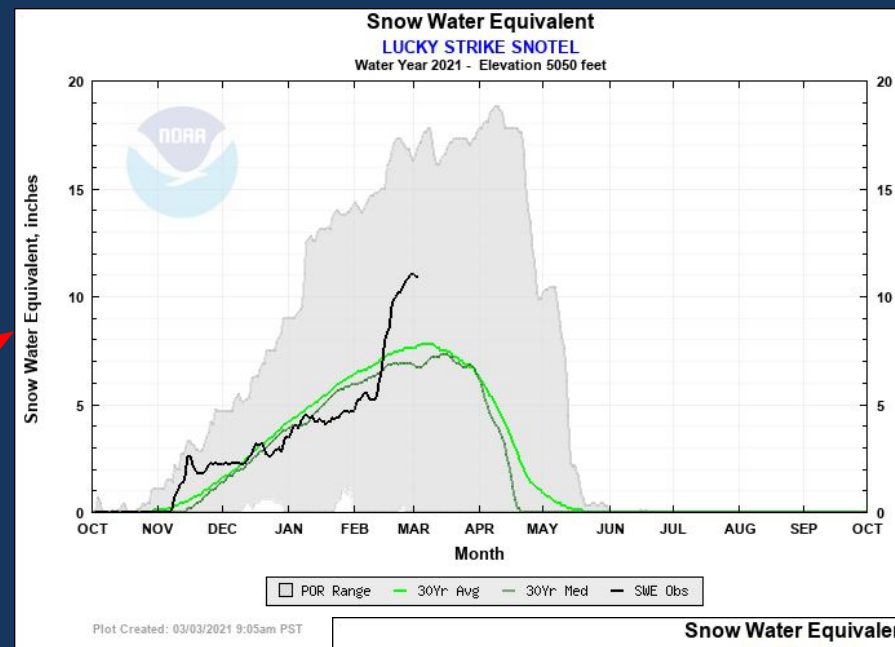
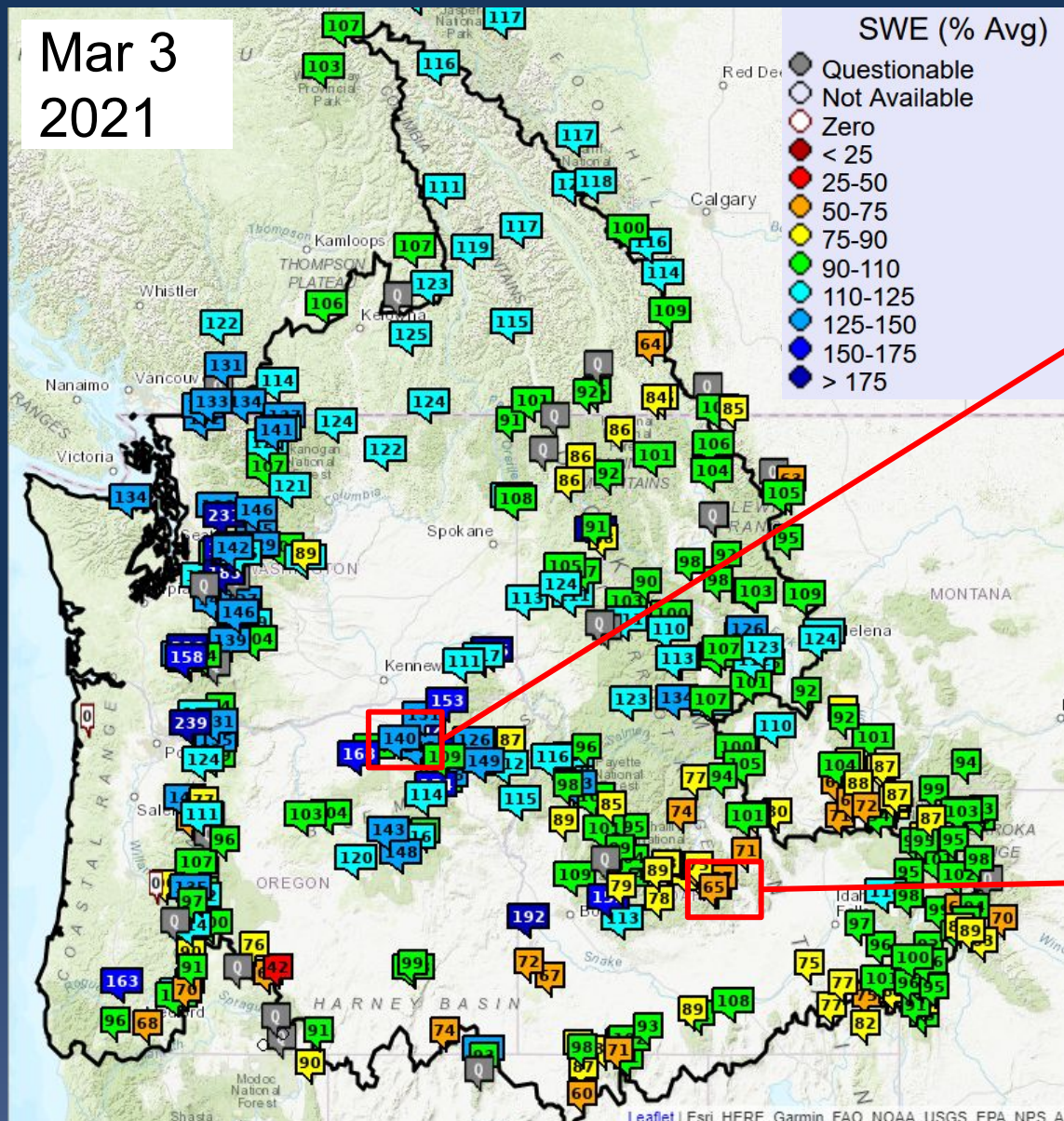
Mar 3
2021



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

Snowpack

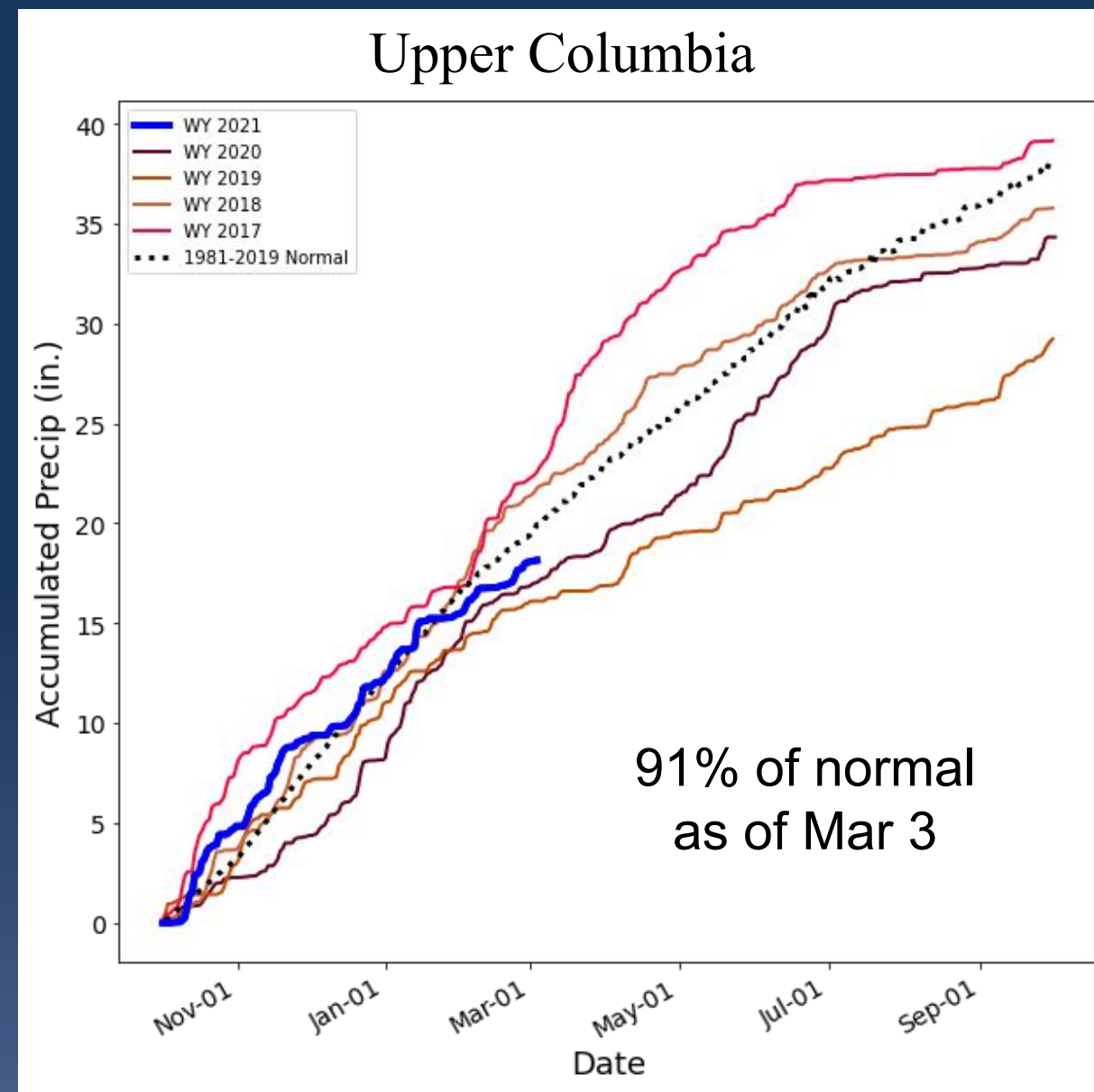
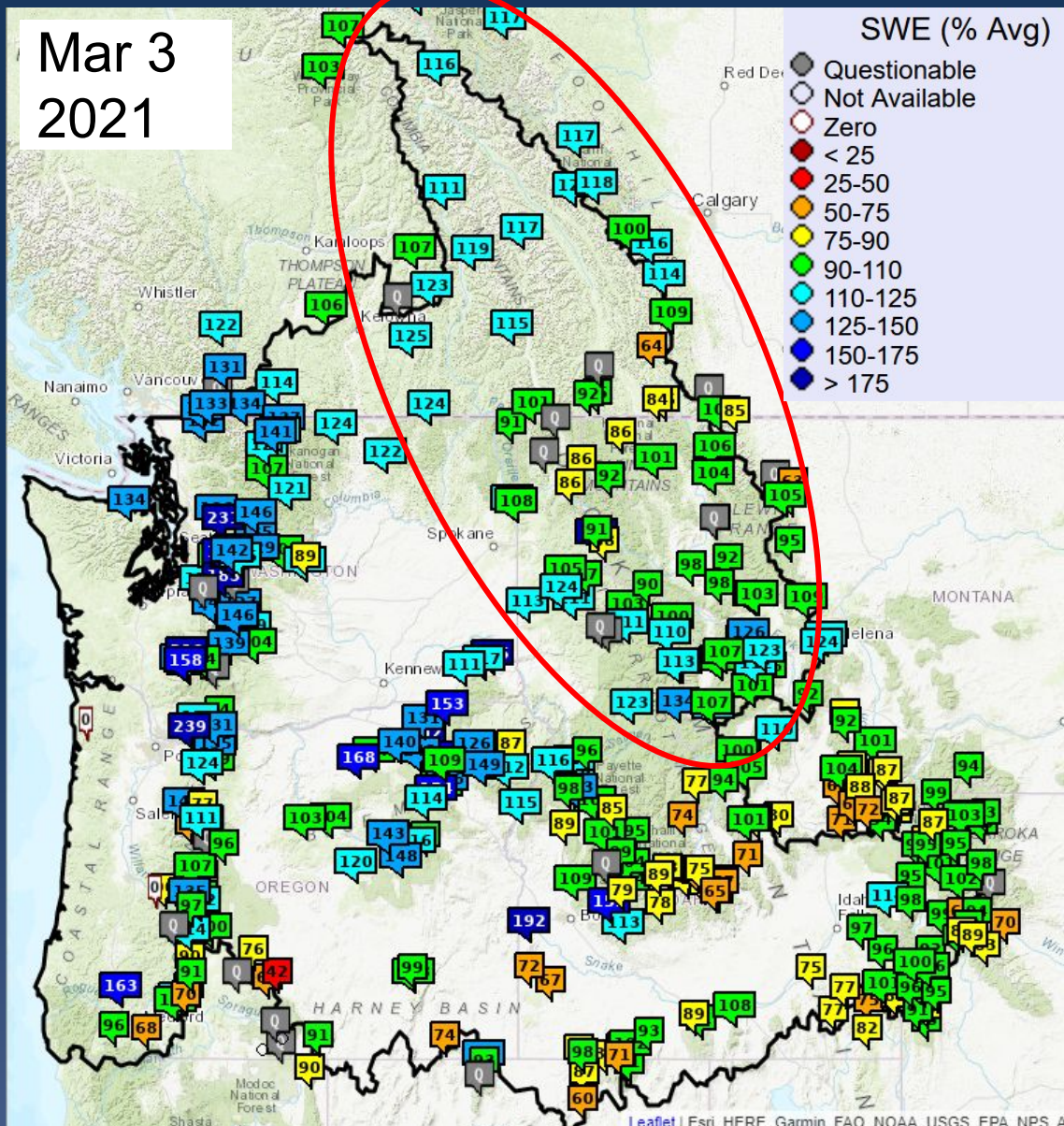
Mar 3
2021



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

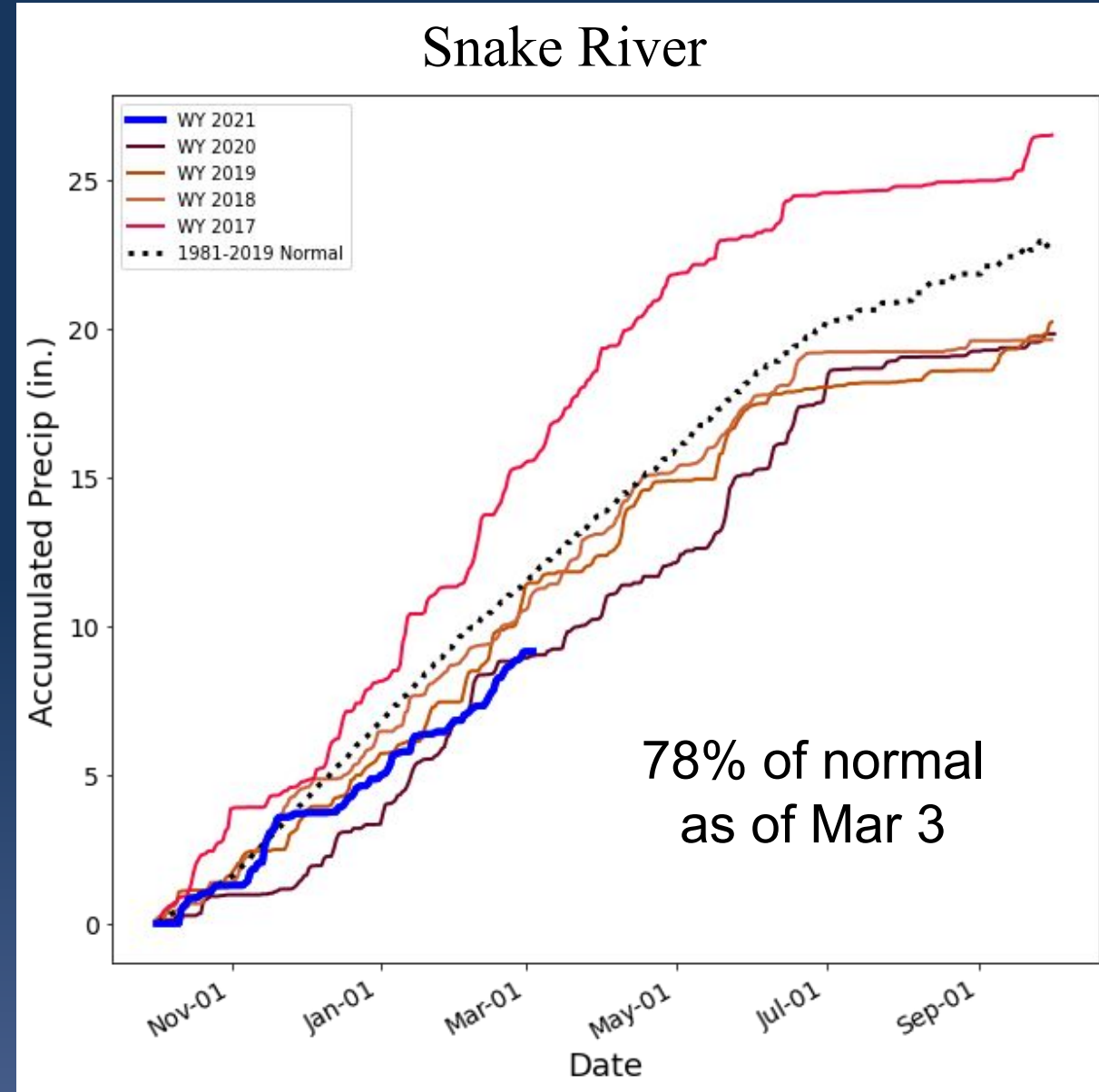
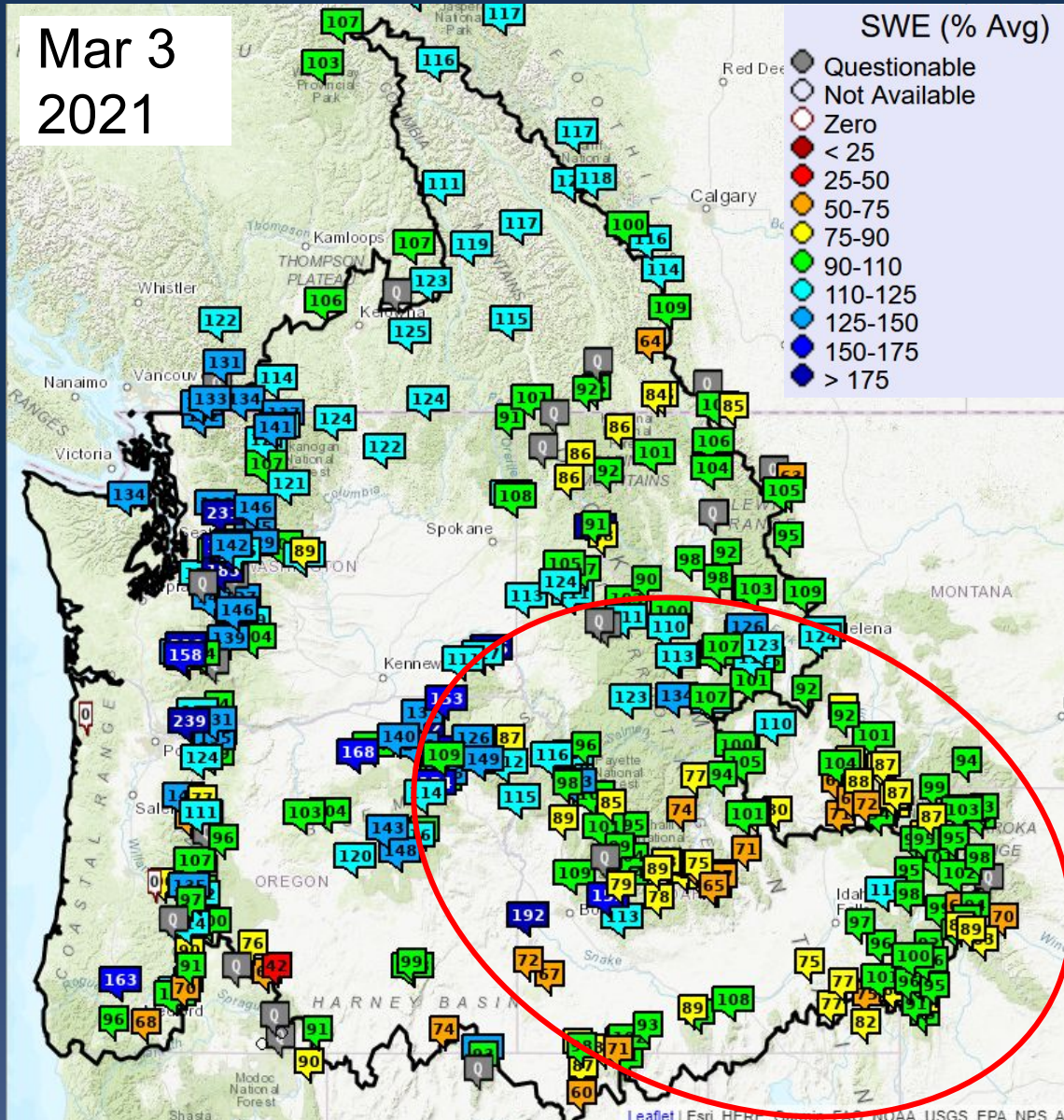


Snowpack and Seasonal Precipitation



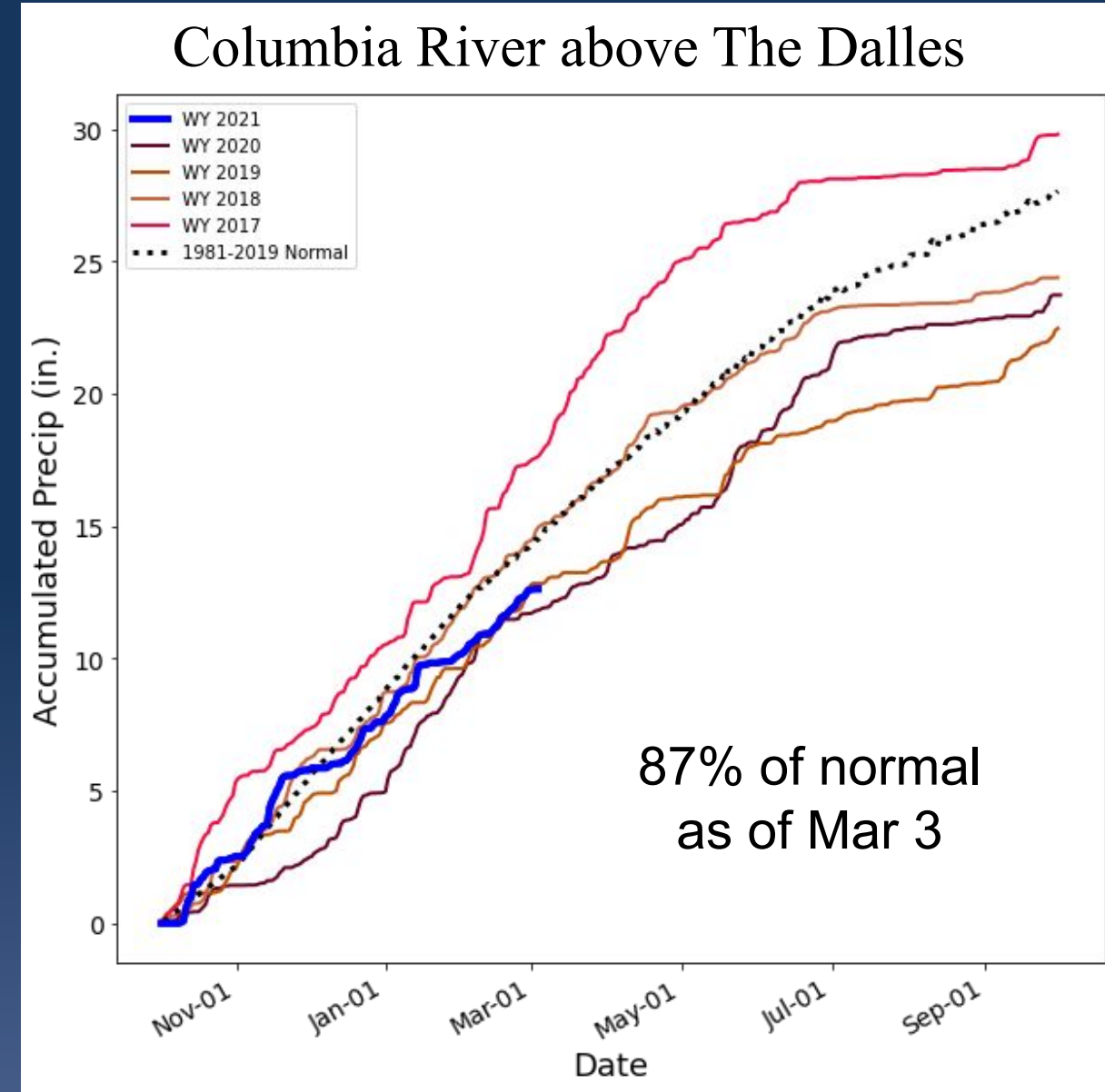
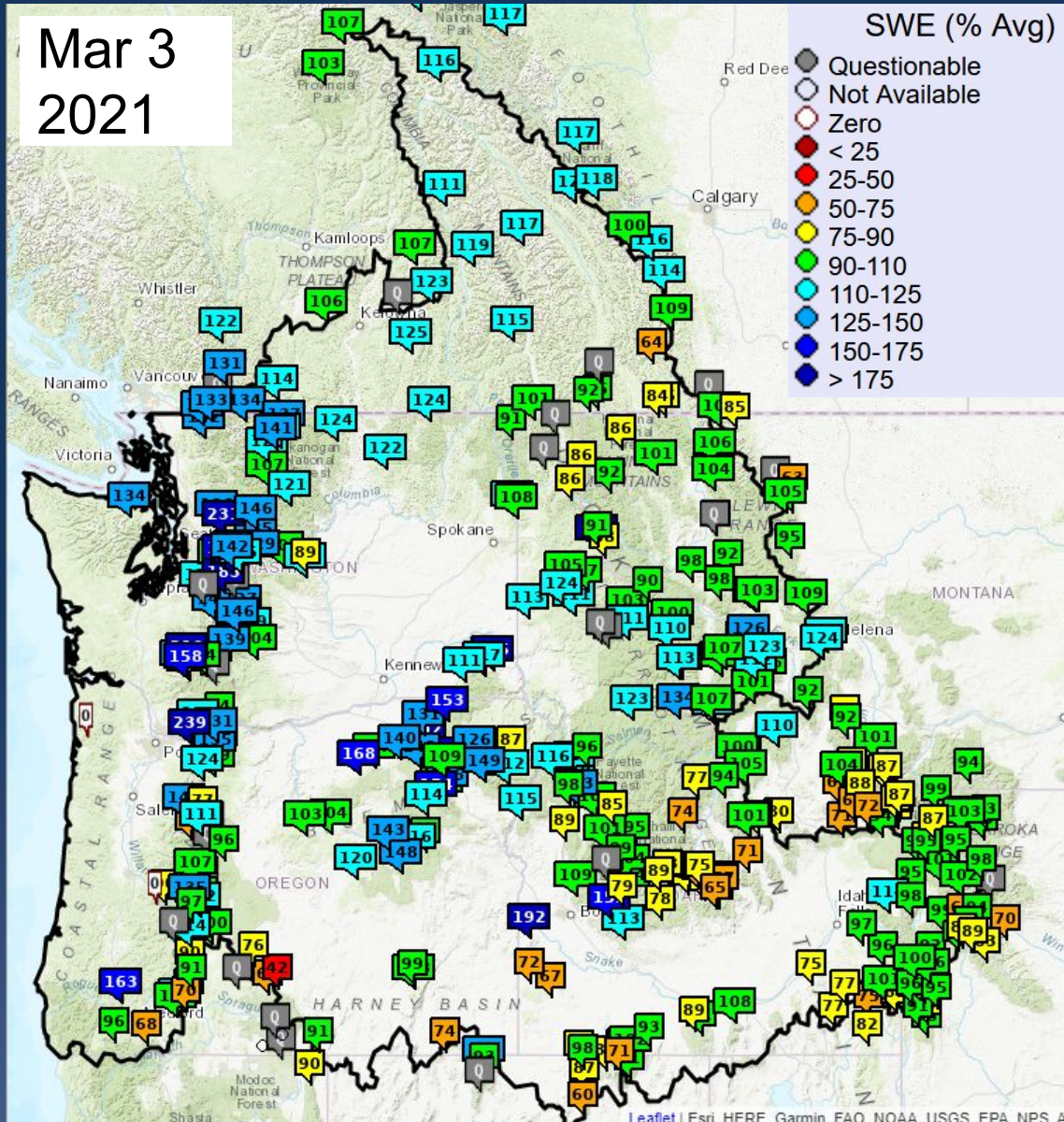
Snow data from NRCS, BC Hydro, and Alberta EP.

Snowpack and Seasonal Precipitation



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

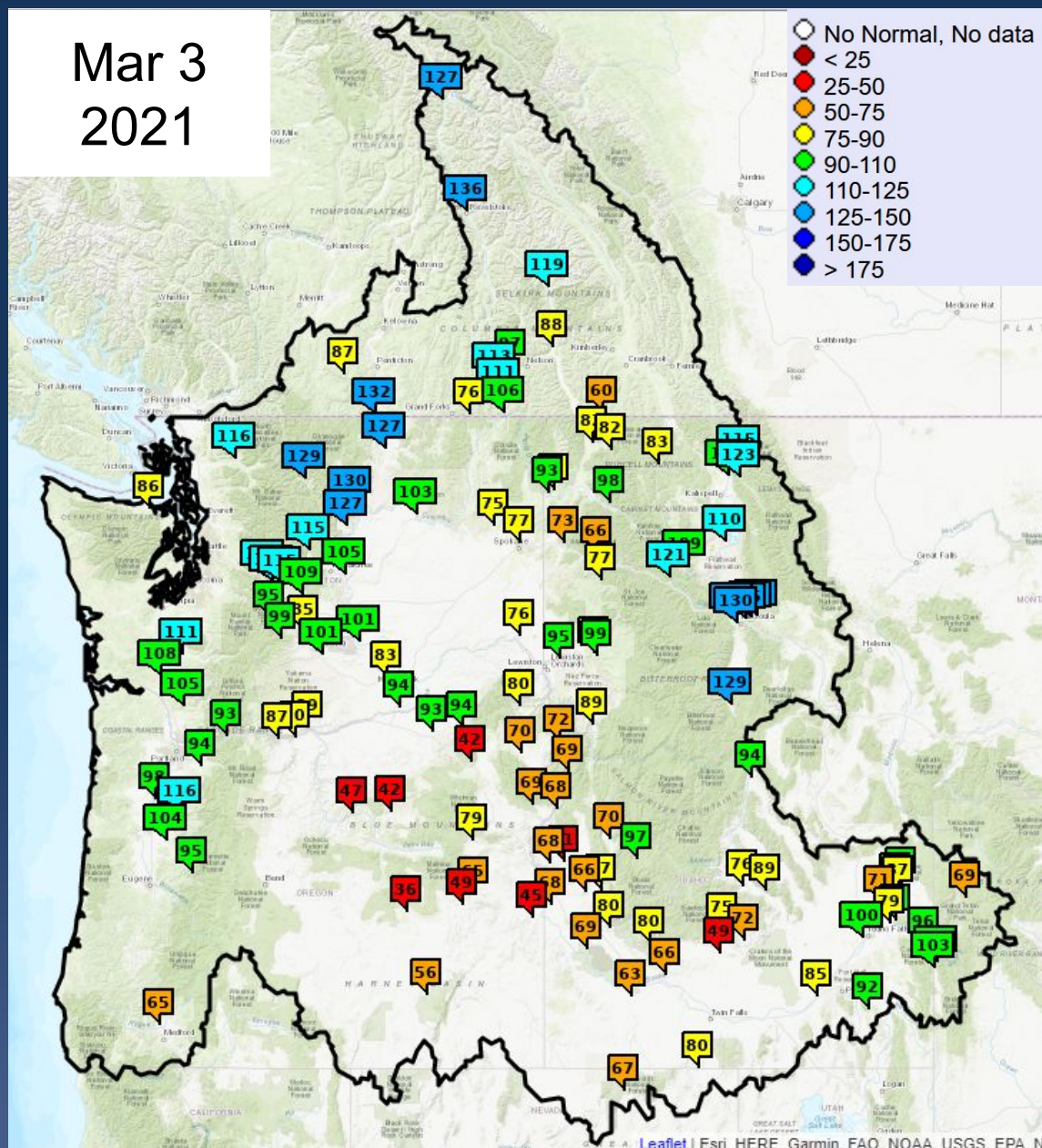
Snowpack and Seasonal Precipitation



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

YTD Adjusted Runoff - East

Mar 3
2021



% Normal Runoff Oct 1- Mar 3

Upper Columbia Basin

Δ (since Feb 1)

Mica	127	+3
Duncan	119	-1
Queens Bay	88	-4
Libby	83	-3
Hungry Horse	123	-1
Grand Coulee	103	-6

Snake River Basin

American Falls	85	+1
Lucky Peak	80	-10
Dworshak	85	-14
Lower Granite	76	-7

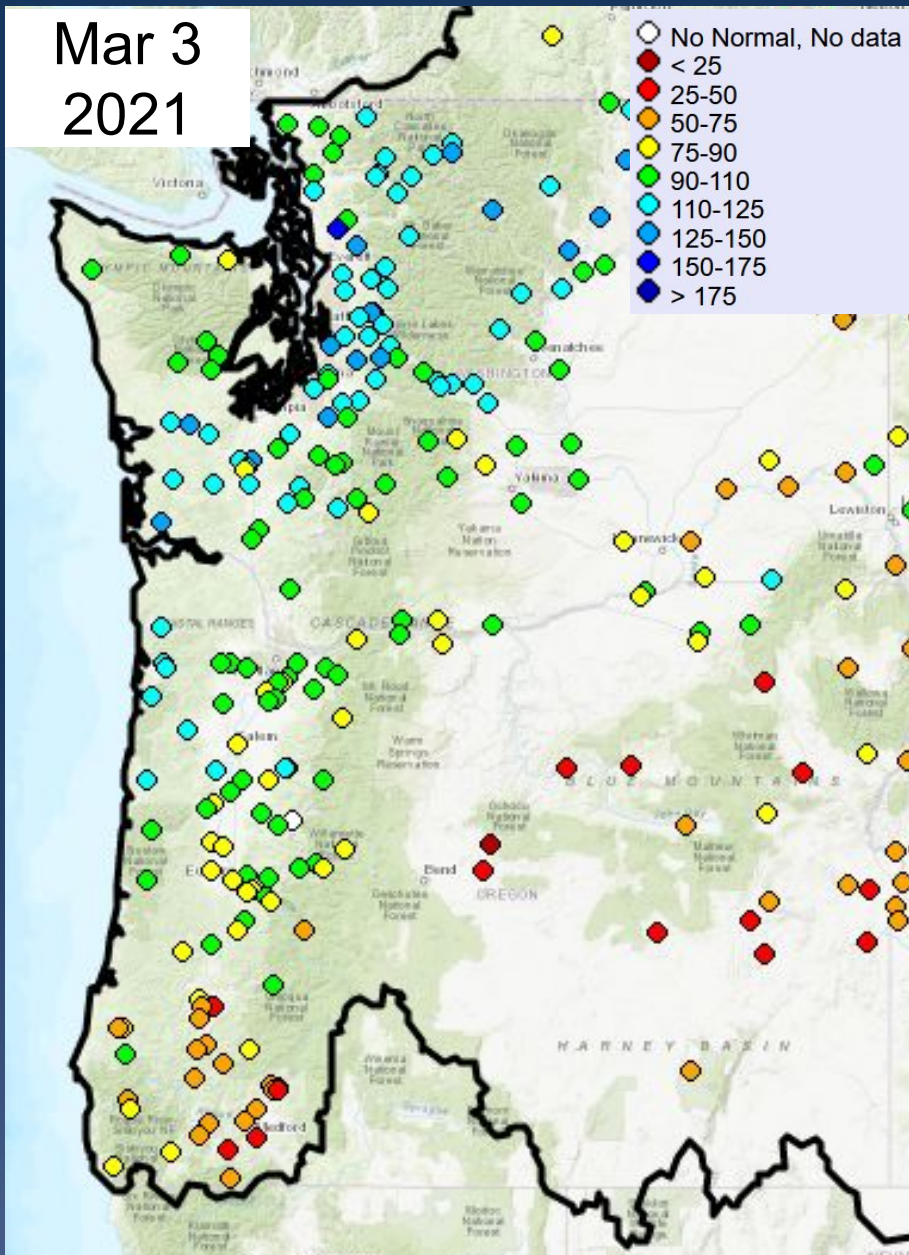
Lower Columbia Basin

The Dalles	87	-6
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YTD Adjusted Natural Runoff - OR,WA

Mar 3
2021



% Normal Runoff Oct 1- Mar 3

Washington

Δ (since Feb 1)

Skagit nr Mt Vernon	121	-7
Dungeness nr Sequim	85	-8
Chehalis at Porter	116	+2
Okanogan at Malott	132	-4
Methow nr Pateros	129	-5
Yakima at Parker	101	-11
Walla Walla nr Touchet	89	-15

Oregon

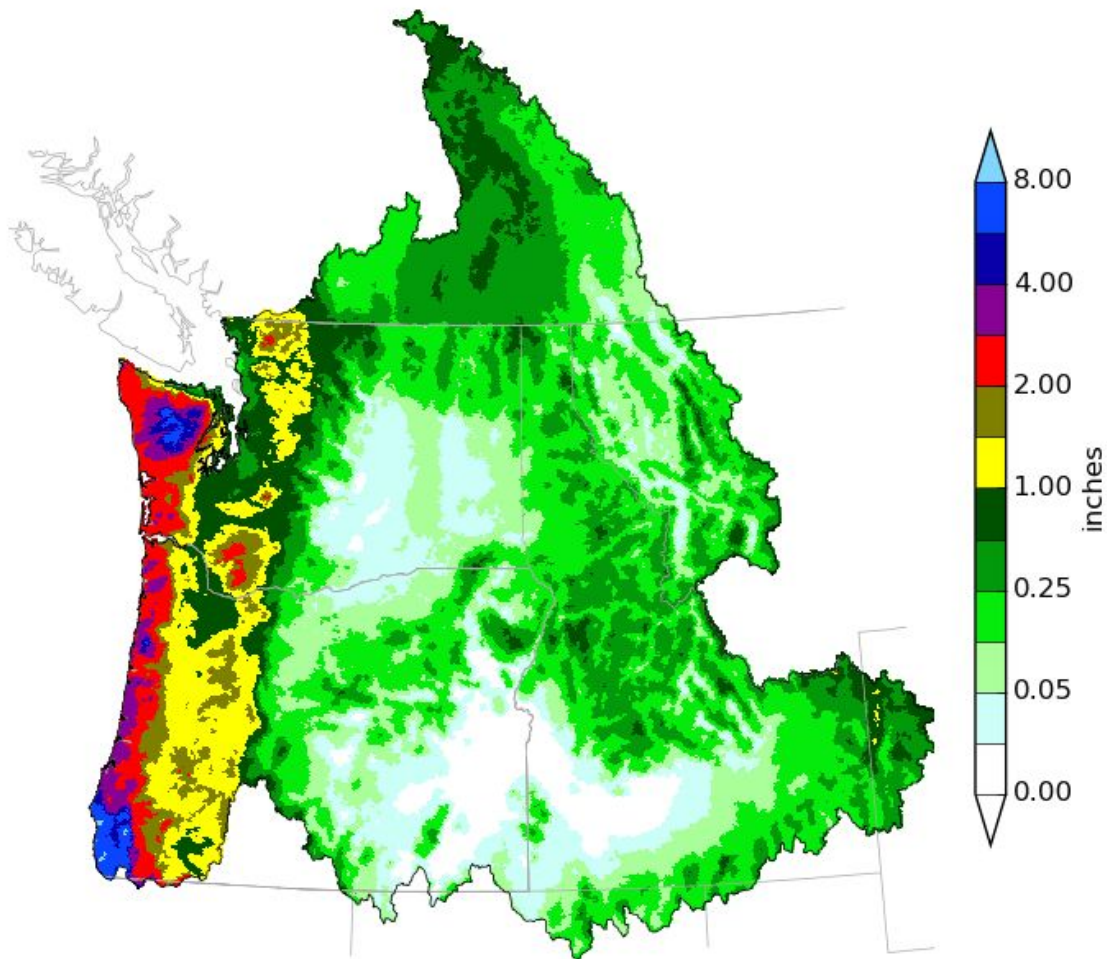
Willamette at Salem	86	+4
Rogue at Raygold	65	+2
Umatilla at Pendleton	92	-24
Grande Ronde at Troy	78	-17
Owyhee Dam	44	-15



Precipitation Forecast (Mar 4 -13)



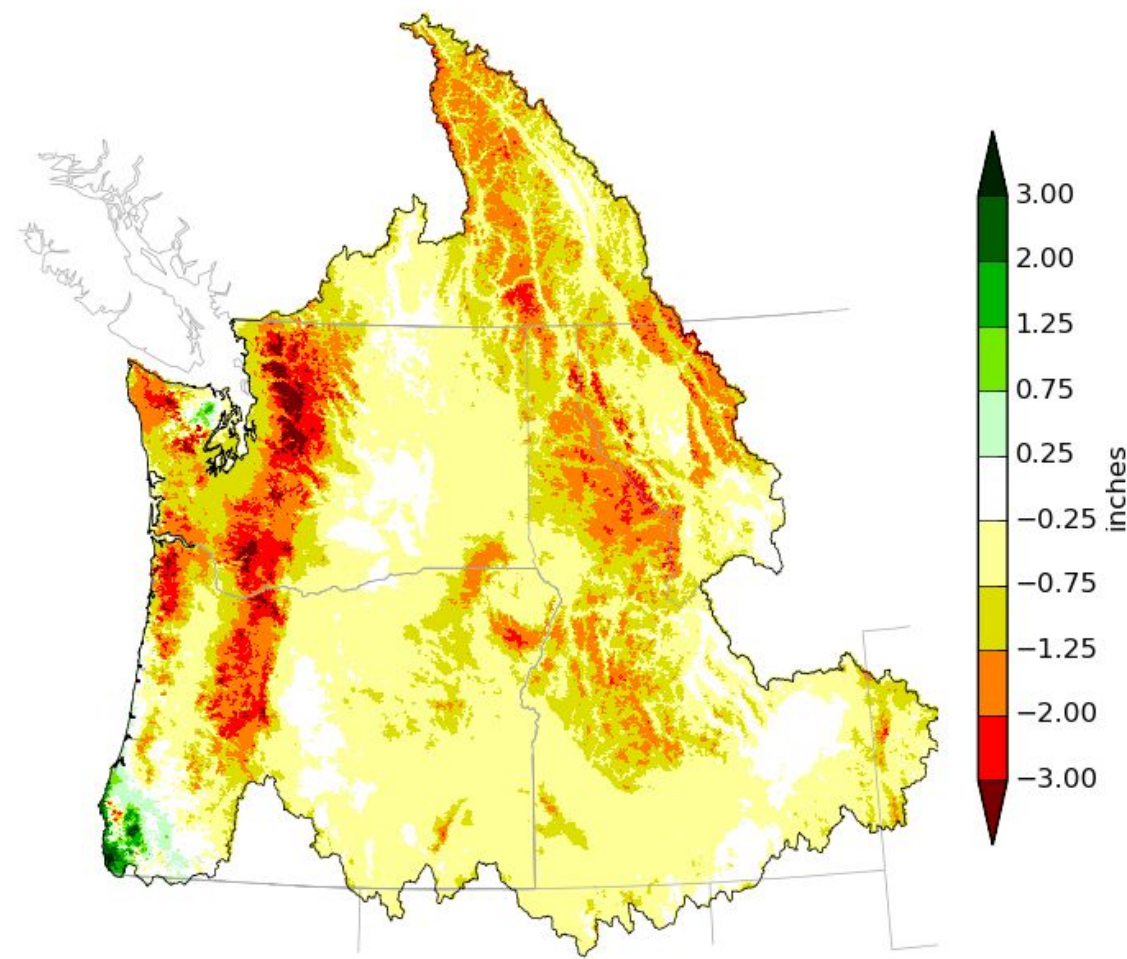
Northwest River Forecast Center
10 Day QPF, Ending 12Z, 03/13/21



Creation Time: Wed Mar 3 15:59:57 UTC 2021



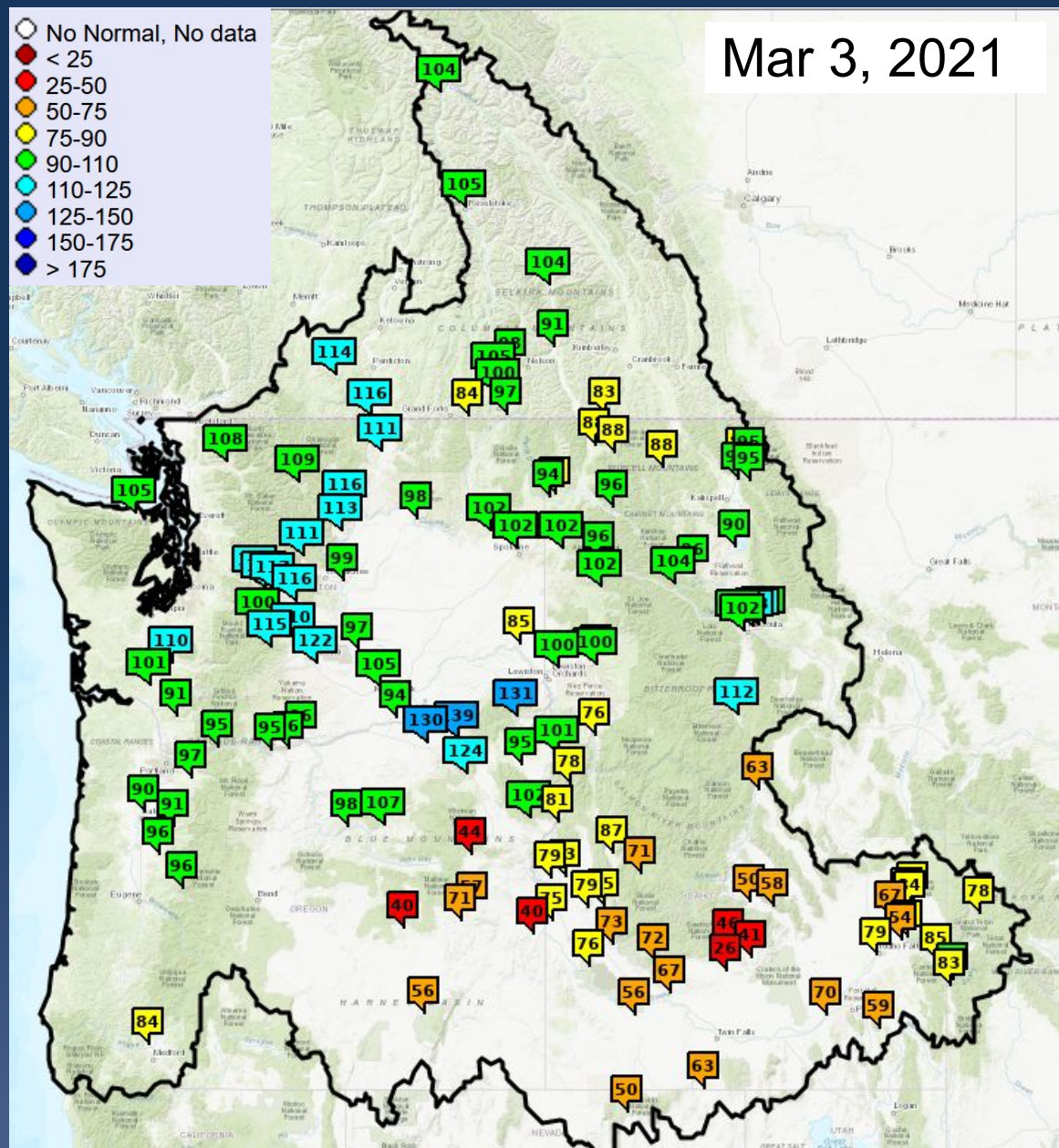
Northwest River Forecast Center
10 Day QPF (Deviation from Climatology), Ending 12Z, 03/13/21



Creation Time: Wed Mar 3 16:01:18 UTC 2021



ESP10 Water Supply Forecasts - East



% Normal Apr-Sep Volume

Upper Columbia Basin

Δ (since Feb 1)

Mica	104	-4
Duncan	104	-1
Queens Bay	91	-9
Libby	88	-11
Hungry Horse	95	0
Grand Coulee	98	-2

Snake River Basin

American Falls	70	+3
Lucky Peak	73	-9
Dworshak	95	+7
Lower Granite	85	+3

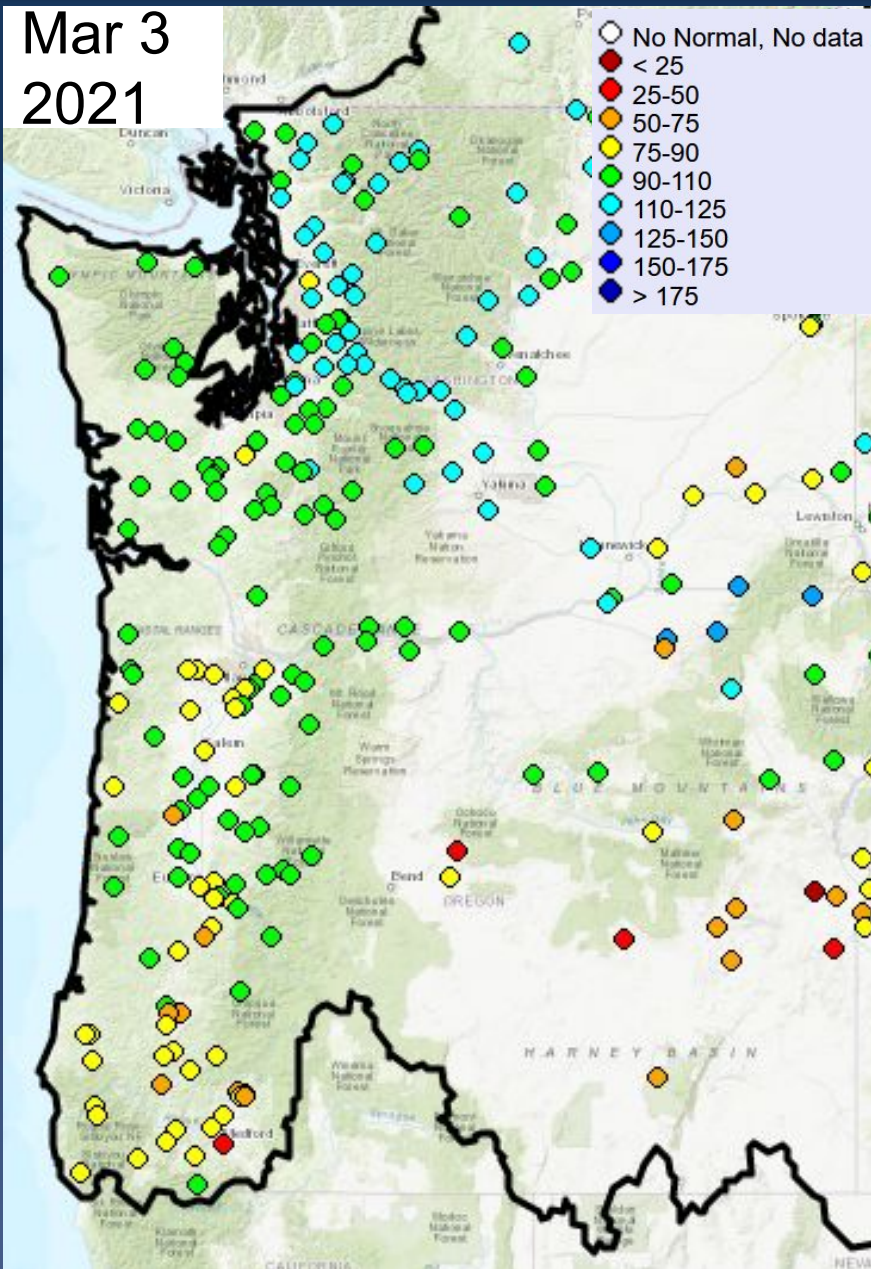
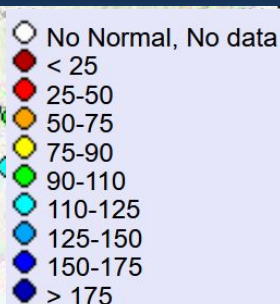
Lower Columbia Basin

The Dalles	95	+1
------------	----	----



ESP10 Natural Forecasts - OR, WA

Mar 3
2021



% Normal Apr -Sep Vol

Washington

		<u>Δ (since Feb 1)</u>
Skagit nr Mt Vernon	111	+12
Dungeness nr Sequim	105	-4
Chehalis at Porter	92	-1
Okanogan at Malott	108	+3
Methow nr Pateros	116	+7
Yakima at Parker	112	+15
Walla Walla nr Touchet	100	+15

Oregon

Willamette at Salem	86	+2
Rogue at Raygold	84	-1
Umatilla at Pendleton	127	+39
Grande Ronde R at Troy	131	+38
Owyhee Dam	40	+1



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: 2021-03-03 Issued: 2021-03-03

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	53706	58622	98	64333	60110
APR-JUL	45800	49424	97	55140	51015
APR-AUG	50681	55403	98	60374	56763
JAN-SEP	61953	66470	97	72939	68694
JAN-JUL	53258	57720	97	64287	59599
OCT-SEP	70739	75256	98	81725	76824

Experimental Water Supply

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

APR-SEP	54206	60426	101	66371	60110
APR-JUL	45595	51288	101	55901	51015
APR-AUG	51034	56819	100	62276	56763
JAN-SEP	62071	68336	99	75114	68694
JAN-JUL	53724	59633	100	64062	59599
OCT-SEP	70857	77122	100	83899	76824

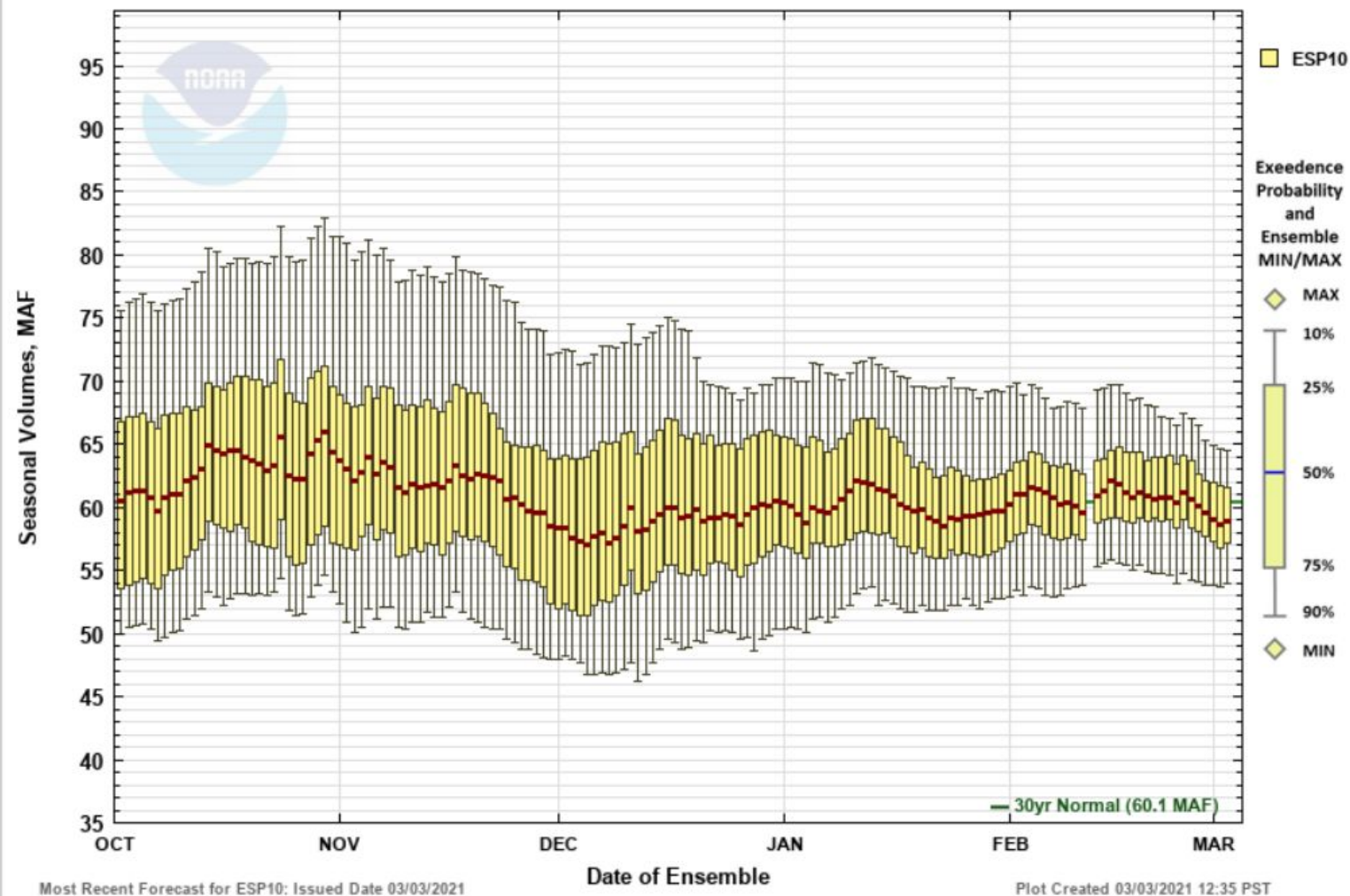
Reference

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

APR-SEP	55245	61168	102	68432	60110
APR-JUL	46519	51918	102	56996	51015
APR-AUG	51650	57450	101	63735	56763
JAN-SEP	62896	69633	101	77266	68694
JAN-JUL	54112	60540	102	65455	59599
OCT-SEP	71682	78419	102	86052	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: 2021-03-03 Issued: 2021-03-03

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	16374	18901	85	23197	22279
APR-JUL	14322	16573	84	20578	19848
APR-AUG	15331	17788	84	21864	21091
JAN-SEP	21686	24220	81	28646	29872
JAN-JUL	19629	21887	80	26149	27440
OCT-SEP	25783	28317	82	32743	34667

Experimental Water Supply

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

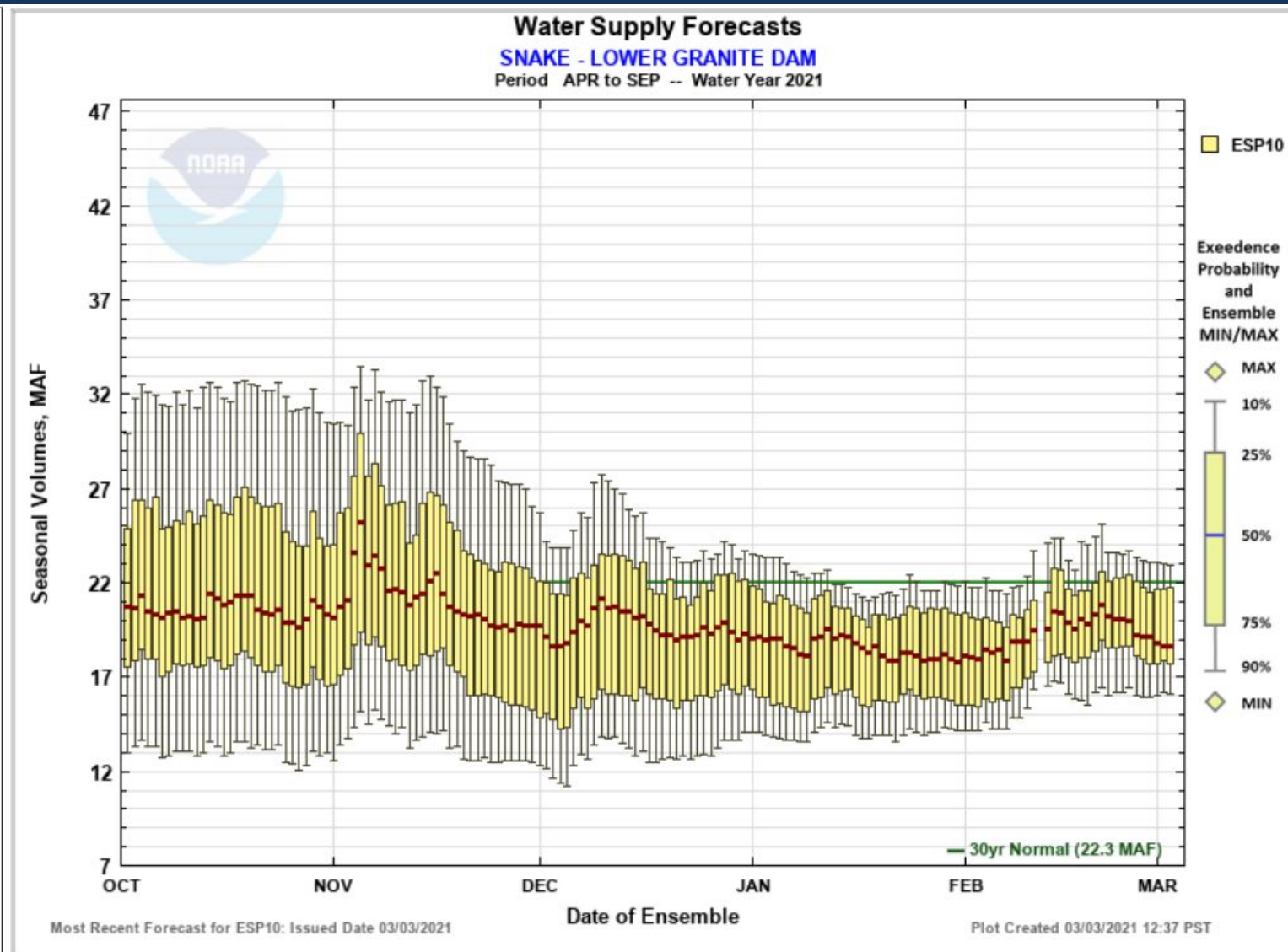
APR-SEP	16259	19787	89	23658	22279
APR-JUL	14228	17453	88	20721	19848
APR-AUG	15213	18648	88	22280	21091
JAN-SEP	21953	25440	85	29338	29872
JAN-JUL	19950	23012	84	26393	27440
OCT-SEP	26050	29537	85	33435	34667

Reference

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

APR-SEP	16186	20622	93	24894	22279
APR-JUL	14164	18097	91	22027	19848
APR-AUG	15144	19409	92	23541	21091
JAN-SEP	21940	26147	88	30870	29872
JAN-JUL	19918	23671	86	27947	27440
OCT-SEP	26037	30244	87	34967	34667

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



☐ 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: 2021-03-03 Issued: 2021-03-03

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	81382	87639	95	100239	92704
APR-JUL	70667	75090	94	85998	79855
APR-AUG	76660	82215	94	94455	87532
JAN-SEP	98660	104310	91	117653	114216
JAN-JUL	86728	92127	91	103659	101368
OCT-SEP	113830	119480	92	132822	130518

Experimental Water Supply

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

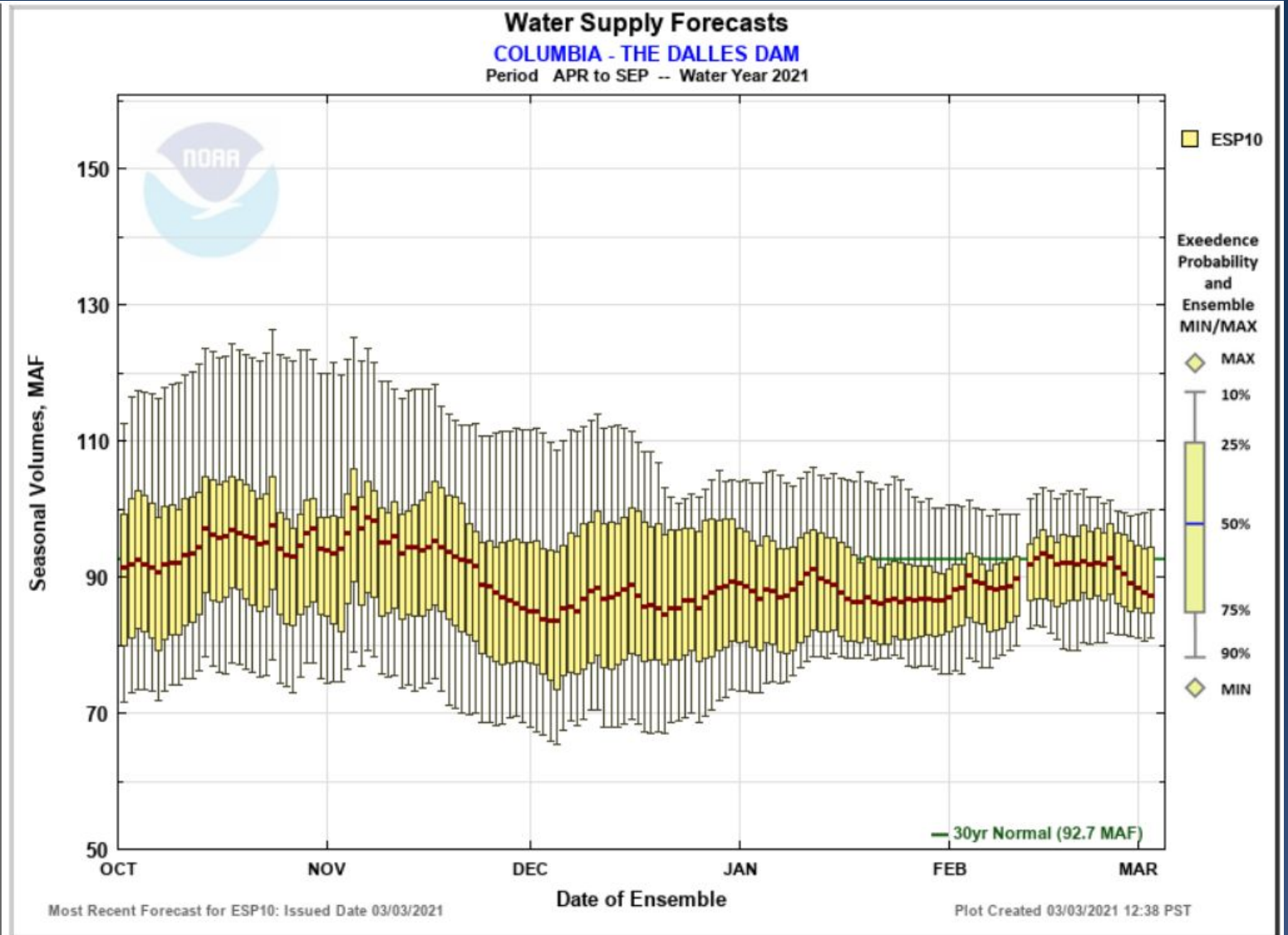
APR-SEP	81623	91923	99	100700	92704
APR-JUL	69941	78522	98	87175	79855
APR-AUG	75859	86693	99	94459	87532
JAN-SEP	98819	109224	96	120750	114216
JAN-JUL	87597	96467	95	107446	101368
OCT-SEP	113989	124395	95	135920	130518

Reference

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

APR-SEP	80893	92529	100	103109	92704
APR-JUL	69236	79452	99	89989	79855
APR-AUG	75102	86996	99	97432	87532
JAN-SEP	99835	110590	97	122355	114216
JAN-JUL	87840	97589	96	108917	101368
OCT-SEP	115005	125759	96	137524	130518

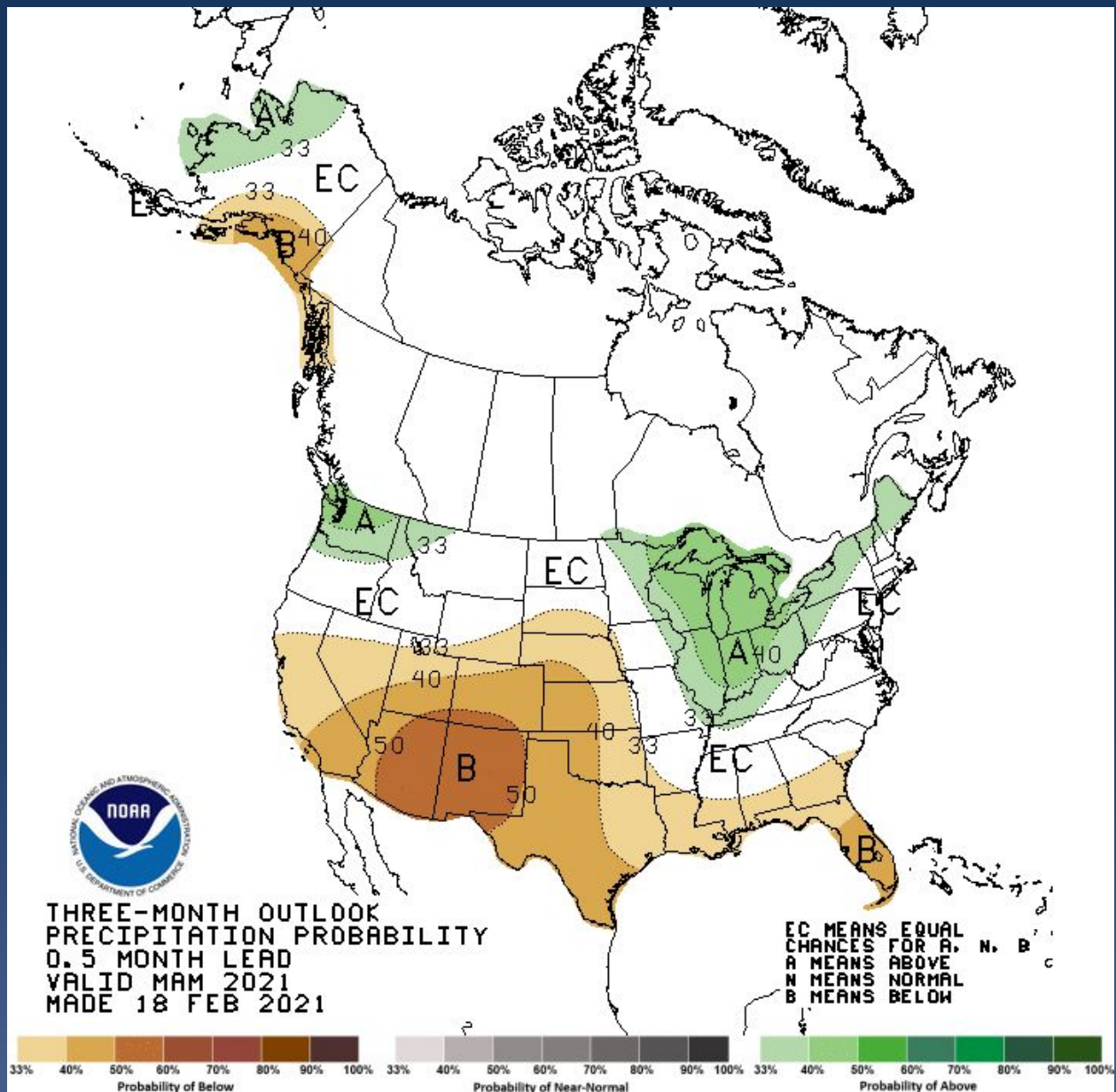
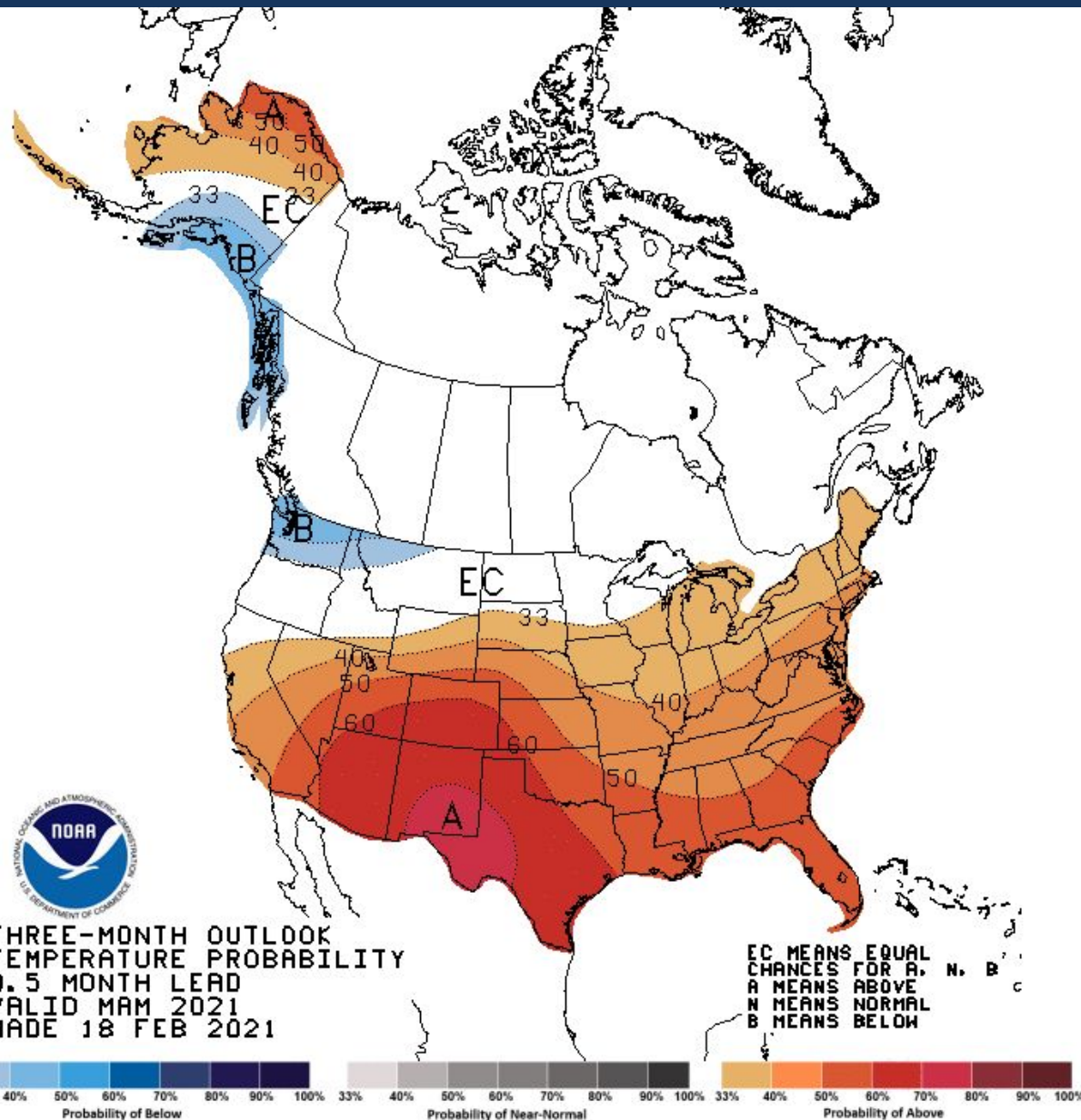
Move the mouse over the desired "Forecast Period" to display a graph.



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

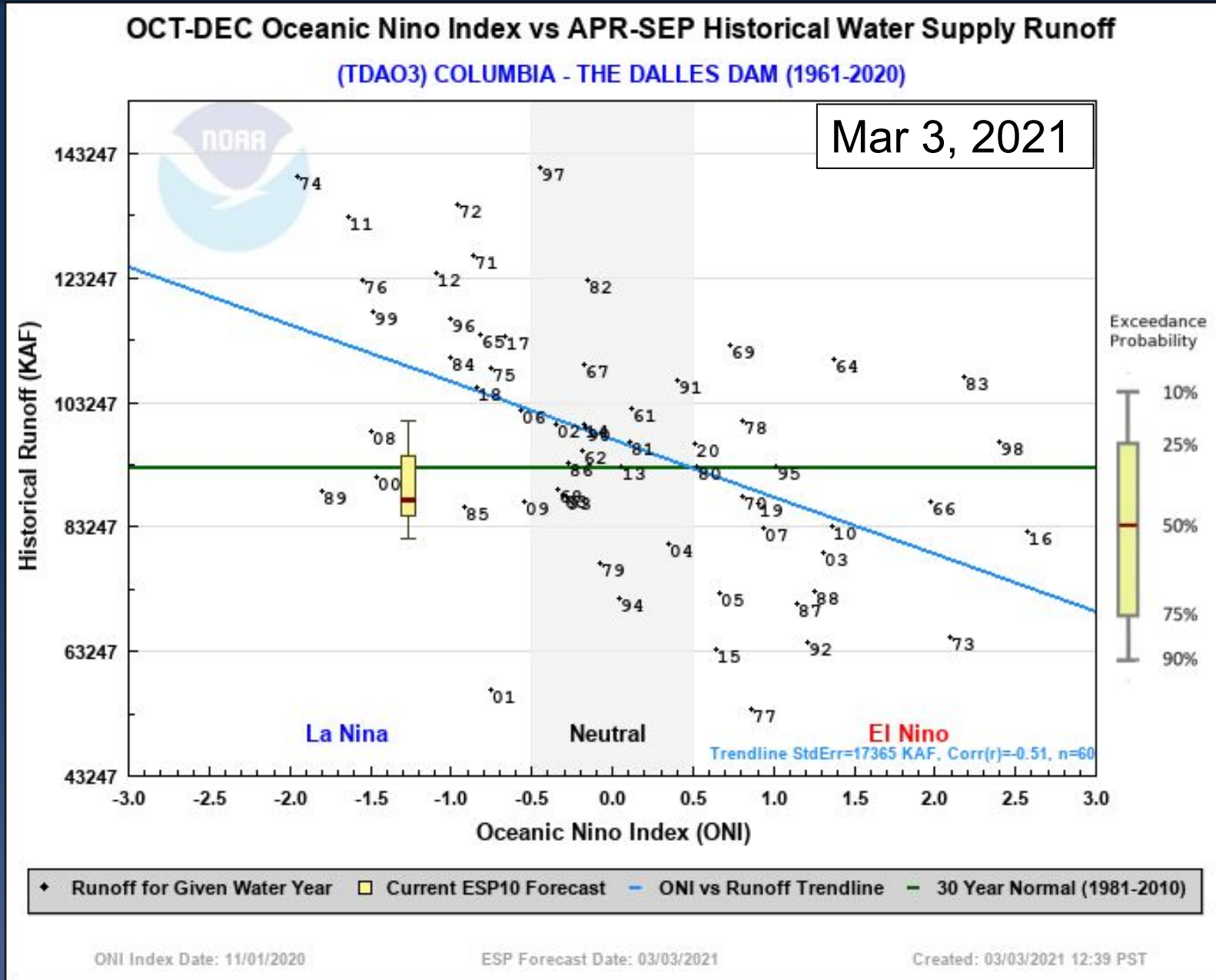


CPC Three-Month Outlook





Oceanic Nino Index vs Runoff





Take Home Messages

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- Below normal in the south

Snowpack

- Snowpack increased more than average during February across most of our domain

Water supply forecasts for April-September

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Additional guidance

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- La Nina weakly correlated to higher runoff



Water Year 2021 Live Breifing Schedule

Apr	May
1	6
All presentations held at 10:00 am PST/PDT unless noted otherwise	

Telephone Conference Call Number
(same for each month's brief):
(415) 930 - 5321

Pass Code :
524-795-021#



Links to NWRFC Water Supply Products

Water supply forecasts:

[*www.nwrfc.noaa.gov/ws*](http://www.nwrfc.noaa.gov/ws)

Snowpack:

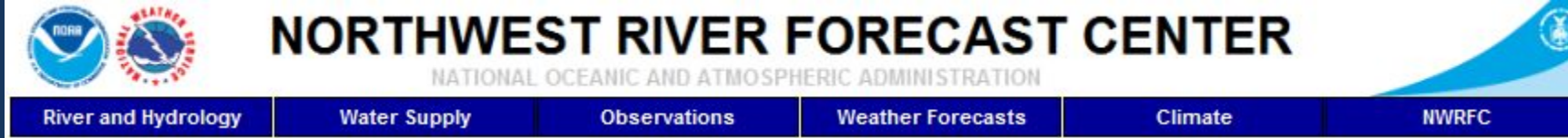
[*www.nwrfc.noaa.gov/snow*](http://www.nwrfc.noaa.gov/snow)

10 day forecast:

[*www.nwrfc.noaa.gov/weather/10_day.cgi*](http://www.nwrfc.noaa.gov/weather/10_day.cgi)

Precip forecast trend tool:

[*www.nwrfc.noaa.gov/weather/trend*](http://www.nwrfc.noaa.gov/weather/trend)



Questions?

In order to ask questions using your phone, you will need to enter the **AUDIO PIN** followed by the **#** sign using your phone keypad. The **AUDIO PIN** was provided when you logged into the webinar. If you need to enter the PIN after you are connected, try **#PIN#**

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.

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

