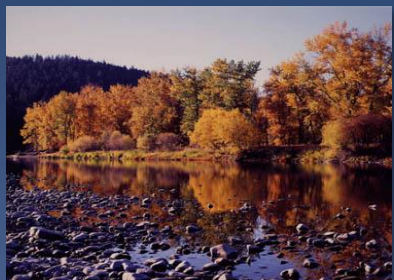




Northwest River Forecast Center



April 2020 Water Supply Briefing

Telephone Conference : (562) 247-8422
Pass Code : 322-526-815#

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



Bottom Line

March was a drier than normal month for most of the basin.

Northern basin near normal to above normal water supply forecasts.

Southern basin generally below normal water supply forecasts



Water Supply Forecast Briefing Outline

Observed Conditions WY2020:

- Temperature
- Precipitation
- Snowpack
- Runoff

Model States

Future Conditions:

- 10 days of quantitative forecast precipitation (QPF)
- 10 days of quantitative forecast temperature (QTF)
- Historical climate forcings appended thereafter
- Water Supply Forecasts

Model Forcings

Model Inputs

Additional Guidance

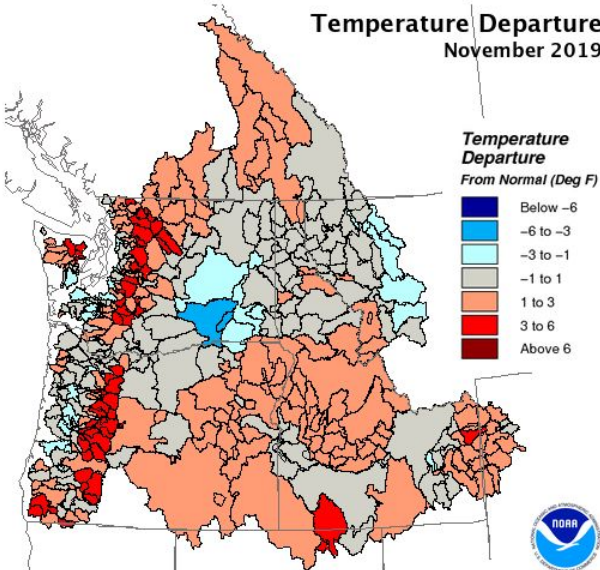
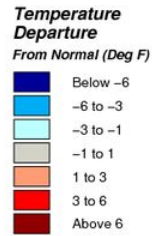
- CPC Climate Outlook

Summary



Monthly Temperature Departure

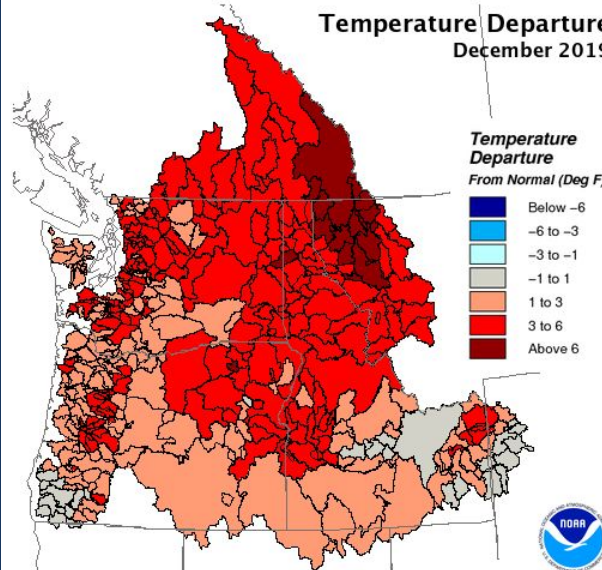
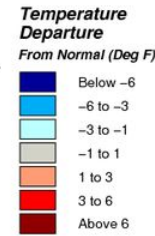
Temperature Departure
November 2019



Creation Time: Thursday, Jan 2, 2020

Northwest River Forecast Center

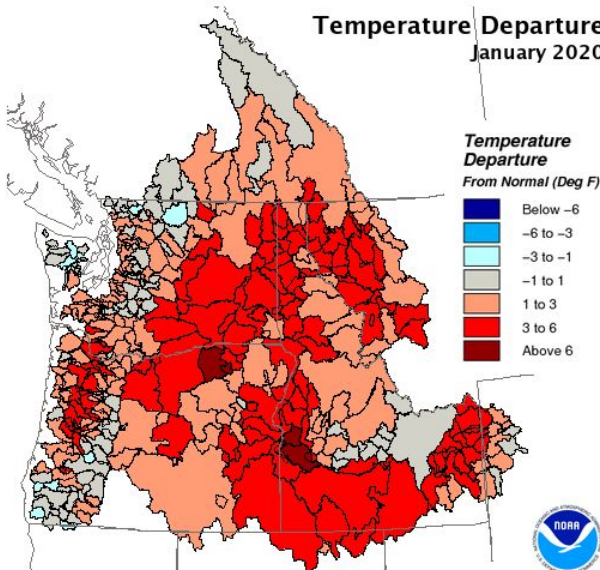
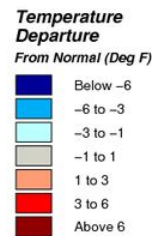
Temperature Departure
December 2019



Creation Time: Thursday, Jan 2, 2020

Northwest River Forecast Center

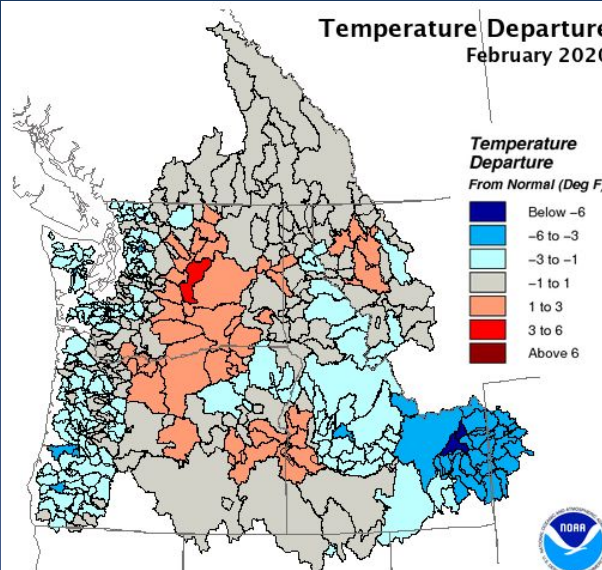
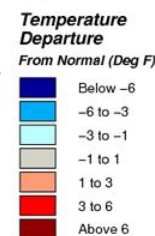
Temperature Departure
January 2020



Creation Time: Saturday, Feb 1, 2020

Northwest River Forecast Center

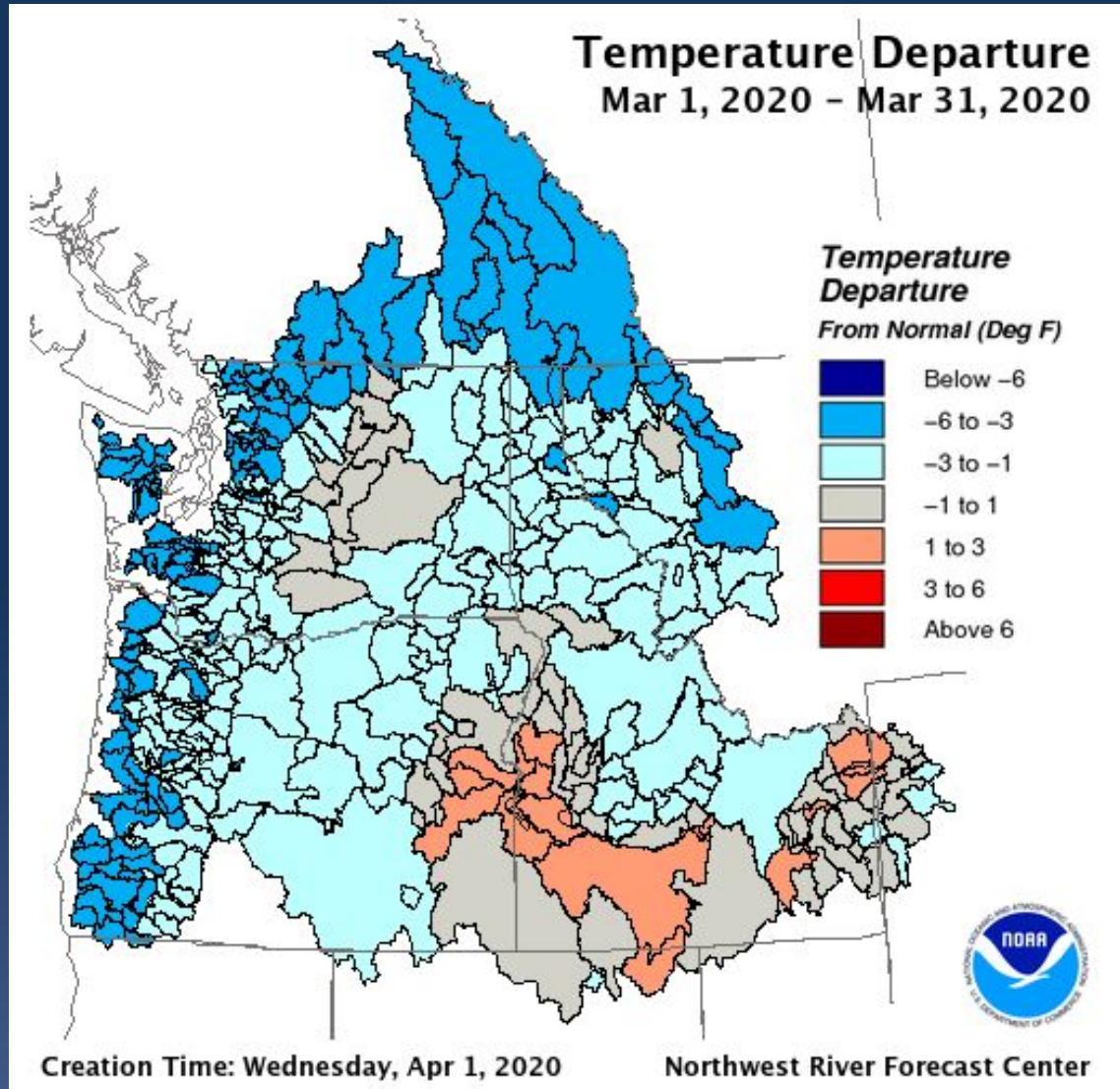
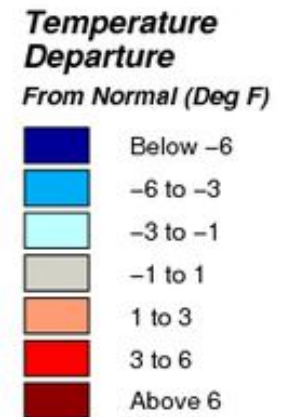
Temperature Departure
February 2020



Creation Time: Sunday, Mar 1, 2020

Northwest River Forecast Center

Temperature Departure
Mar 1, 2020 - Mar 31, 2020

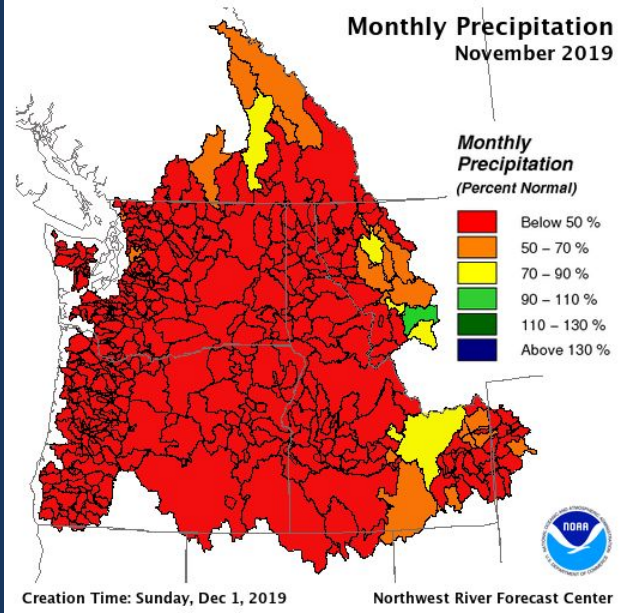


Creation Time: Wednesday, Apr 1, 2020

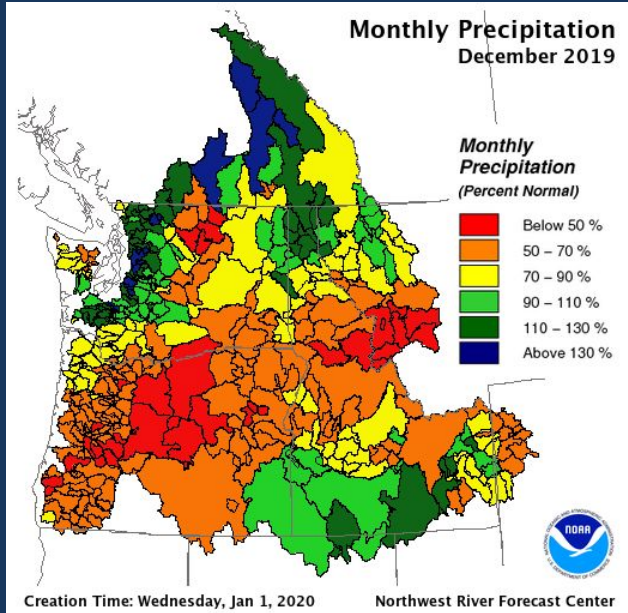
Northwest River Forecast Center

Monthly Precipitation Departure

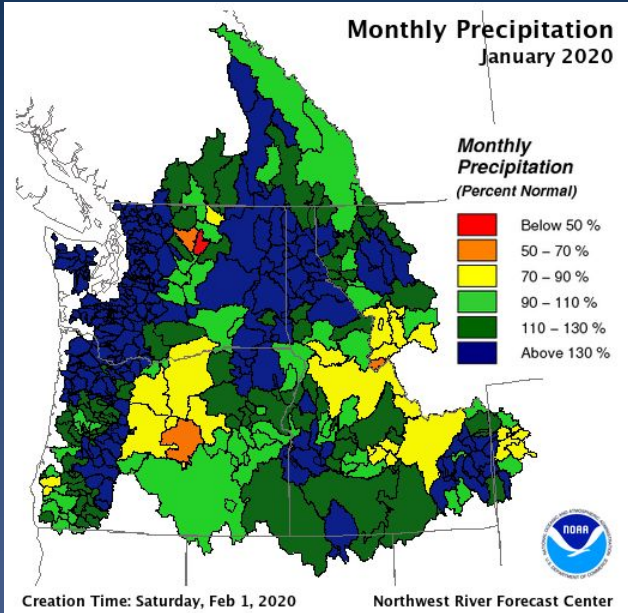
Monthly Precipitation
November 2019



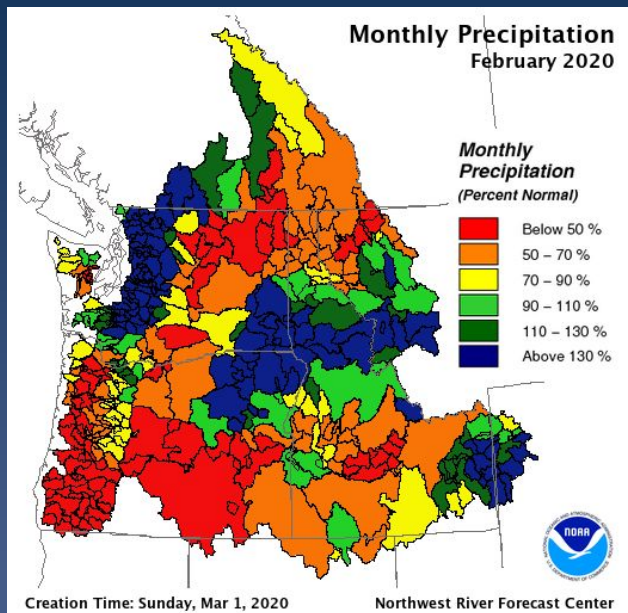
Monthly Precipitation
December 2019



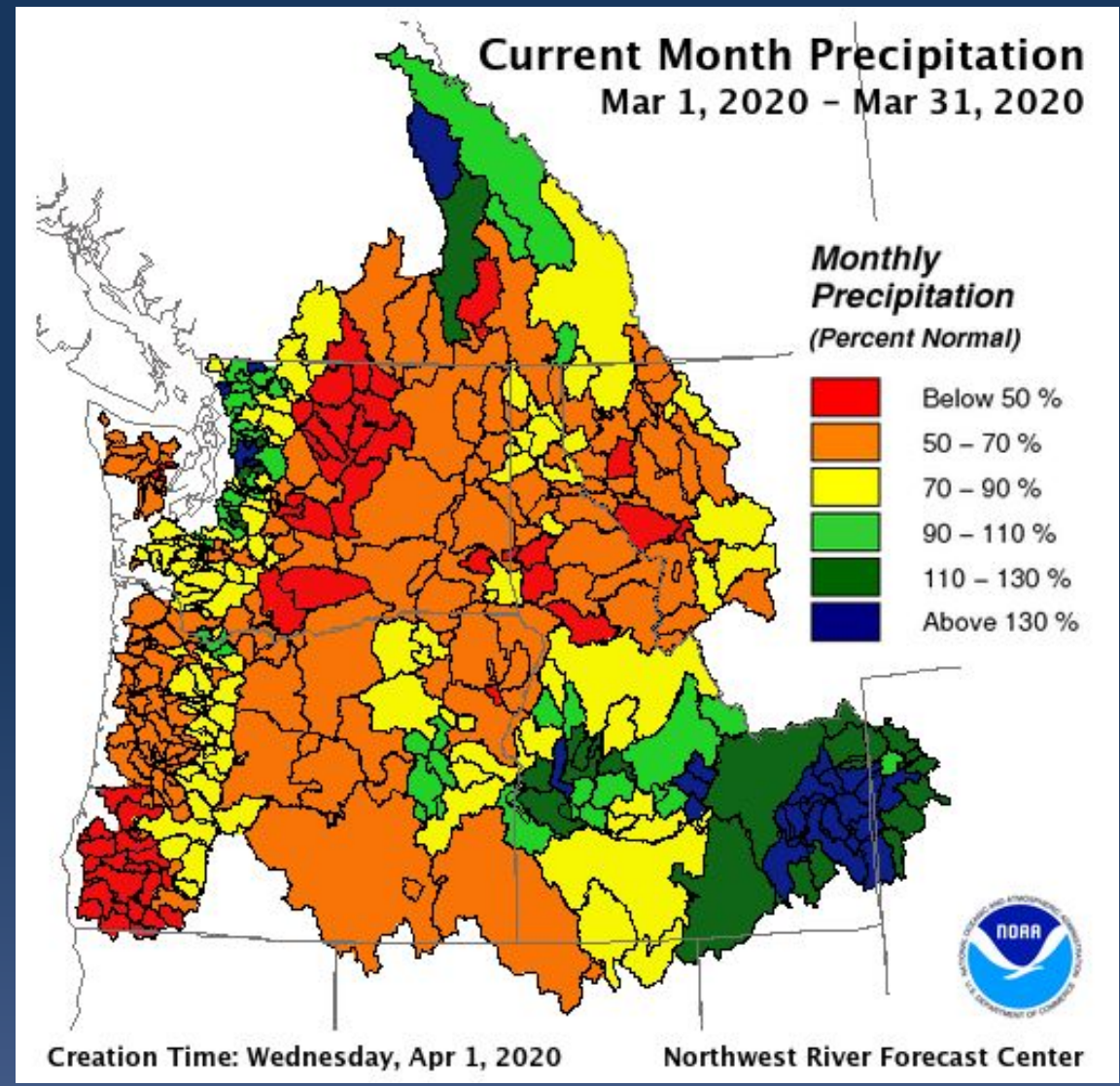
Monthly Precipitation
January 2020



Monthly Precipitation
February 2020



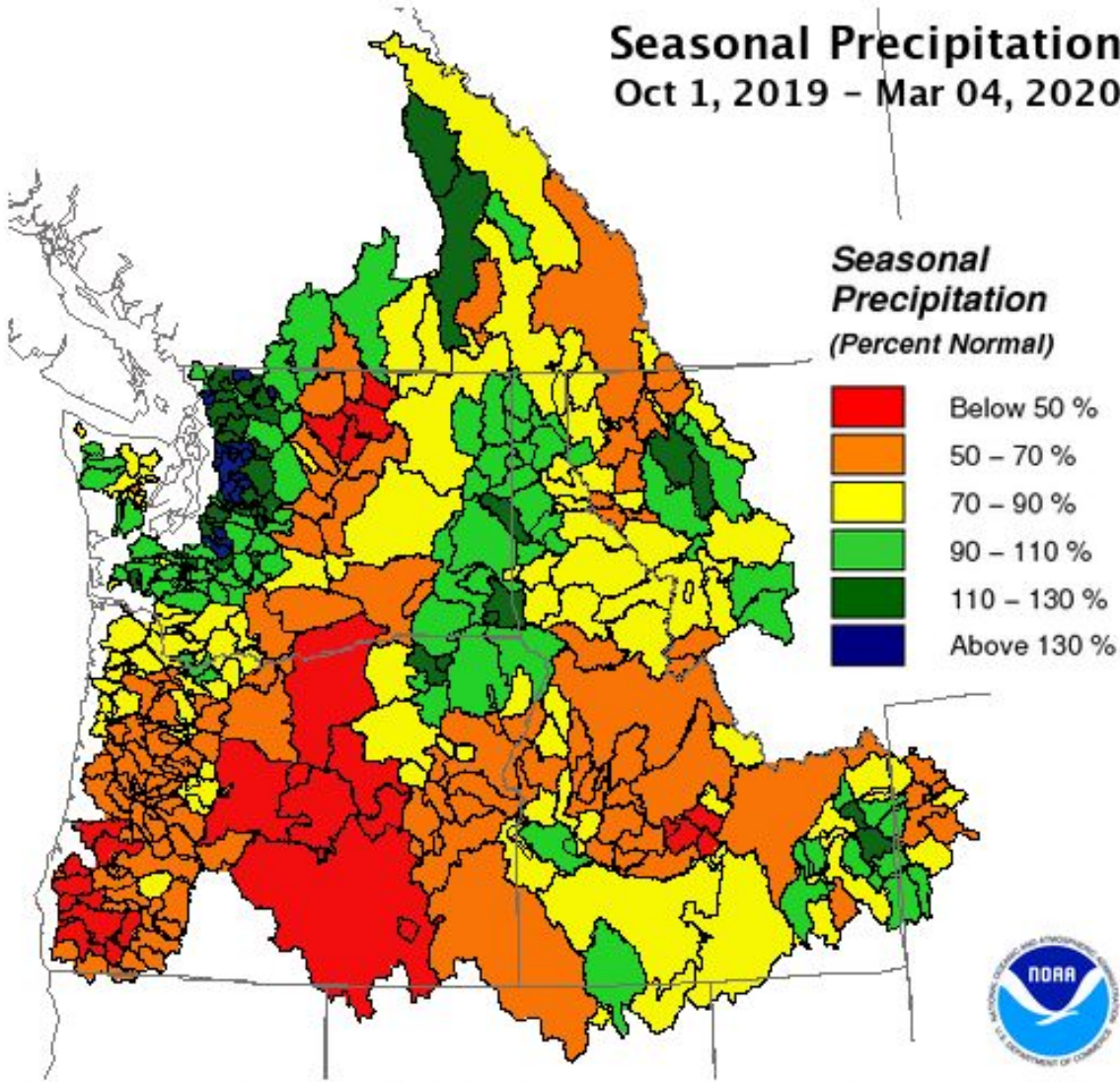
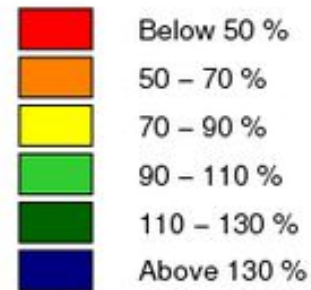
Current Month Precipitation
Mar 1, 2020 - Mar 31, 2020



Seasonal Precipitation

Seasonal Precipitation
Oct 1, 2019 - Mar 04, 2020

**Seasonal
Precipitation**
(Percent Normal)



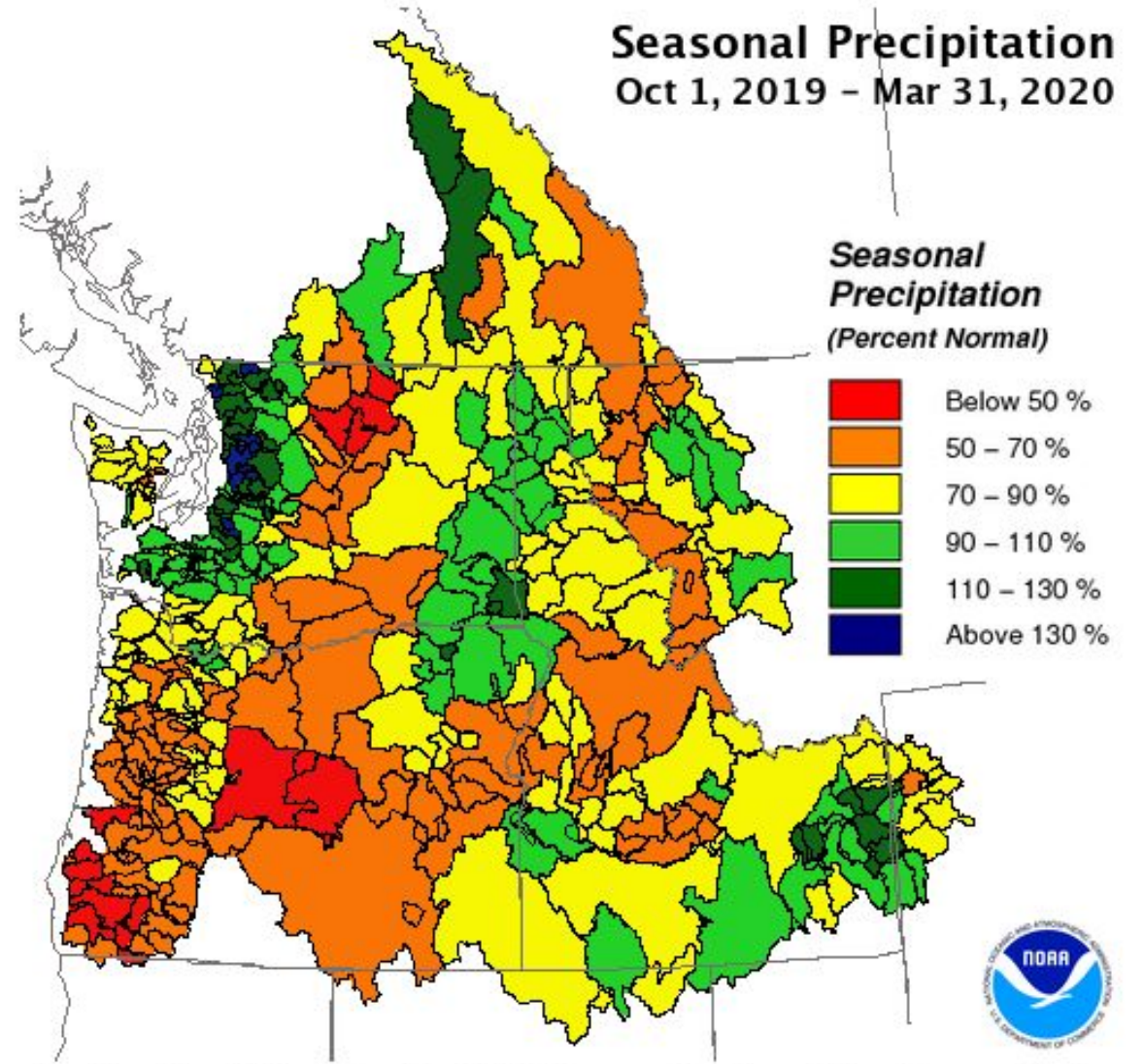
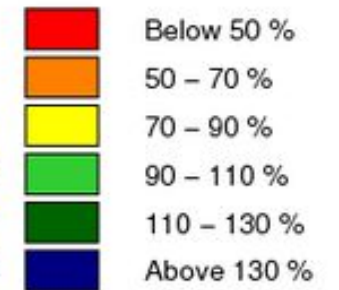
Creation Time: Thursday, Mar 5, 2020

Northwest River Forecast Center



Seasonal Precipitation
Oct 1, 2019 - Mar 31, 2020

**Seasonal
Precipitation**
(Percent Normal)

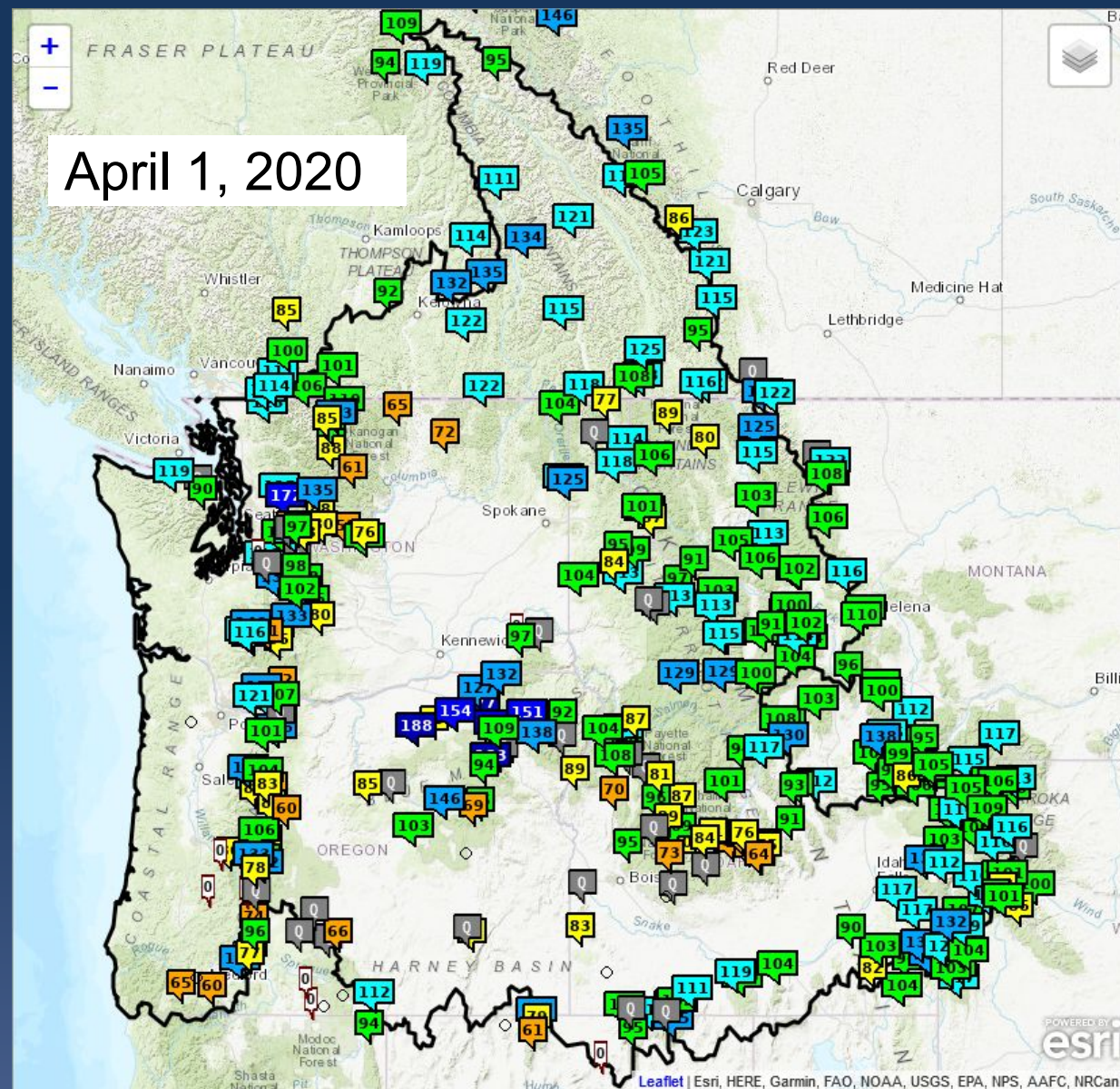
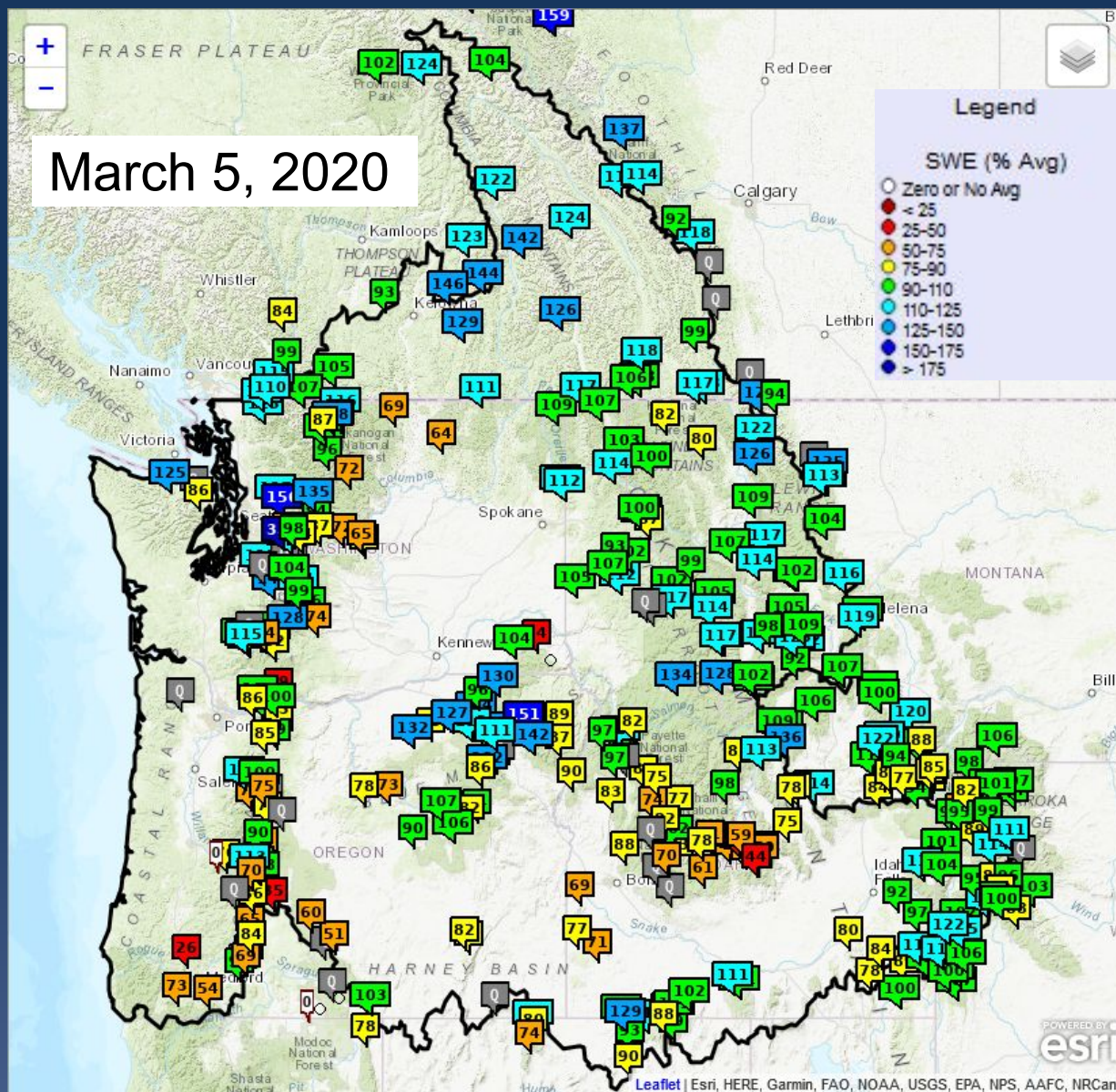


Creation Time: Wednesday, Apr 1, 2020

Northwest River Forecast Center



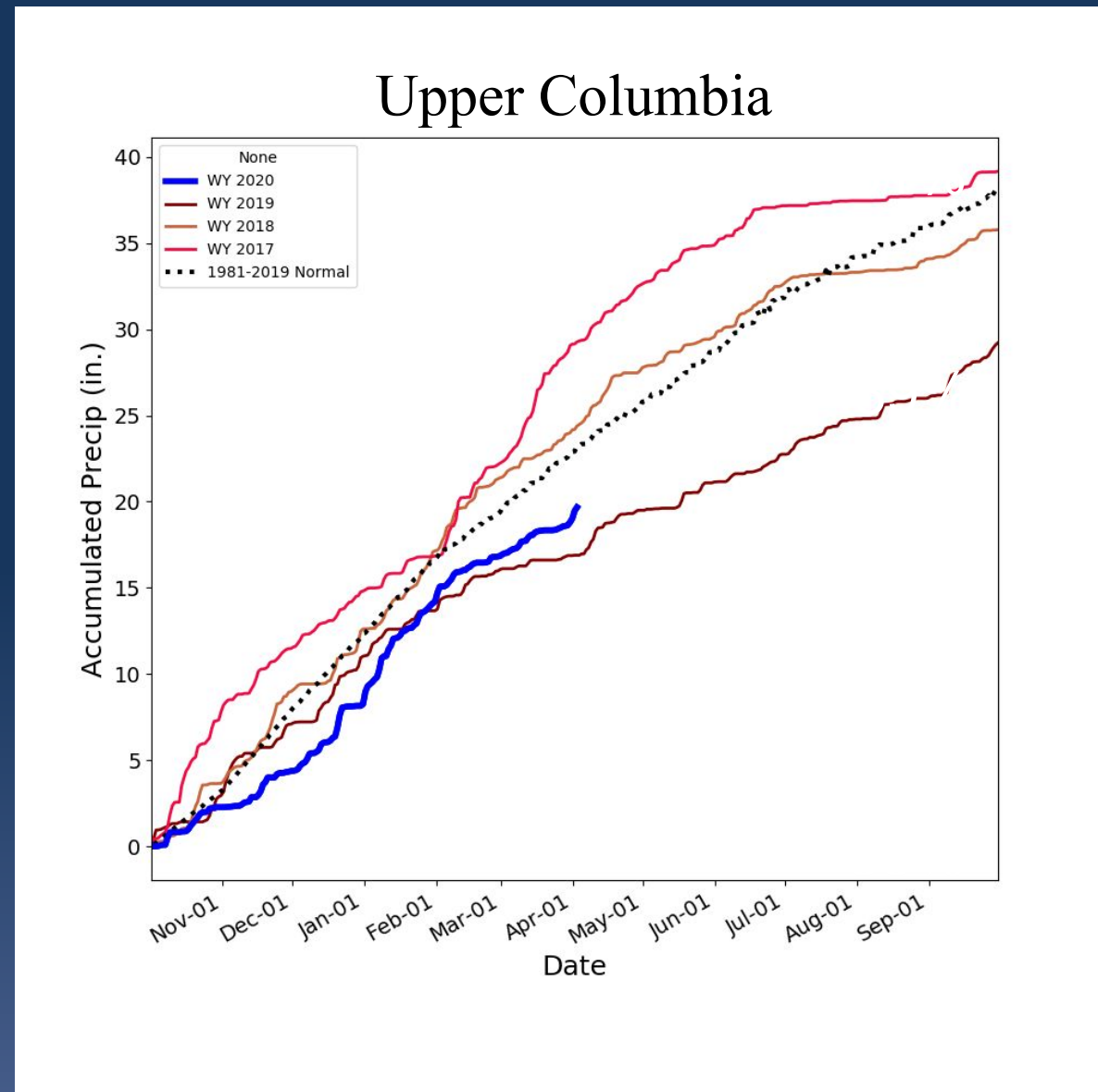
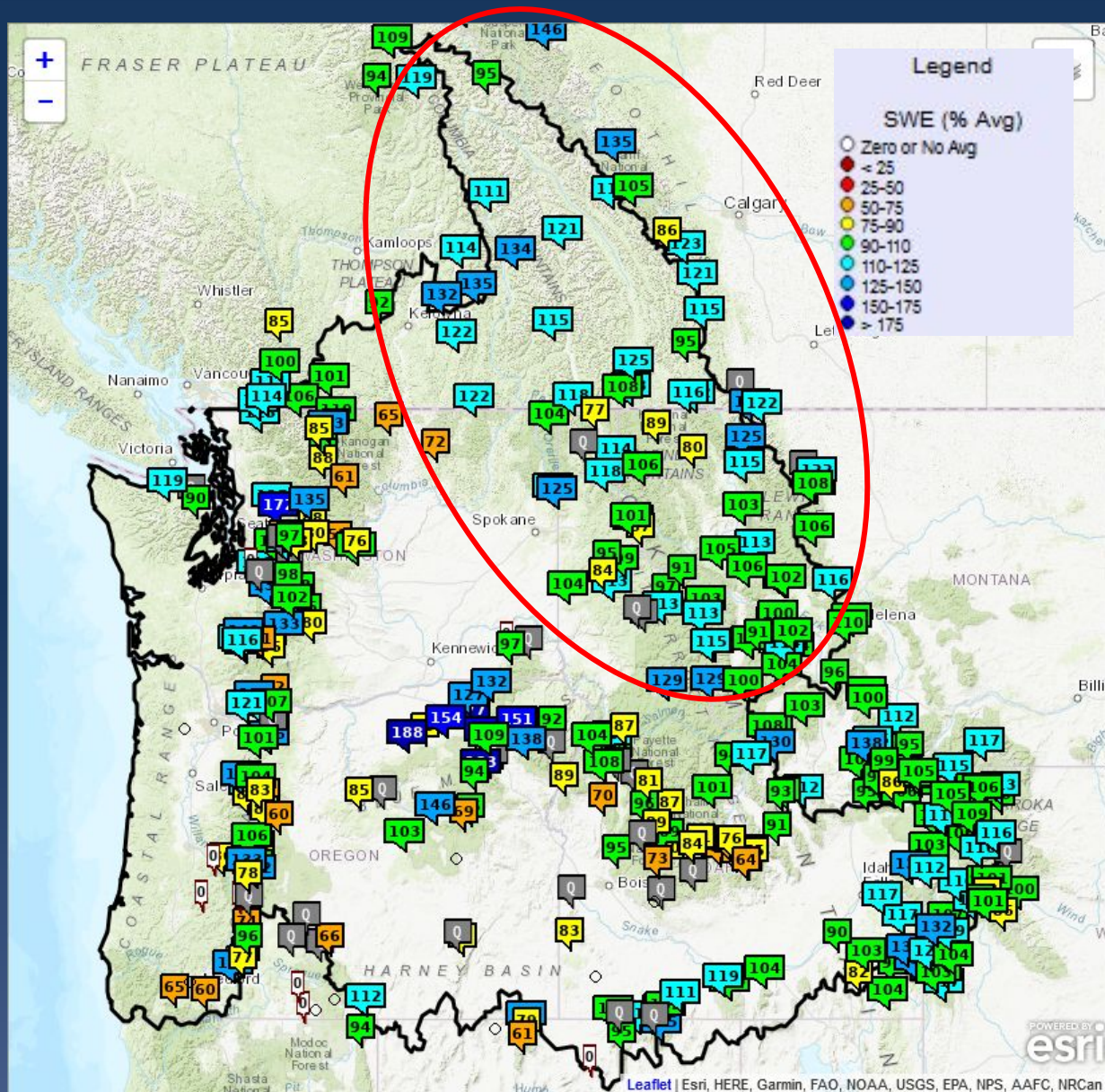
Snowpack



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



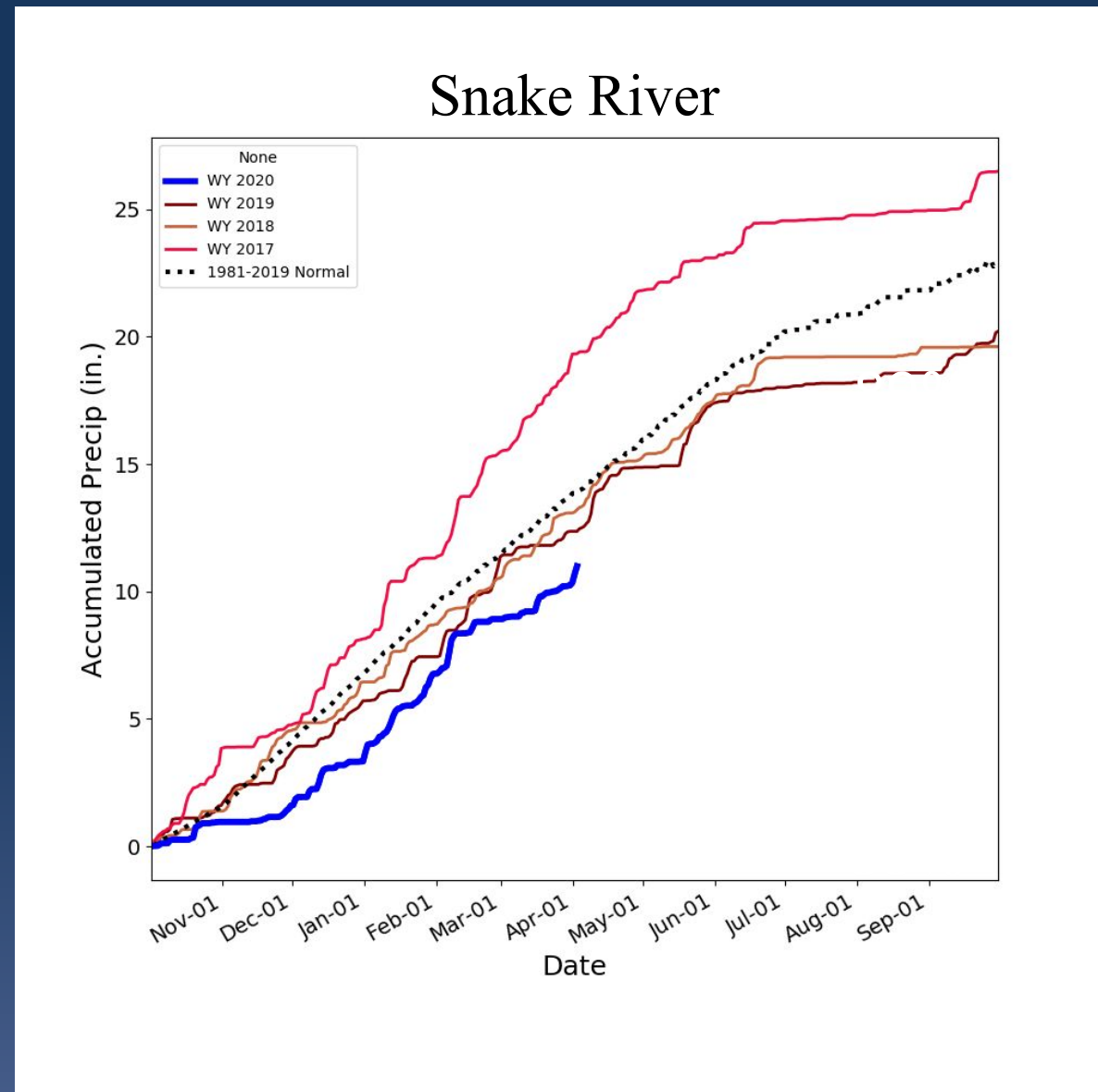
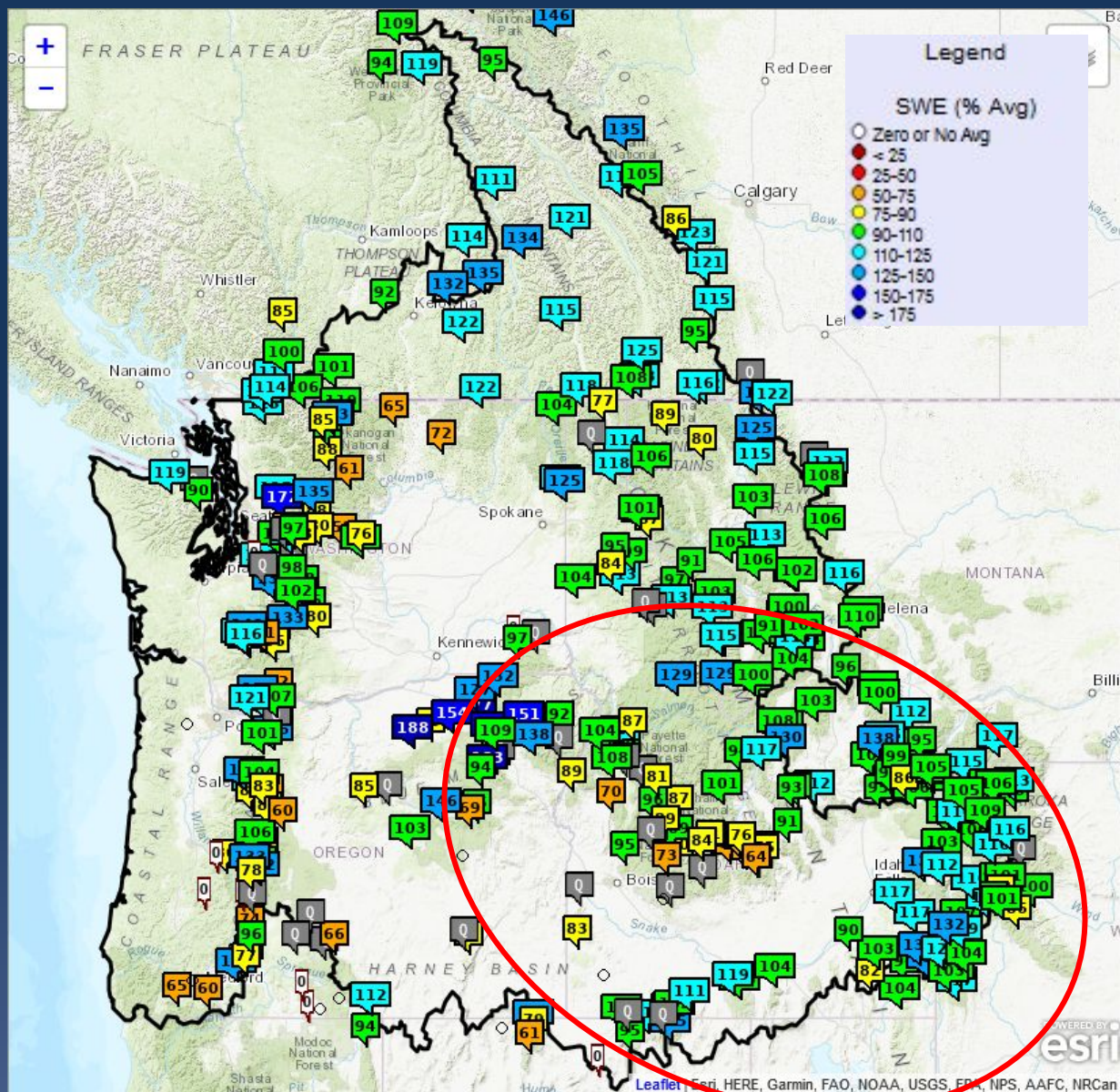
Snowpack and Seasonal Precipitation



Data as of March 5, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.



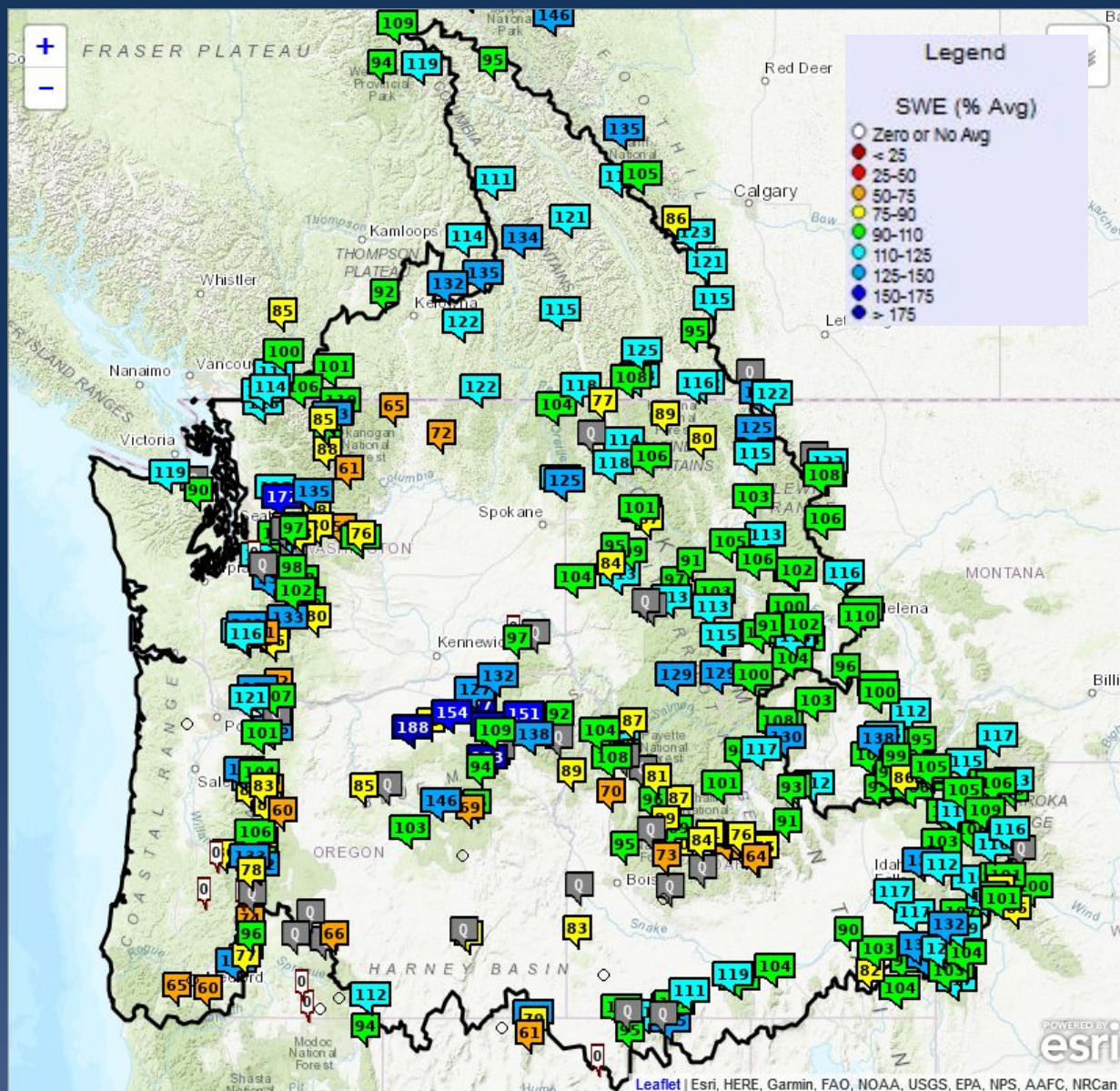
Snowpack and Seasonal Precipitation



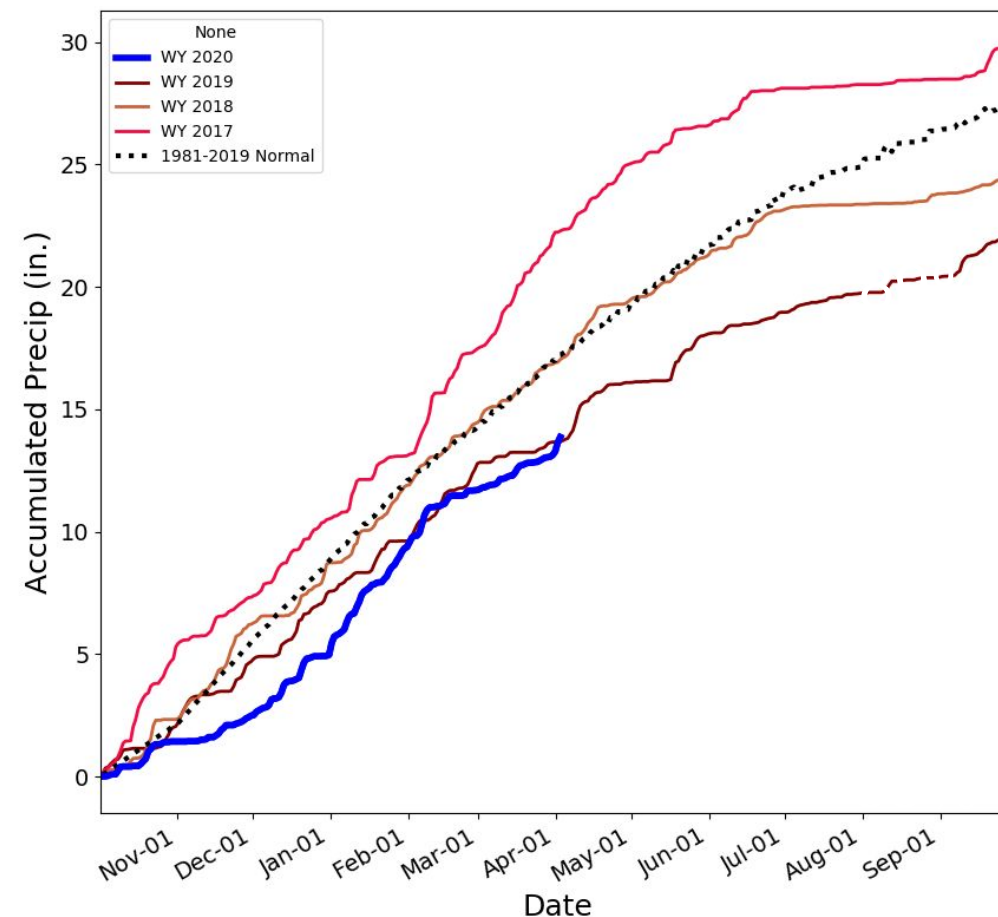
Data as of March 5, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.



Snowpack and Seasonal Precipitation



Columbia River above The Dalles

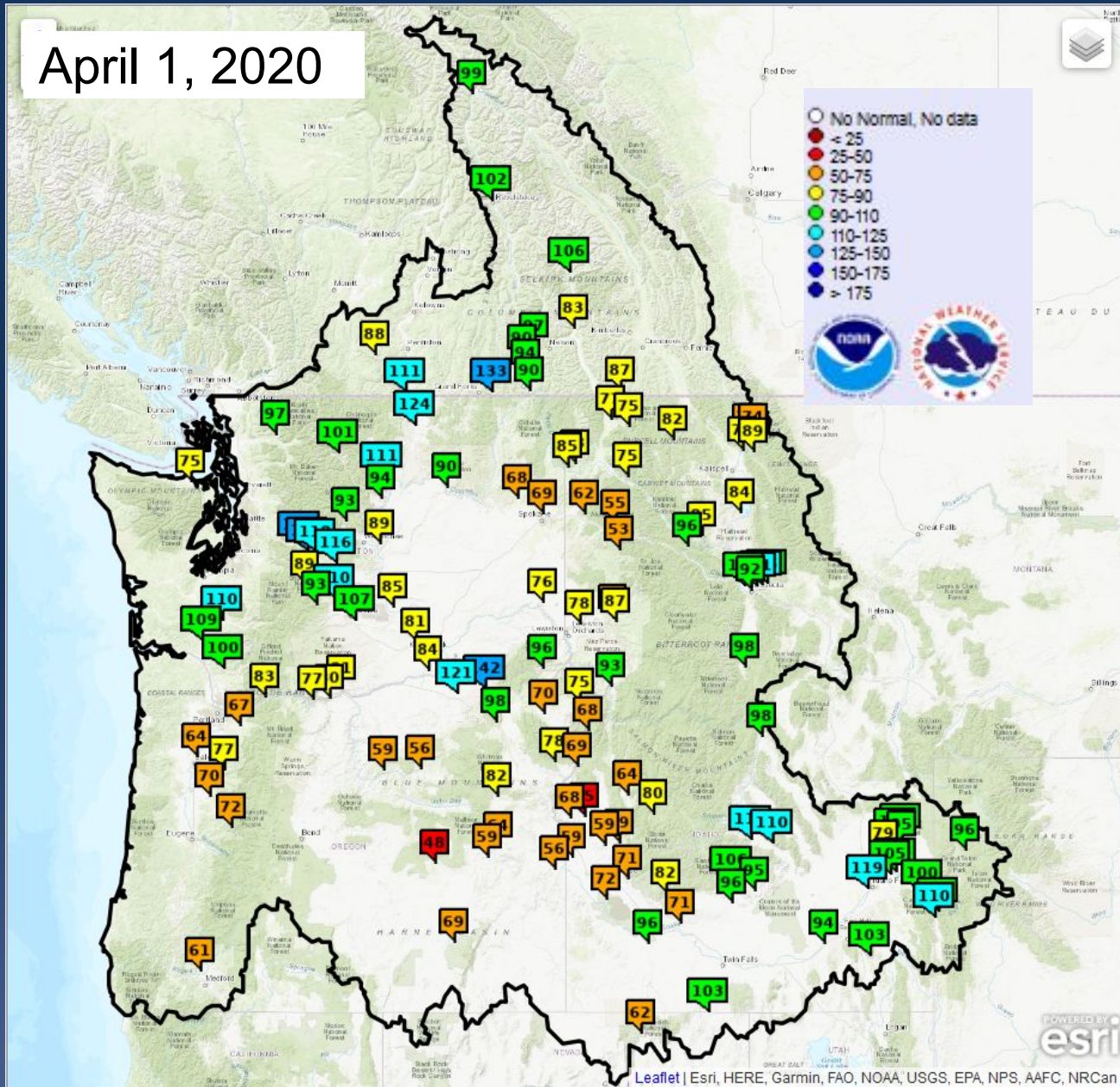


Data as of March 5, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.



Current Adjusted Runoff Conditions

April 1, 2020



% of Normal Oct 1– March 31

UPPER COLUMBIA BASIN

		<u>Δ (since Mar 5)</u>	
MICA	99	+	2
DUNCAN	106	-	4
QUEENS BAY	83	-	5
LIBBY	82	-	2
HUNGRY HORSE	89	-	7
GRAND COULEE	90	-	6

SNAKE RIVER BASIN

AMERICAN FALLS	94	-	4
LUCKY PEAK	71	-	6
DWORSHAK	59	-	2
LOWER GRANITE	76	-	3

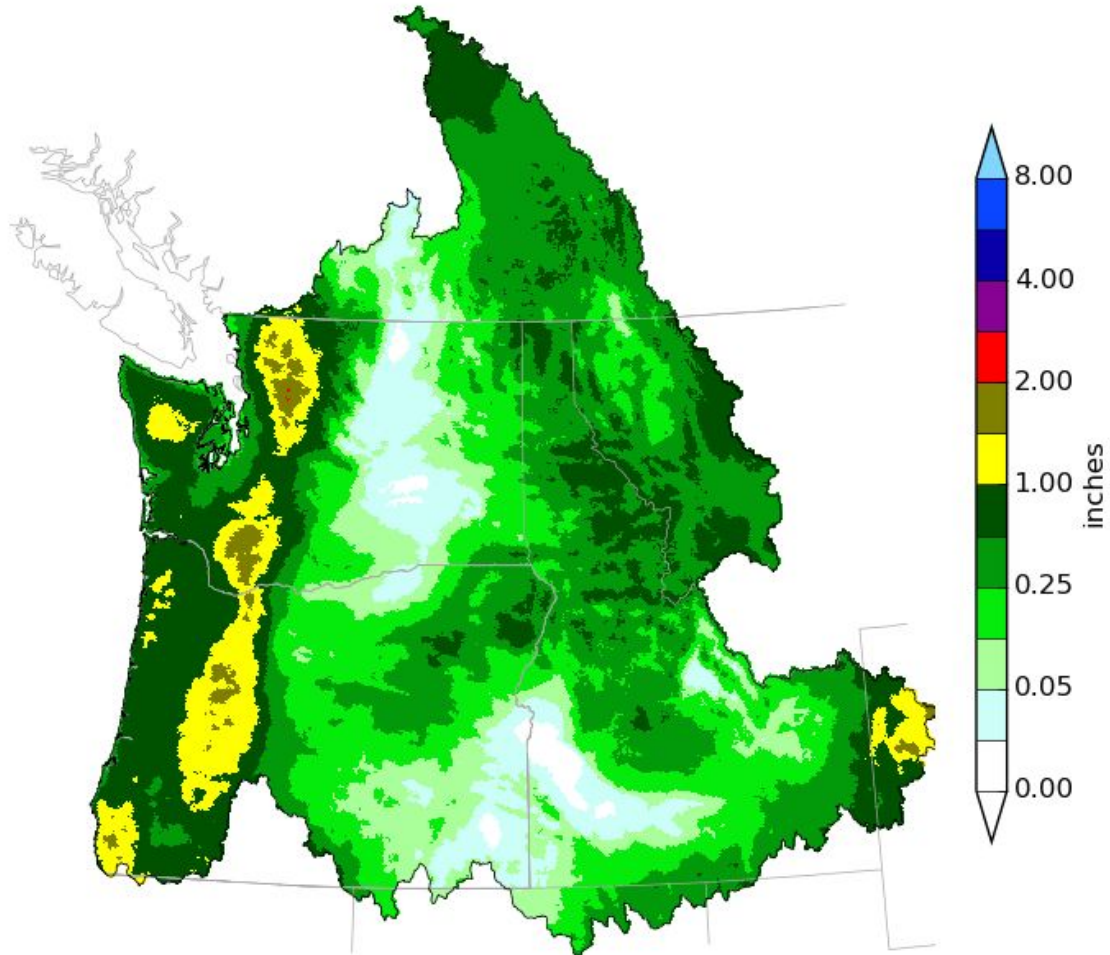
LOWER COLUMBIA BASIN

THE DALLES	77	-	4
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Precipitation Forecast (April 1-11)



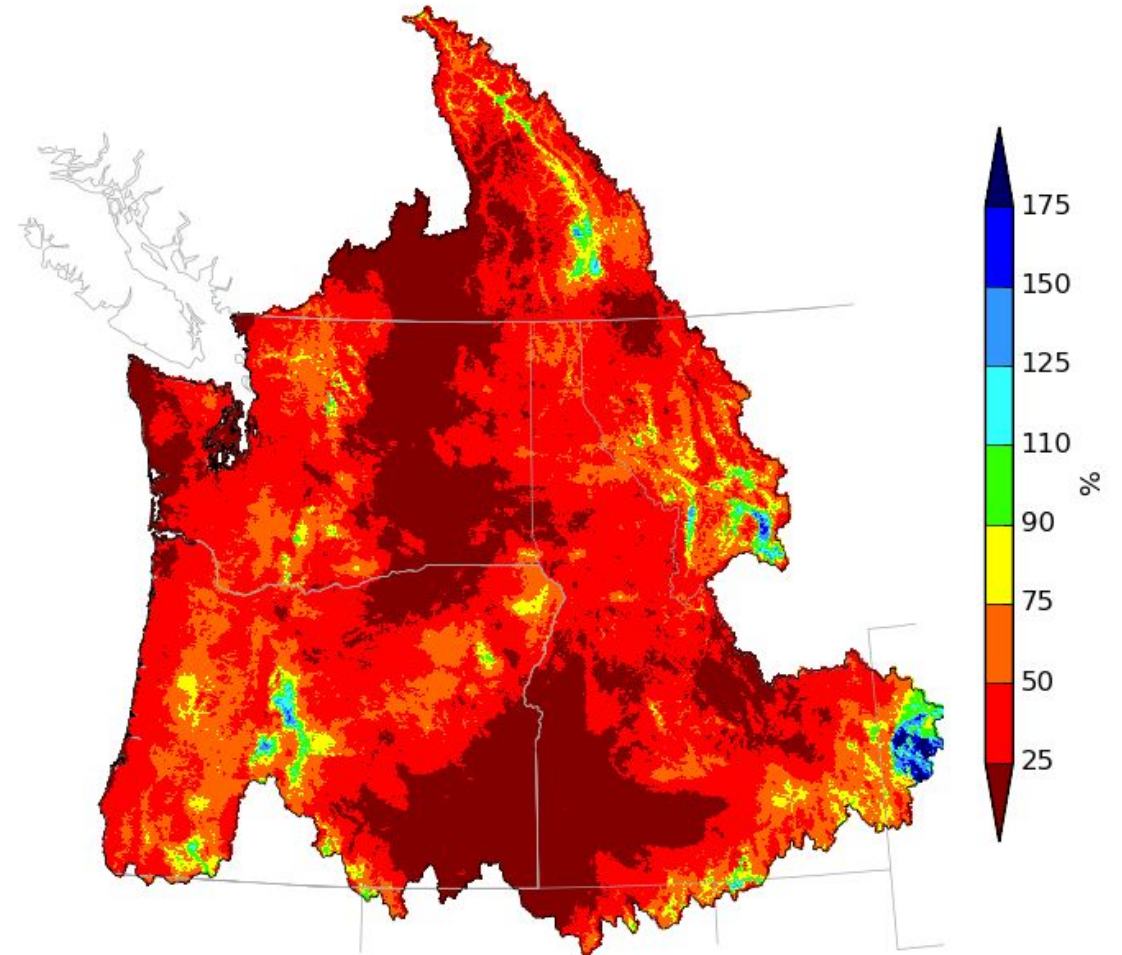
Northwest River Forecast Center
10 Day QPF, Ending 12Z, 04/11/20



Creation Time: Wed Apr 1 14:50:08 UTC 2020



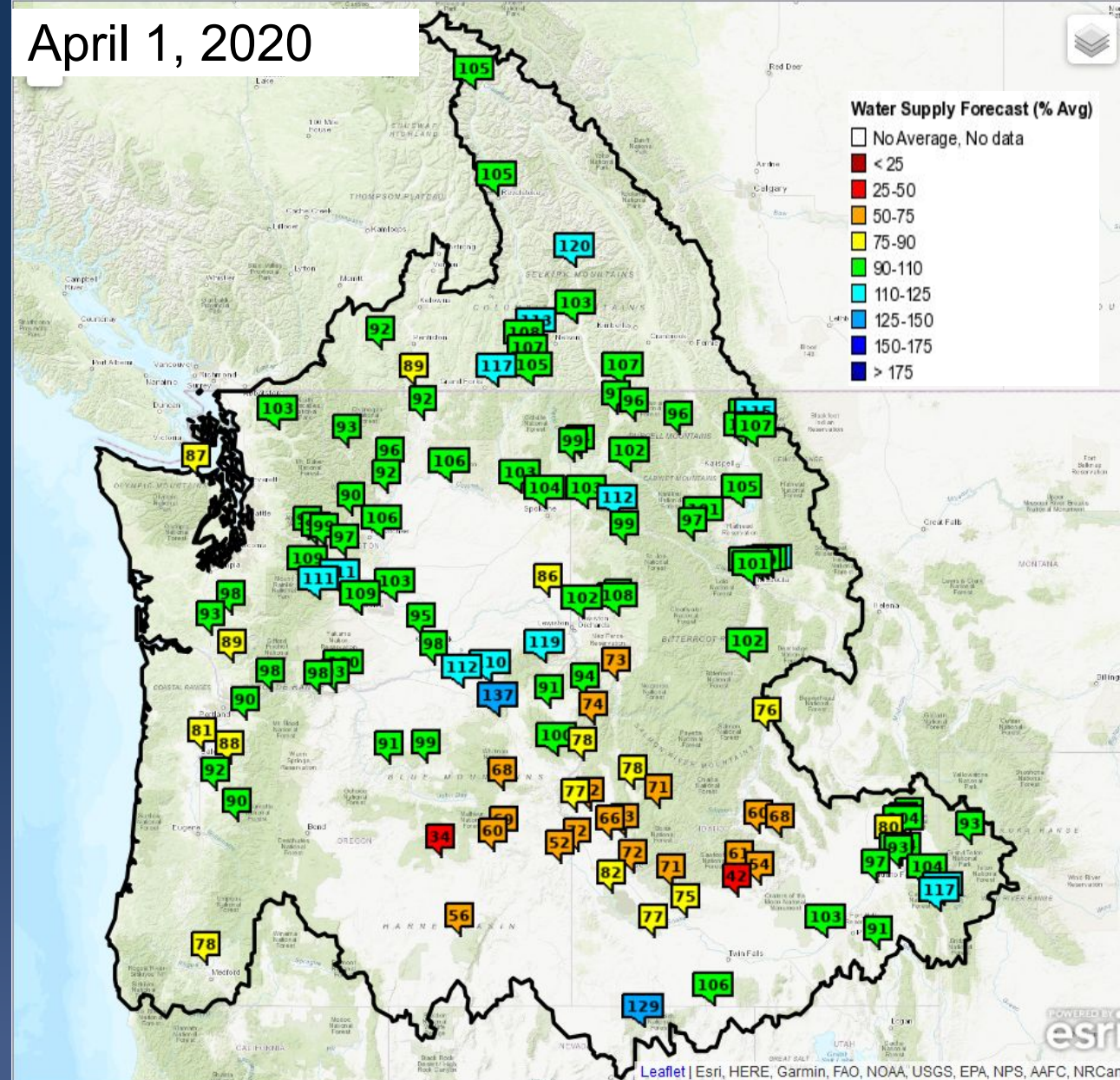
Northwest River Forecast Center
10 Day QPF (Percent of Climatology), Ending 12Z, 04/11/20



Creation Time: Wed Apr 1 14:50:57 UTC 2020

ESP10 Apr-Sep Water Supply Forecasts

April 1, 2020



% of Normal Apr-Sep

UPPER COLUMBIA BASIN

		<u>Δ (since Mar 5)</u>
MICA	105	- 1
DUNCAN	120	+ 1
QUEENS BAY	103	- 3
LIBBY	96	- 3
HUNGRY HORSE	107	- 4
GRAND COULEE	106	- 2

SNAKE RIVER BASIN

AMERICAN FALLS	103	+ 15
LUCKY PEAK	72	+ 8
DWORSHAK	93	- 1
LOWER GRANITE	86	--

LOWER COLUMBIA BASIN

THE DALLES	98	- 2
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ESP10 Apr-Sep Water Supply Forecasts

COLUMBIA - GRAND COULEE DAM (GCDW1) Forecasts for Water Year 2020

Official Water Supply

ESP with 10 Days QPF Ensemble: 2020-04-01 Issued: 2020-04-01

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	59184	63926	106	68434	60110
APR-JUL	49877	53360	105	58962	51015
APR-AUG	55497	59759	105	65151	56763
JAN-SEP	66769	71511	104	76019	68694
JAN-JUL	57461	60944	102	66546	59599
OCT-SEP	74176	78917	103	83425	76824

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2020-04-01 Issued: 2020-04-01

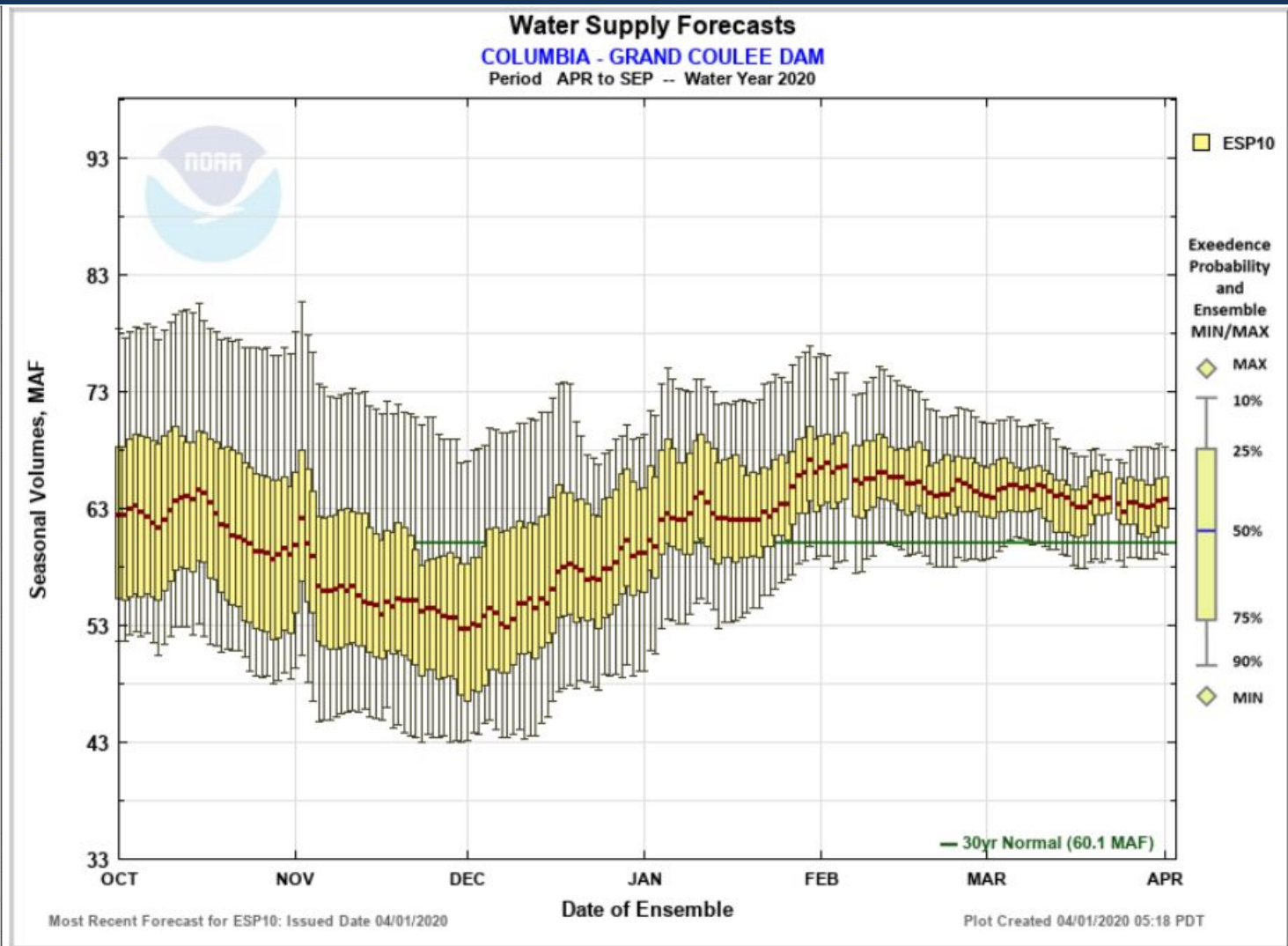
APR-SEP	60203	65089	108	69091	60110
APR-JUL	50226	55077	108	60432	51015
APR-AUG	56010	61418	108	65636	56763
JAN-SEP	67787	72674	106	76675	68694
JAN-JUL	57811	62661	105	68016	59599
OCT-SEP	75194	80080	104	84082	76824

Reference

ESP with 0 Days QPF Ensemble: 2020-04-01 Issued: 2020-04-01

APR-SEP	60140	65522	109	68739	60110
APR-JUL	50575	55168	108	60351	51015
APR-AUG	55931	61482	108	65464	56763
JAN-SEP	67725	73107	106	76324	68694
JAN-JUL	58160	62752	105	67936	59599
OCT-SEP	75131	80513	105	83731	76824

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

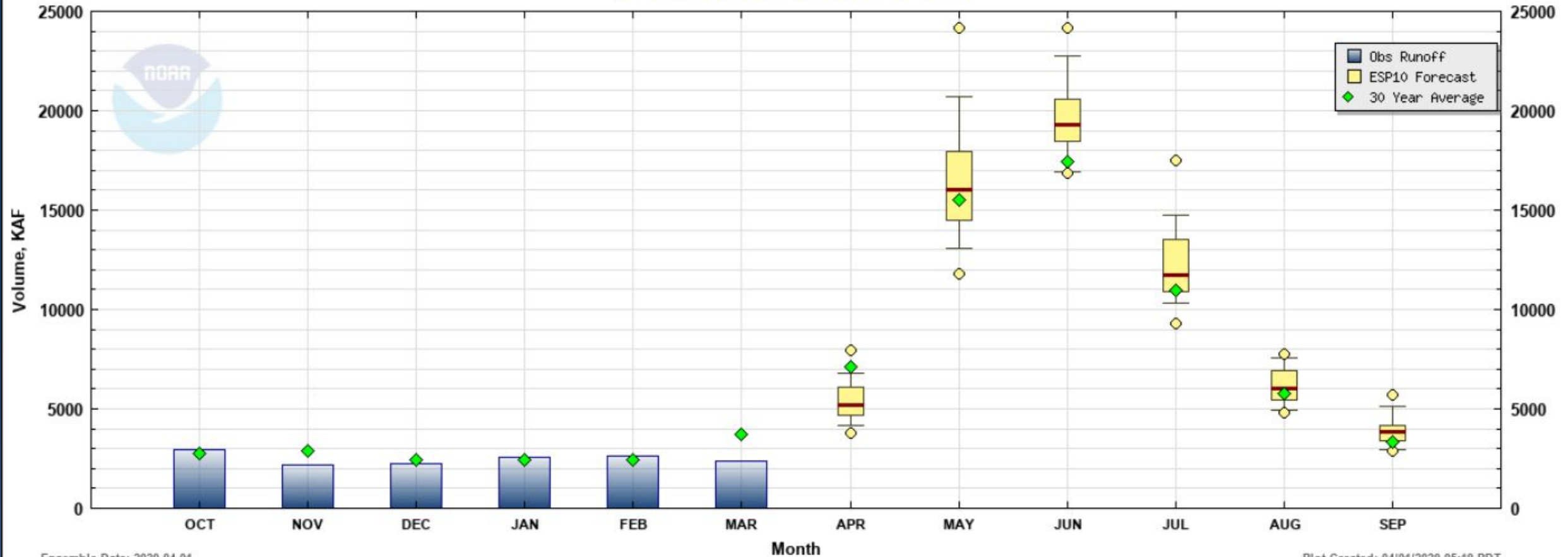


☐ Max Scale ☒ Scale To Data ☐ Scale To Last 45 Days ☐ Show Min/Max Ensemble Volume ☐ Show Tooltips Help



ESP10 Water Supply Volume Monthly Forecasts

Water Supply Volume Monthly Forecasts (ESP10) for Water Year 2020
(GCDW1) COLUMBIA - GRAND COULEE DAM





ESP10 Apr-Sep Water Supply Forecasts

SNAKE - LOWER GRANITE DAM (LGDW1) Forecasts for Water Year 2020

Official Water Supply

ESP with 10 Days QPF Ensemble: 2020-04-01 Issued: 2020-04-01

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	17272	19196	86	23409	22279
APR-JUL	15012	16880	85	20601	19848
APR-AUG	16151	18070	86	22056	21091
JAN-SEP	22757	24681	83	28894	29872
JAN-JUL	20497	22365	82	26086	27440
OCT-SEP	26671	28596	82	32809	34667

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2020-04-01 Issued: 2020-04-01

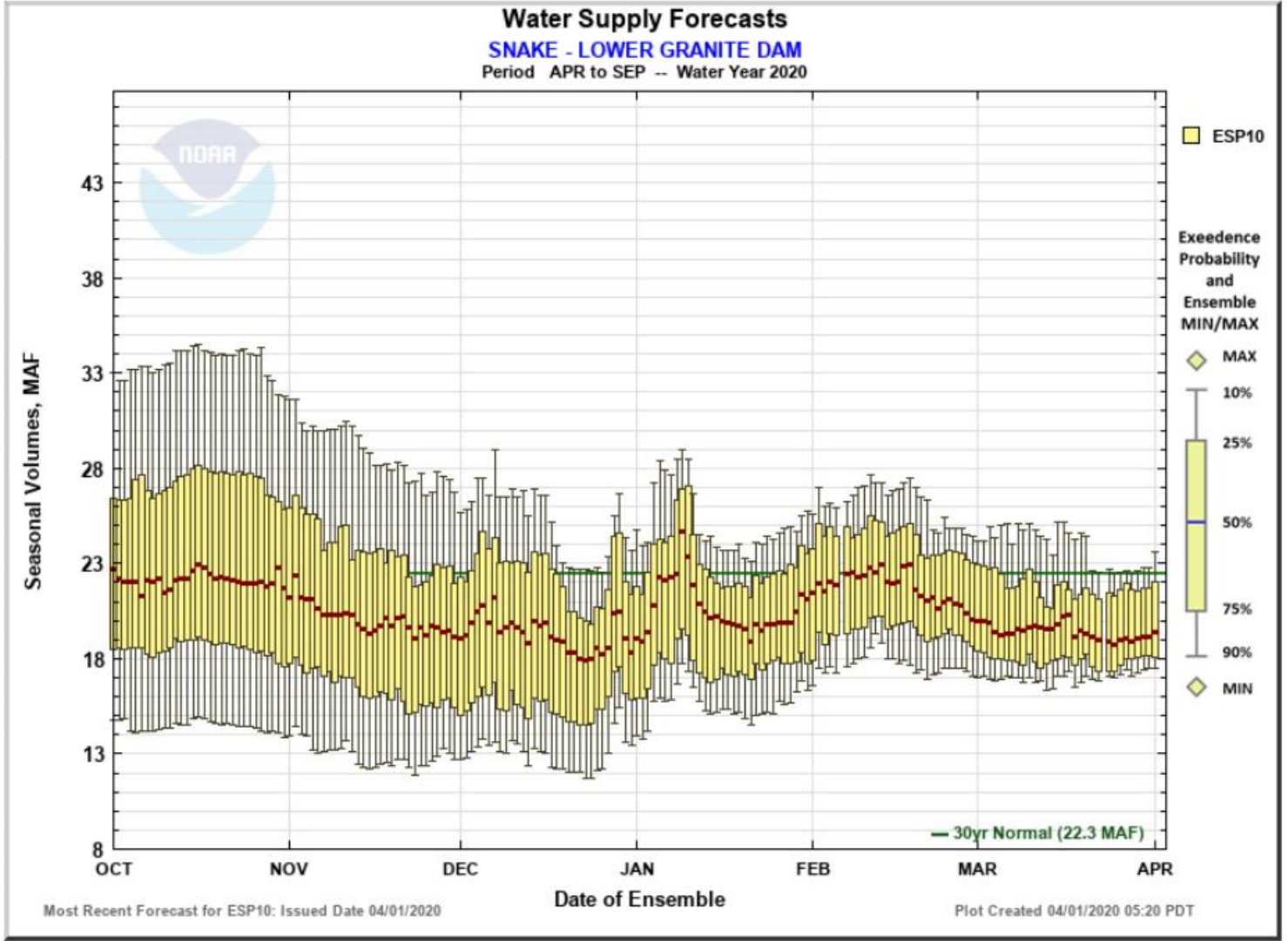
APR-SEP	18088	20428	92	25281	22279
APR-JUL	15850	18086	91	22059	19848
APR-AUG	17025	19283	91	23731	21091
JAN-SEP	23574	25914	87	30766	29872
JAN-JUL	21336	23571	86	27544	27440
OCT-SEP	27488	29828	86	34681	34667

Reference

ESP with 0 Days QPF Ensemble: 2020-04-01 Issued: 2020-04-01

APR-SEP	17976	20207	91	24763	22279
APR-JUL	15831	17699	89	21897	19848
APR-AUG	16948	19052	90	23390	21091
JAN-SEP	23461	25692	86	30248	29872
JAN-JUL	21317	23184	84	27382	27440
OCT-SEP	27376	29607	85	34163	34667

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



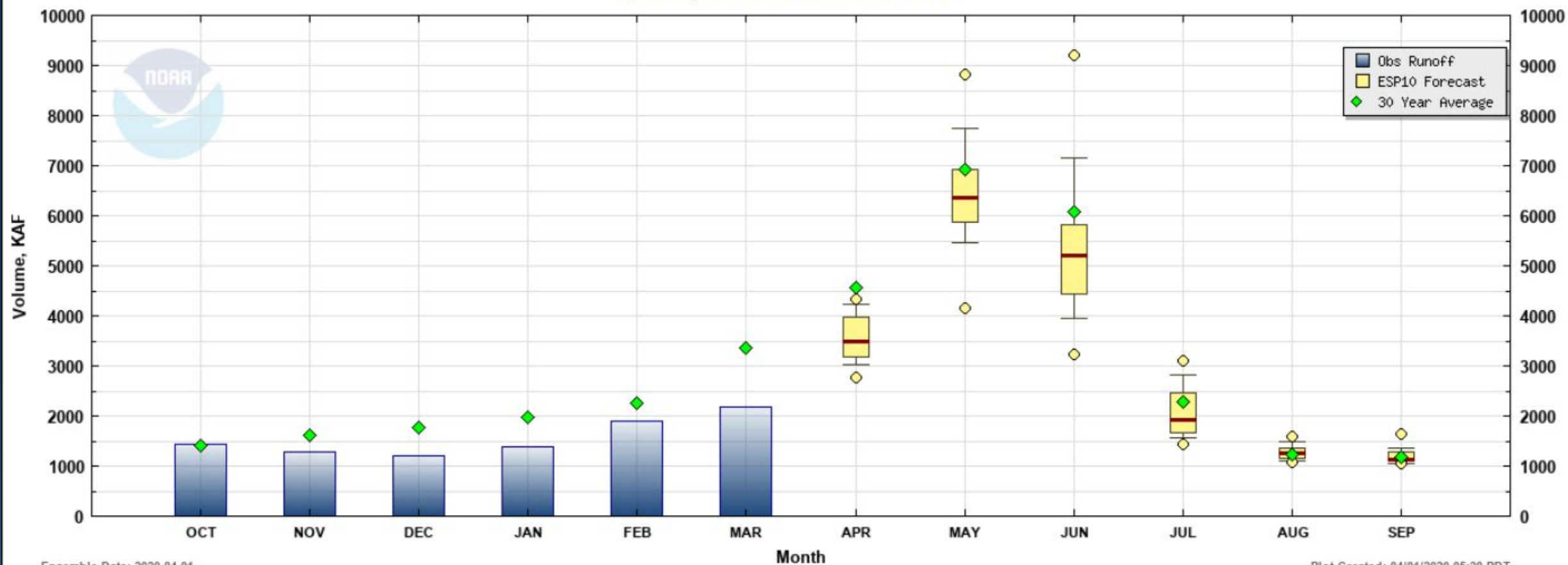
☐ Max Scale ☒ Scale To Data ☐ Scale To Last 45 Days ☐ Show Min/Max Ensemble Volume ☐ Show Tooltips Help



ESP10 Water Supply Volume Monthly Forecasts

Water Supply Volume Monthly Forecasts (ESP10) for Water Year 2020

(LGDW1) SNAKE - LOWER GRANITE DAM





ESP10 Apr-Sep Water Supply Forecasts

COLUMBIA - THE DALLES DAM (TDAO3) Forecasts for Water Year 2020

Official Water Supply

ESP with 10 Days QPF Ensemble: 2020-04-01 Issued: 2020-04-01

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	84953	90757	98	101151	92704
APR-JUL	73419	78425	98	87474	79855
APR-AUG	80256	85696	98	95422	87532
JAN-SEP	101967	107771	94	118165	114216
JAN-JUL	90433	95440	94	104488	101368
OCT-SEP	114292	120095	92	130490	130518

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2020-04-01 Issued: 2020-04-01

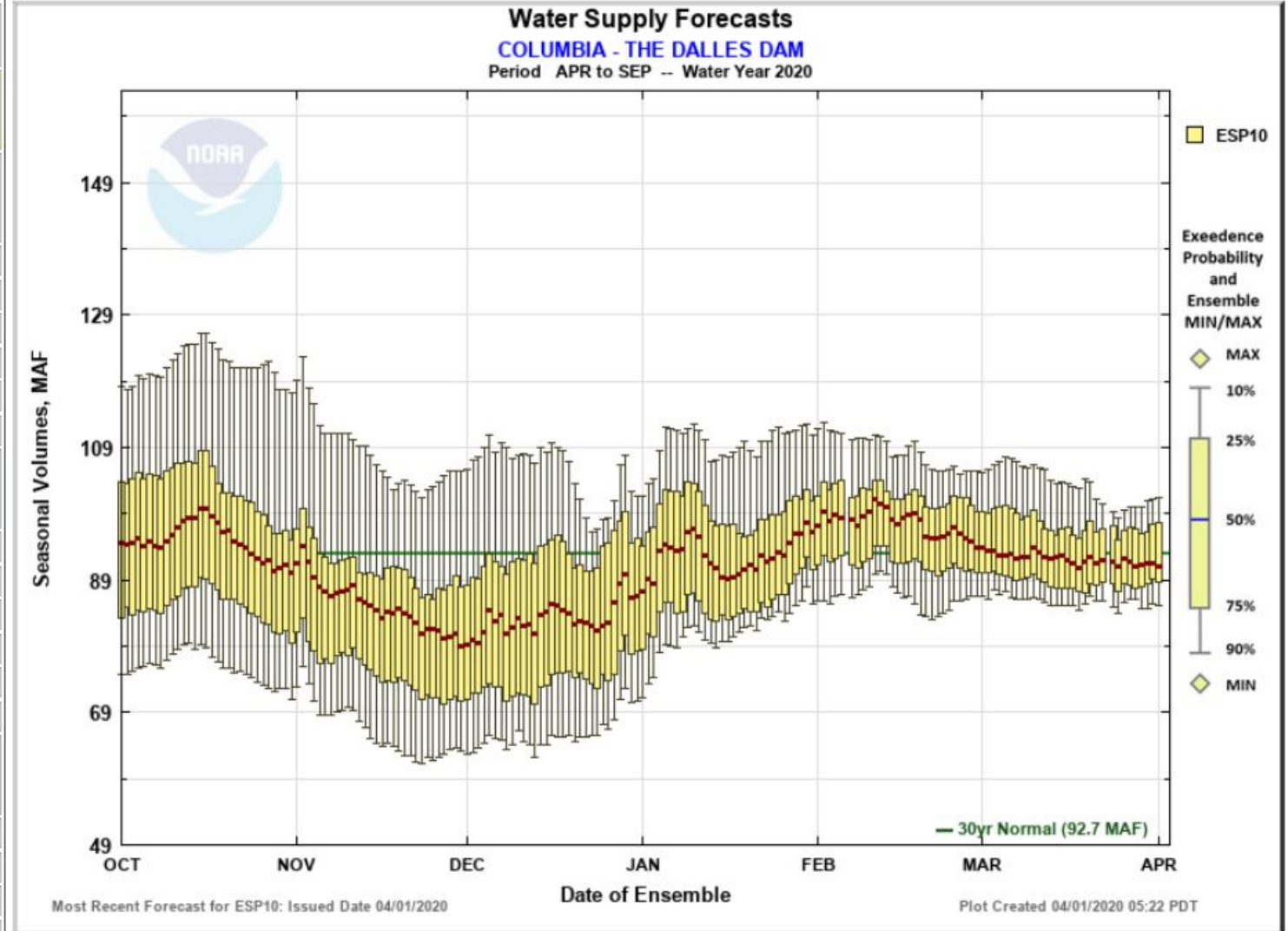
APR-SEP	87987	95350	103	102762	92704
APR-JUL	75480	80944	101	88028	79855
APR-AUG	82993	89191	102	97263	87532
JAN-SEP	105001	112364	98	119776	114216
JAN-JUL	92494	97958	97	105042	101368
OCT-SEP	117326	124688	96	132102	130518

Reference

ESP with 0 Days QPF Ensemble: 2020-04-01 Issued: 2020-04-01

APR-SEP	87990	94755	102	102834	92704
APR-JUL	75286	81438	102	88495	79855
APR-AUG	82944	88904	102	97694	87532
JAN-SEP	105005	111769	98	119848	114216
JAN-JUL	92301	98452	97	105510	101368
OCT-SEP	117329	124094	95	132173	130518

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



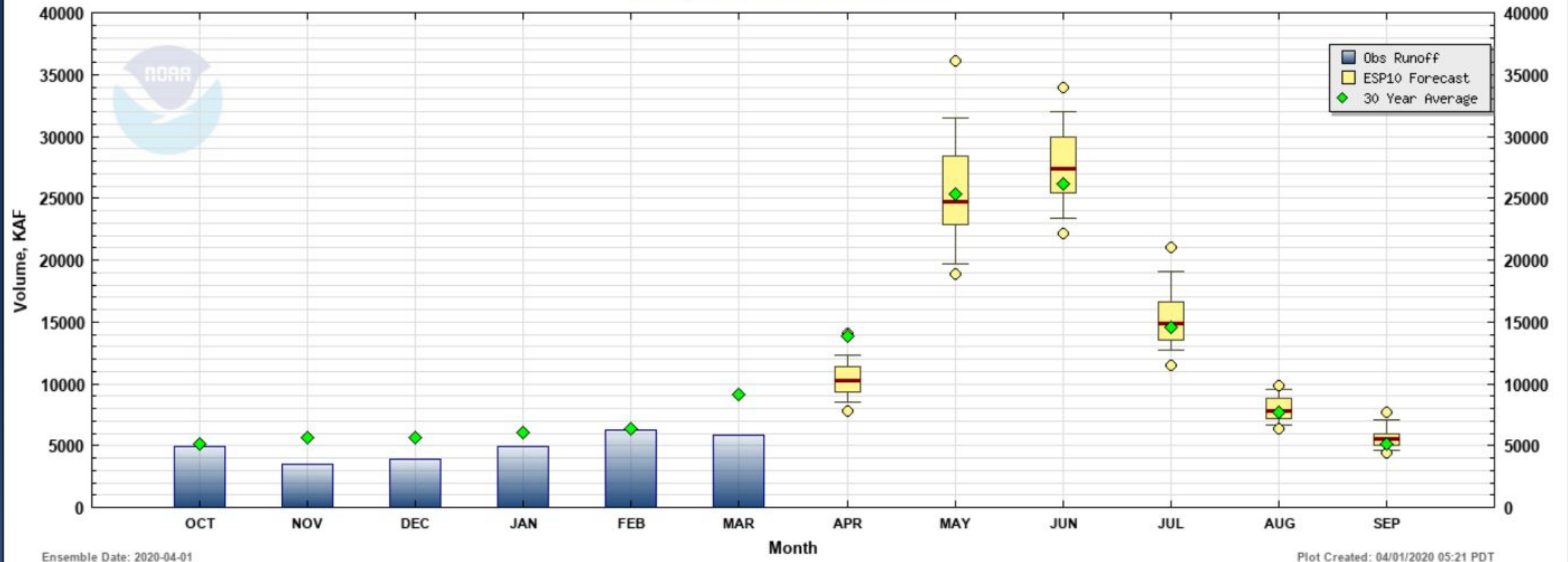
☐ Max Scale ☒ Scale To Data ☐ Scale To Last 45 Days ☐ Show Min/Max Ensemble Volume ☐ Show Tooltips Help



ESP10 Water Supply Volume Monthly Forecasts

Water Supply Volume Monthly Forecasts (ESP10) for Water Year 2020

(TDAO3) COLUMBIA - THE DALLES DAM





ESP10 Natural Apr-Sep Forecasts

ESP Natural Forecast

Period: APR-SEP

Forecast (% Normal)

No Normal, No Data

< 25

25-50

50-75

75-90

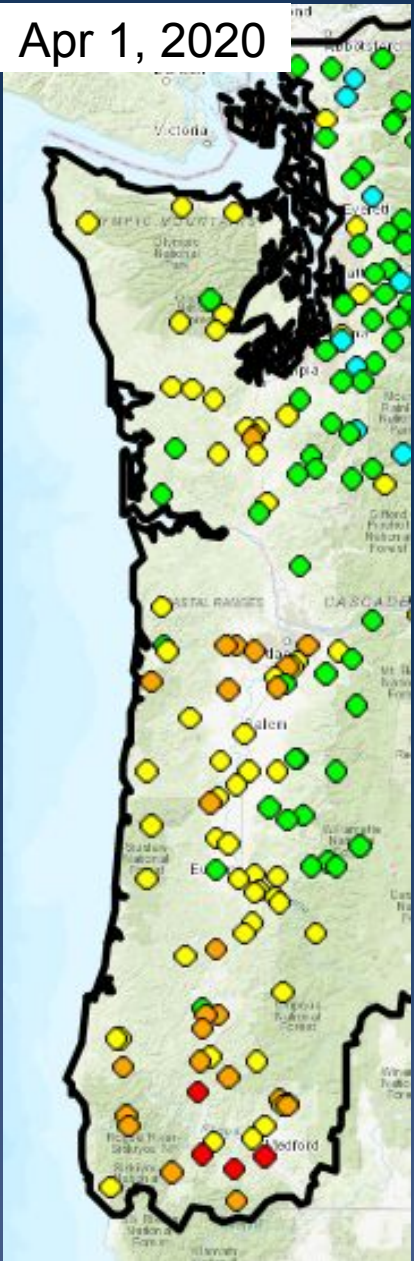
90-110

110-125

125-150

150-175

> 175

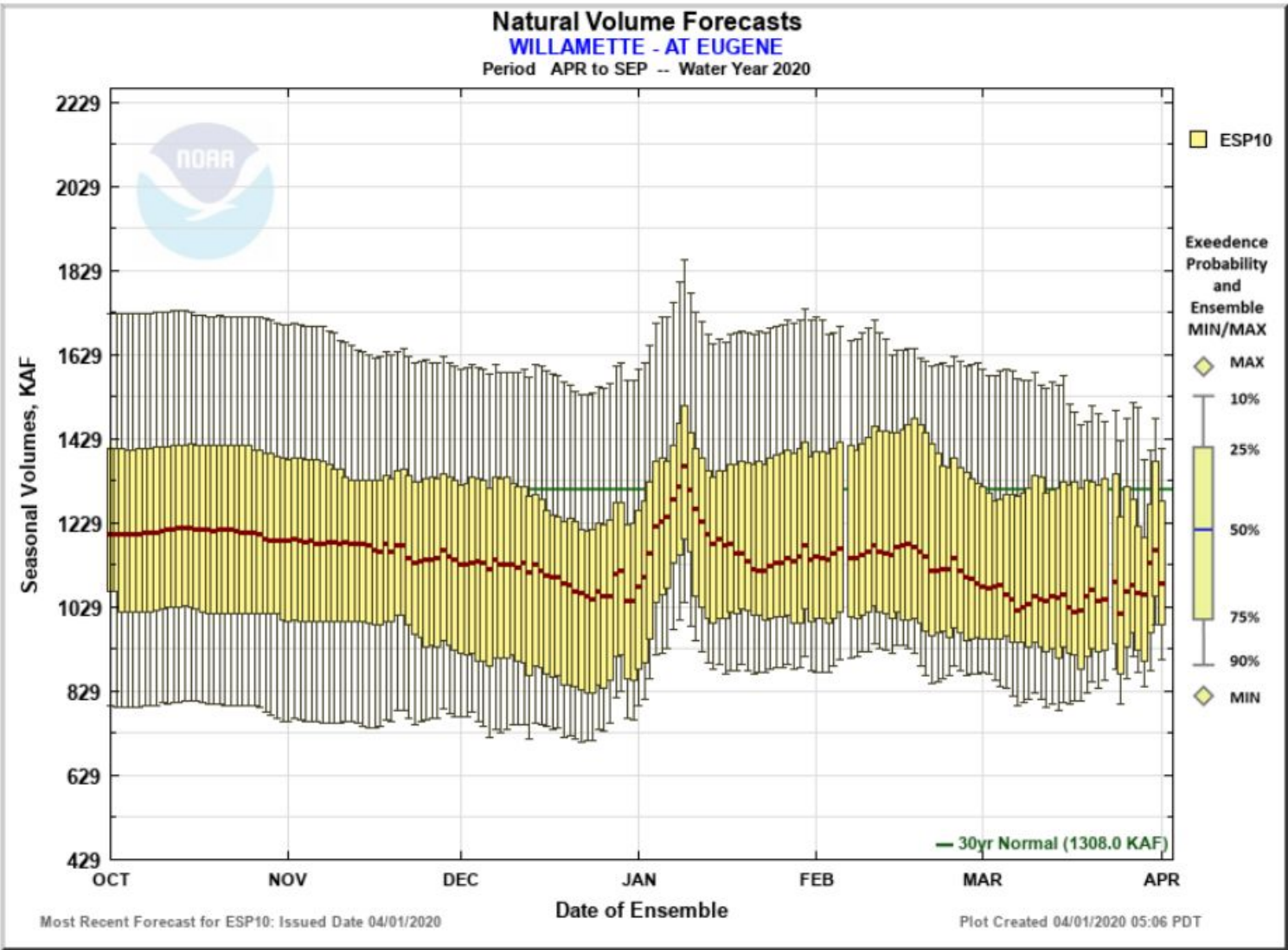


Basin	% 30 yr Normal	<u>Δ since Mar 5</u>
Washington		
Skagit River near Concrete	106%	+ 2
Green River Howard Hanson Res	90%	- 2
Cowlitz River Mossyrock Reservoir	98%	+ 1
Cowlitz River Mayfield Reservoir	97%	--
Oregon		
North Santiam At Mehama	91%	+ 5
Willamette River At Salem	80%	+ 1
Rogue River Applegate Reservoir	53%	- 6



ESP10 Natural Apr-Sep Forecasts

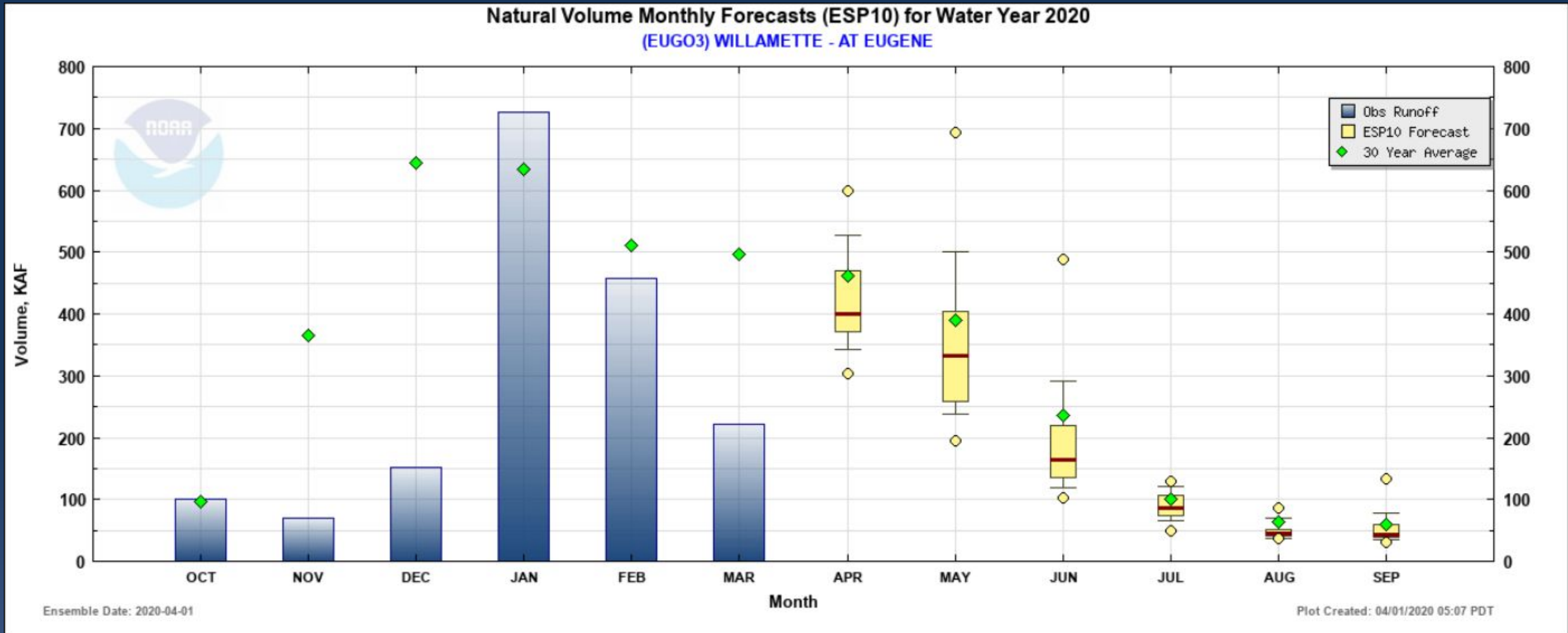
WILLAMETTE - AT EUGENE (EUGO3) Forecasts for Water Year 2020					
Official Water Supply					
ESP with 10 Days QPF Ensemble: 2020-04-01 Issued: 2020-04-01					
Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	905	1085	83	1408	1308
APR-JUL	830	1003	85	1313	1185
JAN-SEP	2317	2497	85	2820	2950
JAN-JUL	2242	2415	85	2725	2828
OCT-SEP	2639	2819	70	3142	4056
Experimental Water Supply					
HEFS with 15 days EQPF Ensemble: 2020-04-01 Issued: 2020-04-01					
APR-SEP	972	1162	89	1532	1308
APR-JUL	868	1038	88	1423	1185
JAN-SEP	2384	2574	87	2944	2950
JAN-JUL	2280	2450	87	2835	2828
OCT-SEP	2706	2896	71	3266	4056
Reference					
ESP with 0 Days QPF Ensemble: 2020-04-01 Issued: 2020-04-01					
APR-SEP	955	1157	88	1573	1308
APR-JUL	855	1041	88	1457	1185
JAN-SEP	2367	2570	87	2985	2950
JAN-JUL	2267	2453	87	2869	2828
OCT-SEP	2689	2891	71	3307	4056
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

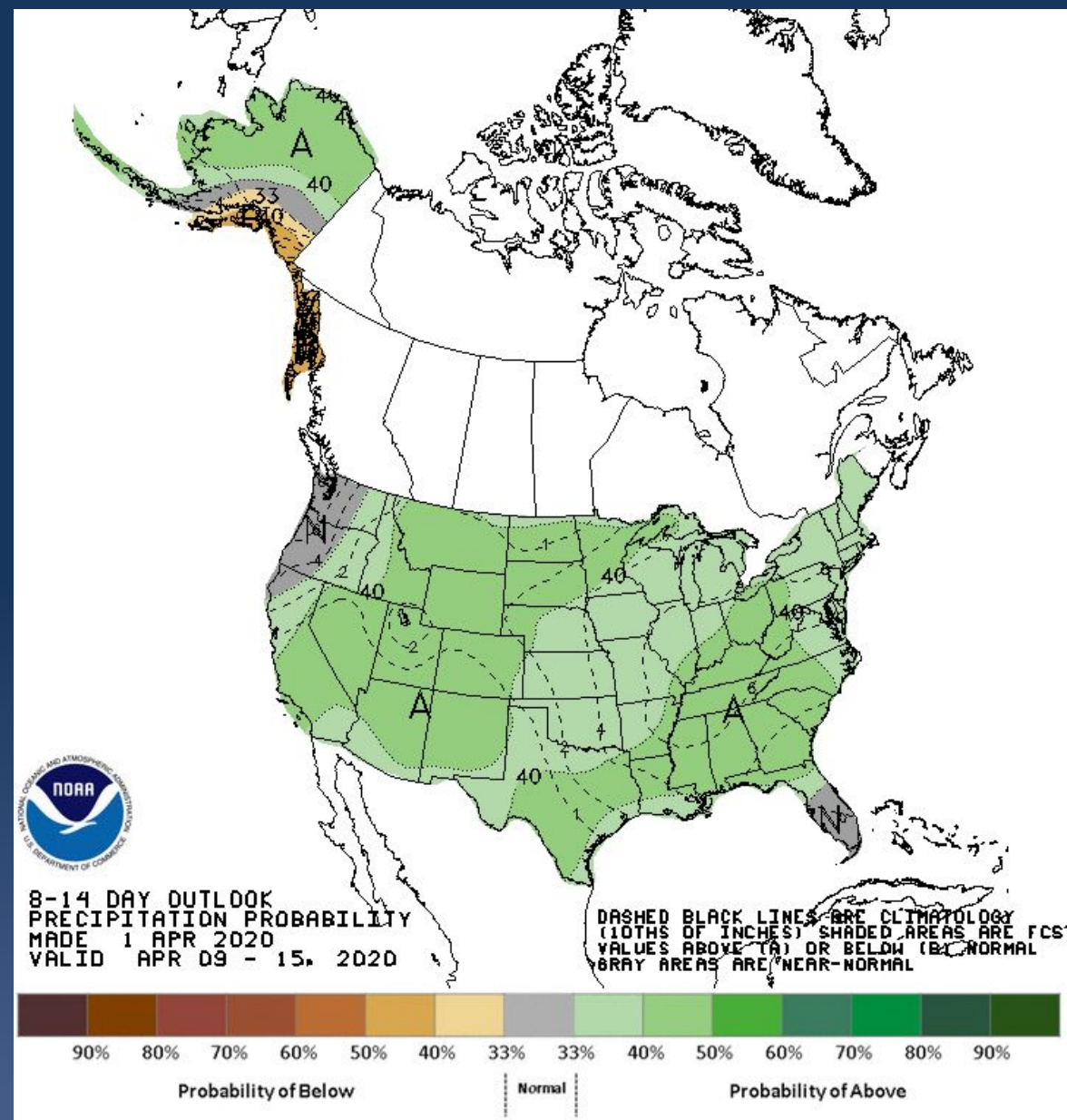
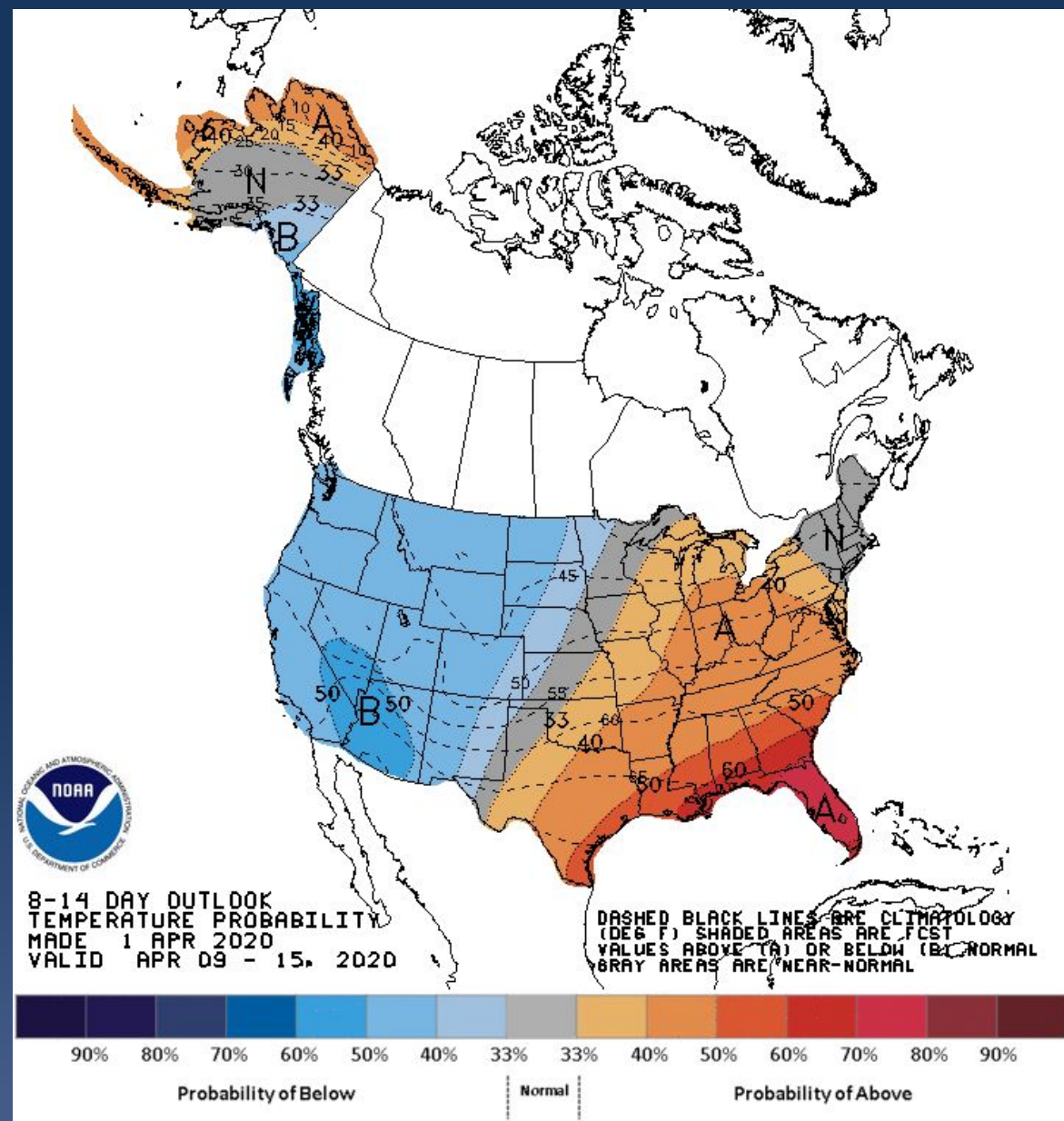


ESP10 Natural Volume Monthly Forecasts



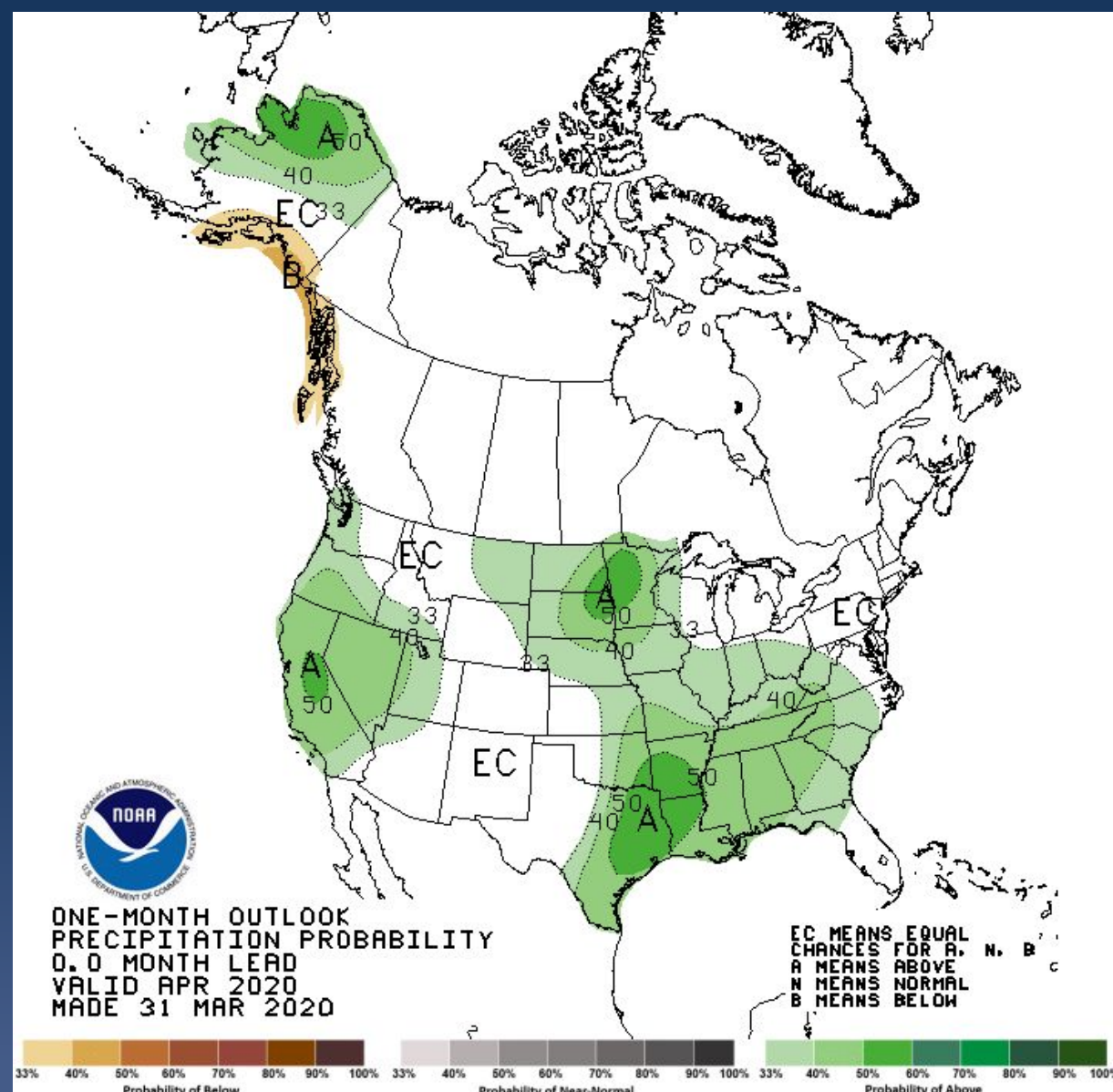
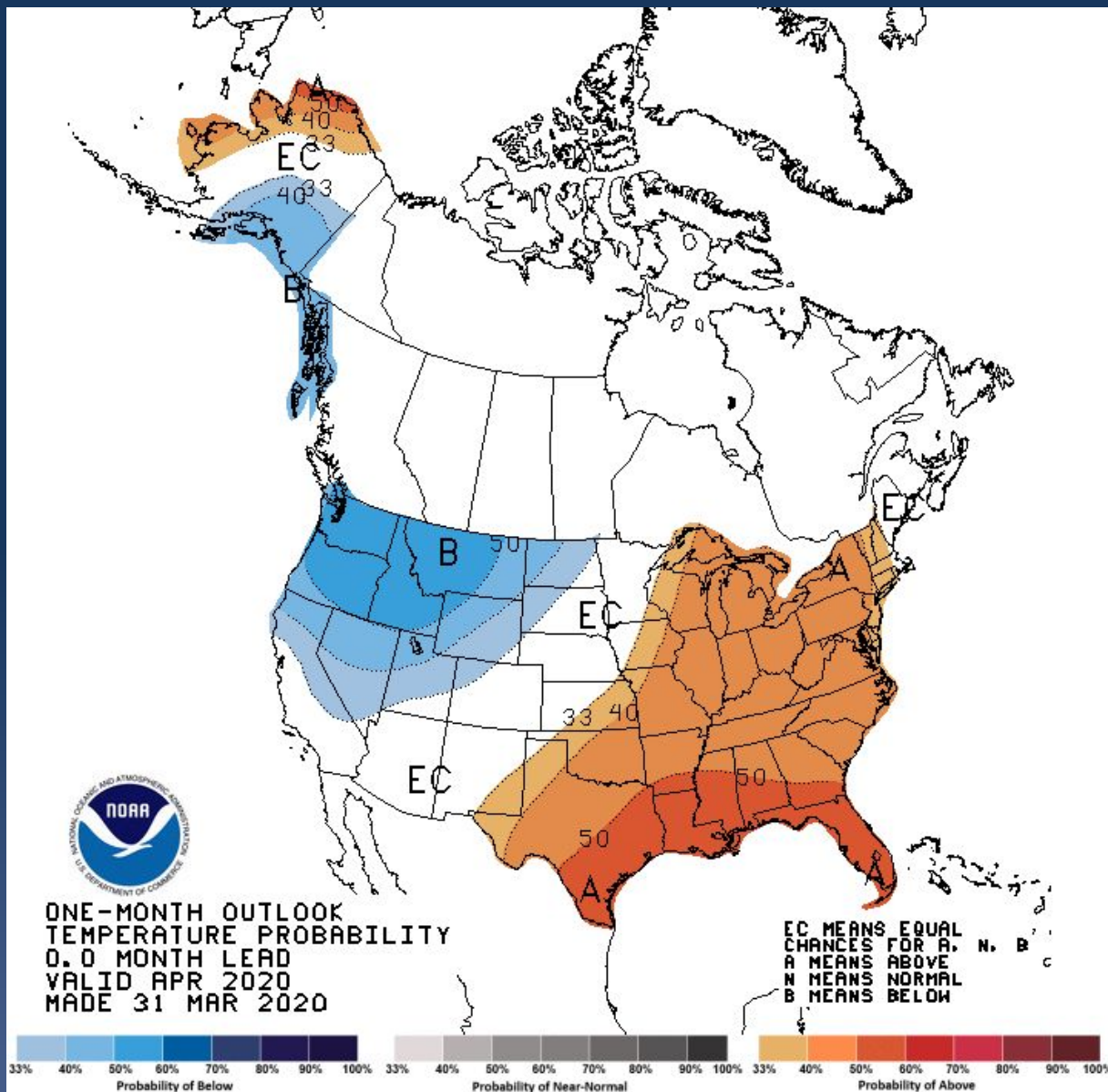


CPC 8-14 Day Outlook





CPC One-Month Outlook





Water Year 2020 Summary

Columbia River Forecasts near to above normal.

- Higher volume forecasts to the north and east.

Snake River Forecasts generally below normal.

- Especially dry in Middle Snake from American Falls to the Salmon R confluence.
- Forecasts in the Upper Snake above American Falls are near normal.
- Clearwater River has near normal water supply forecast.

West of the Cascades is a tale of two states.

- Washington near normal.
- Oregon below normal, lower to the south.



2019 Schedule for Live Water Supply Briefings

May 7

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

Telephone Conference Call Number
(same for each month's brief):
(562) 247-8422

Pass Code :
322-562-815#



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

