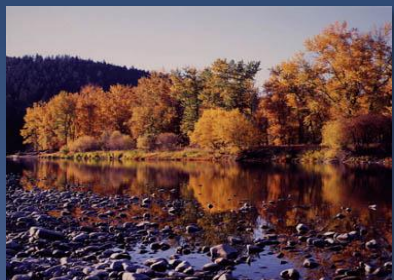




# Northwest River Forecast Center



## June 2020 Water Supply Briefing

Telephone Conference : (562) 247-8422

Pass Code : 951-013-439#

Ryan Lucas, PhD

[NWRFC.watersupply@noaa.gov](mailto: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

May was wetter than normal for most of the basin.

Northern basin near normal to above normal water supply forecasts.

Southern basin generally below normal water supply forecasts.

State drought declarations for counties in S Oregon and S Idaho.



# 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

- State Drought Declarations
- CPC Climate Outlook

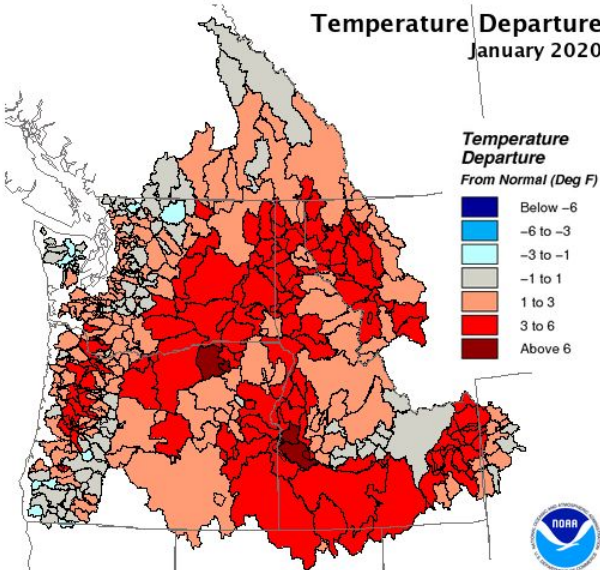
## Summary





# Monthly Temperature Departure

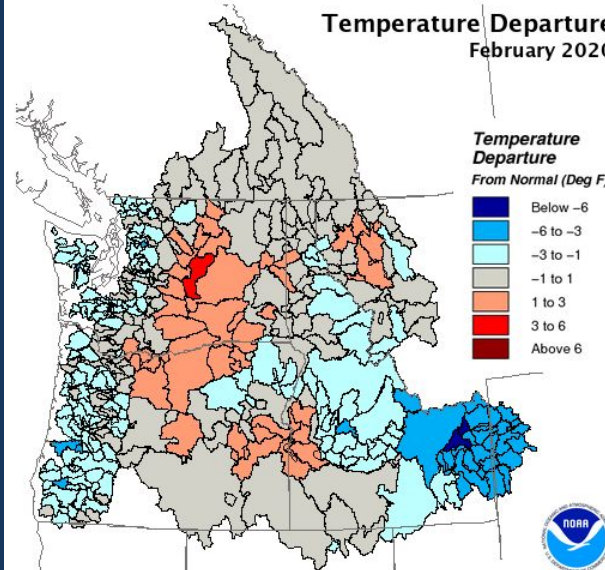
Temperature Departure  
January 2020



Creation Time: Saturday, Feb 1, 2020

Northwest River Forecast Center

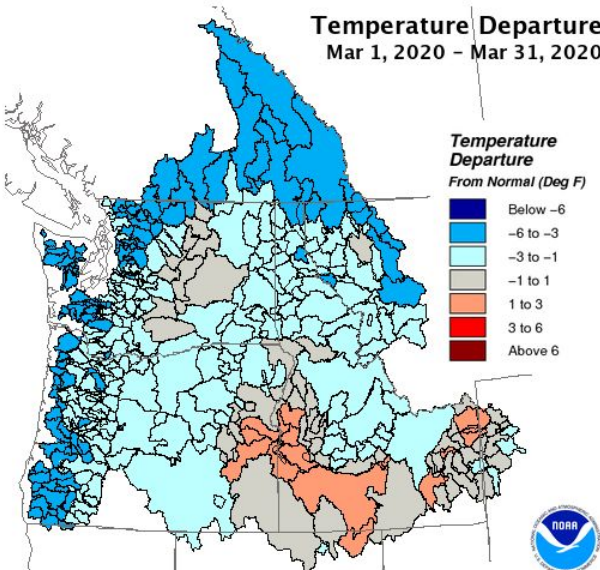
Temperature Departure  
February 2020



Creation Time: Sunday, Mar 1, 2020

Northwest River Forecast Center

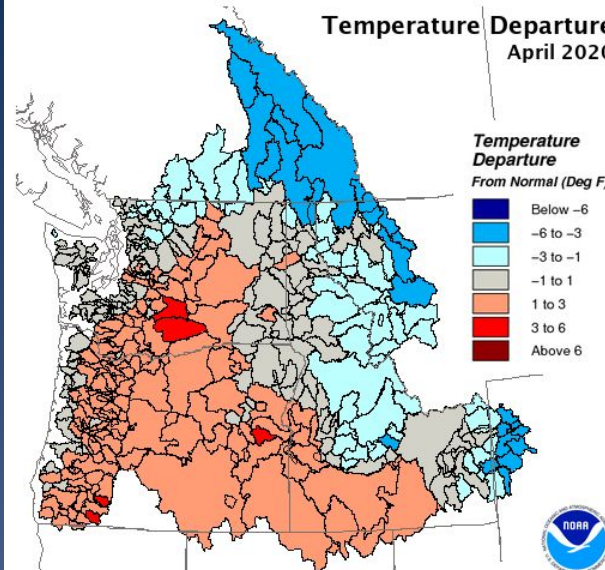
Temperature Departure  
Mar 1, 2020 - Mar 31, 2020



Creation Time: Wednesday, Apr 1, 2020

Northwest River Forecast Center

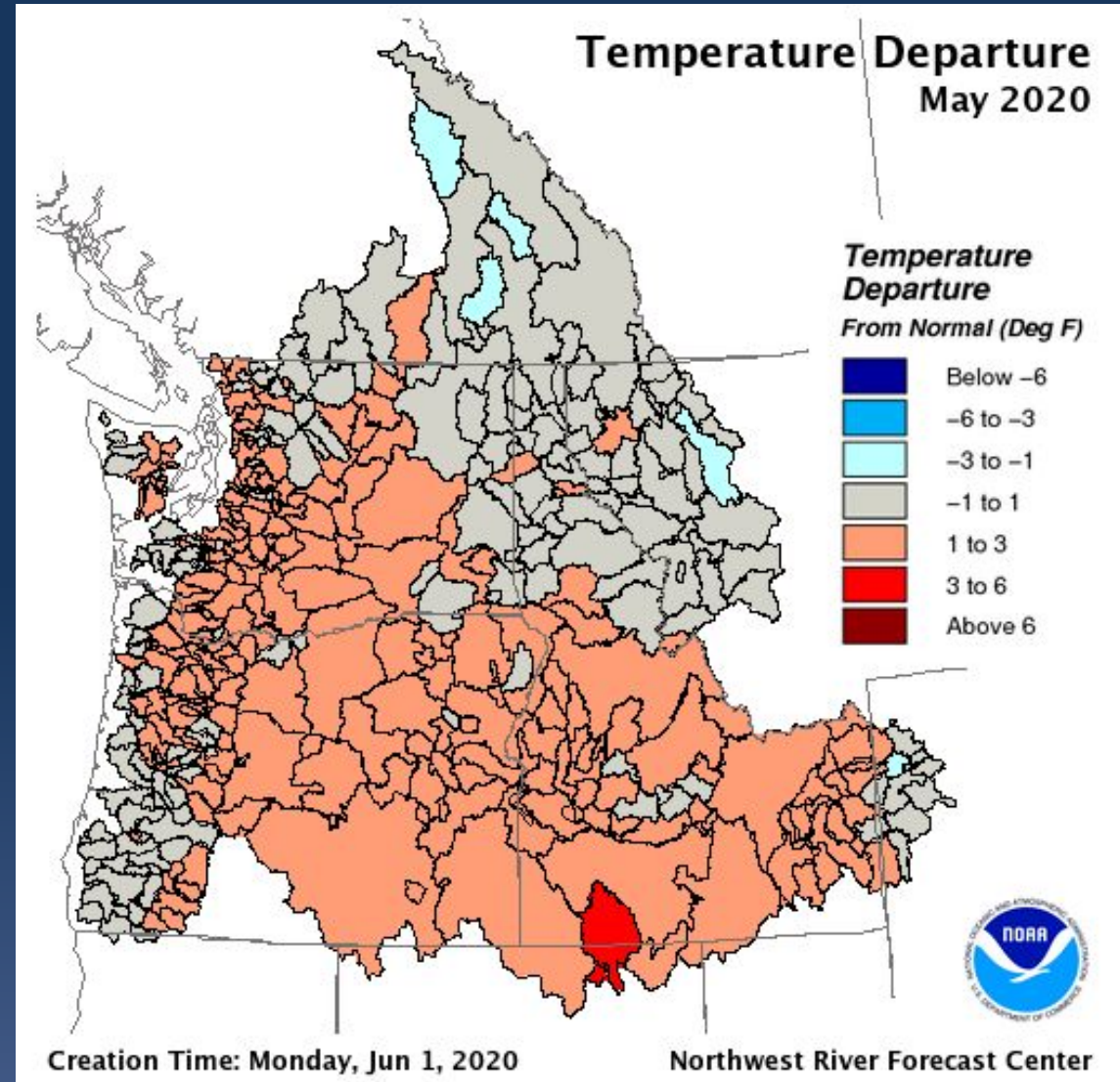
Temperature Departure  
April 2020



Creation Time: Friday, May 1, 2020

Northwest River Forecast Center

Temperature Departure  
May 2020

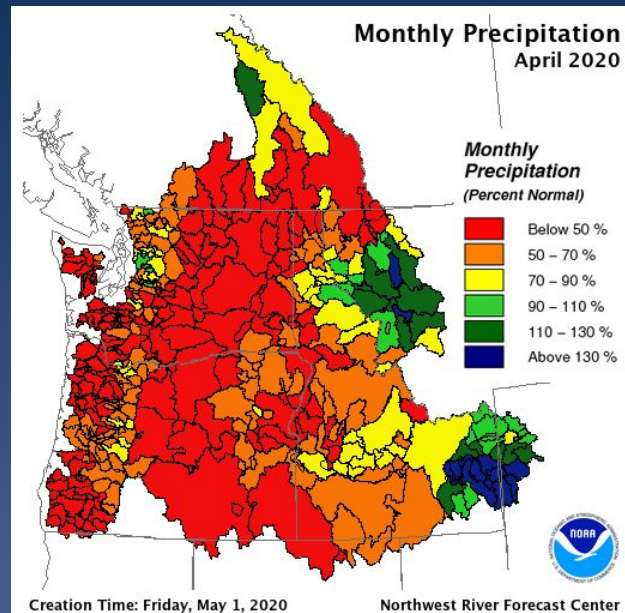
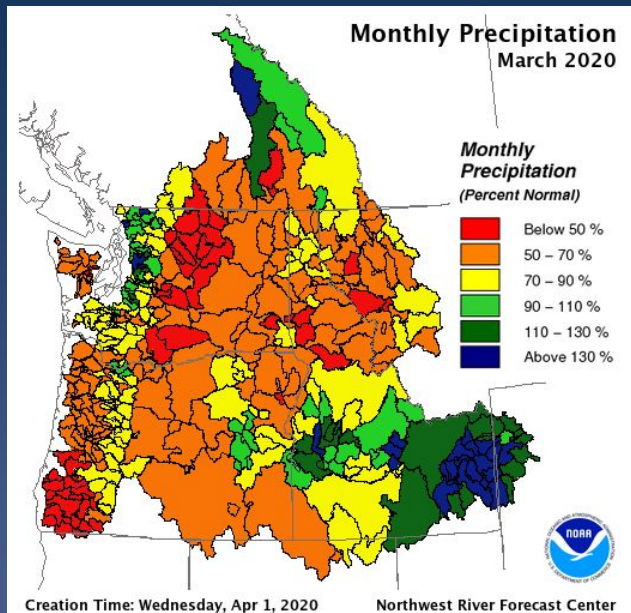
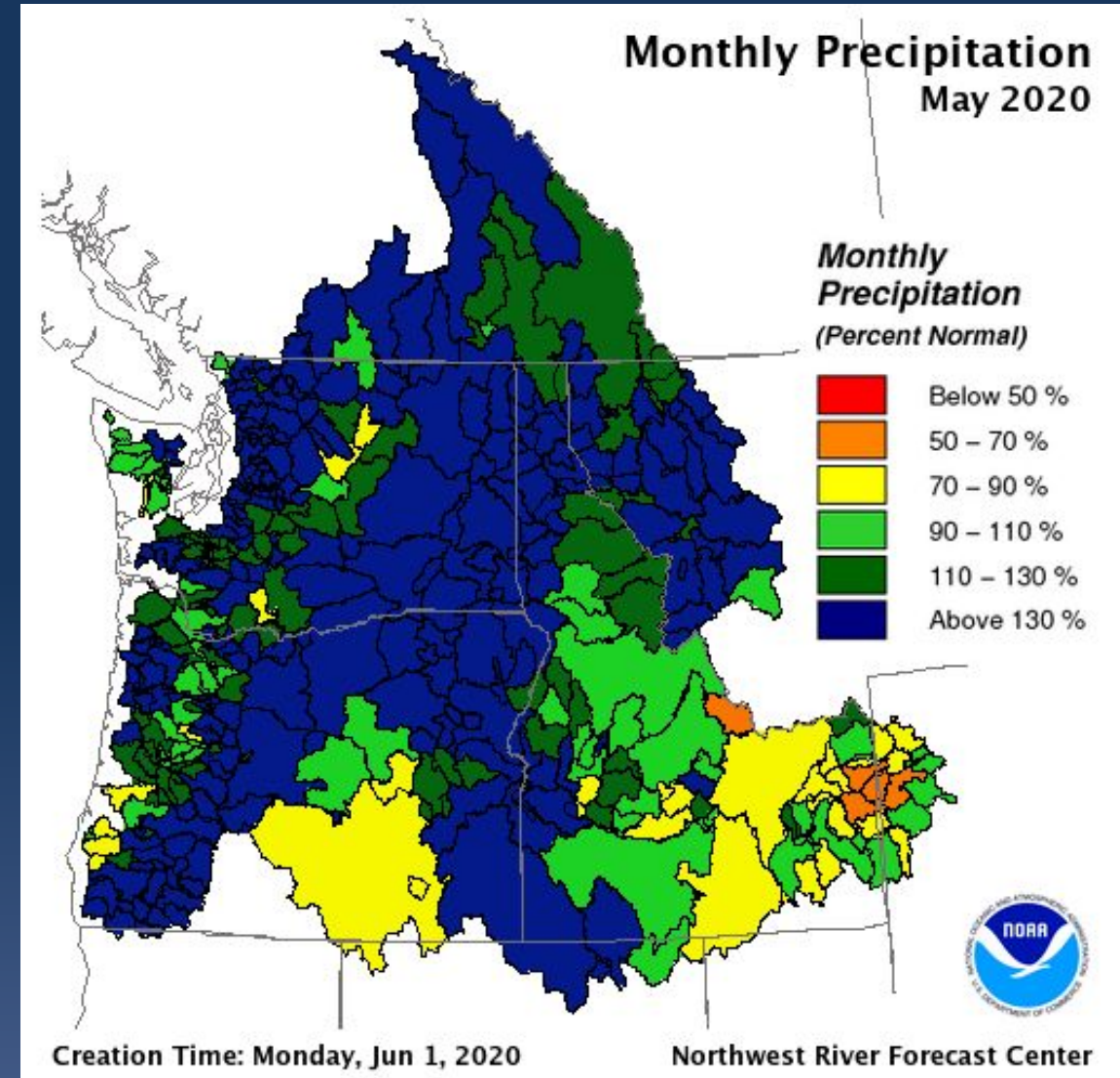
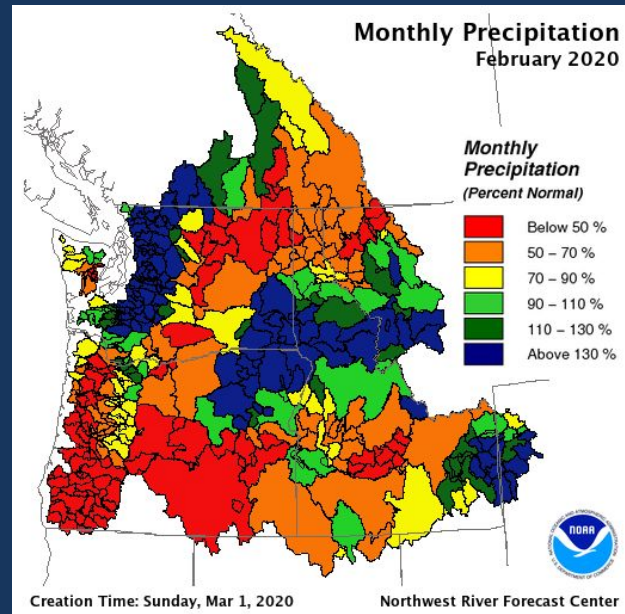
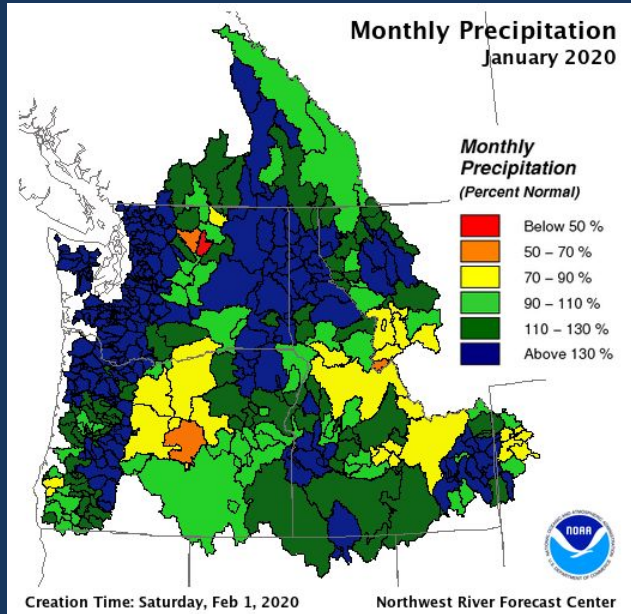


Creation Time: Monday, Jun 1, 2020

Northwest River Forecast Center



# Monthly Precipitation Departure

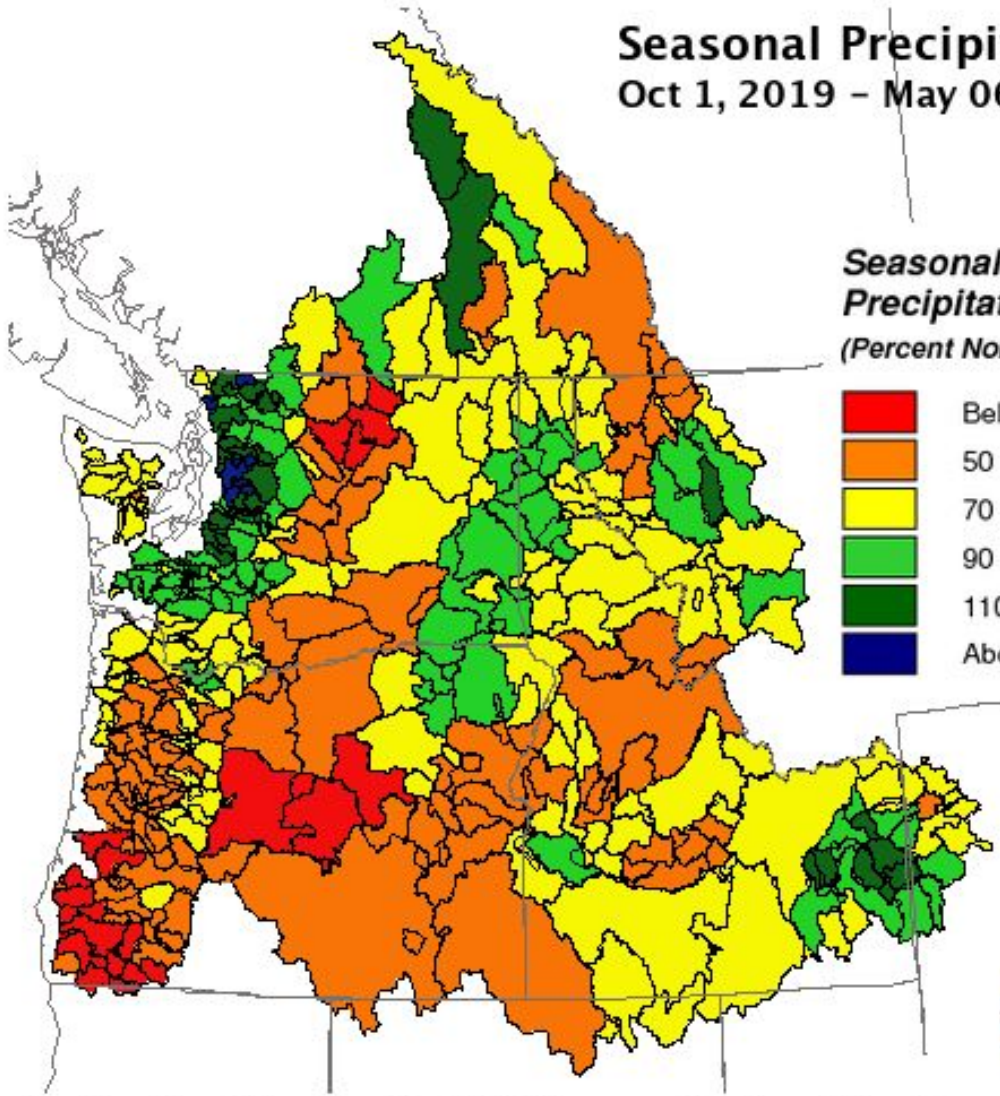
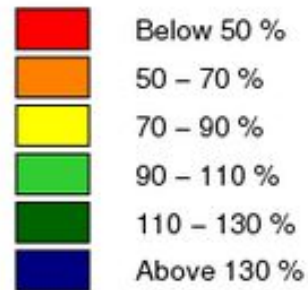




# Seasonal Precipitation

**Seasonal Precipitation**  
Oct 1, 2019 - May 06, 2020

**Seasonal  
Precipitation**  
(Percent Normal)



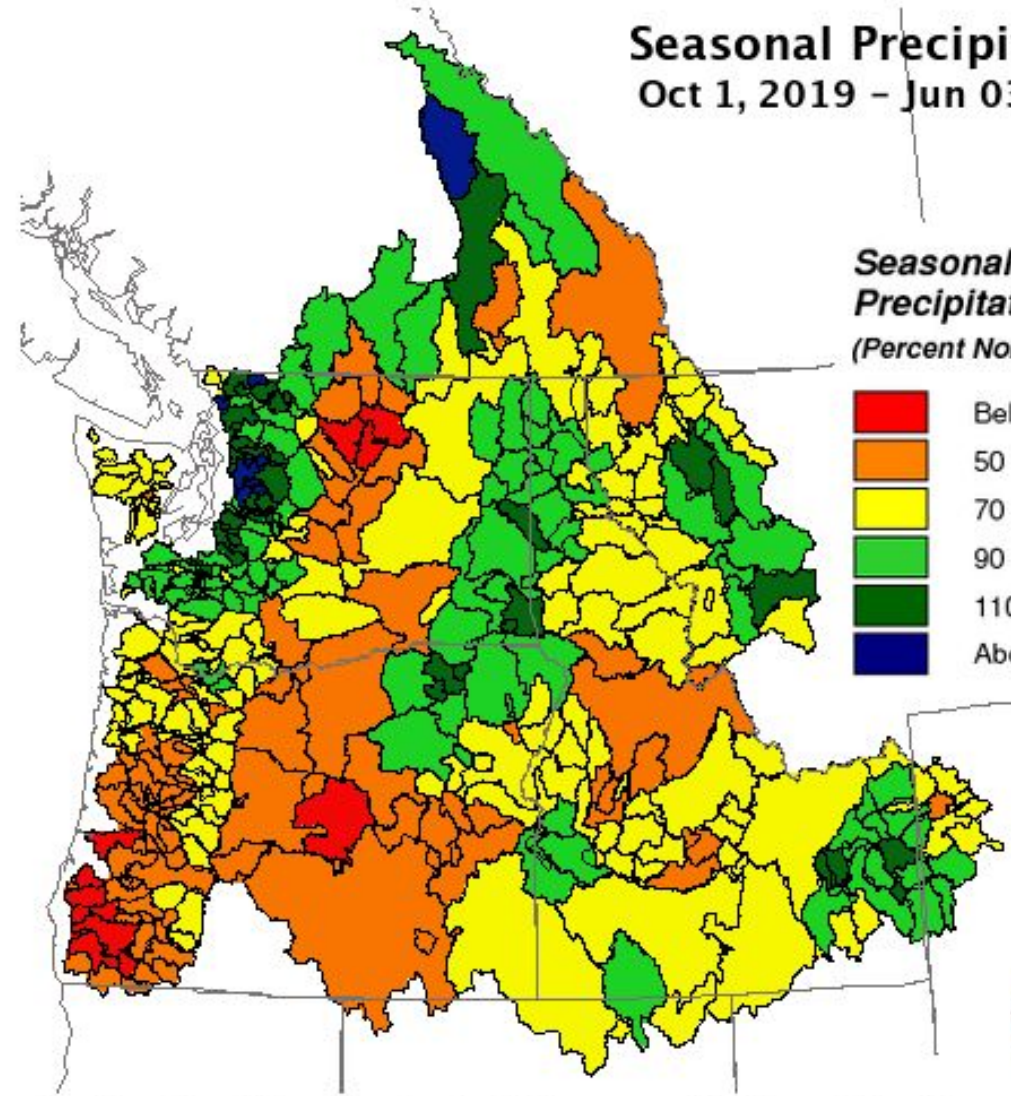
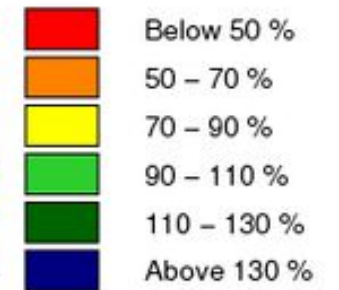
Creation Time: Thursday, May 7, 2020

Northwest River Forecast Center



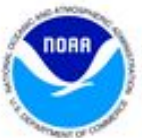
**Seasonal Precipitation**  
Oct 1, 2019 - Jun 03, 2020

**Seasonal  
Precipitation**  
(Percent Normal)



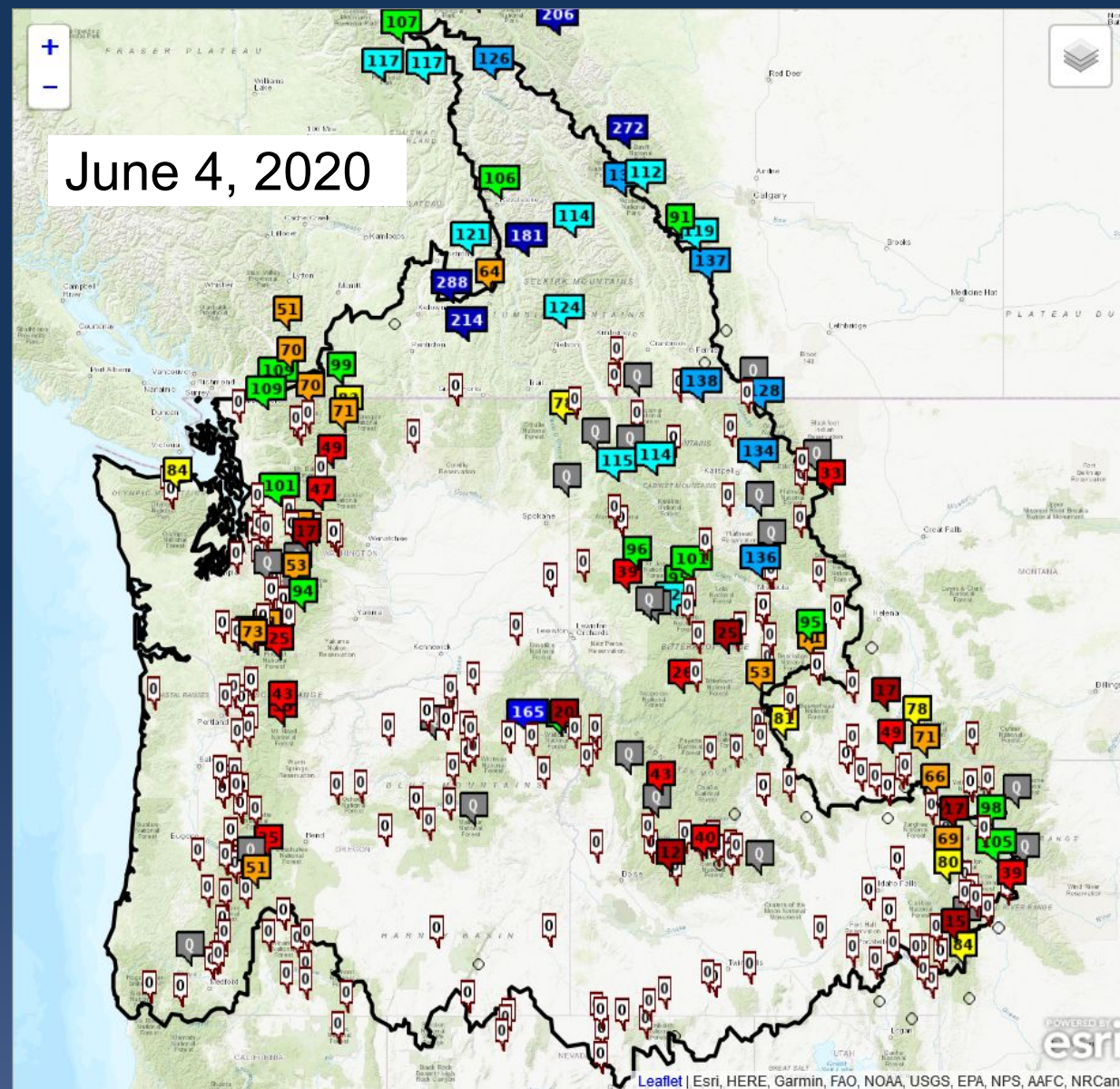
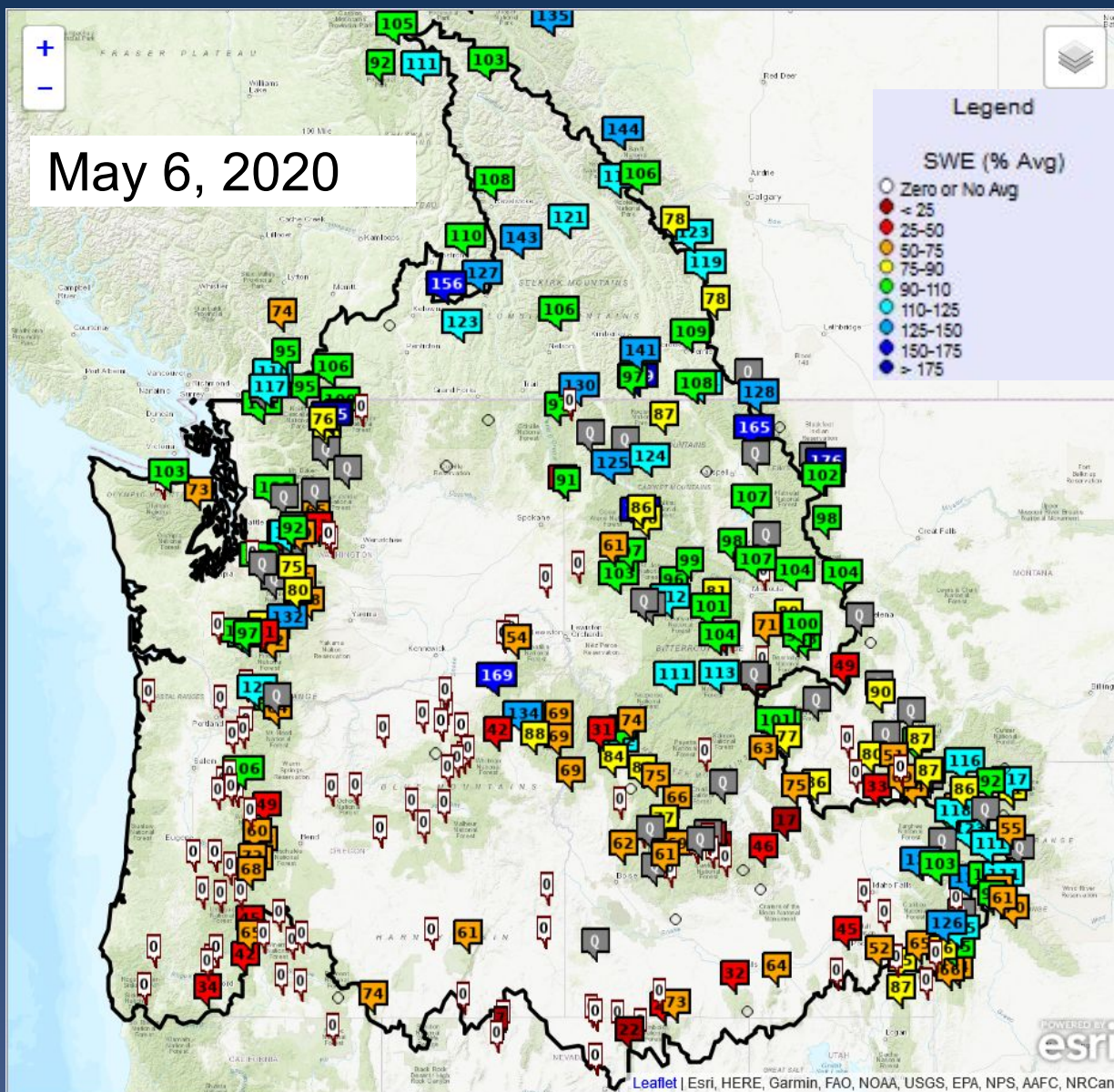
Creation Time: Thursday, Jun 4, 2020

Northwest River Forecast Center





# Snowpack

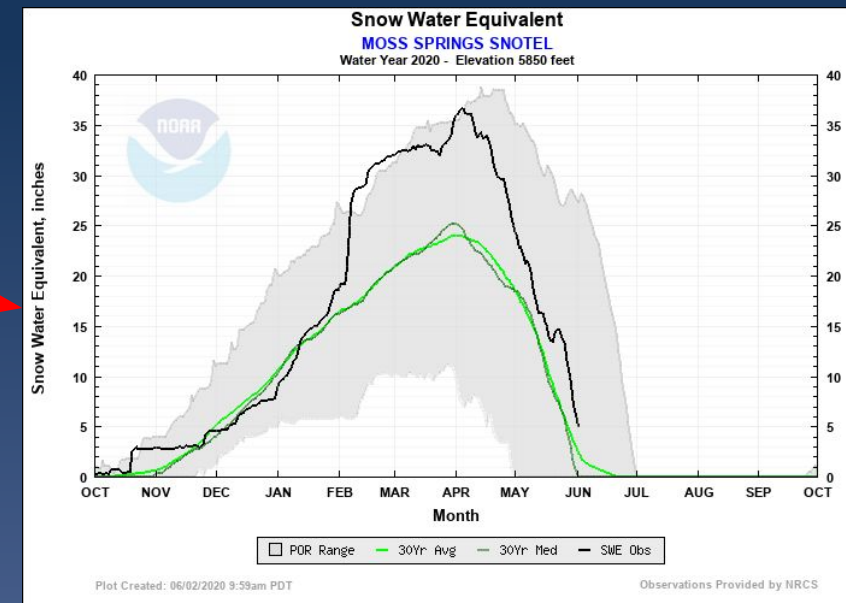
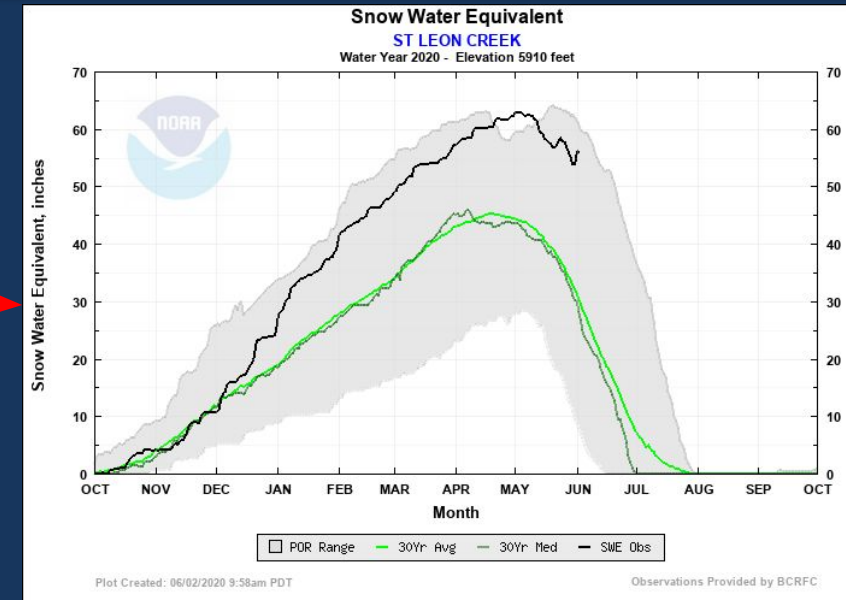
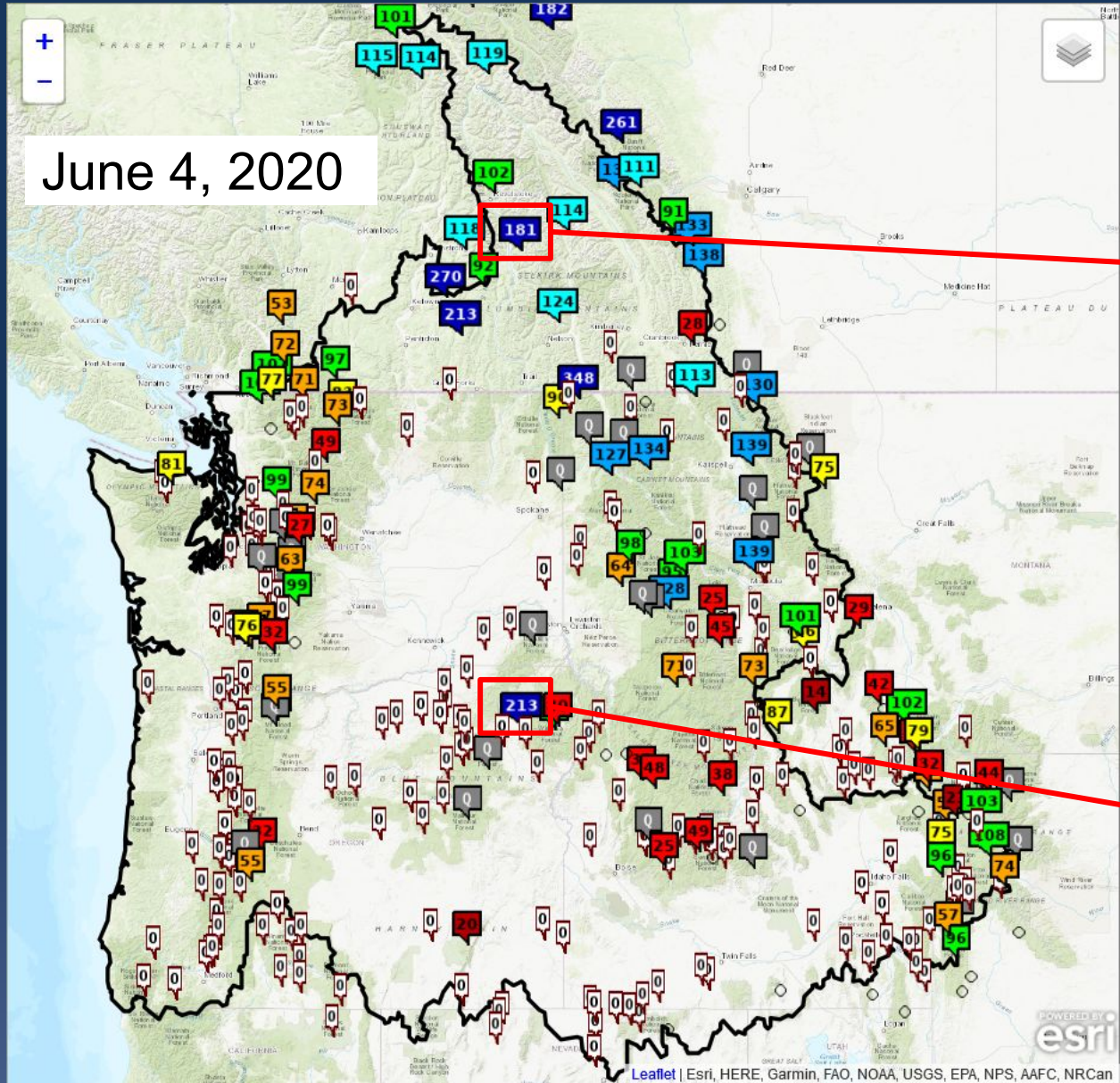


Snow data from NRCS, BC Hydro, and Alberta EP.



# Snowpack

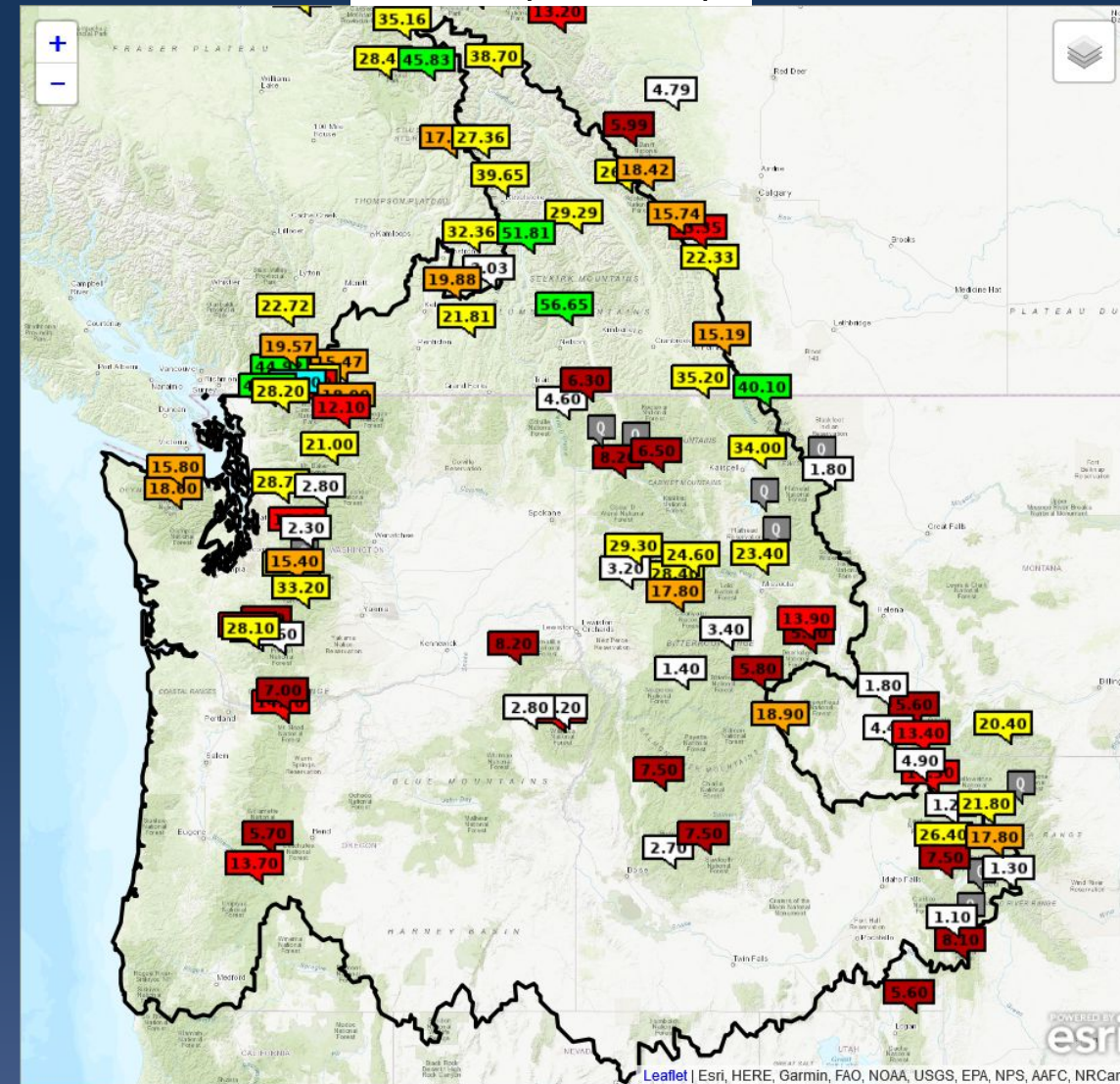
June 4, 2020



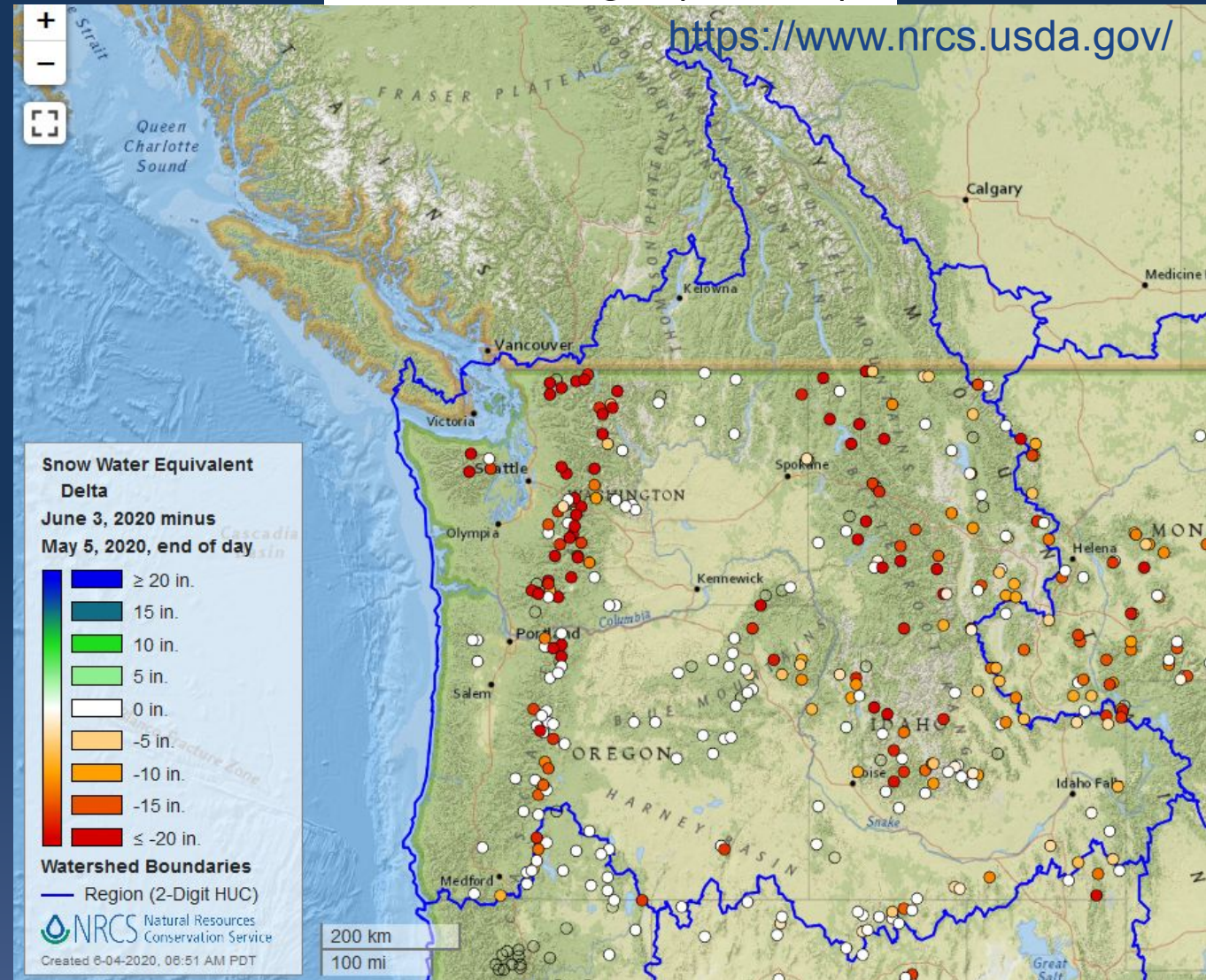
Snow data from NRCS, BC Hydro, and Alberta EP.



SWE (inches)



## SWE Change (inches)

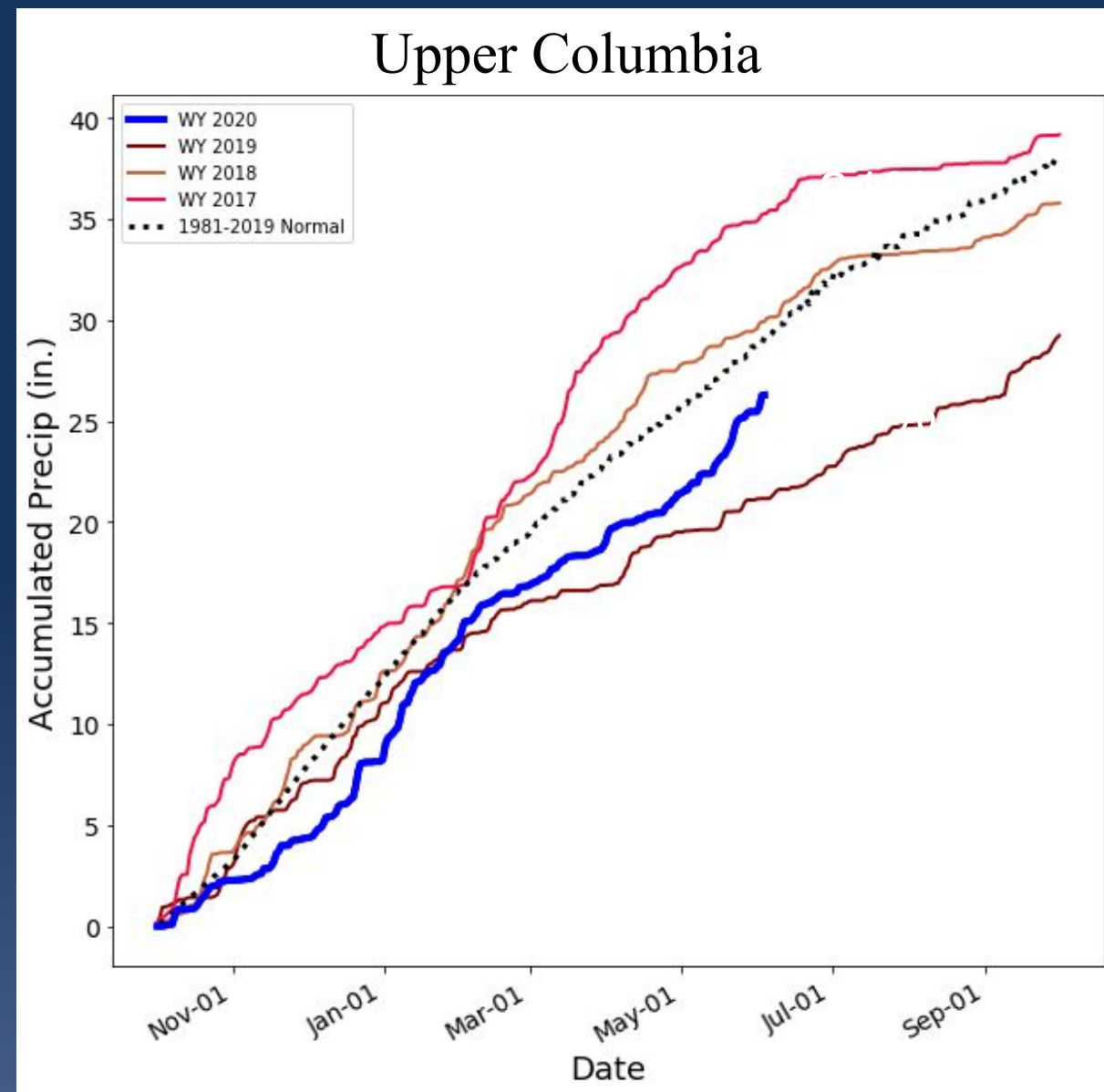
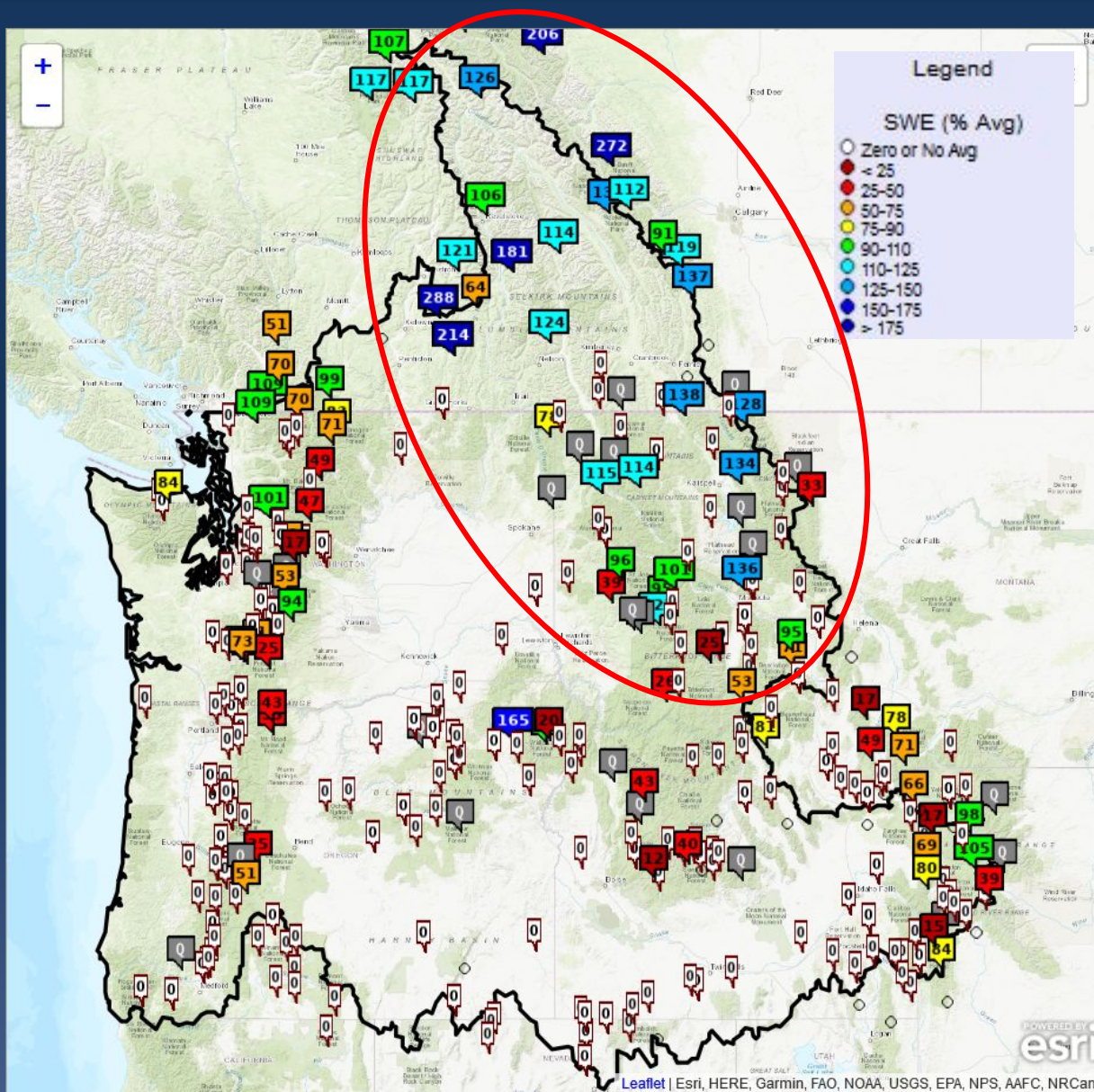


Data as of June 4, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.





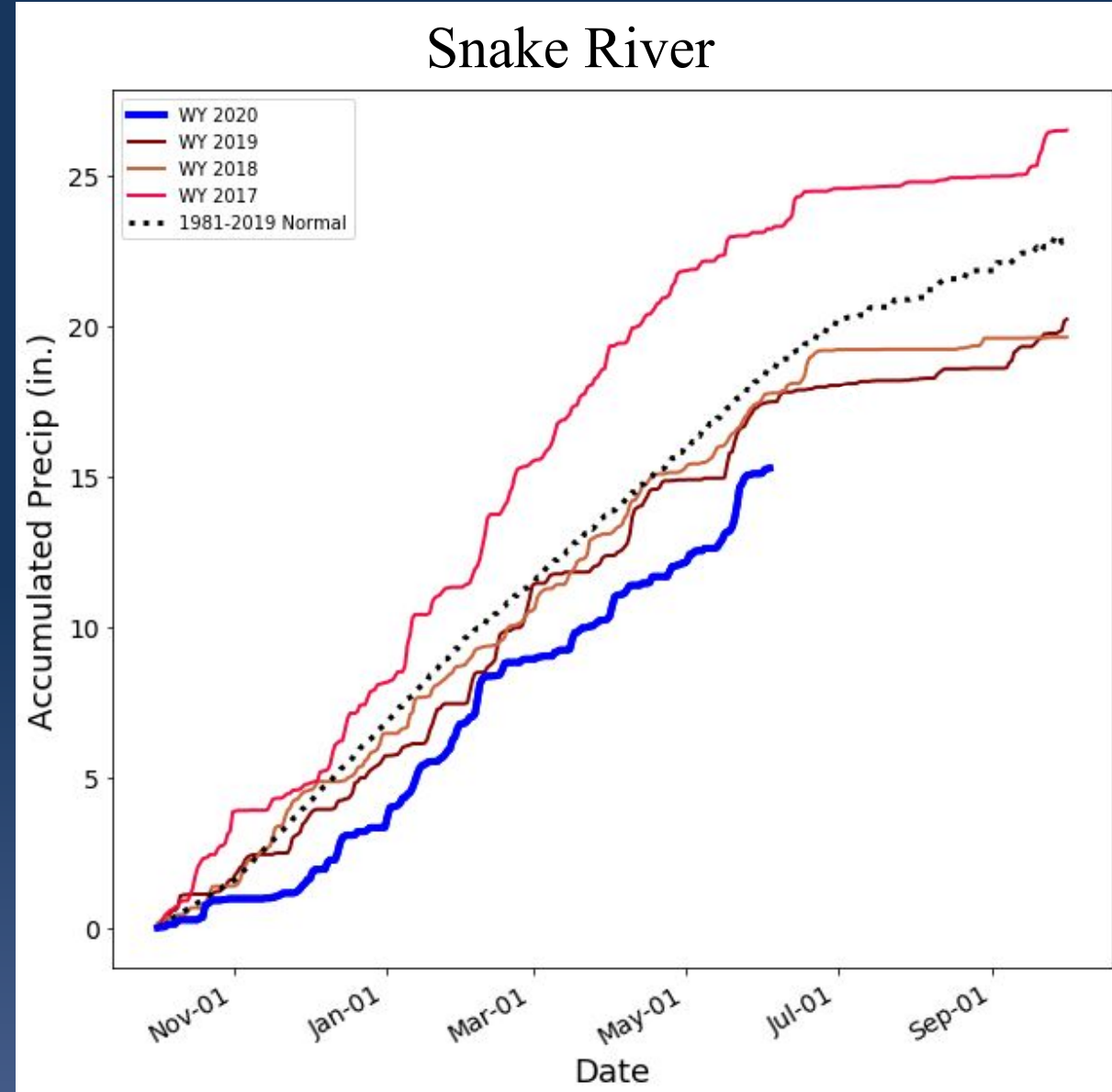
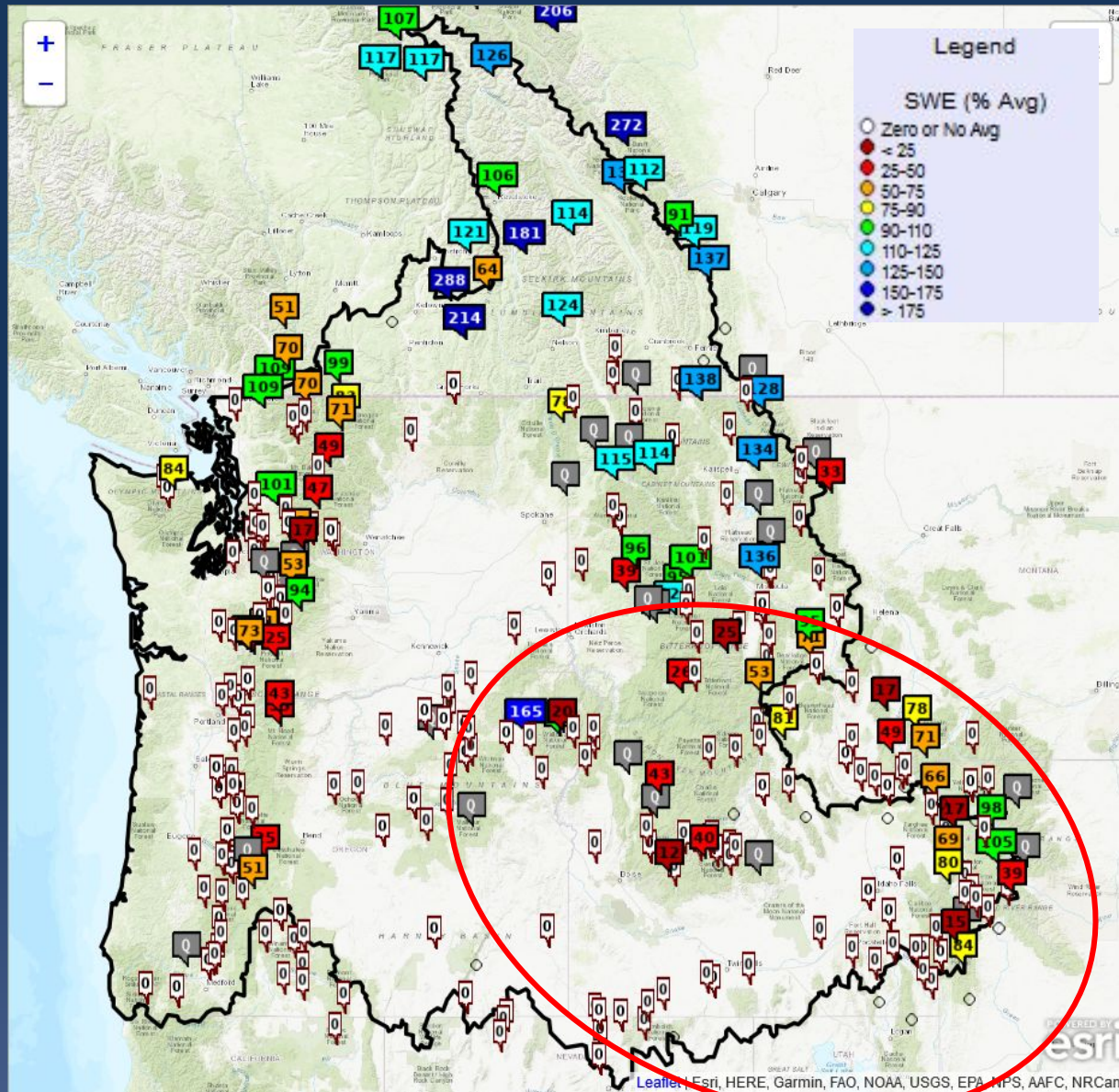
# Snowpack and Seasonal Precipitation



Data as of June 4, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.



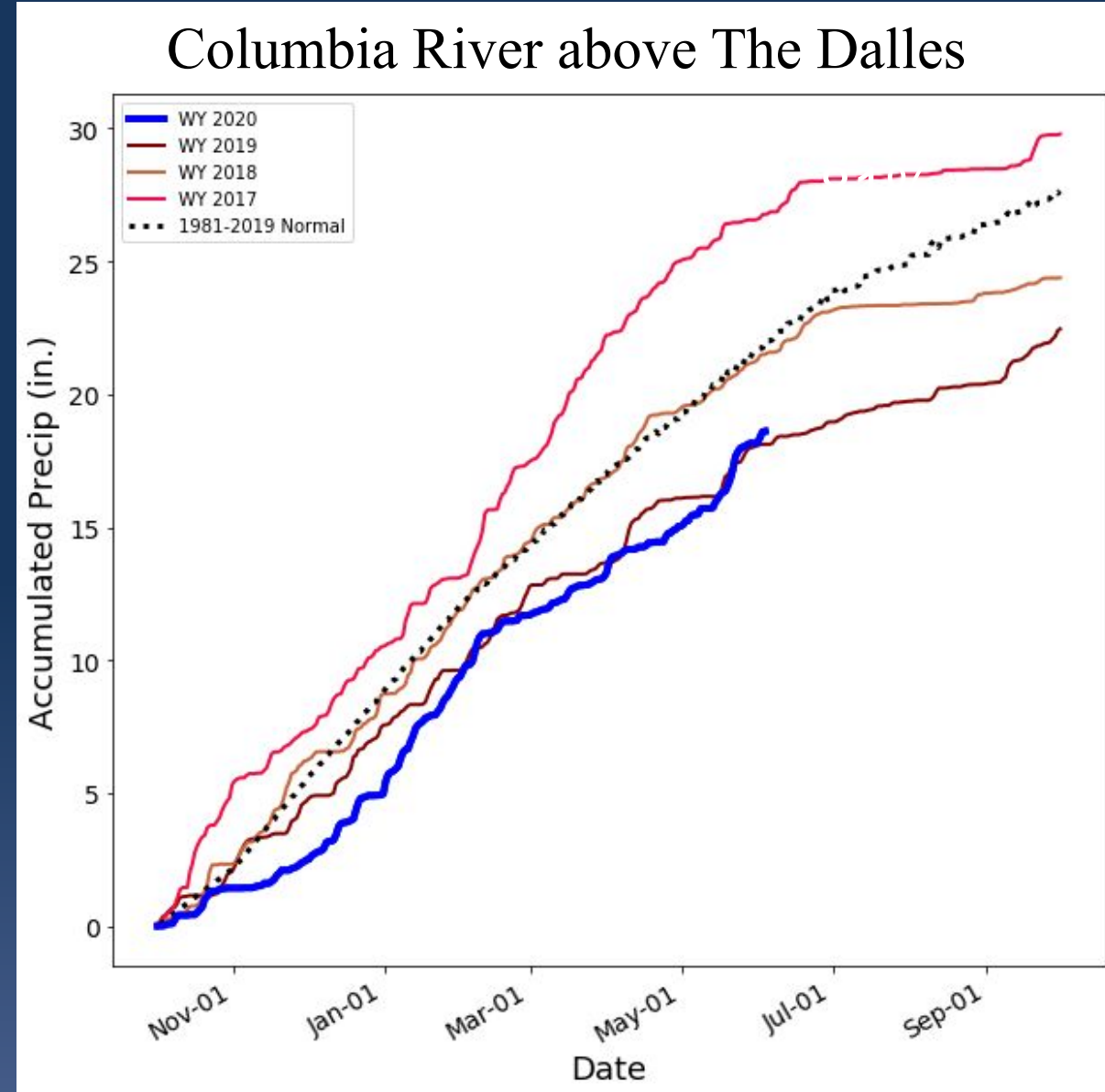
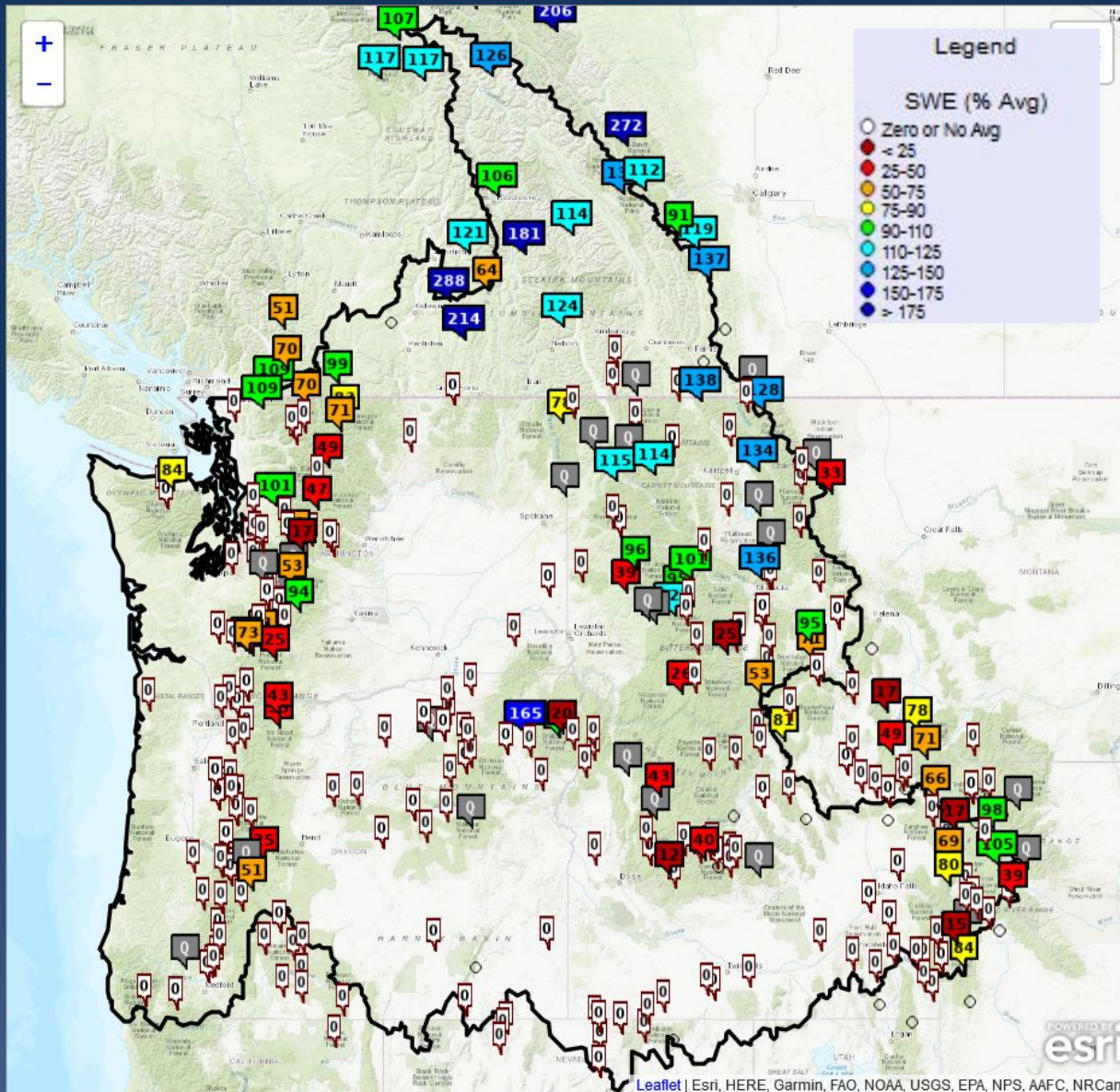
# Snowpack and Seasonal Precipitation



Data as of June 4, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.



# Snowpack and Seasonal Precipitation

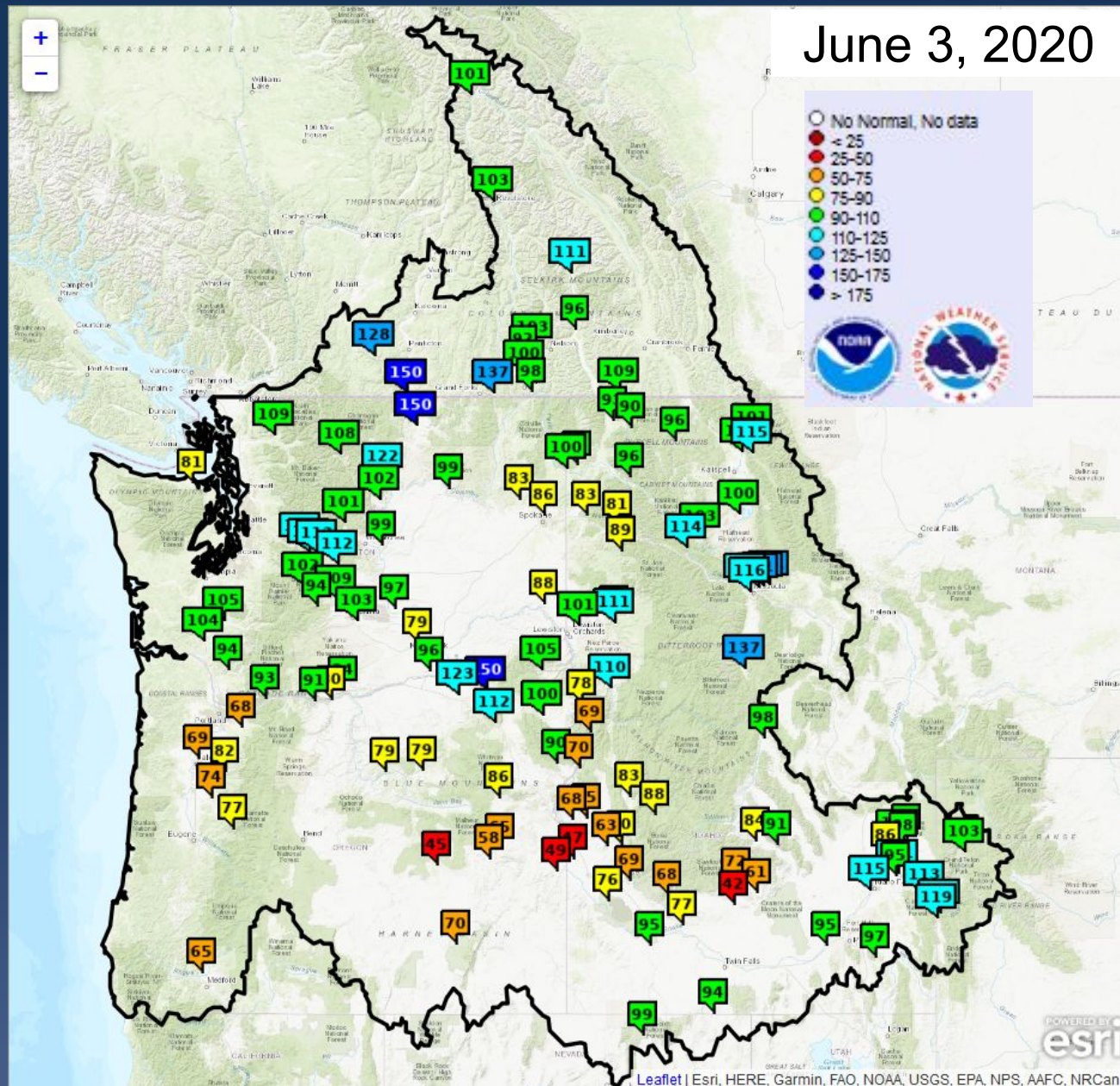


Data as of June 4, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.





# Current Adjusted Runoff Conditions



% of Normal Oct 1– June 3

## UPPER COLUMBIA BASIN

		<u>Δ (since May 6)</u>	
MICA	101	+	9
DUNCAN	111	+	13
QUEENS BAY	96	+	18
LIBBY	96	+	19
HUNGRY HORSE	115	+	18
GRAND COULEE	99	+	14

## SNAKE RIVER BASIN

AMERICAN FALLS	95	+	4
LUCKY PEAK	69	--	
DWORSHAK	83	+	13
LOWER GRANITE	88	+	9

## LOWER COLUMBIA BASIN

THE DALLES	91	+	13
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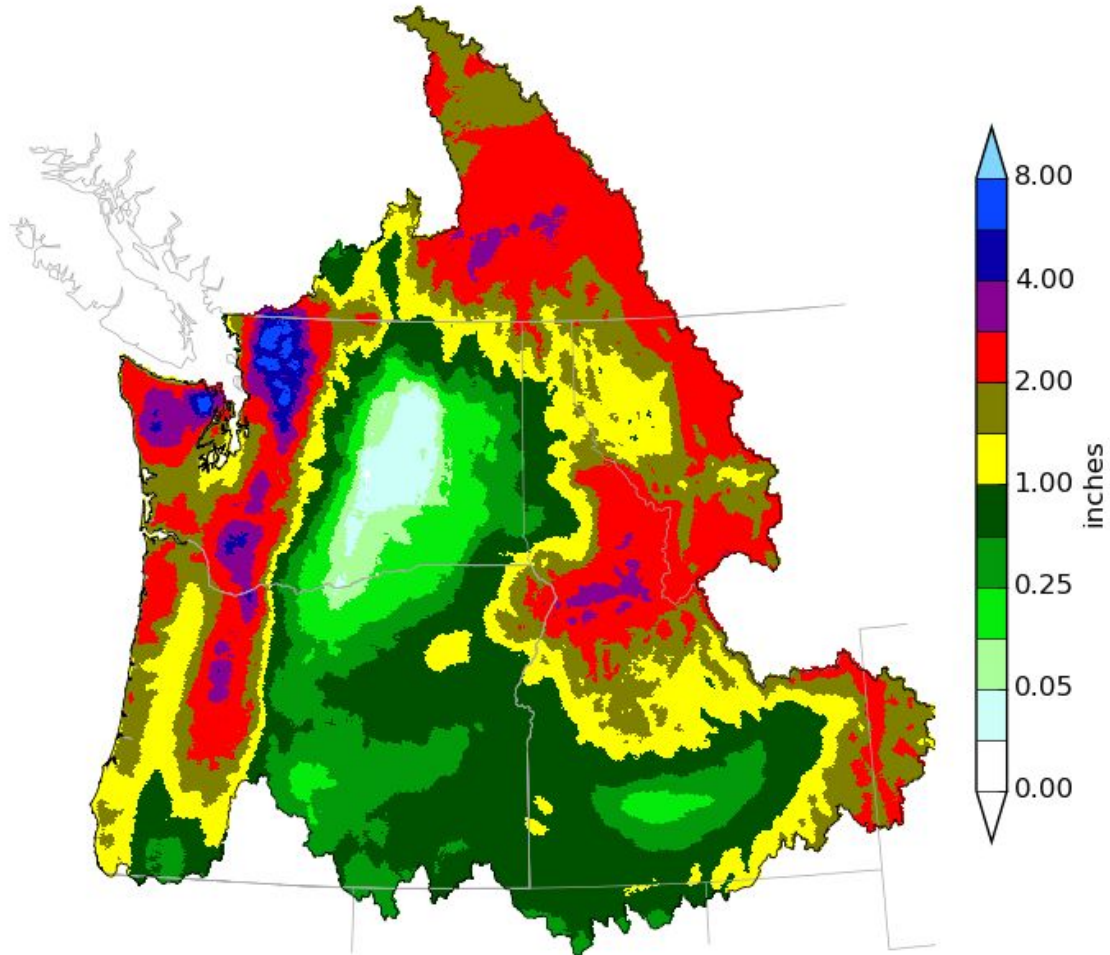




# Precipitation Forecast (June 4-14)



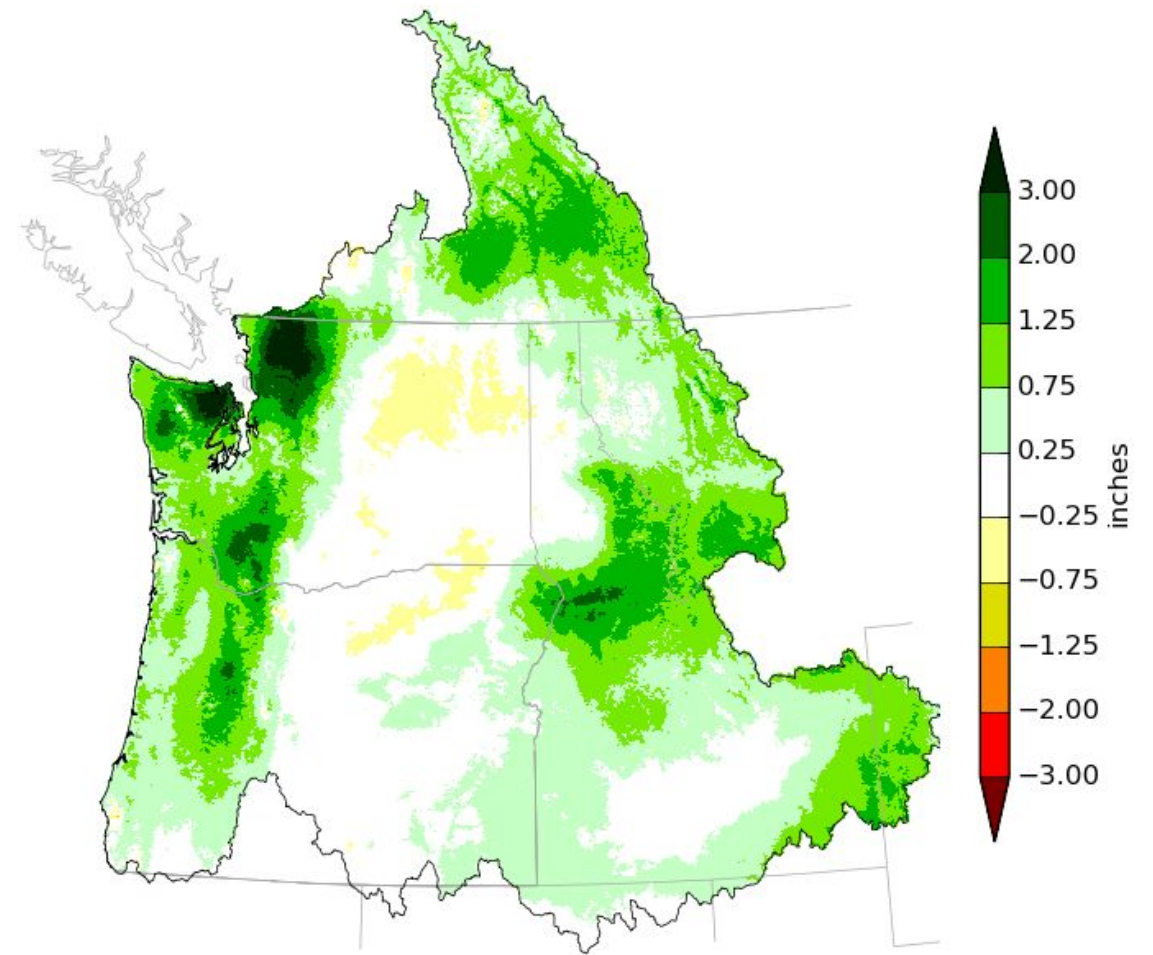
Northwest River Forecast Center  
10 Day QPF, Ending 12Z, 06/14/20



Creation Time: Thu Jun 4 15:30:26 UTC 2020



Northwest River Forecast Center  
10 Day QPF (Deviation from Climatology), Ending 12Z, 06/14/20

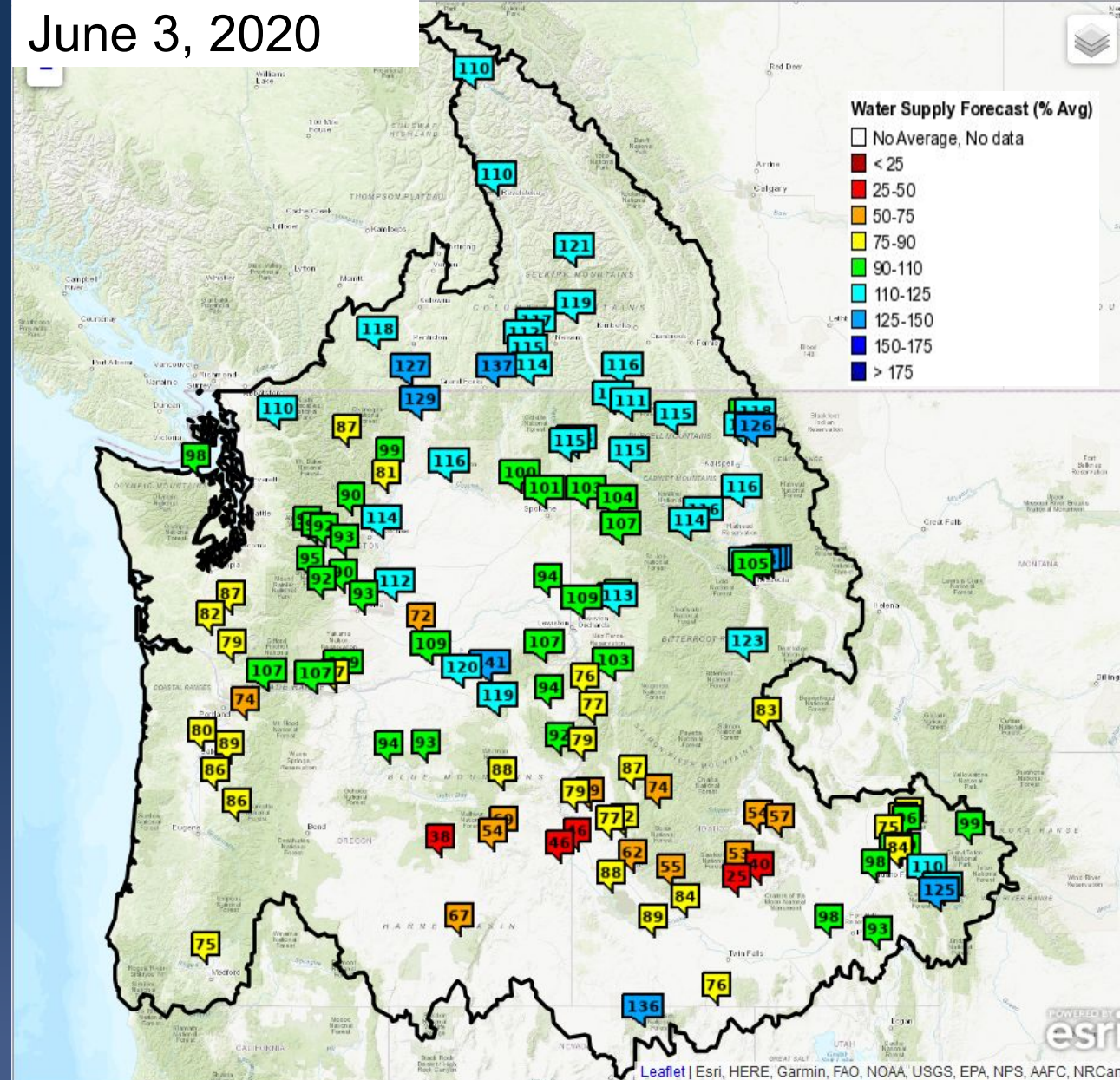


Creation Time: Thu Jun 4 15:31:48 UTC 2020



# ESP10 Apr-Sep Water Supply Forecasts

June 3, 2020



% of Normal Apr-Sep

## UPPER COLUMBIA BASIN

		<u>Δ (since May 6)</u>
MICA	110	+ 2
DUNCAN	121	+ 5
QUEENS BAY	119	+ 13
LIBBY	115	+ 10
HUNGRY HORSE	126	+ 9
GRAND COULEE	116	+ 10

## SNAKE RIVER BASIN

AMERICAN FALLS	98	+ 4
LUCKY PEAK	62	- 3
DWORSHAK	96	-
LOWER GRANITE	94	+ 5

## LOWER COLUMBIA BASIN

THE DALLES	107	+ 7
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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: 2020-06-03 Issued: 2020-06-03

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	66691	69530	116	72032	60110
APR-JUL	57138	58735	115	61329	51015
APR-AUG	63042	65111	115	68342	56763
JAN-SEP	74260	77099	112	79601	68694
JAN-JUL	64707	66304	111	68899	59599
OCT-SEP	81667	84506	110	87008	76824

### Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2020-06-03 Issued: 2020-06-03

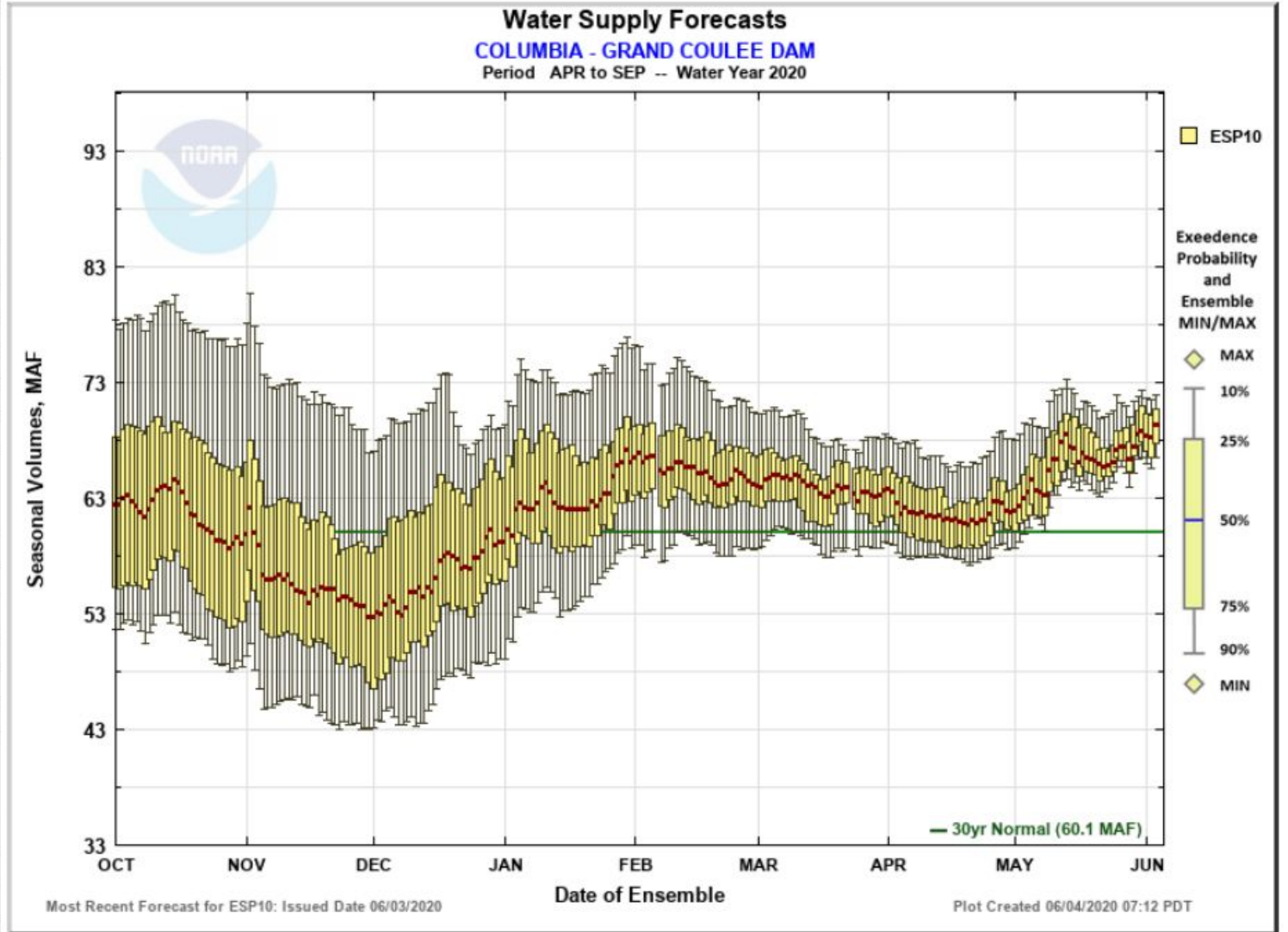
APR-SEP	66062	68537	114	71943	60110
APR-JUL	56130	57763	113	61026	51015
APR-AUG	61482	64294	113	67769	56763
JAN-SEP	73632	76106	111	79513	68694
JAN-JUL	63700	65333	110	68595	59599
OCT-SEP	81038	83513	109	86919	76824

### Reference

ESP with 0 Days QPF Ensemble: 2020-06-03 Issued: 2020-06-03

APR-SEP	66000	68003	113	72667	60110
APR-JUL	56075	57748	113	60828	51015
APR-AUG	61936	63998	113	68472	56763
JAN-SEP	73569	75572	110	80237	68694
JAN-JUL	63644	65317	110	68397	59599
OCT-SEP	80976	82979	108	87643	76824

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



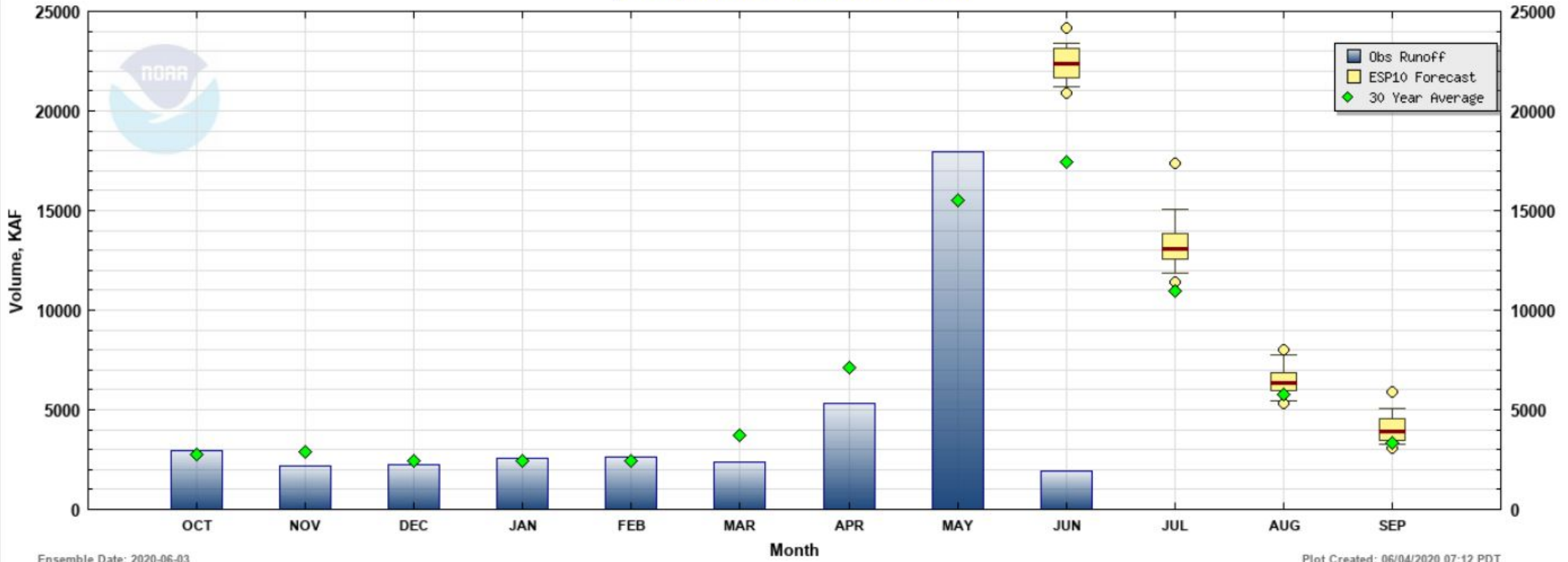
☐ Max Scale ☒ Scale To Data ☐ Scale To Last 45 Days ☐ Show Min/Max Ensemble Volume ☐ Show Tooltips Help





# 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: 2020-06-03 Issued: 2020-06-03

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	20632	21016	94	21736	22279
APR-JUL	18232	18574	94	19006	19848
APR-AUG	19465	19803	94	20353	21091
JAN-SEP	26116	26500	89	27221	29872
JAN-JUL	23716	24058	88	24490	27440
OCT-SEP	30031	30415	88	31135	34667

### Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2020-06-03 Issued: 2020-06-03

APR-SEP	20113	20791	93	21963	22279
APR-JUL	17799	18259	92	19330	19848
APR-AUG	18973	19500	92	20665	21091
JAN-SEP	25598	26275	88	27447	29872
JAN-JUL	23283	23743	87	24814	27440
OCT-SEP	29512	30190	87	31362	34667

### Reference

ESP with 0 Days QPF Ensemble: 2020-06-03 Issued: 2020-06-03

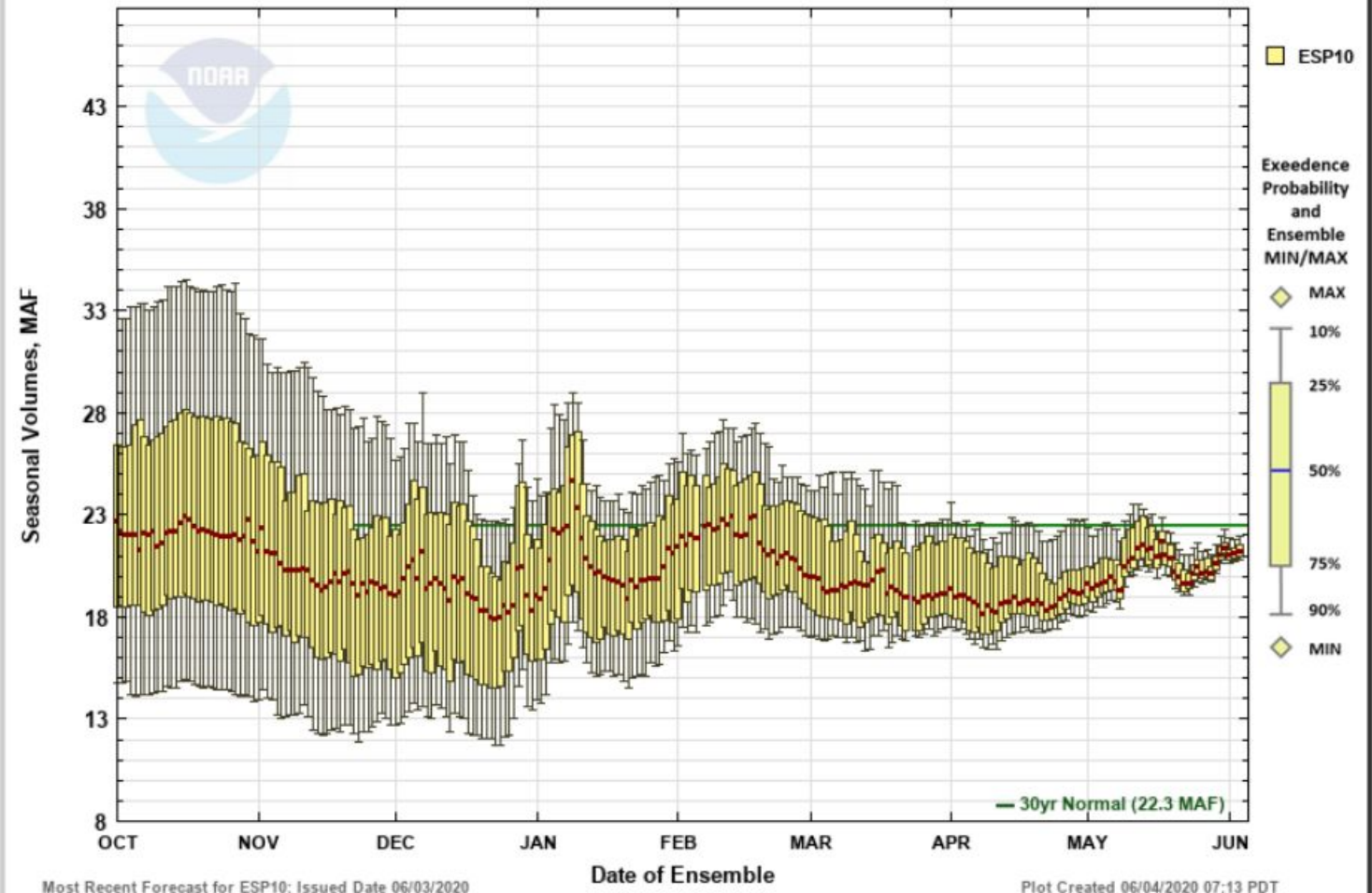
APR-SEP	19878	20564	92	21878	22279
APR-JUL	17561	18062	91	19167	19848
APR-AUG	18747	19266	91	20584	21091
JAN-SEP	25362	26048	87	27362	29872
JAN-JUL	23045	23546	86	24651	27440
OCT-SEP	29277	29963	86	31277	34667

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 2020



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

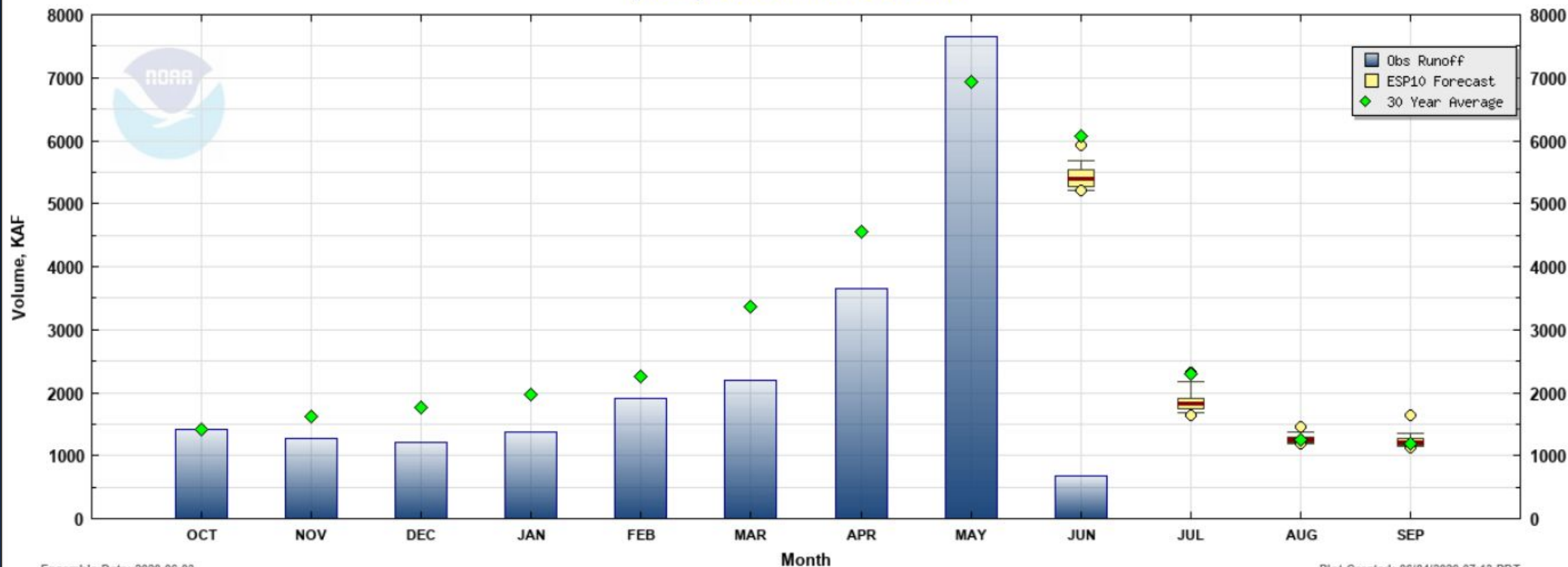




# ESP10 Water Supply Volume Monthly Forecasts

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

(LGDW1) SNAKE - LOWER GRANITE DAM



Ensemble Date: 2020-06-03

Plot Created: 06/04/2020 07:13 PDT





# 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: 2020-06-03 Issued: 2020-06-03

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	96514	99471	107	103059	92704
APR-JUL	83691	85565	107	88556	79855
APR-AUG	91145	93436	107	97509	87532
JAN-SEP	113502	116459	102	120046	114216
JAN-JUL	100678	102552	101	105544	101368
OCT-SEP	125826	128784	99	132371	130518

### Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2020-06-03 Issued: 2020-06-03

APR-SEP	94824	98086	106	103561	92704
APR-JUL	81757	84322	106	87820	79855
APR-AUG	89234	92563	106	97671	87532
JAN-SEP	111811	115074	101	120549	114216
JAN-JUL	98745	101310	100	104807	101368
OCT-SEP	124136	127398	98	132874	130518

### Reference

ESP with 0 Days QPF Ensemble: 2020-06-03 Issued: 2020-06-03

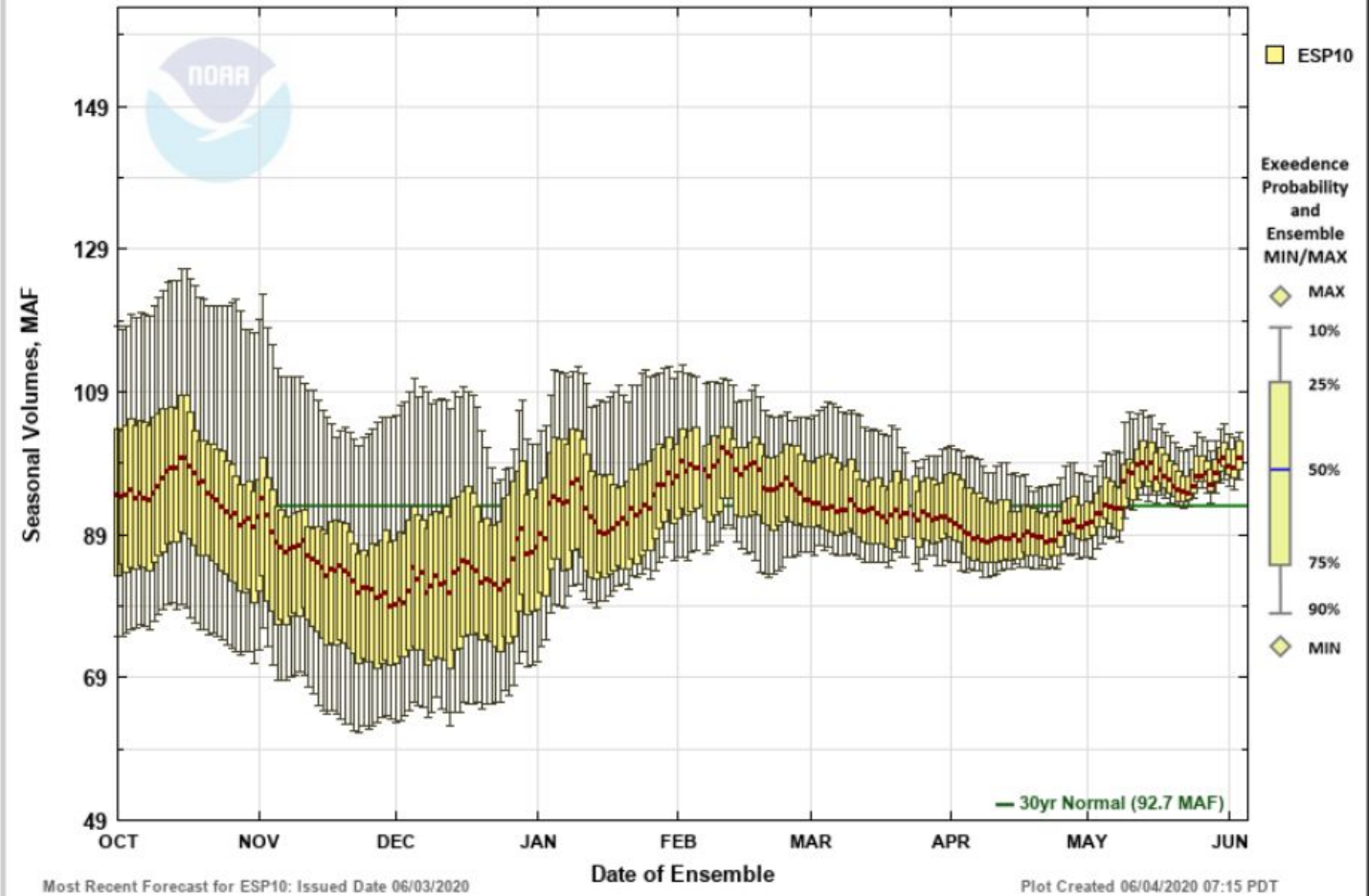
APR-SEP	95639	97511	105	103403	92704
APR-JUL	81608	84182	105	87833	79855
APR-AUG	89282	92088	105	97282	87532
JAN-SEP	112627	114499	100	120391	114216
JAN-JUL	98596	101170	100	104821	101368
OCT-SEP	124952	126824	97	132716	130518

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 2020



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

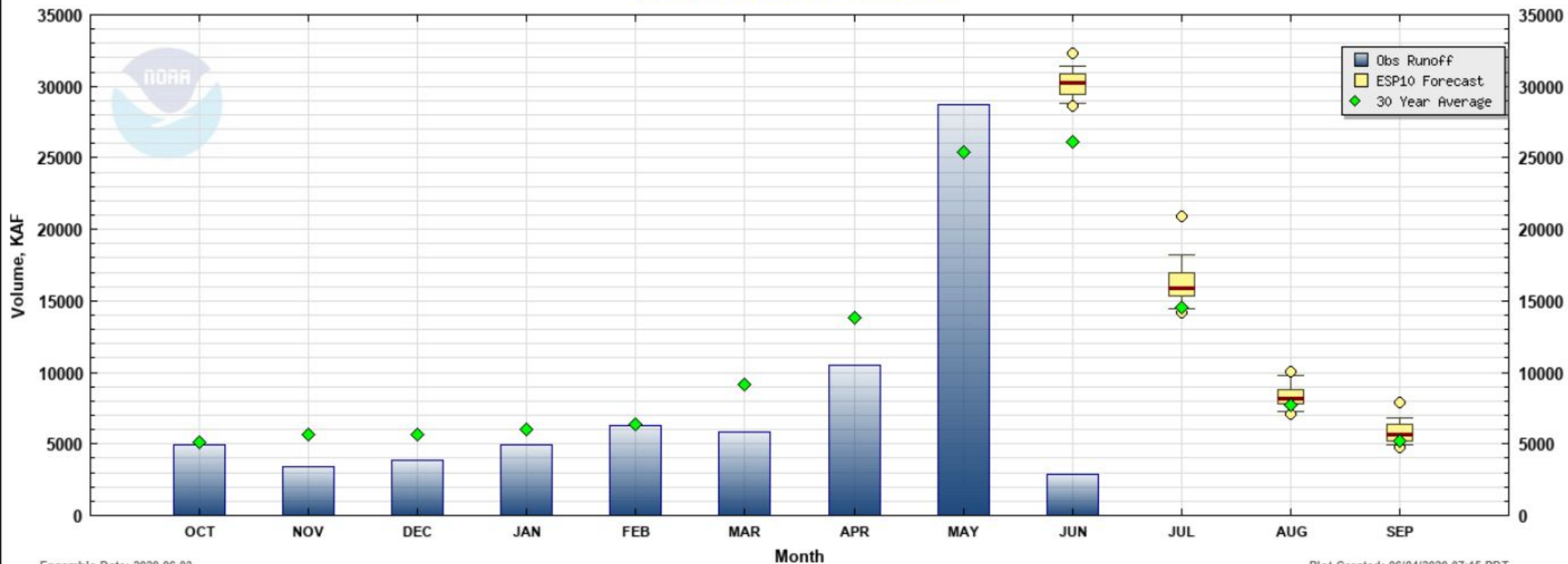




# ESP10 Water Supply Volume Monthly Forecasts

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

(TDAO3) COLUMBIA - THE DALLES DAM



Ensemble Date: 2020-06-03

Plot Created: 06/04/2020 07:15 PDT





# ESP10 Natural Apr-Sep Forecasts

ESP Natural Forecast

Period: APR-SEP

Forecast (% Normal)

No Normal, No Data

< 25

25-50

50-75

75-90

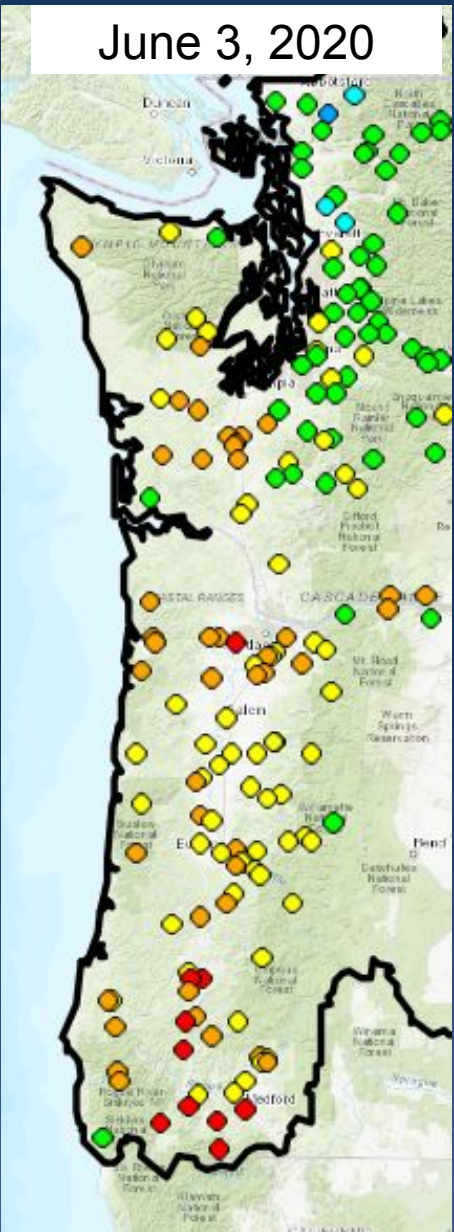
90-110

110-125

125-150

150-175

> 175



Basin	% 30 yr Normal	<u>Δ since May 6</u>
Washington		
Skagit River near Concrete	106%	+ 9
Green River Howard Hanson Res	86%	+ 2
Cowlitz River Mossyrock Reservoir	92%	+ 4
Cowlitz River Mayfield Reservoir	91%	+ 4
Oregon		
North Santiam At Mehama	89%	--
Willamette River At Salem	78%	--
Applegate Reservoir	42%	- 2





# ESP10 Natural Oct-Sep Forecasts

## WILLAMETTE - AT SALEM (SLMO3) Forecasts for Water Year 2020

### Official Water Supply

ESP with 10 Days QPF Ensemble: 2020-06-03 Issued: 2020-06-03

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	3877	3948	78	4102	5067
APR-JUL	3477	3530	79	3593	4496
JAN-SEP	9353	9424	77	9578	12226
JAN-JUL	8953	9005	77	9069	11656
OCT-SEP	10727	10799	65	10952	16680

### Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2020-06-03 Issued: 2020-06-03

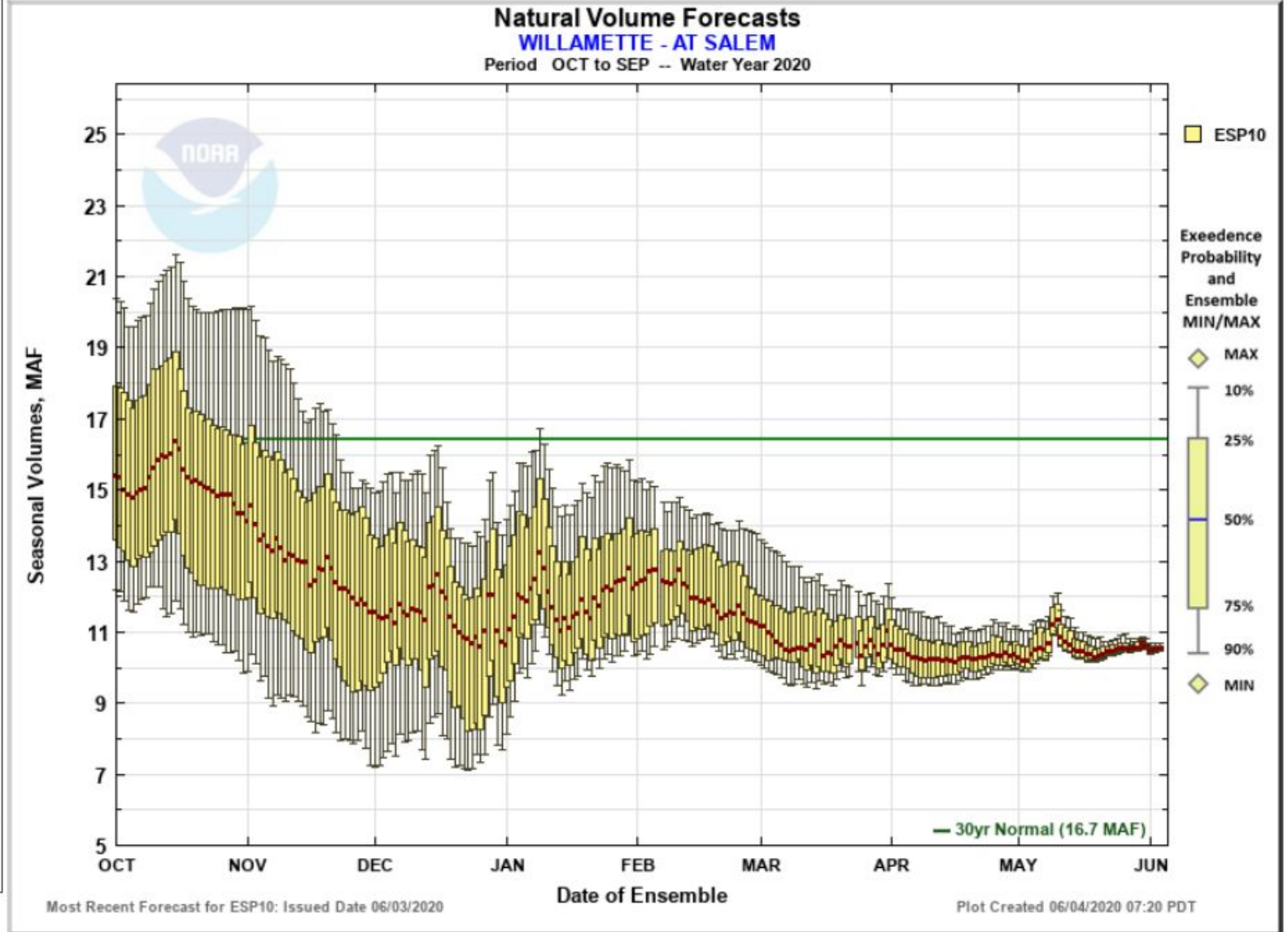
APR-SEP	3806	3906	77	4279	5067
APR-JUL	3376	3473	77	3865	4496
JAN-SEP	9282	9382	77	9755	12226
JAN-JUL	8852	8949	77	9341	11656
OCT-SEP	10656	10756	64	11130	16680

### Reference

ESP with 0 Days QPF Ensemble: 2020-06-03 Issued: 2020-06-03

APR-SEP	3753	3856	76	4185	5067
APR-JUL	3350	3427	76	3726	4496
JAN-SEP	9228	9332	76	9661	12226
JAN-JUL	8826	8903	76	9202	11656
OCT-SEP	10603	10706	64	11036	16680

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

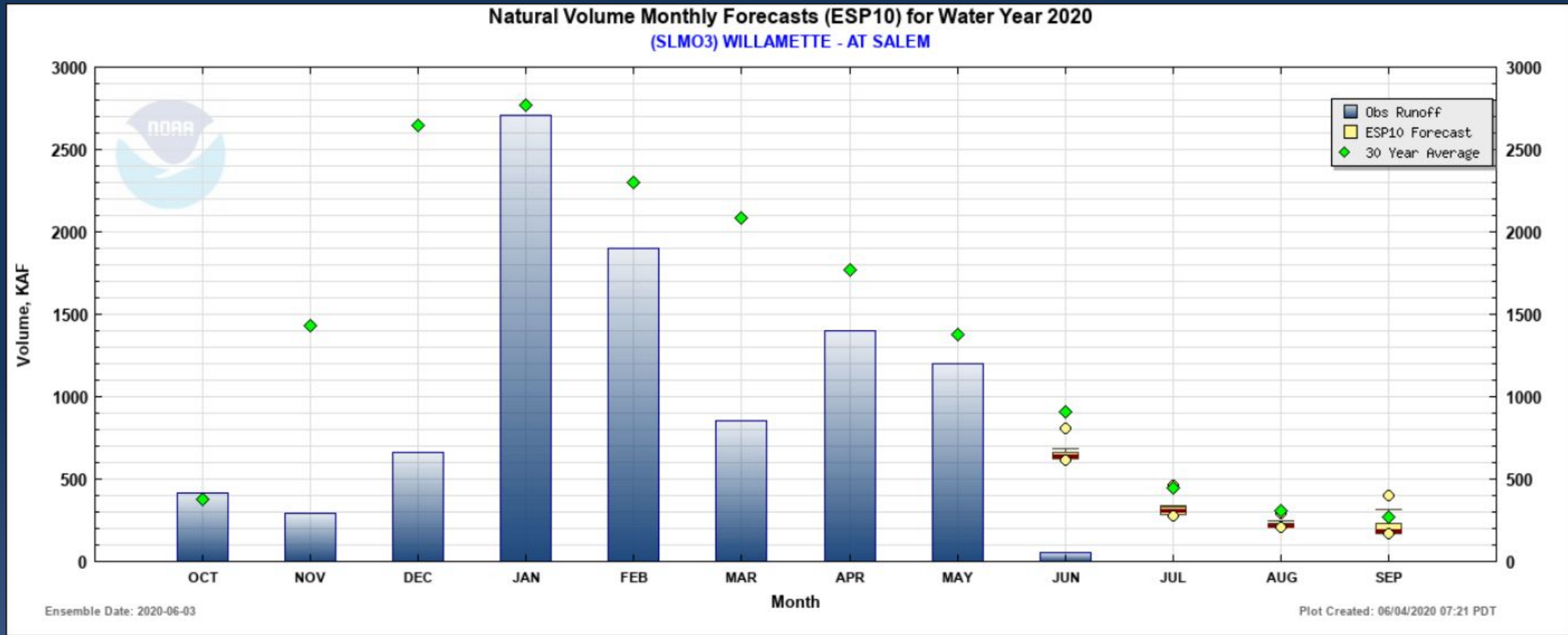


☐ Max Scale ☒ Scale To Data ☐ Scale To Last 45 Days ☐ Show Min/Max Ensemble Volume ☐ Show Tooltips Help





# ESP10 Natural Volume Monthly Forecasts





# ESP10 Natural Oct-Sep Forecasts

## APPLEGATE - APPLGATE RESERVOIR (APLO3) Forecasts for Water Year 2020

### Official Water Supply

ESP with 10 Days QPF Ensemble: 2020-06-03 Issued: 2020-06-03

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	48	49	42	50	116
APR-JUL	45	46	42	47	109
JAN-SEP	98	99	40	100	246
JAN-JUL	96	96	40	97	239
OCT-SEP	116	117	39	118	302

### Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2020-06-03 Issued: 2020-06-03

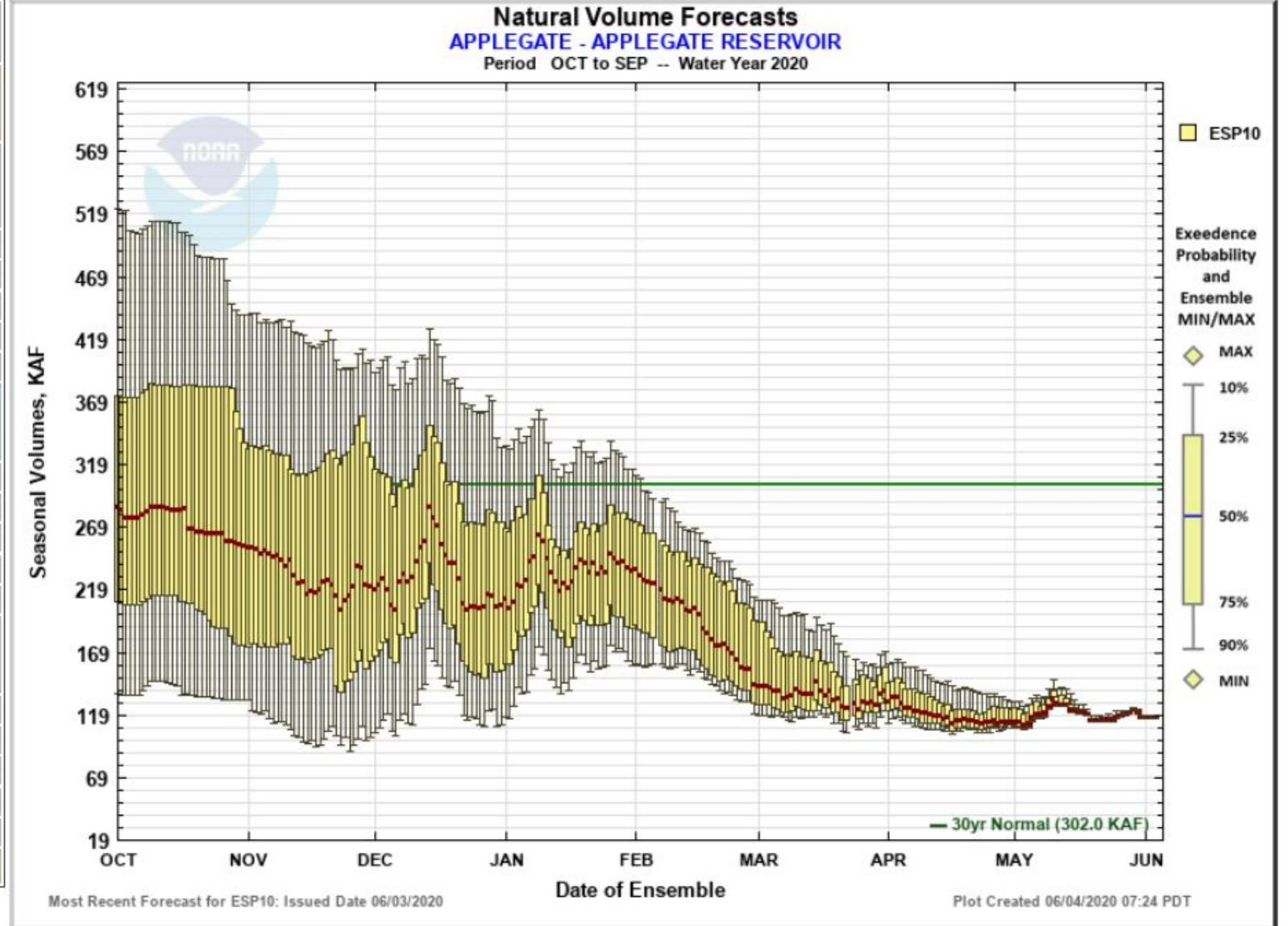
APR-SEP	48	49	42	54	116
APR-JUL	45	46	42	51	109
JAN-SEP	98	99	40	104	246
JAN-JUL	96	97	40	101	239
OCT-SEP	116	117	39	122	302

### Reference

ESP with 0 Days QPF Ensemble: 2020-06-03 Issued: 2020-06-03

APR-SEP	48	49	42	53	116
APR-JUL	45	46	42	50	109
JAN-SEP	98	99	40	103	246
JAN-JUL	95	96	40	100	239
OCT-SEP	116	117	39	121	302

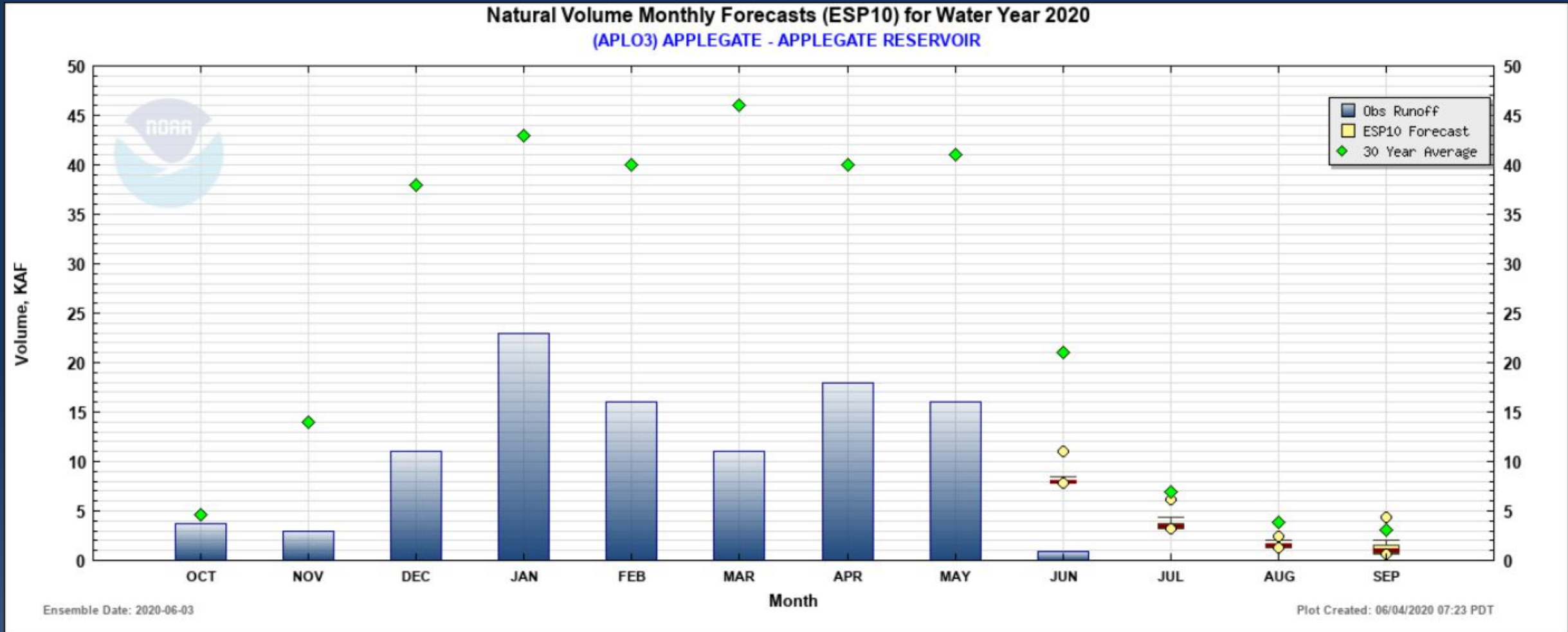
Move the mouse over the desired "Forecast Period" to display a graph.







# ESP10 Natural Volume Monthly Forecasts

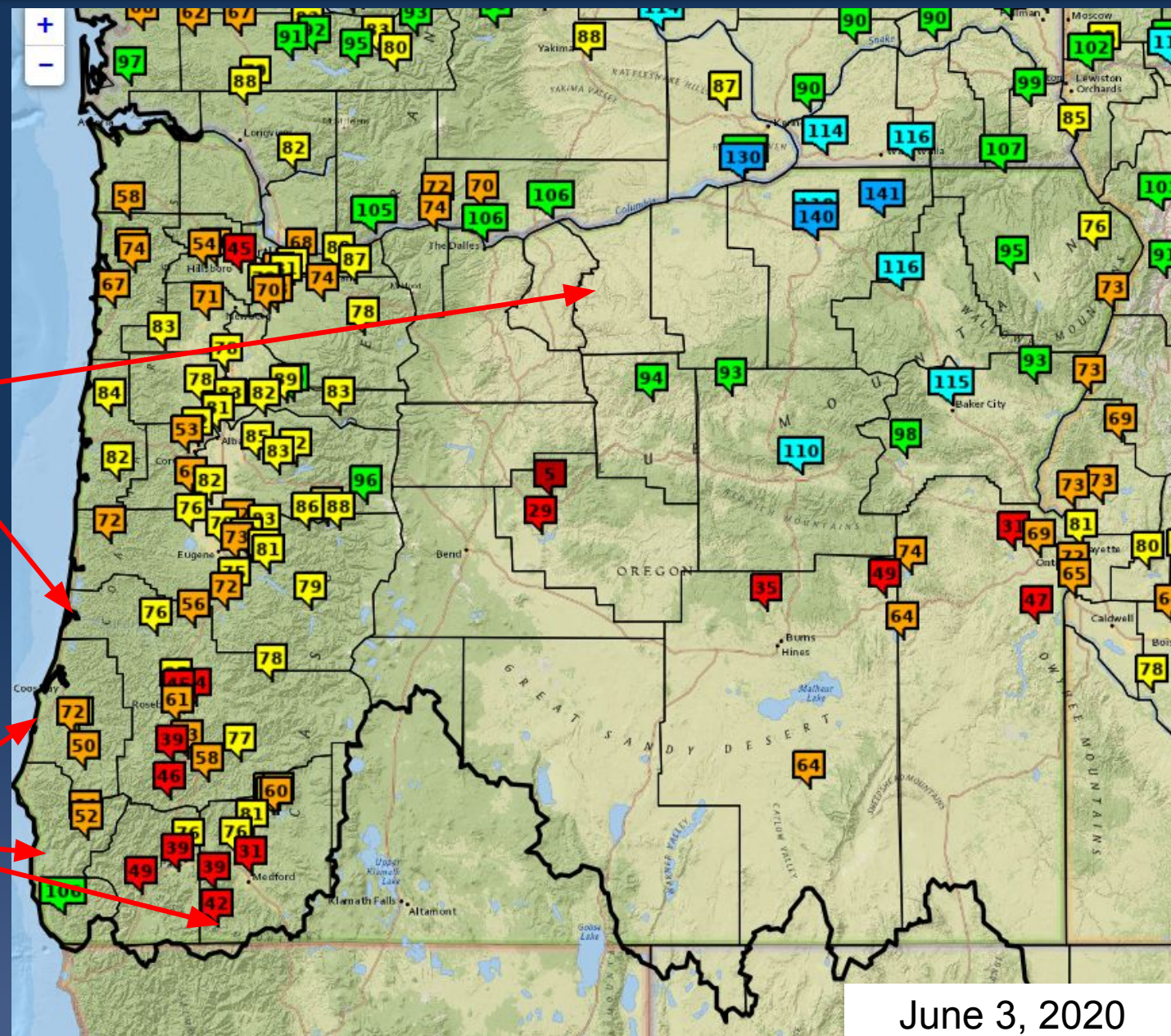




# Oregon Drought Declarations

Drought declaration requested for Douglas and Gilliam Counties.

Drought declared in Coos, Curry, Jackson, and Klamath Counties.



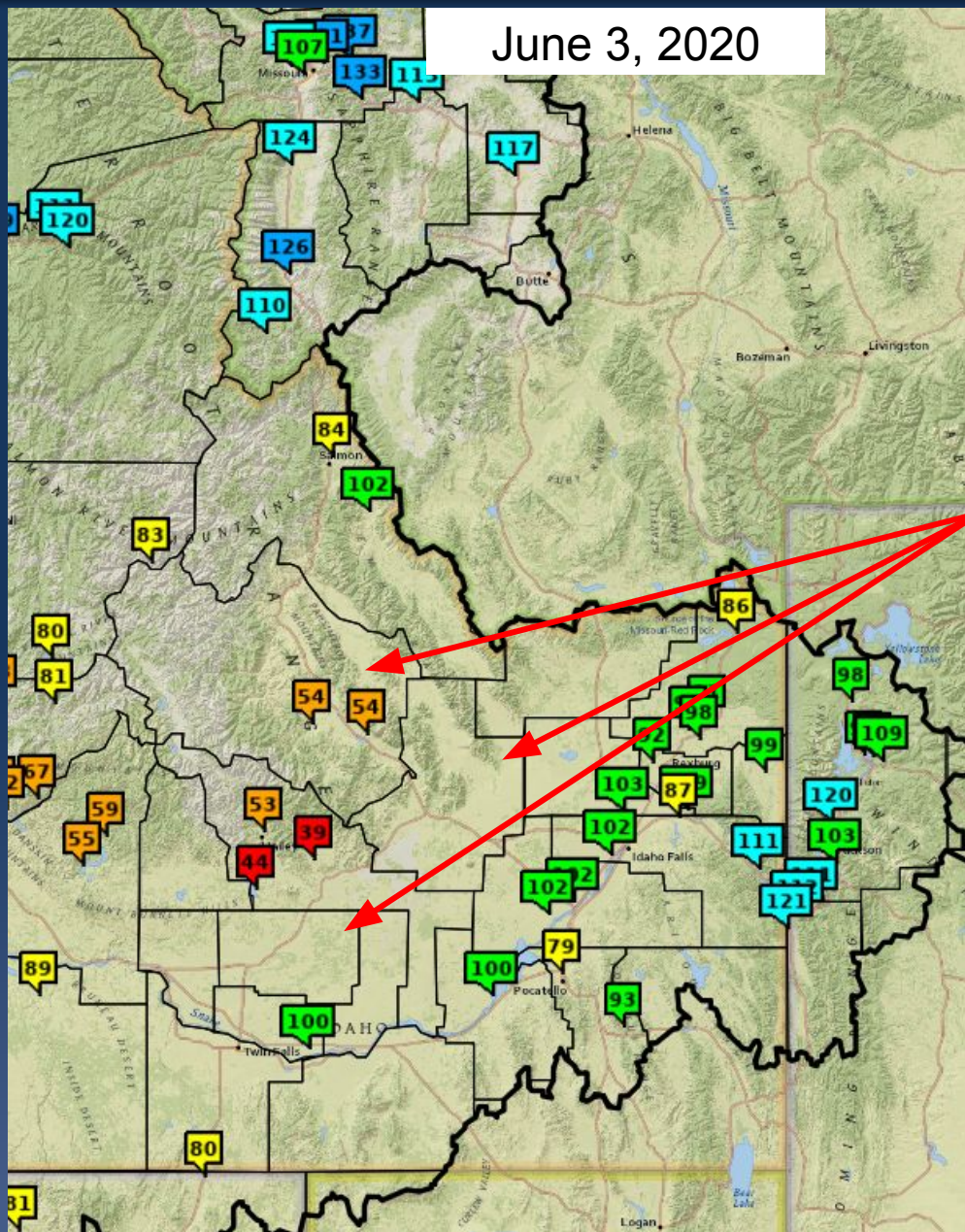
June 3, 2020





# Idaho Drought Declarations

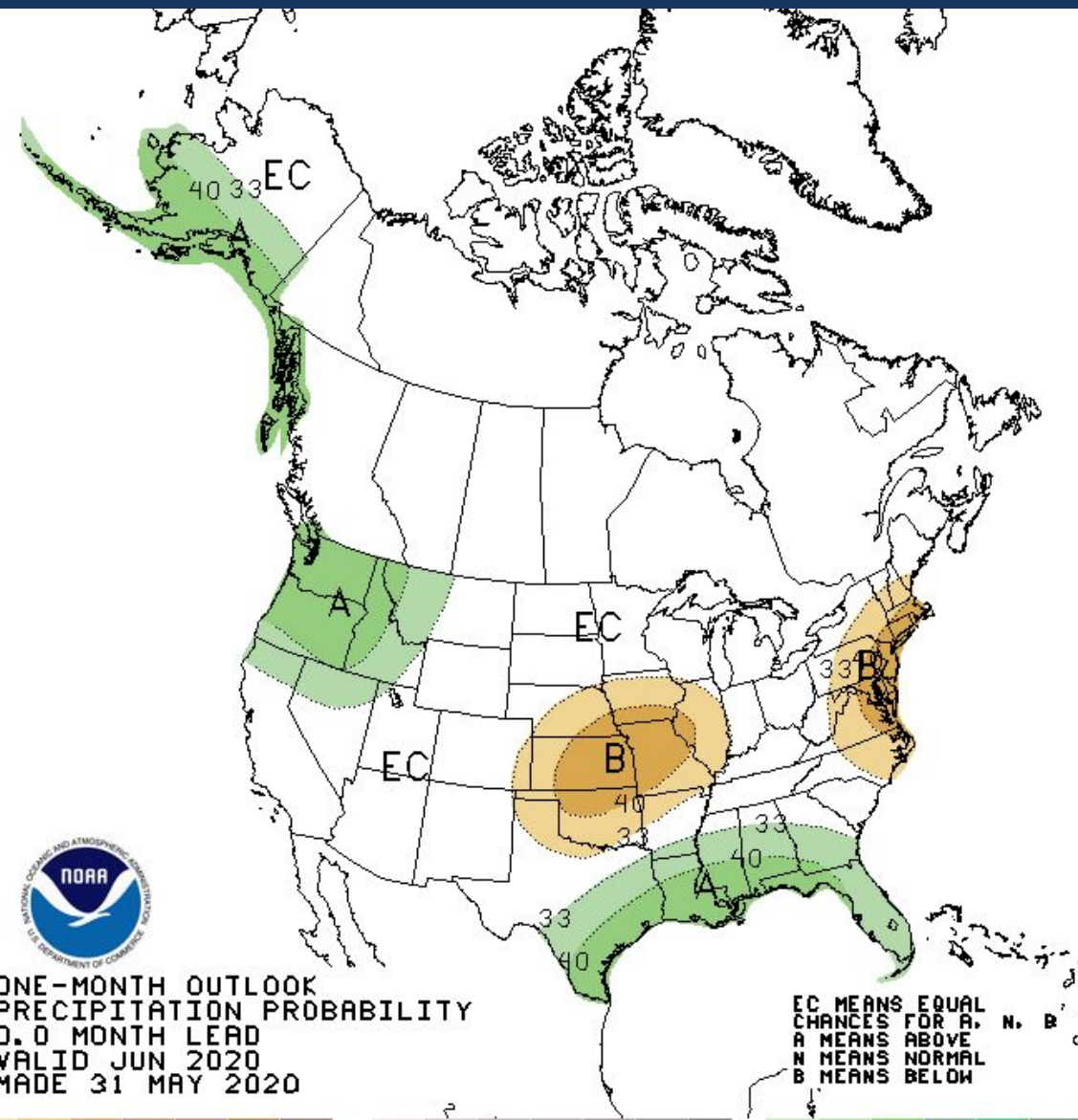
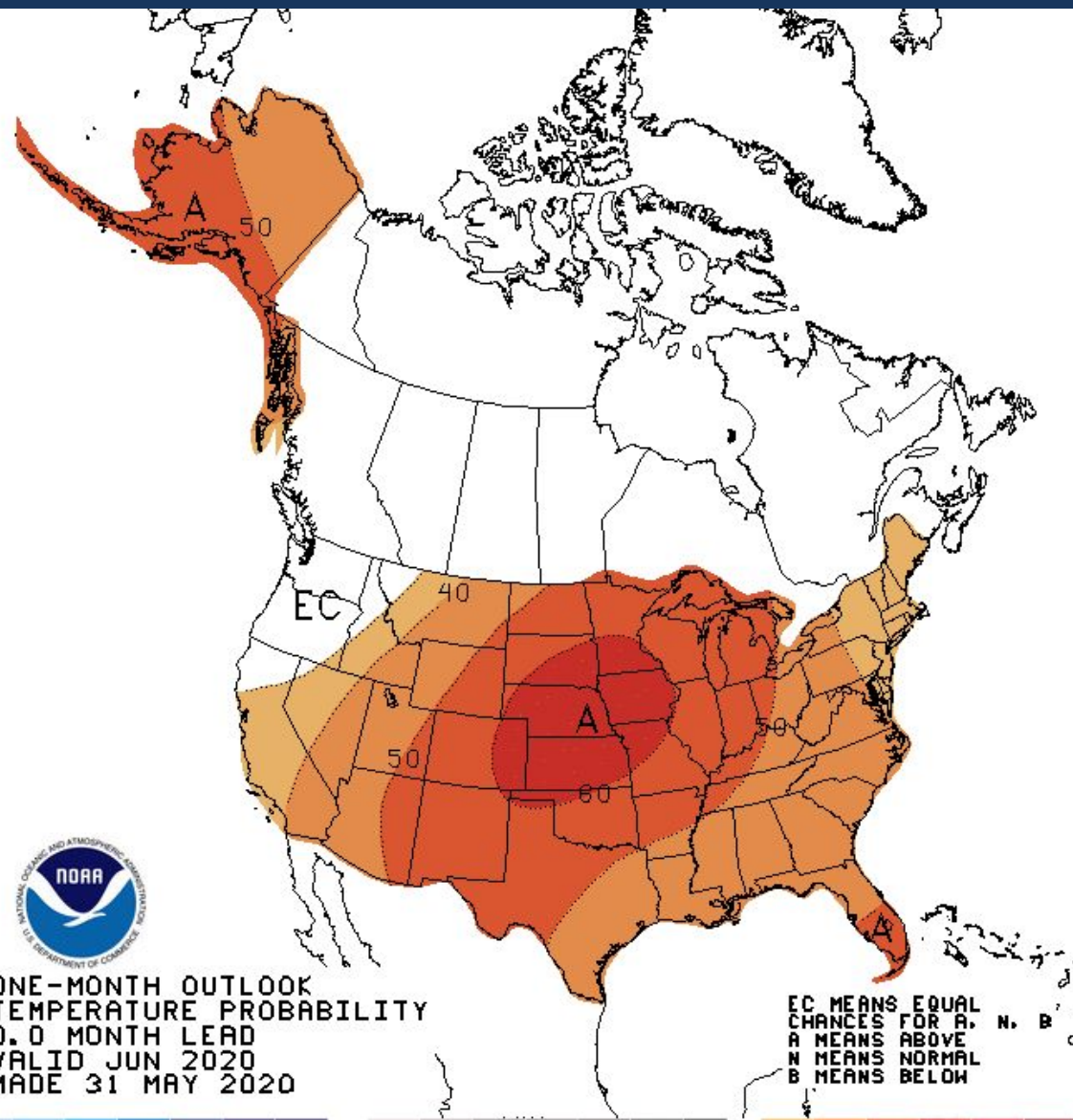
June 3, 2020



State drought declarations in place for Custer, Butte, and Lincoln Counties.



# CPC One-Month Outlook







# Water Year 2020 Summary

## Columbia River Forecasts near to above normal

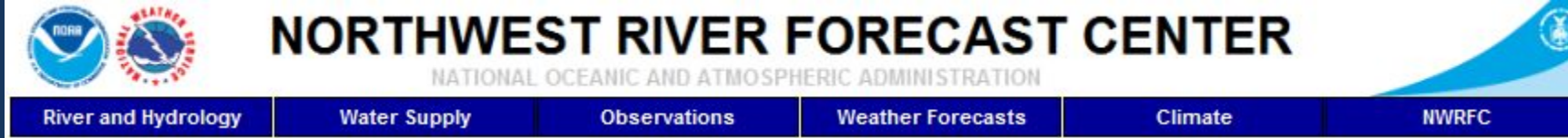
- Higher volume forecasts to the north and east

## Snake River Forecasts generally below normal

- Especially dry in Middle Snake from American Falls to the Salmon R confluence
- State drought declarations for Custer, Butte, and Lincoln Counties, ID
- Forecasts in the Upper Snake above American Falls are near to above normal
- Clearwater River has near normal water supply forecast

## West of the Cascades is a mixed bag

- Washington Cascade Basins are near normal
- Olympics, SW Washington and W Oregon below normal, lower to the south.
- State drought declarations for Coos, Curry, Jackson, and Klamath Basins, OR



# 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

