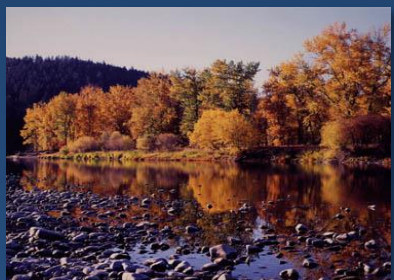




# Northwest River Forecast Center



## February 2020 Water Supply Briefing

Telephone Conference : (562) 247-8422

Pass Code : 322-526-815#

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

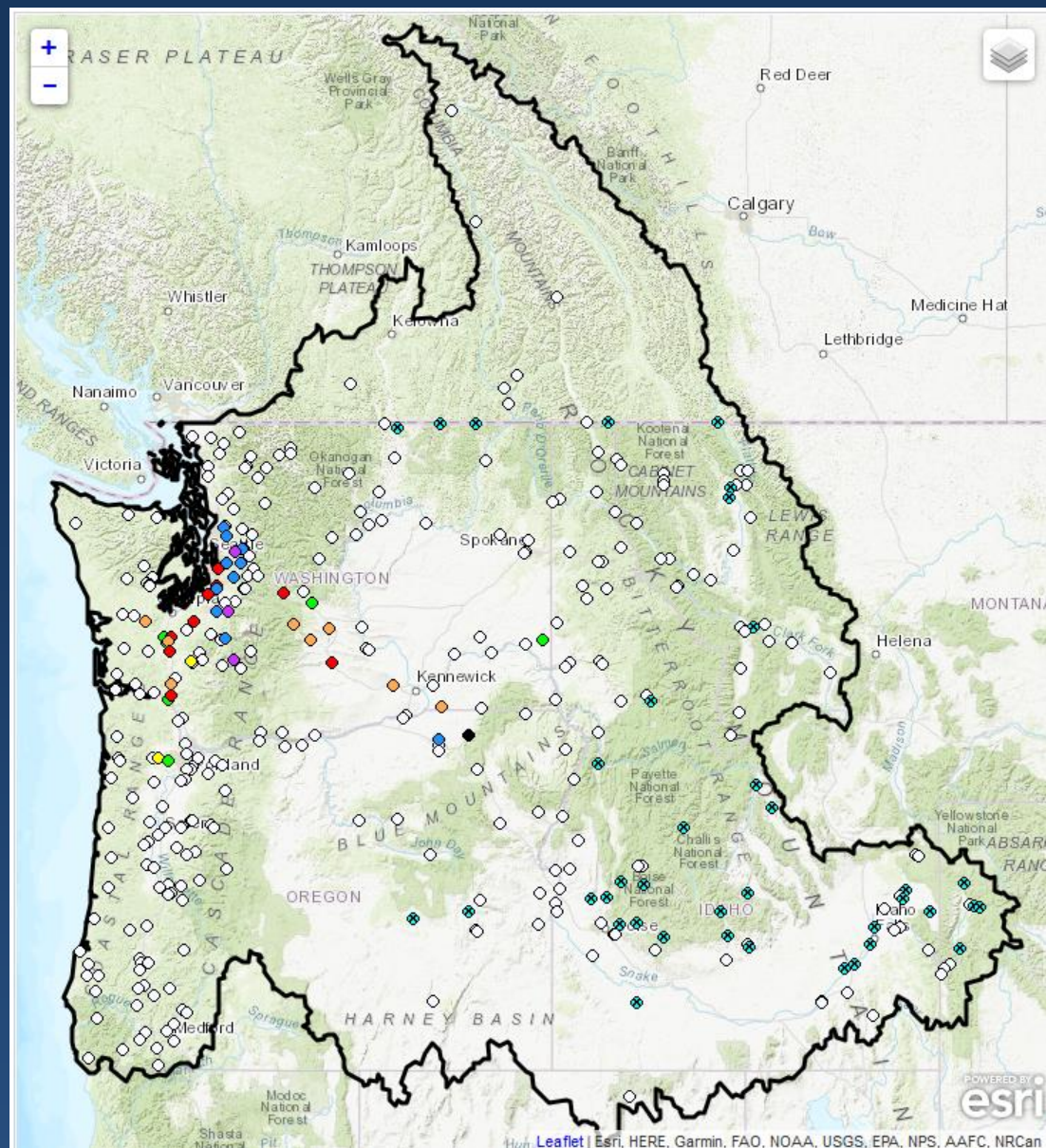
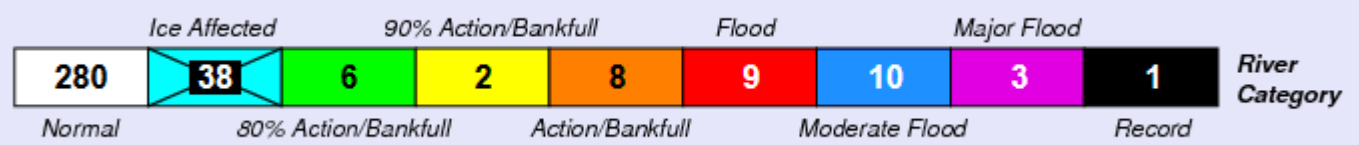


# Bottom Line

Above normal precipitation for most basins in January.

Significant January snowmelt impacted water supply.

With the exception of E Oregon and SW Idaho, volume forecasts are near normal for this time of year.





# Water Supply Forecast Briefing Outline

## Observed Conditions WY2019:

- Temperature
- Precipitation
- Snowpack
- Runoff

Model States

## Future Conditions:

- 10 days of quantitative forecast precipitation (QPF)
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Model Forcings

Model Inputs

## Additional Guidance

- CPC Climate Outlook

Chalk Talk – Web Tour



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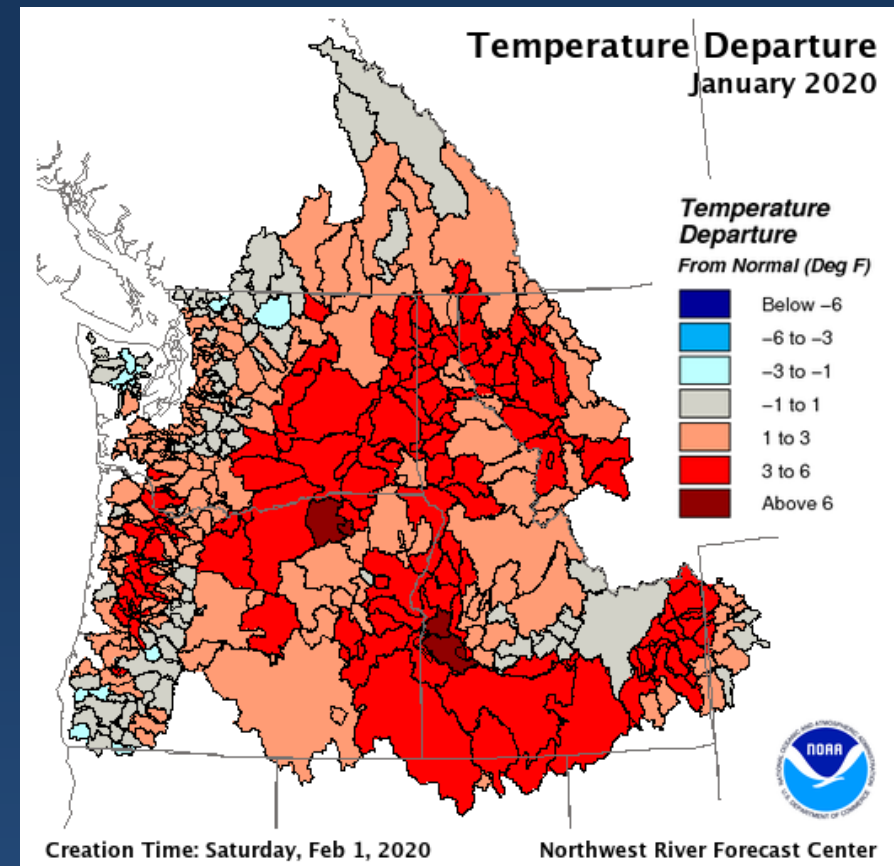
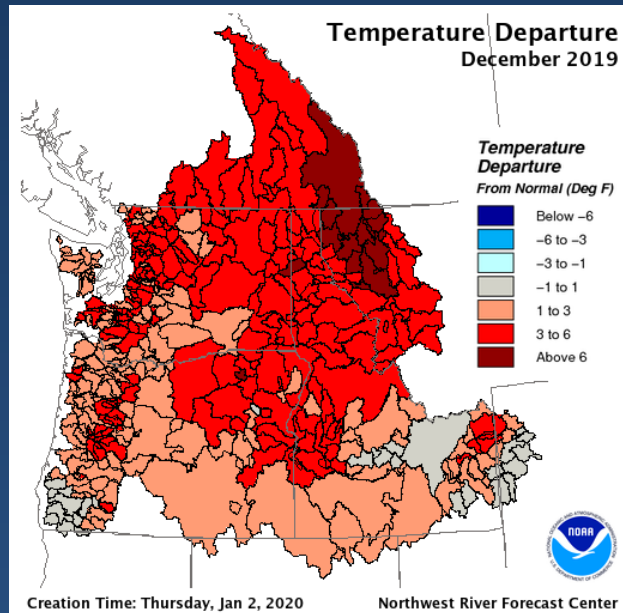
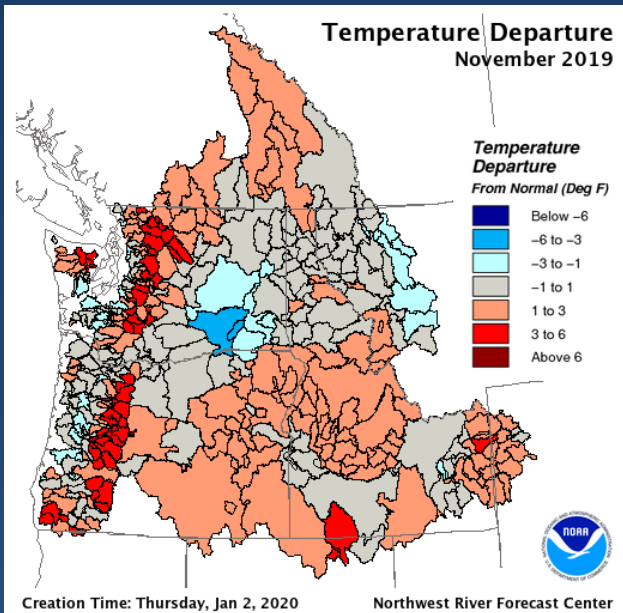
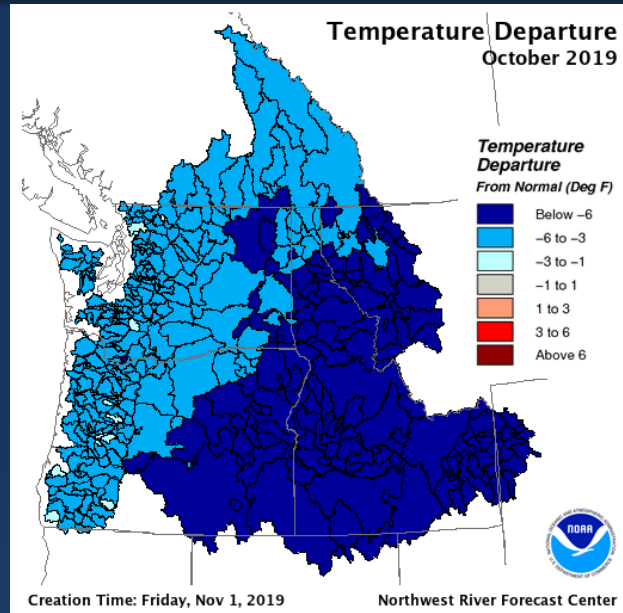
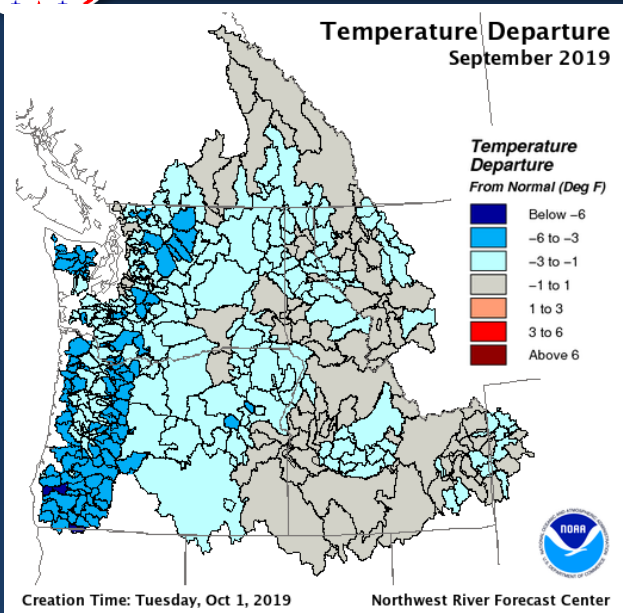
## Additional Guidance

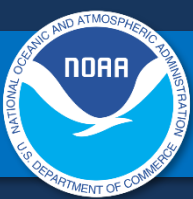
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Chalk Talk – Web Tour

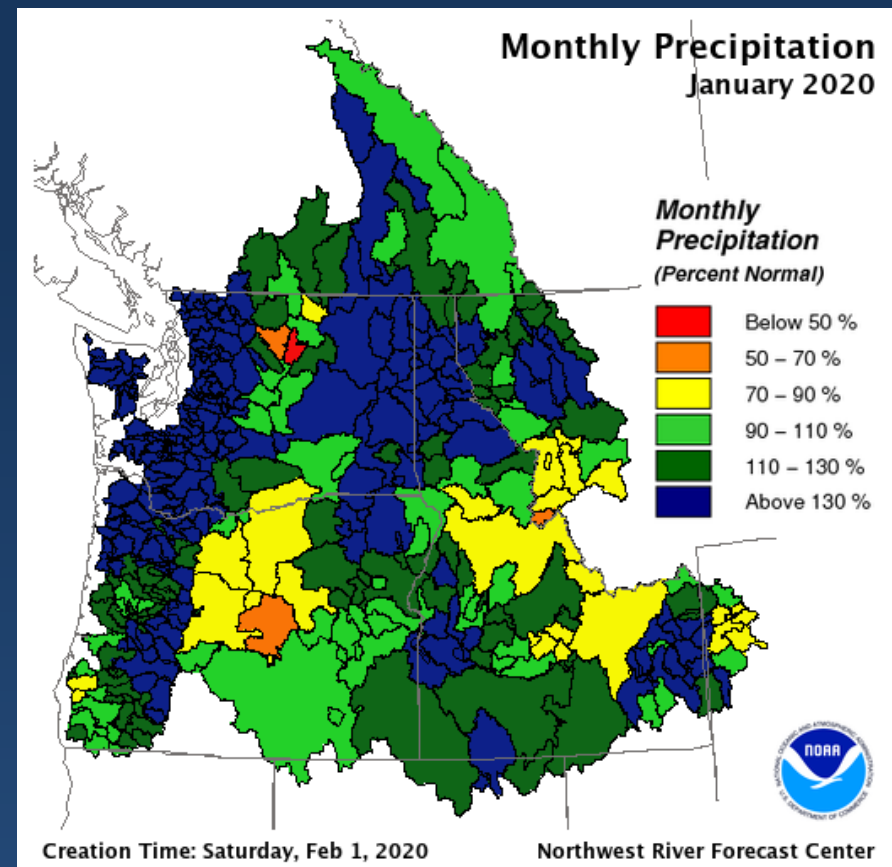
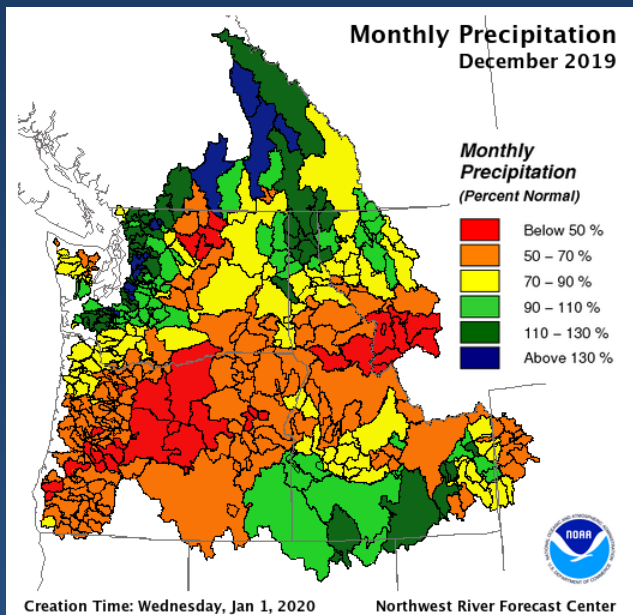
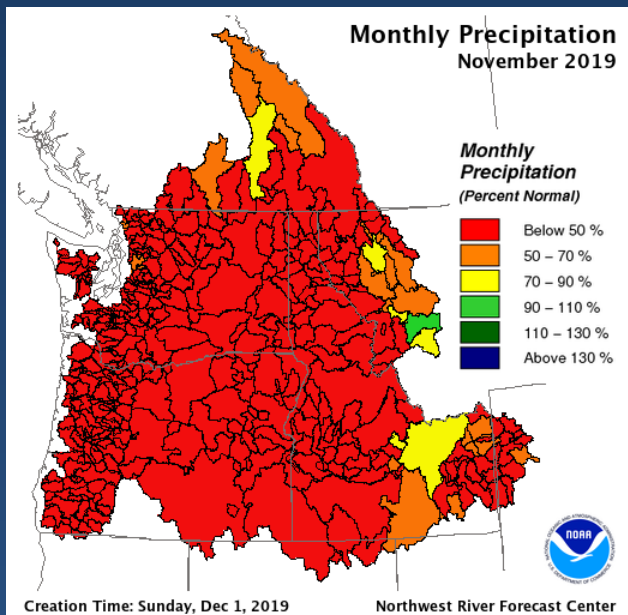
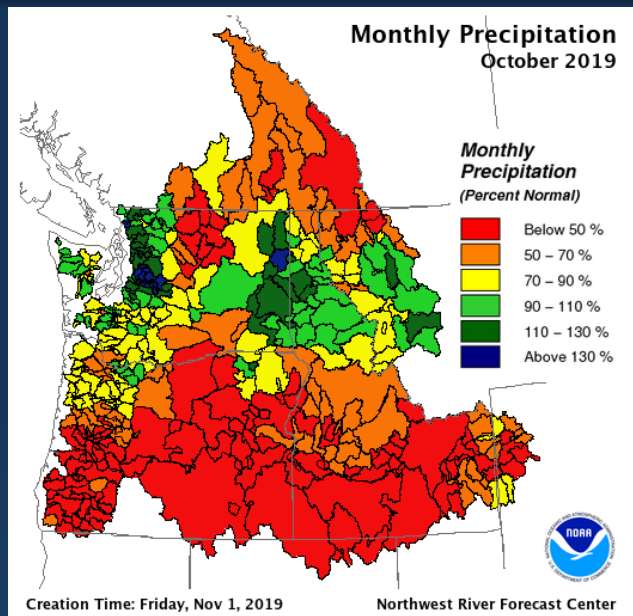
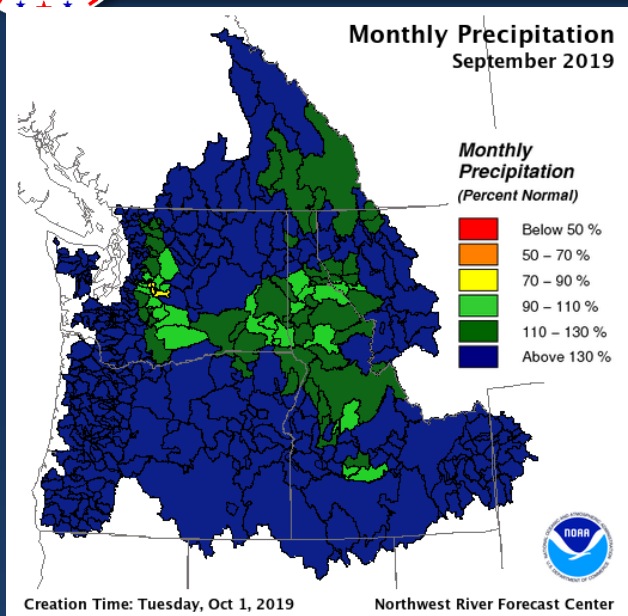


# Monthly Temperature Departure



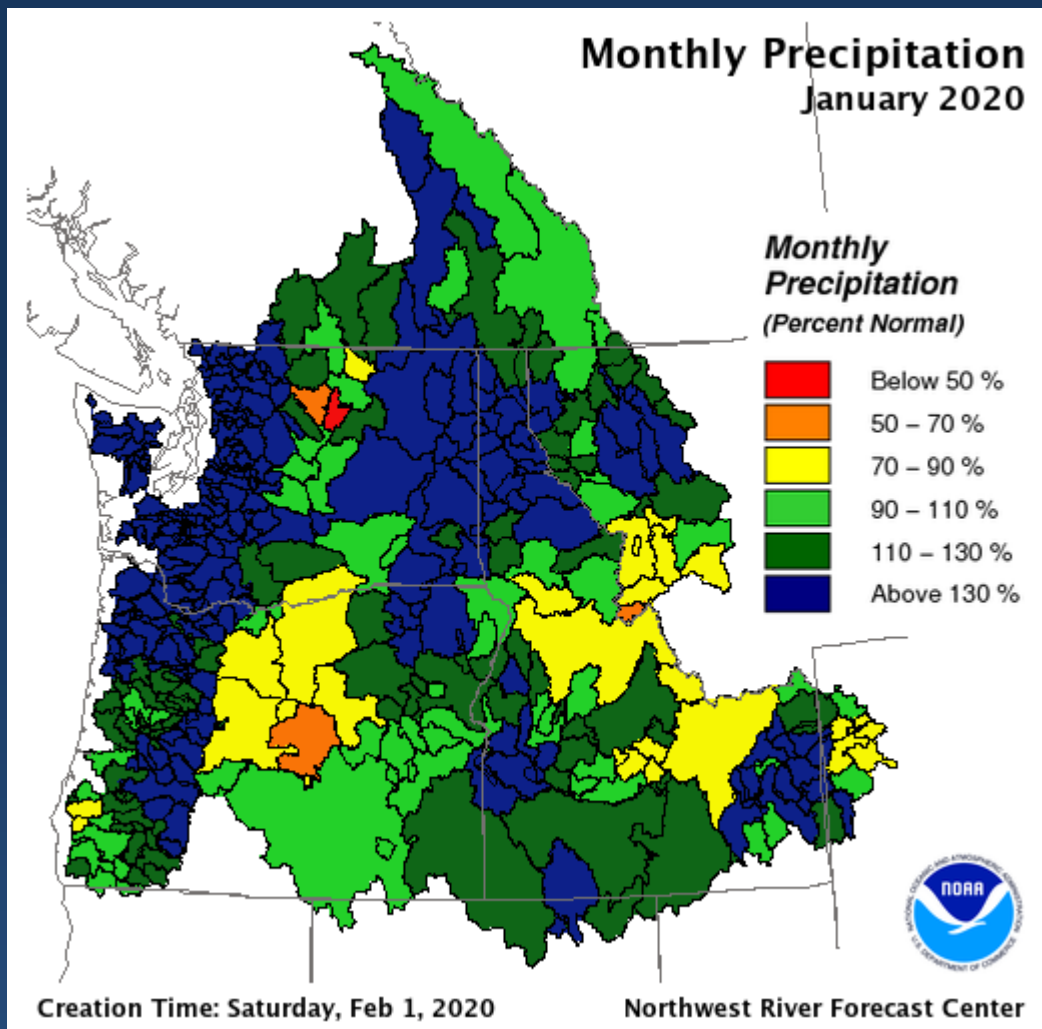
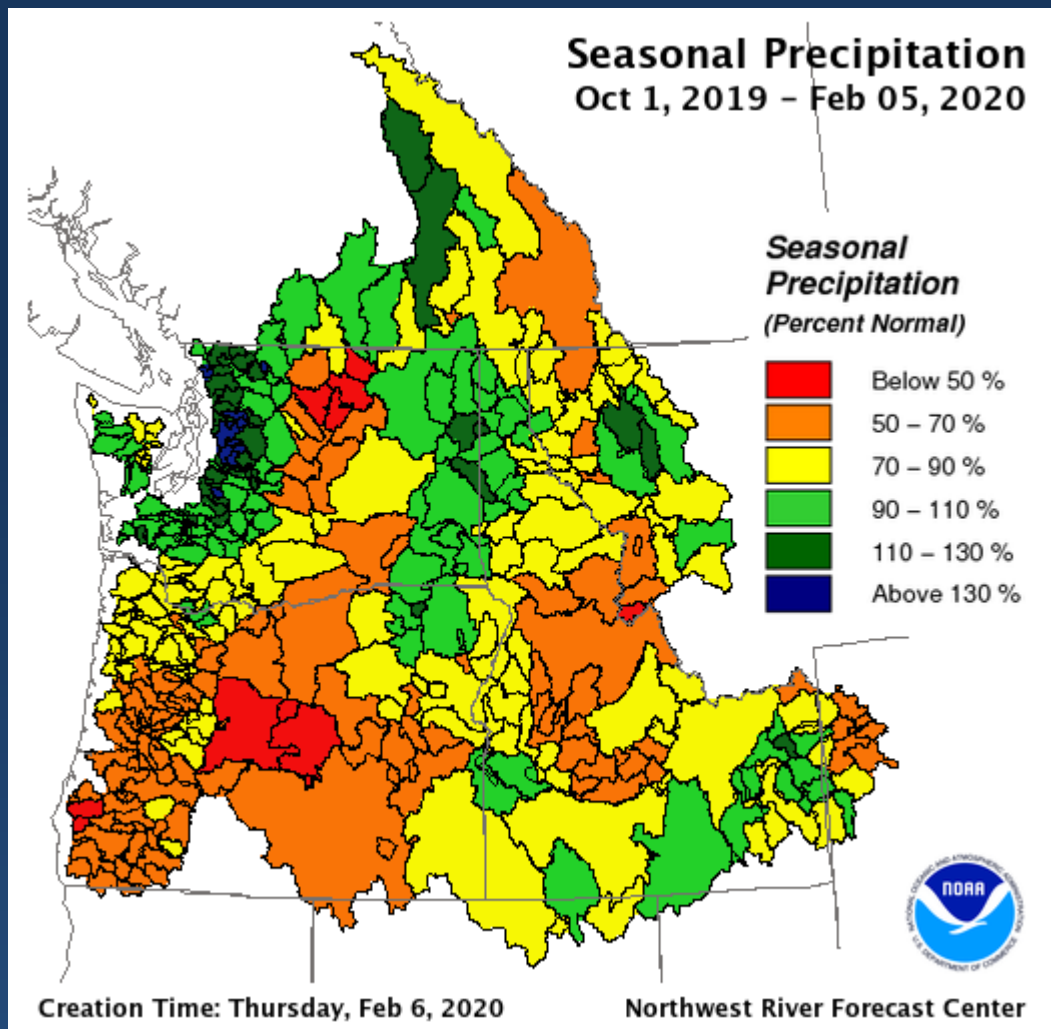


# Monthly Precipitation Departure



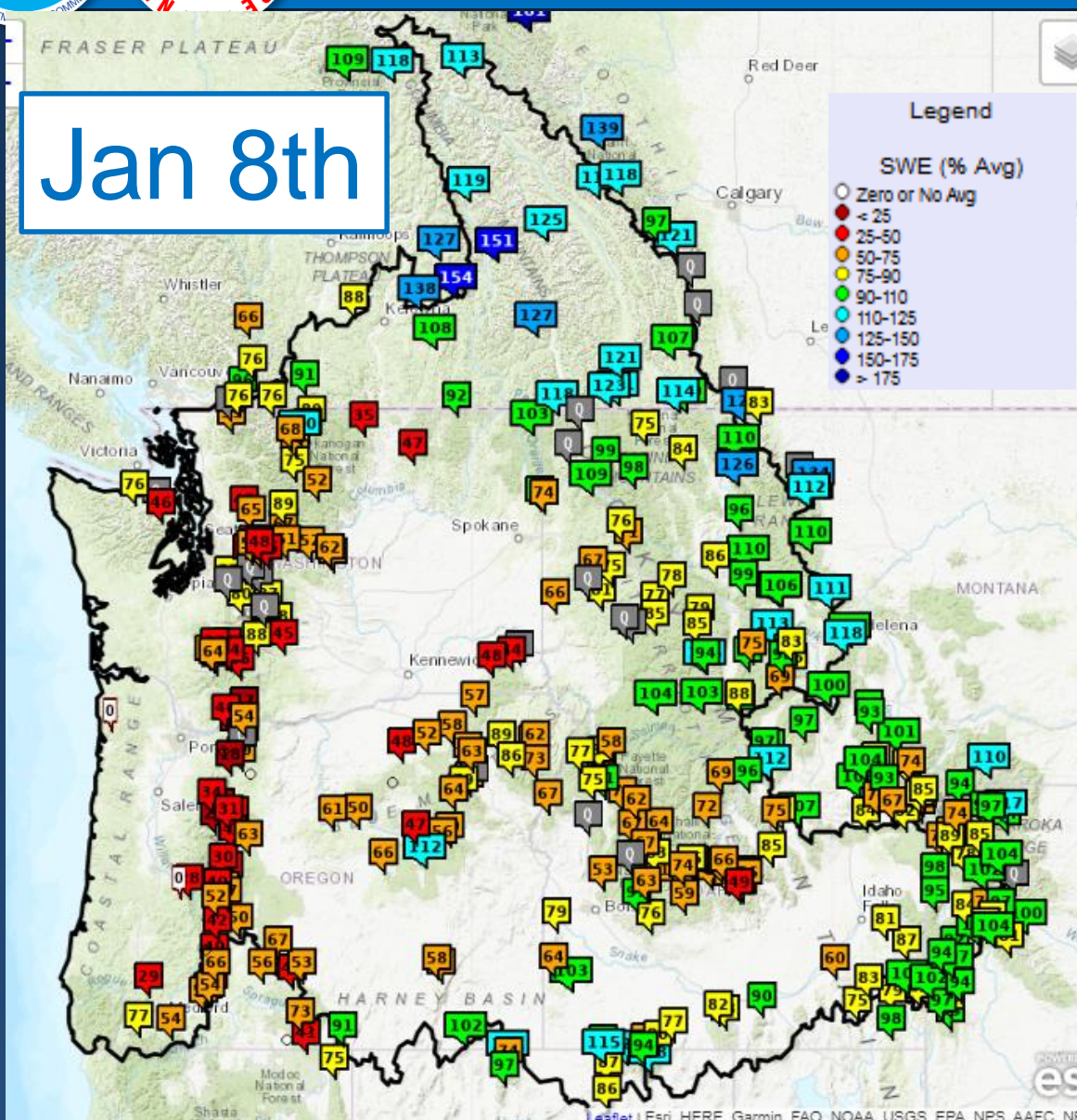


# Observed % Normal Seasonal Precipitation

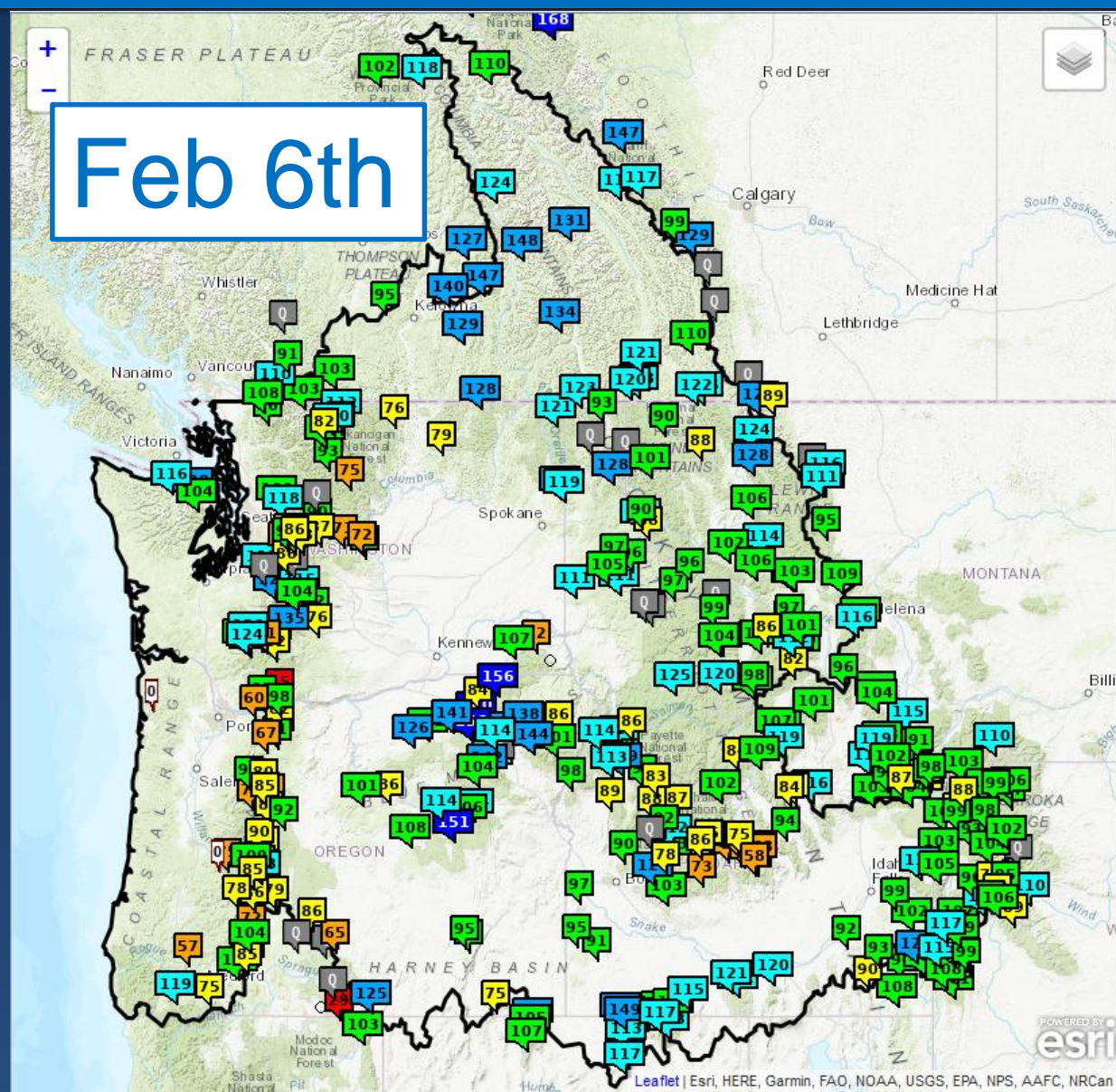


# Snowpack and Seasonal Precipitation

Jan 8th



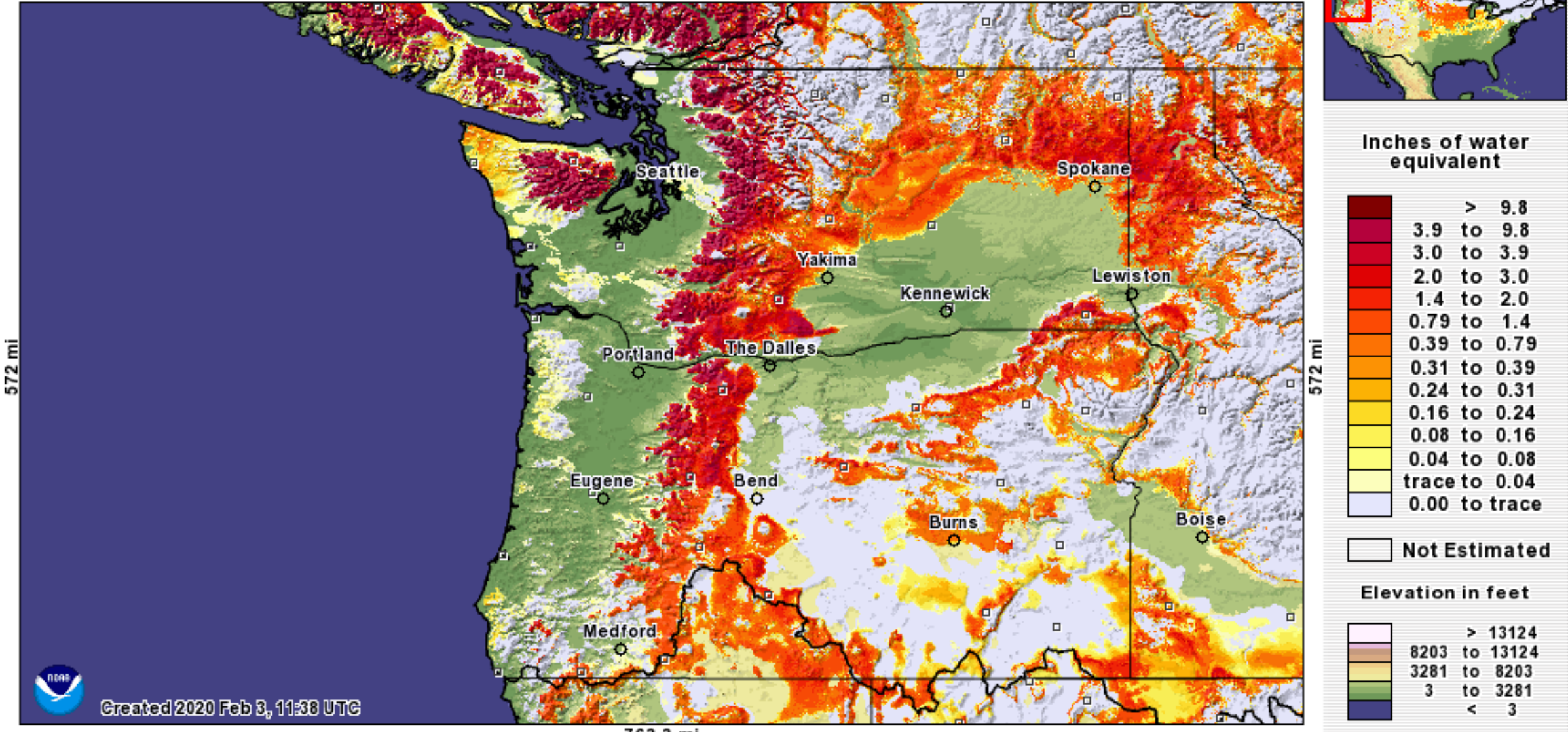
Feb 6th





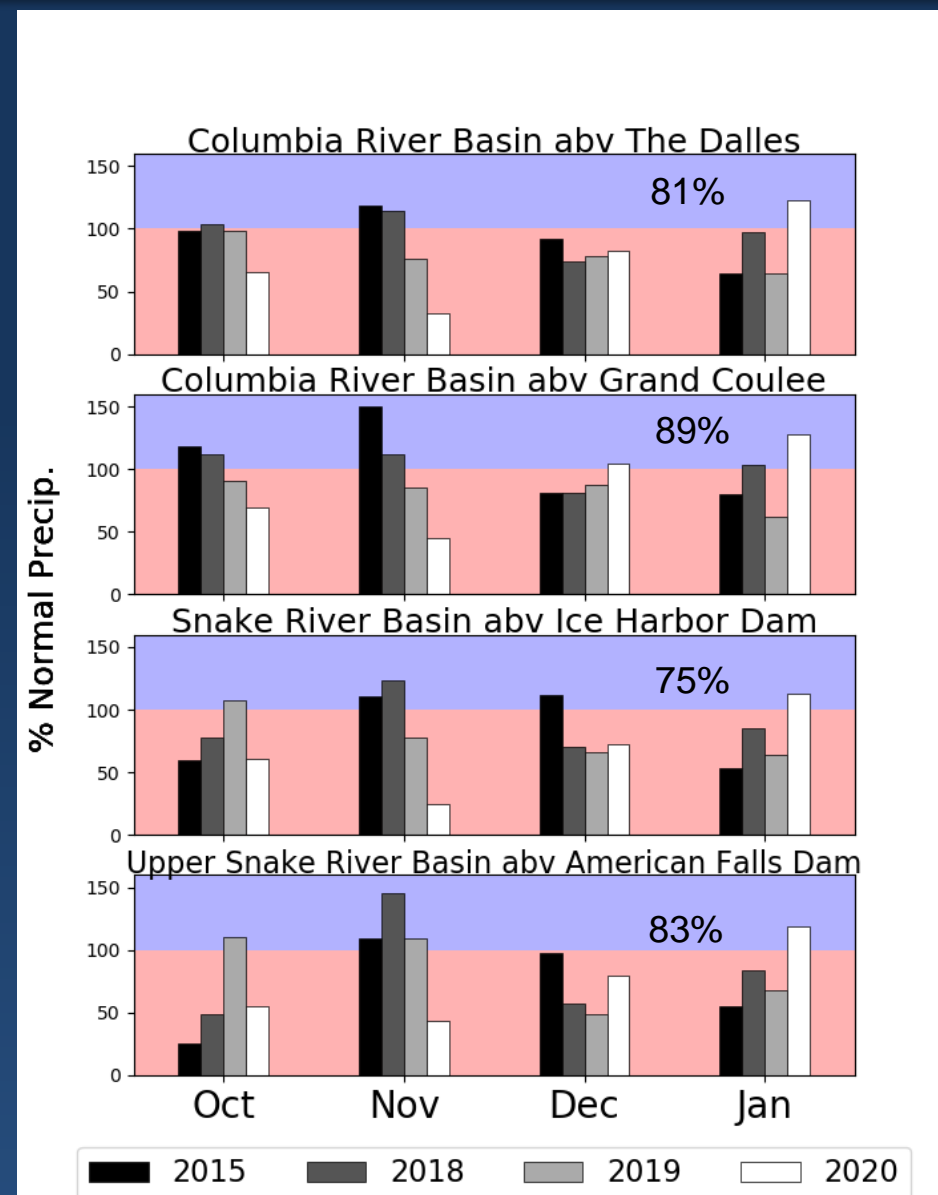
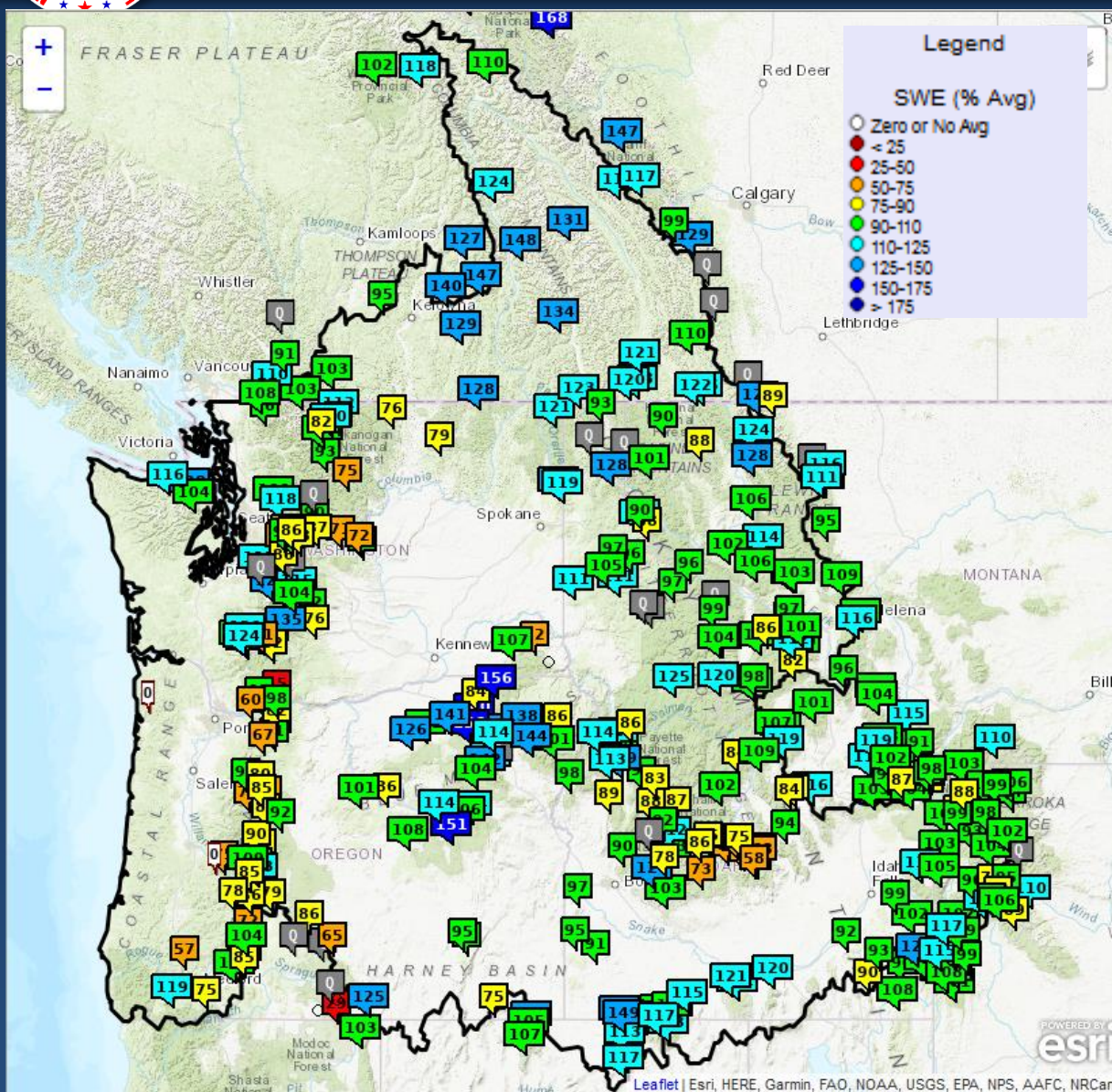
# Snowmelt during AR last weekend

Total Modeled Snow Melt during 72h preceding 2020 February 3, 5:00 UTC  
658.2 mi





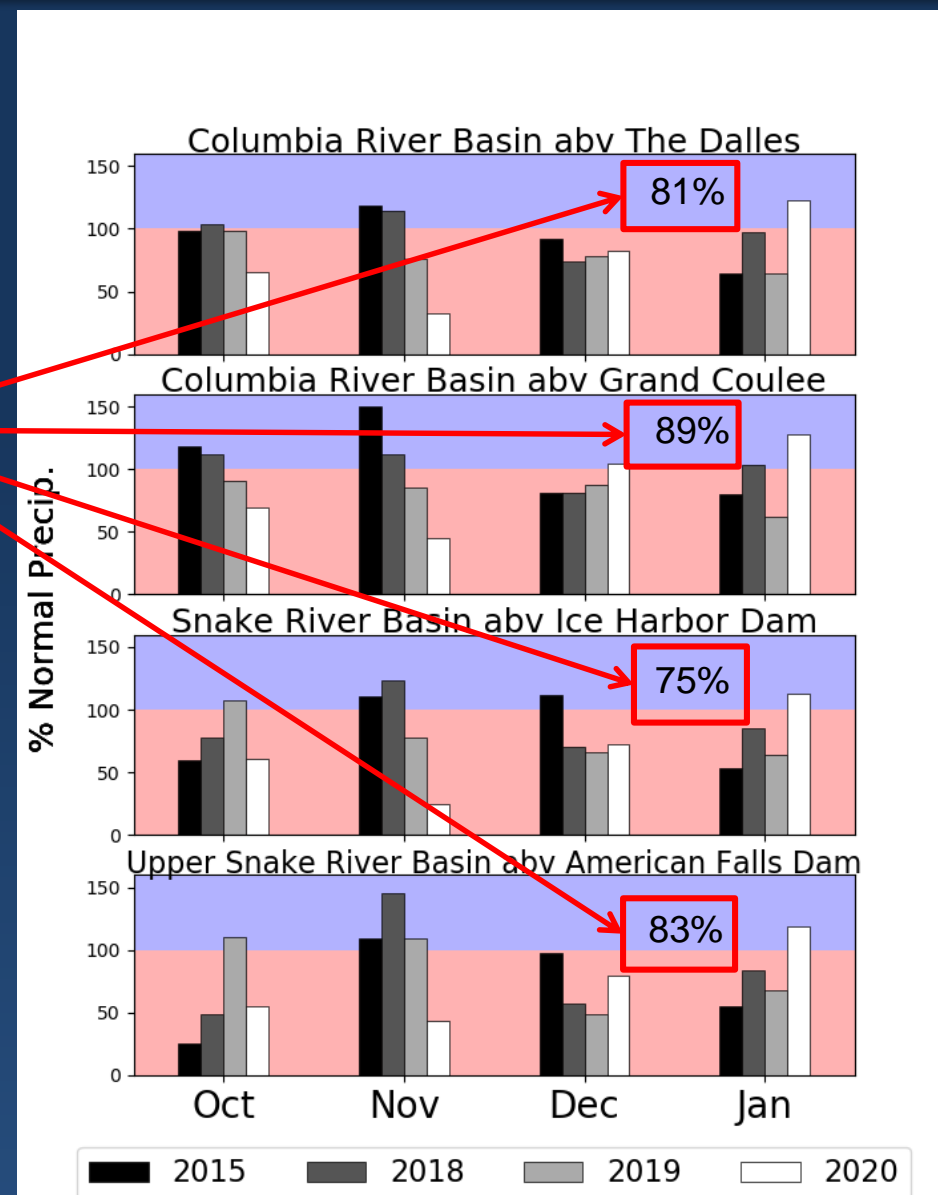
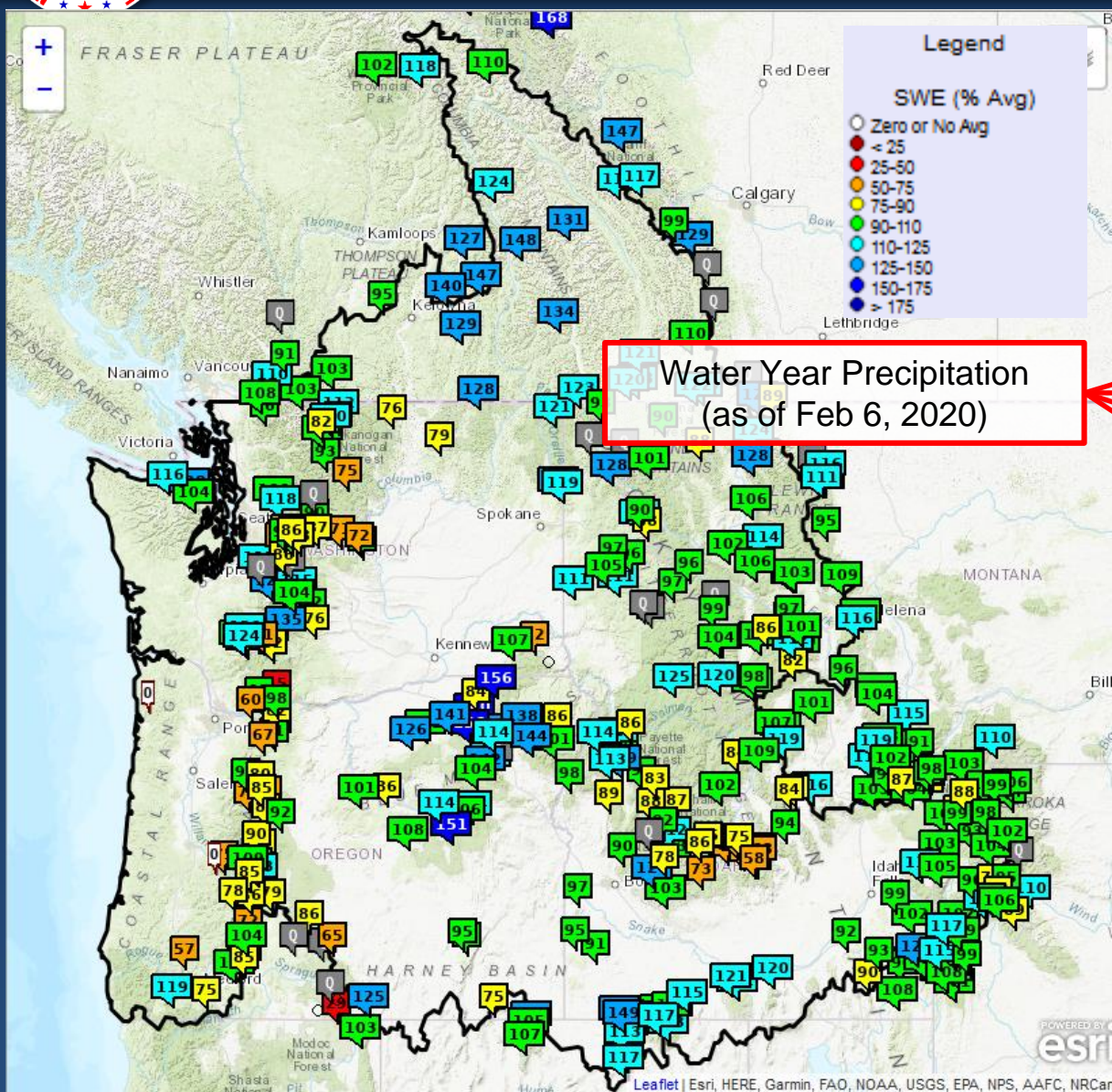
# Snowpack and Seasonal Precipitation



Data as of February 6, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.



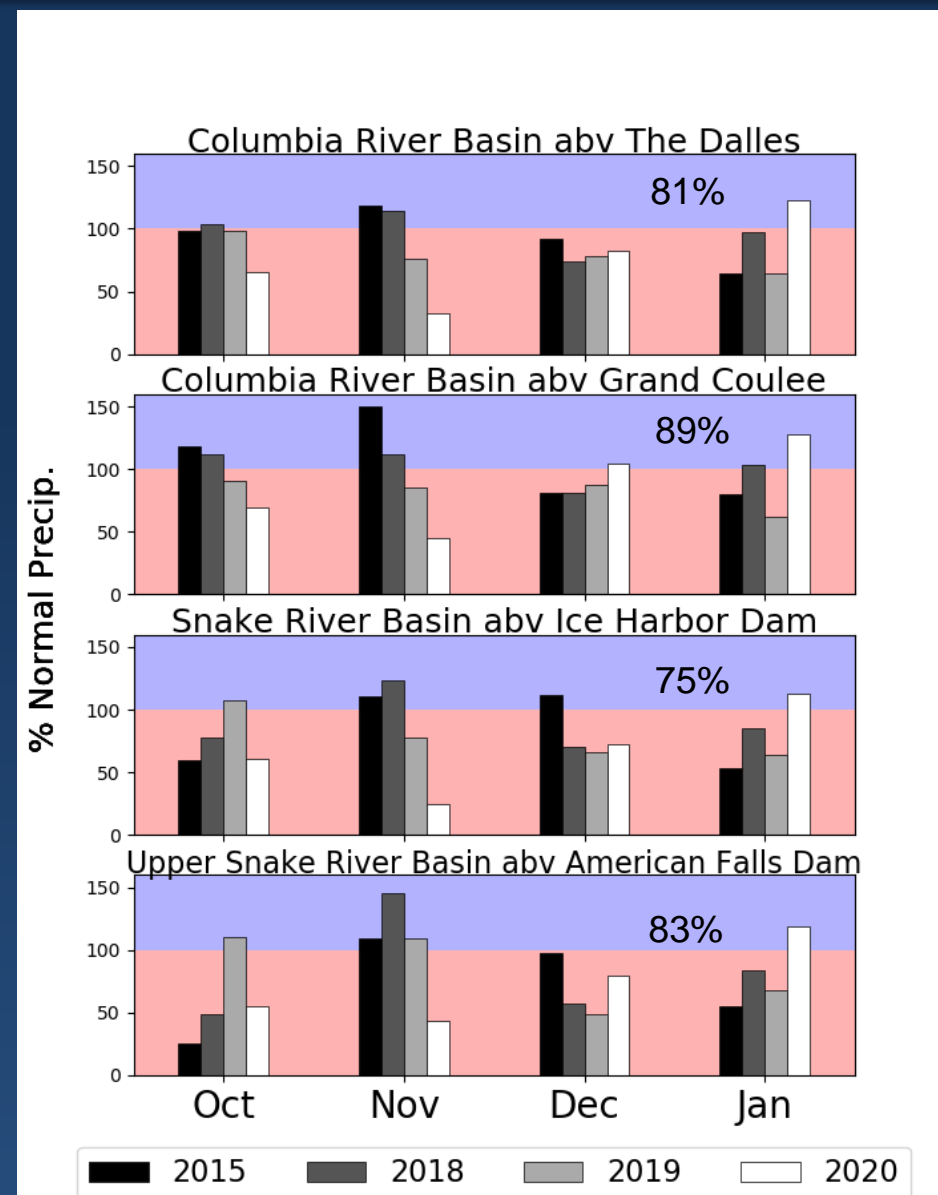
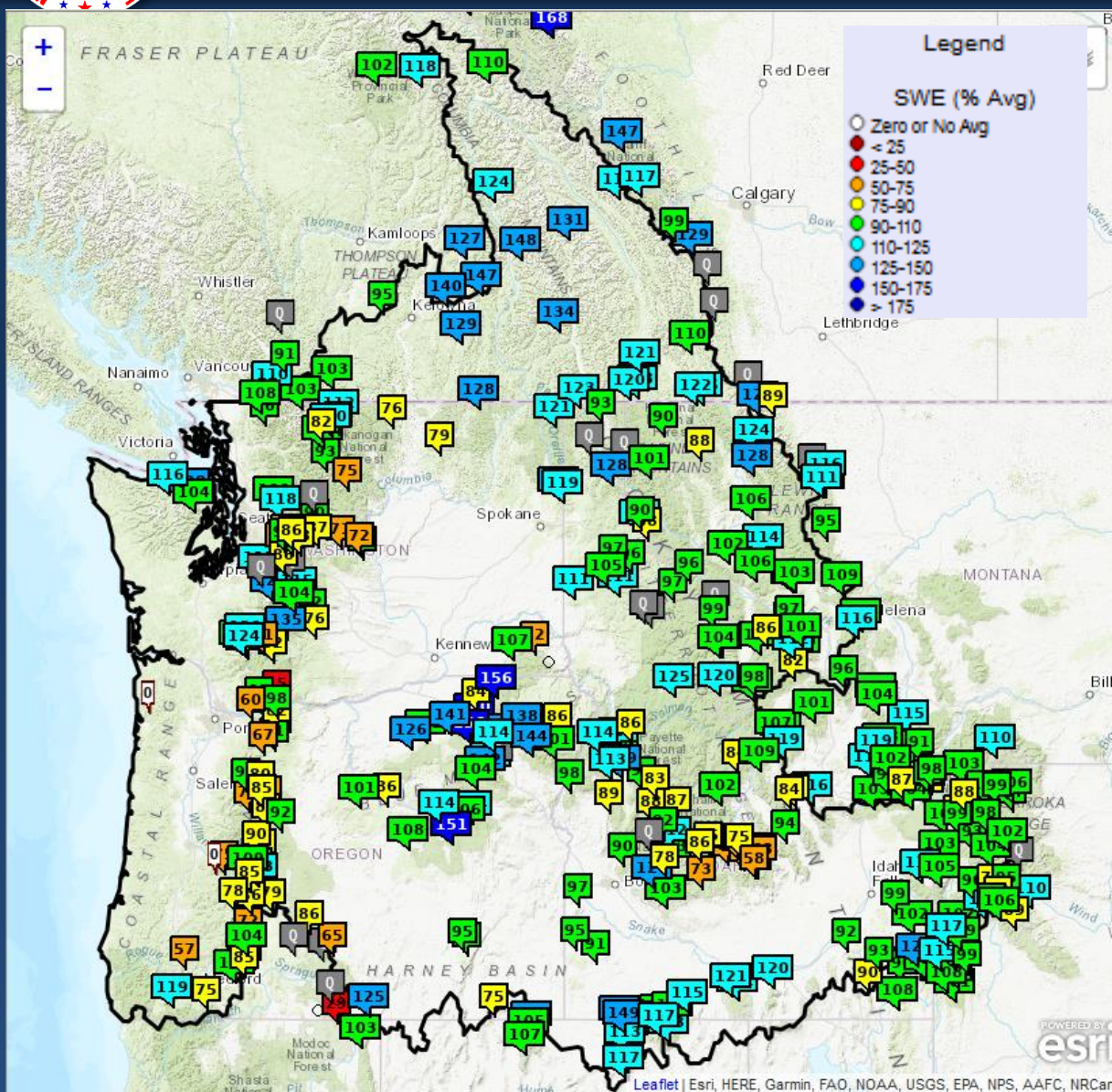
# Snowpack and Seasonal Precipitation



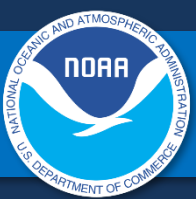
Data as of February 6, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.



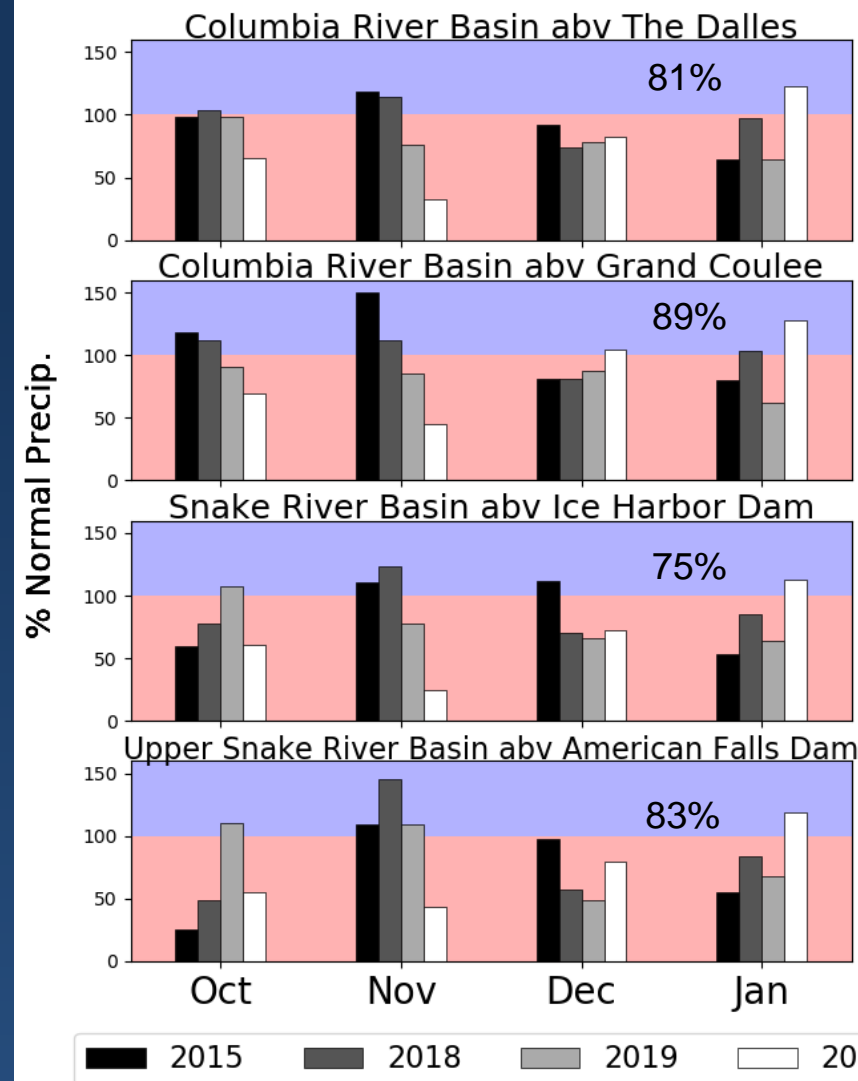
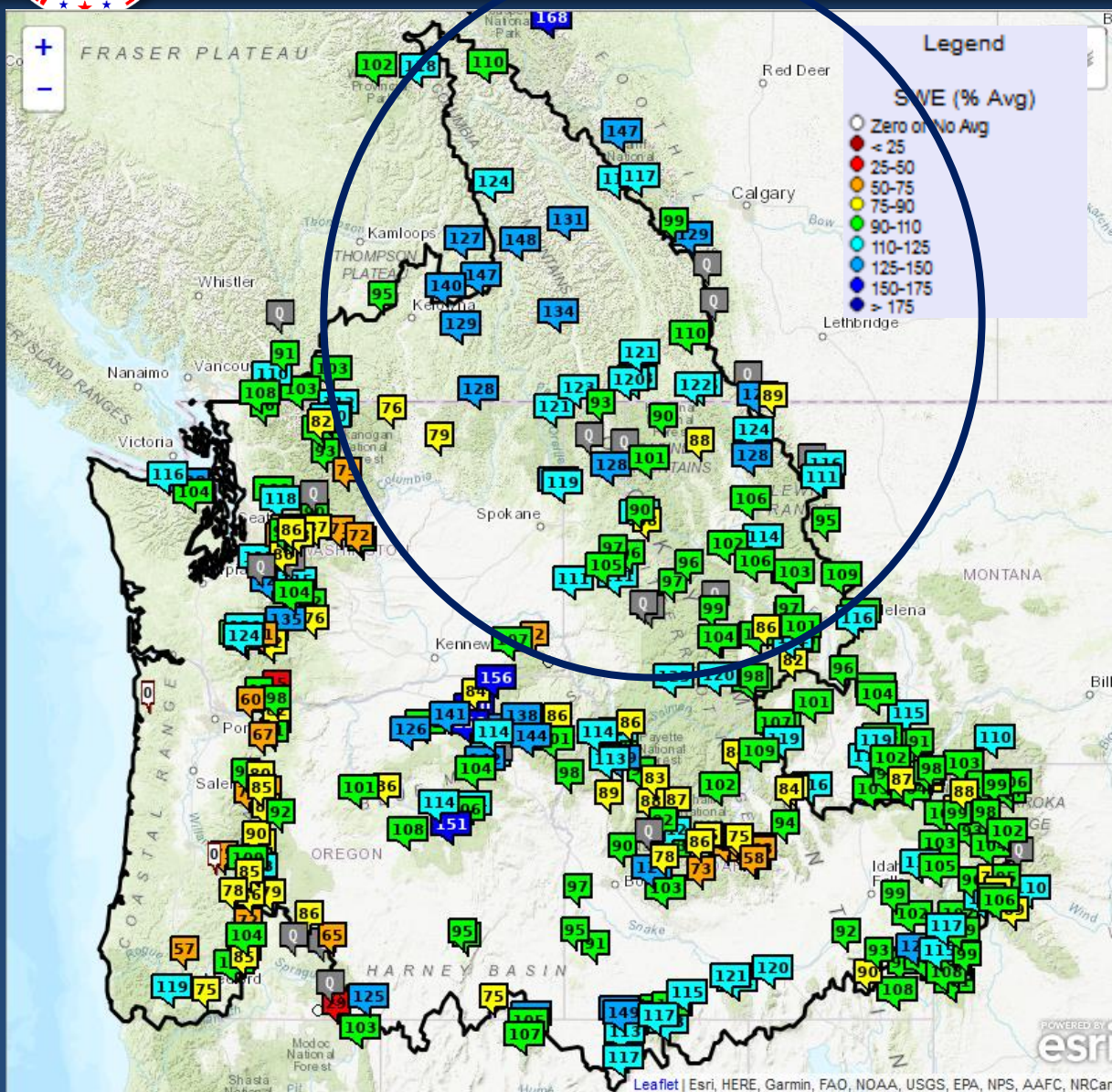
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Data as of February 6, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.



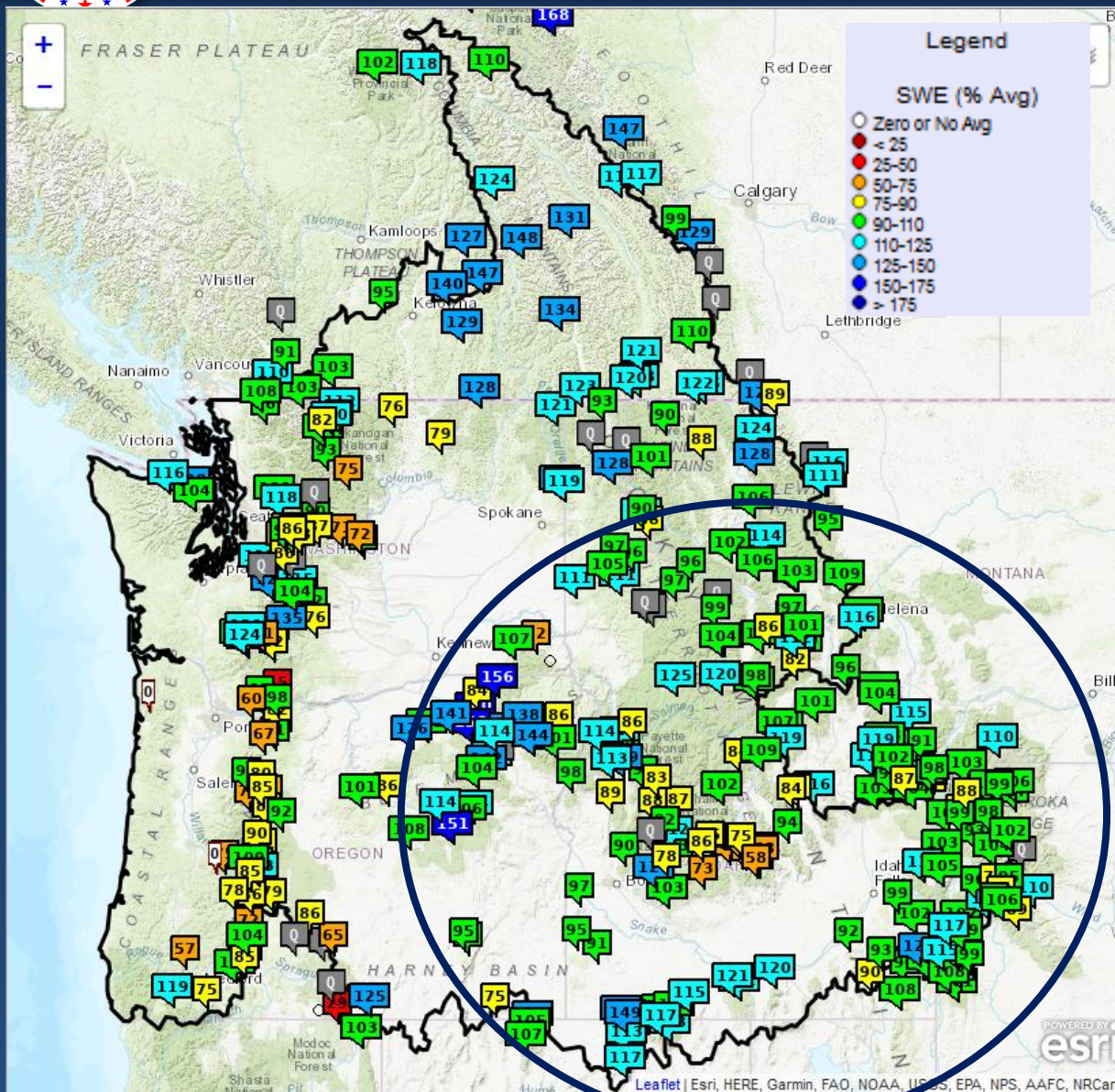
# Snowpack and Seasonal Precipitation



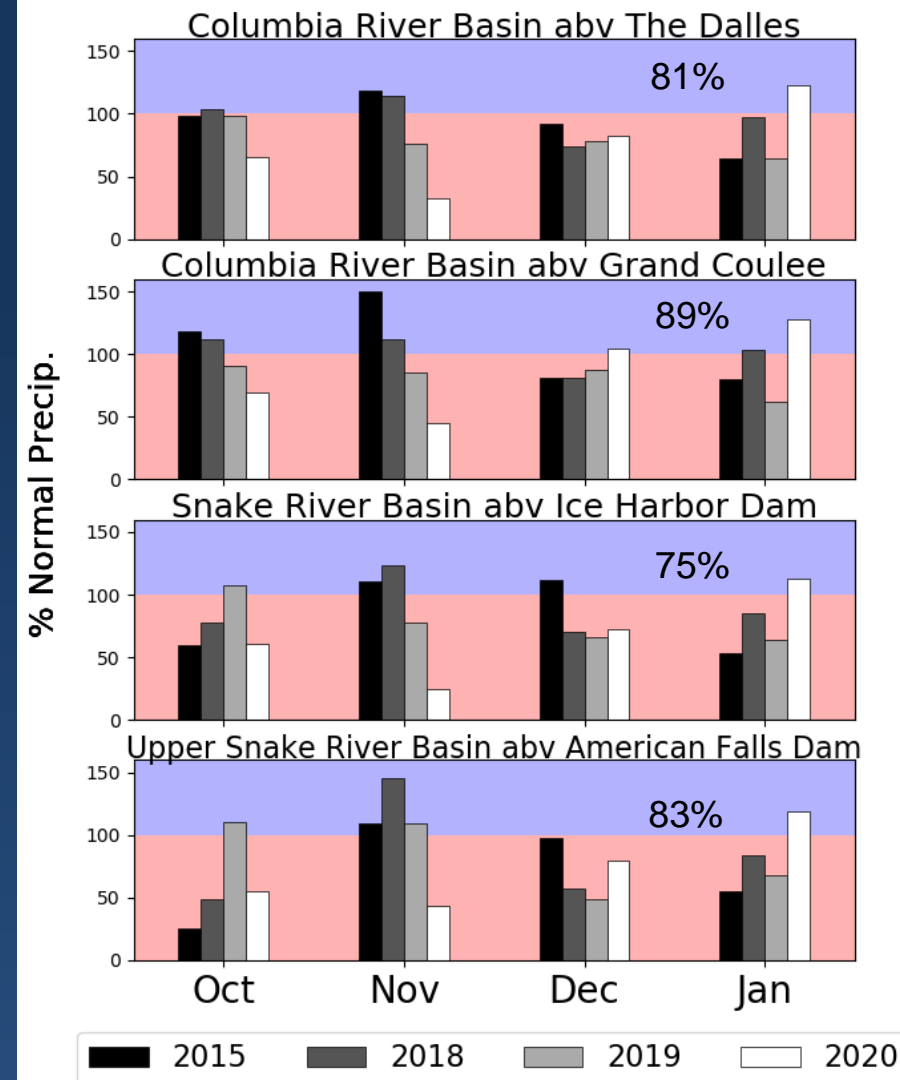
Data as of February 6, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.



# Snowpack and Seasonal Precipitation

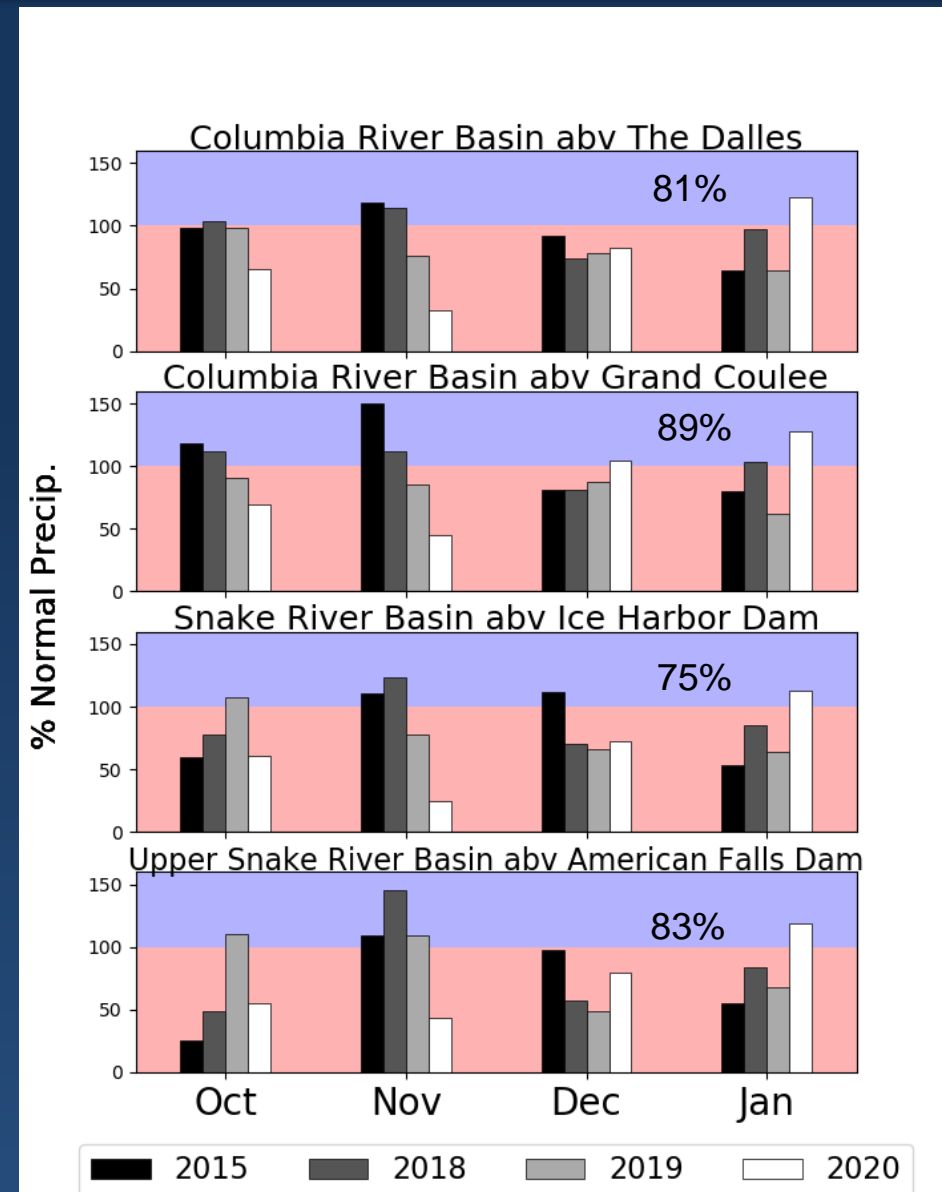
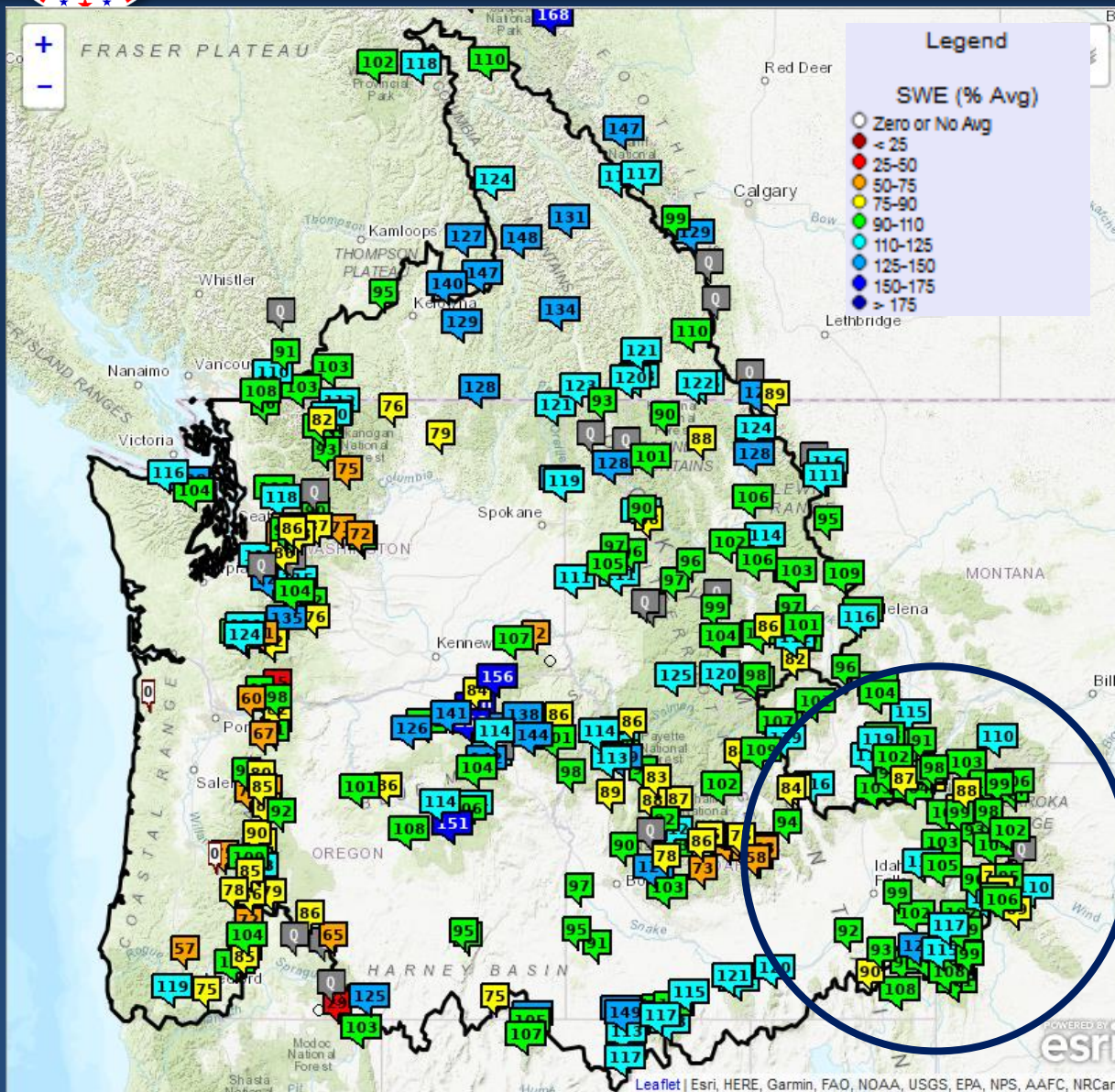


Data as of February 6, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.





# Snowpack and Seasonal Precipitation

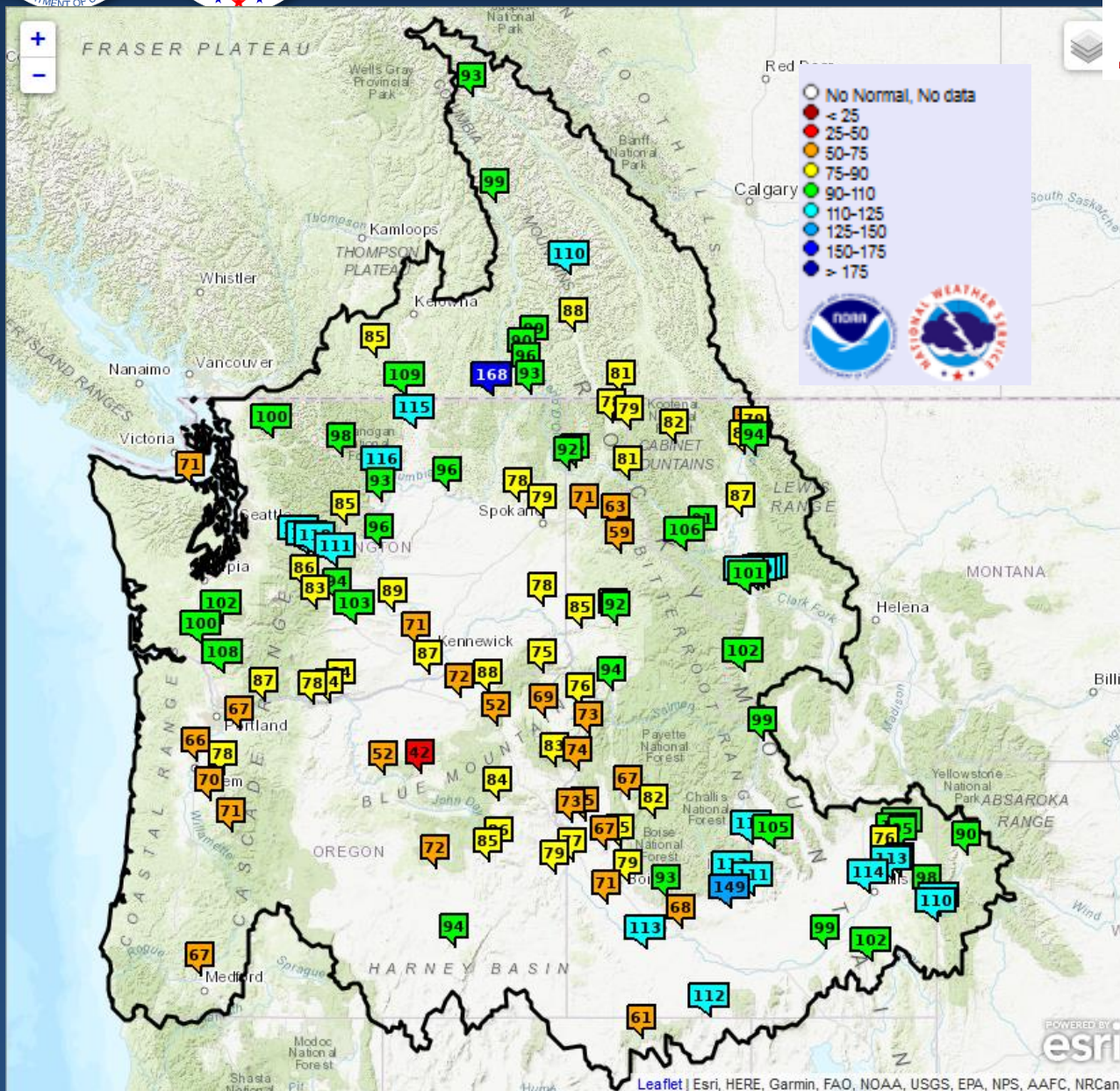


Data as of February 6, 2020. Snow data from NRCS, BC Hydro, and Alberta EP.



# Current Adjusted Runoff Conditions

**SLIDE UPDATED MARCH 5, 2020**



% of Normal Oct 1– Feb 5

## UPPER COLUMBIA BASIN

**$\Delta$  (since Jan 8)**

MICA	93	+ 3
DUNCAN	109	+ 12
QUEENS BAY	88	+ 3
LIBBY	82	--
HUNGRY HORSE	95	+ 12
GRAND COULEE	96	+ 4

## SNAKE RIVER BASIN

JACKSON LAKE	90	+ 4
PALISADES	110	+ 1
DWORSHAK	64	+ 4
LOWER GRANITE	79	- 1

## LOWER COLUMBIA BASIN

THE DALLES	78	+ 3
------------	----	-----



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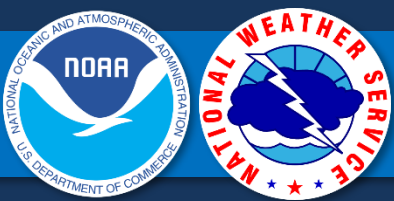
Model Forcings

Model Inputs

## Additional Guidance

- CPC Climate Outlook

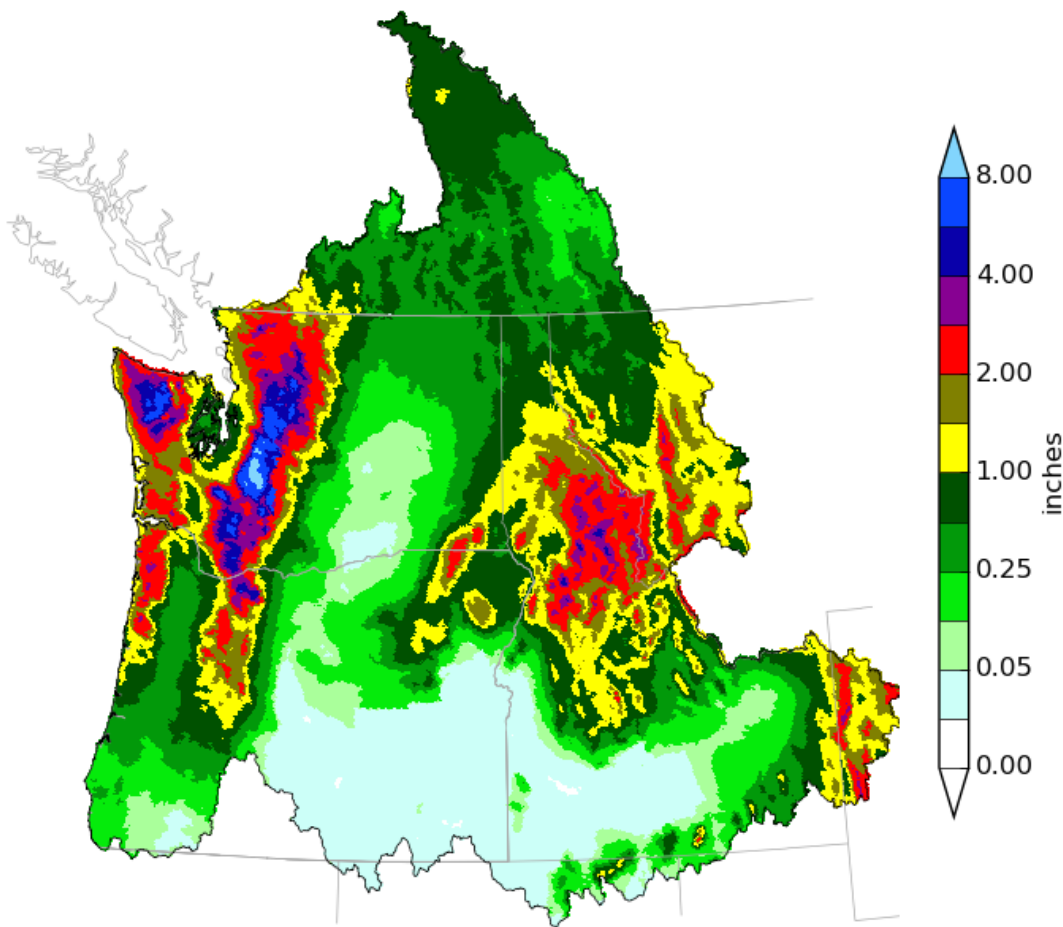
Chalk Talk – Web Tour



# Cumulative 10 Day Precipitation Forecast (Feb 6-16)



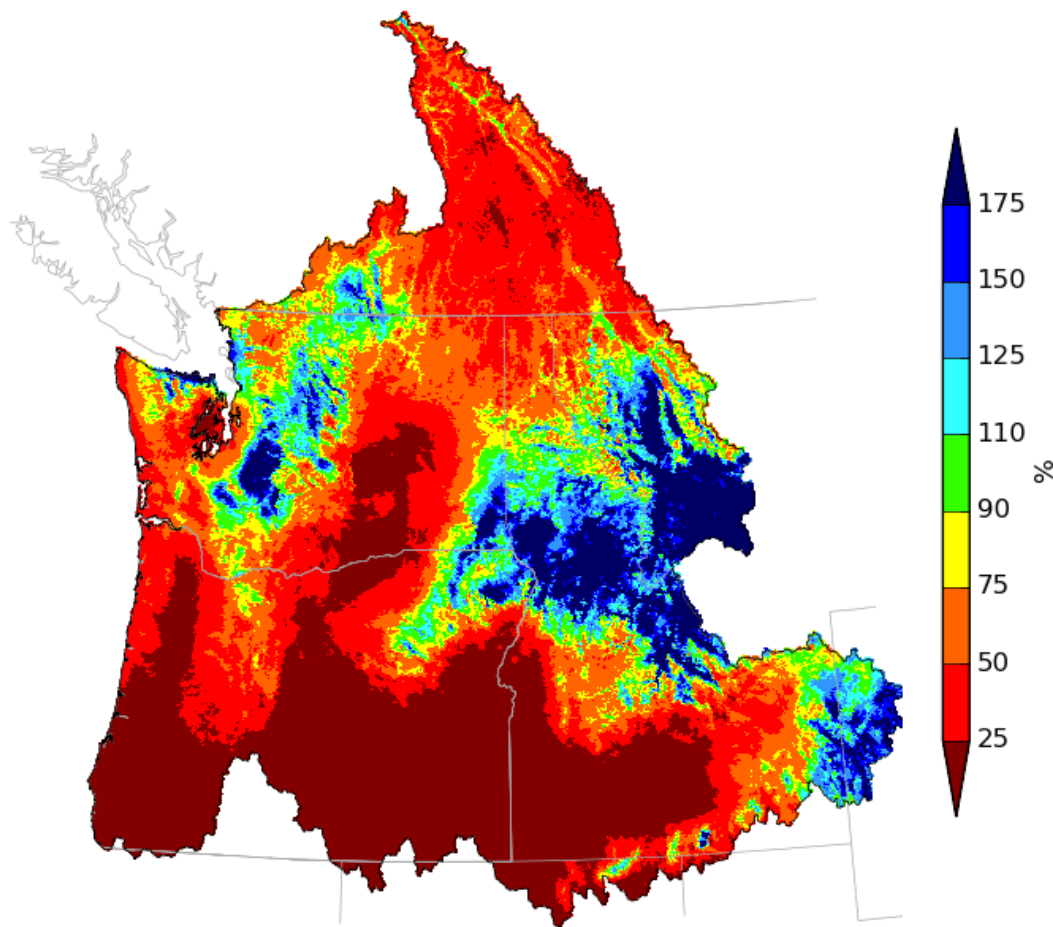
Northwest River Forecast Center  
10 Day QPF, Ending 12Z, 02/16/20



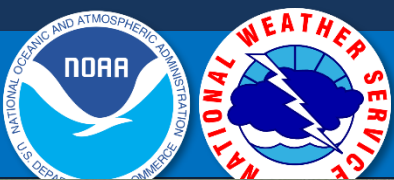
Creation Time: Thu Feb 6 15:02:09 UTC 2020



Northwest River Forecast Center  
10 Day QPF (Percent of Climatology), Ending 12Z, 02/16/20

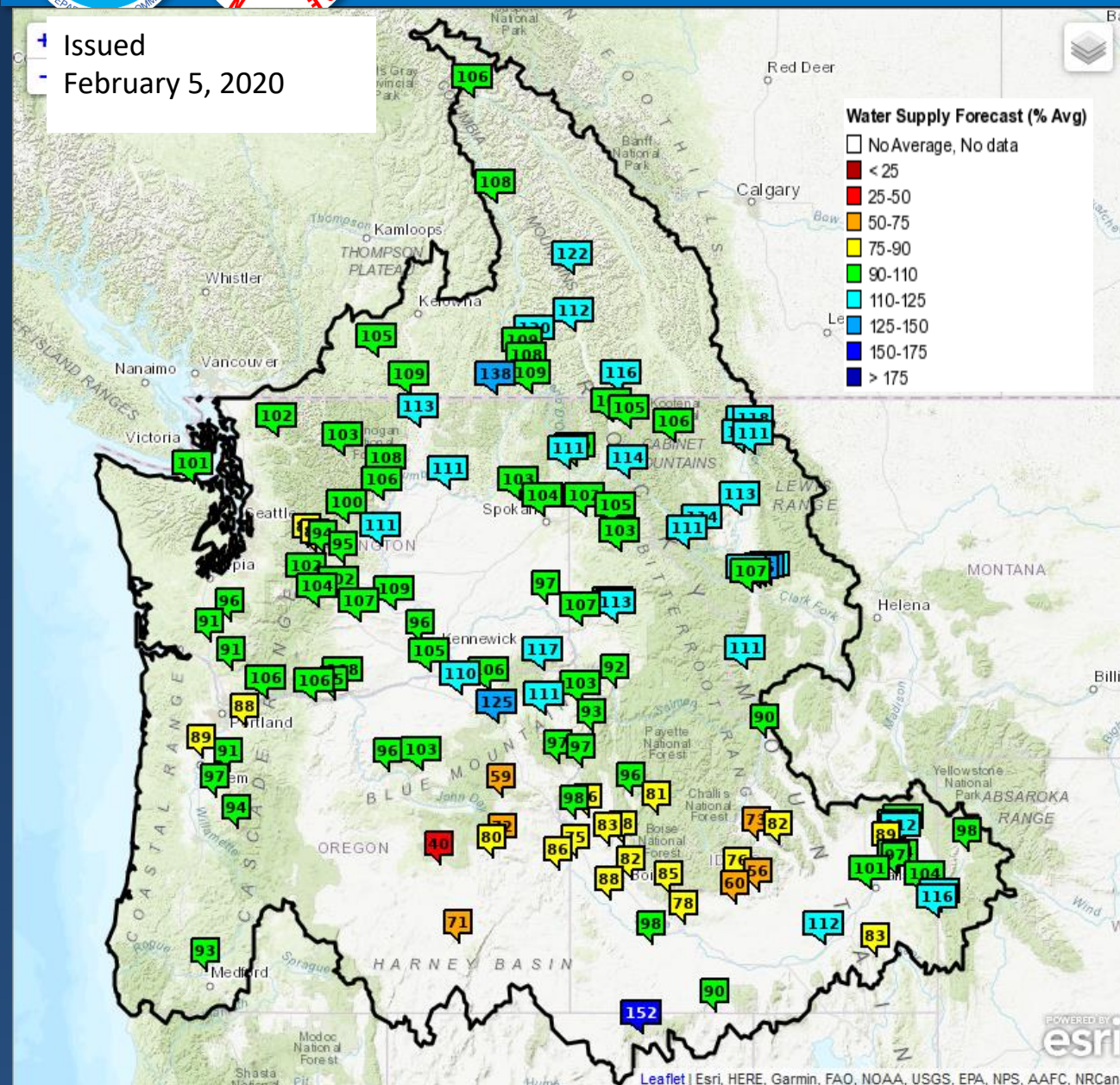


Creation Time: Thu Feb 6 15:03:09 UTC 2020



# ESP10 Apr-Sep Water Supply Forecasts

Issued  
February 5, 2020



## Basin

% 30 yr Normal ( $\Delta$ )

### Upper Columbia River

Kootenai River - Libby Dam	109% (+11)
SF Flathead River - Hungry Horse Dam	113% (+2)
Columbia River - Grand Coulee Dam	112% (+8)

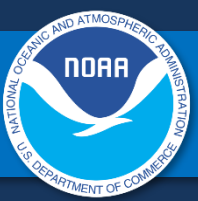
### Upper Snake River

Jackson Lake Dam	97% (-7)
Palisades Dam	114% (-18)
Heise	104% (-20)

### Middle Snake Tribs

Lucky Peak Dam	82% (-27)
Owyhee Dam	86% (+12)
Bruneau R nr Hot Springs	98% (-3)
NF Clearwater River-Dworshak Dam	101% (+3)
Lower Snake River-Lower Granite Dam	95% (-12)
Lower Columbia - The Dalles Dam	105% (+1)

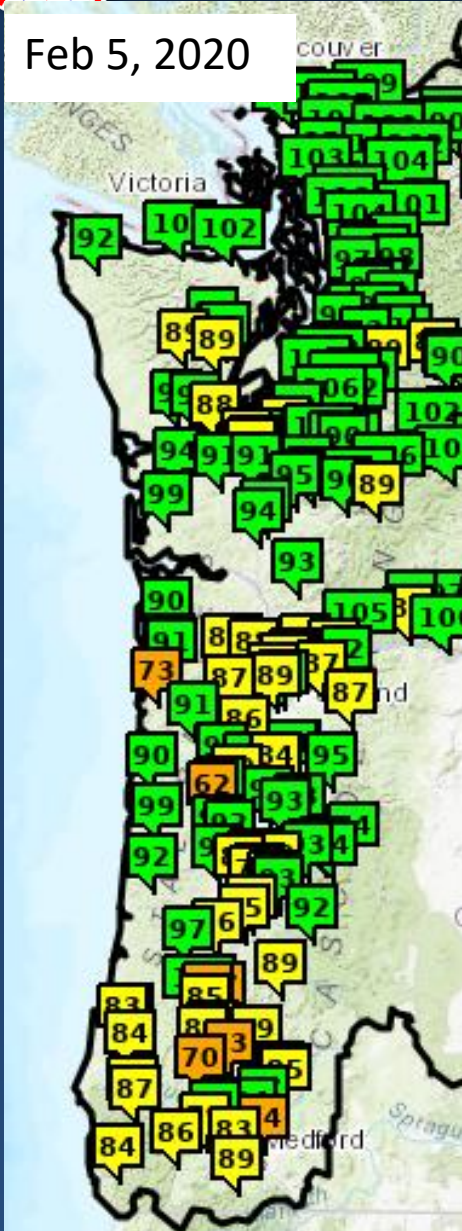
(change in % since Jan 9, 2020 in parenthesis)



# ESP10 Natural Apr-Sep Forecasts

ESP Natural - Western Oregon and Washington

Feb 5, 2020



## Basin

## % 30 yr Normal ( $\Delta$ )

Skagit River near Concrete

104% (+ 9)

Green River Howard Hanson Res

90% (--)

Cowlitz River Mossyrock Reservoir

95% (- 3)

Cowlitz River Mayfield Reservoir

95% (- 4)

North Santiam At Mehama

94% (- 10)

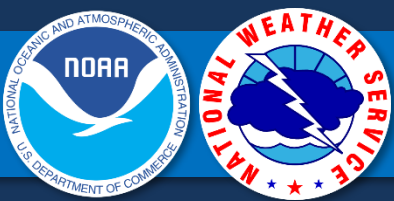
Willamette River At Salem

86% (- 9)

Rogue River Applegate Reservoir

89% (- 15)

(change in % since Jan 9, 2020 in parenthesis)



# ESP10 Apr-Sep Water Supply Forecasts

## SF FLATHEAD - HUNGRY HORSE DAM (HHWM8) Forecasts for Water Year 2020

### Official Water Supply

ESP with 10 Days QPF Ensemble: 2020-02-05 Issued: 2020-02-05

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	1913	2199	111	2625	1988
APR-JUL	1768	2085	111	2493	1871
APR-AUG	1839	2146	111	2577	1936
JAN-SEP	2168	2461	111	2892	2215
JAN-JUL	2049	2349	112	2744	2098
OCT-SEP	2366	2659	109	3090	2447

### Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2020-02-05 Issued: 2020-02-05

APR-SEP	1892	2234	112	2735	1988
APR-JUL	1748	2107	113	2607	1871
APR-AUG	1818	2162	112	2690	1936
JAN-SEP	2168	2452	111	2976	2215
JAN-JUL	2024	2359	112	2810	2098
OCT-SEP	2366	2650	108	3174	2447

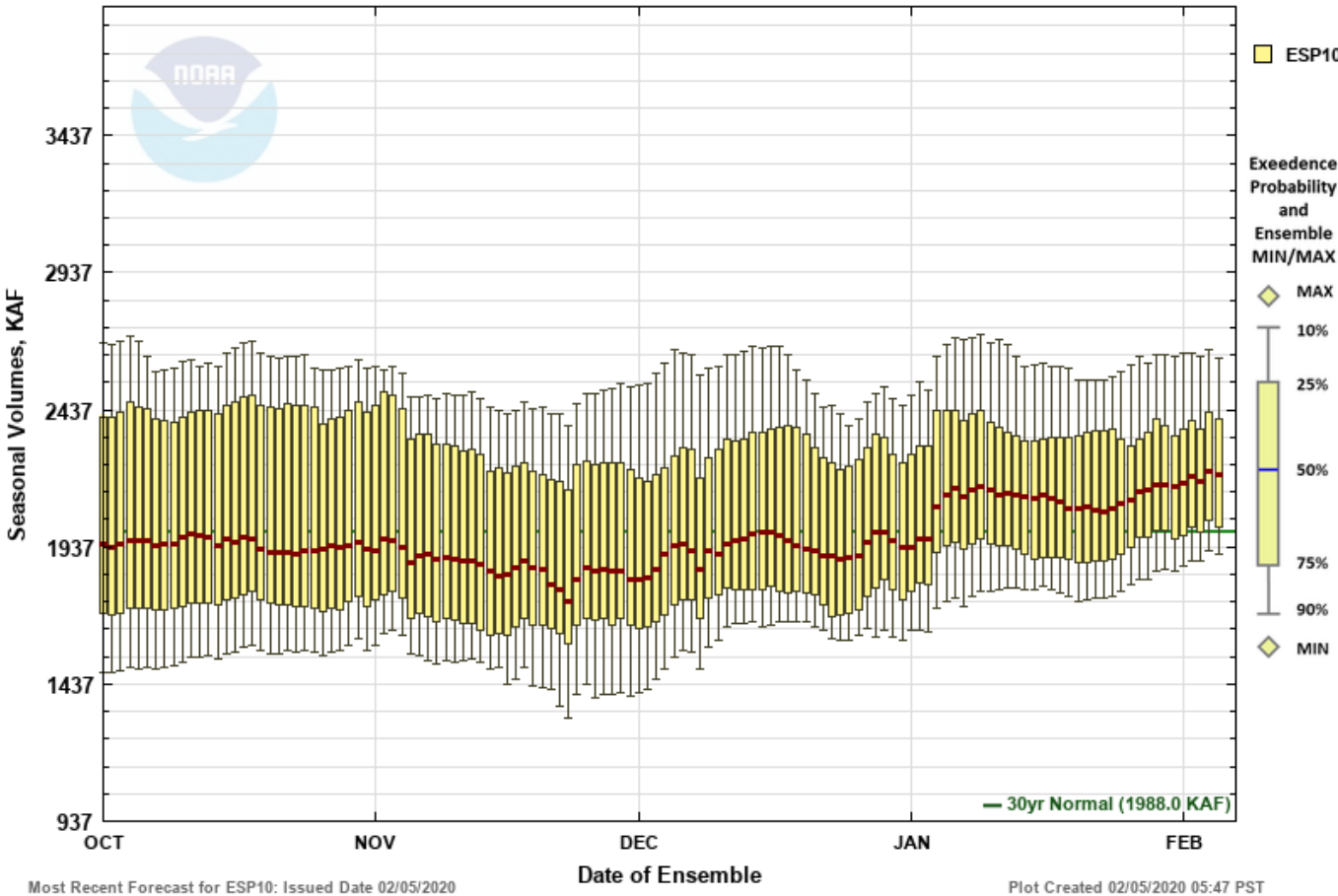
### Reference

ESP with 0 Days QPF Ensemble: 2020-02-05 Issued: 2020-02-05

APR-SEP	1855	2163	109	2671	1988
APR-JUL	1713	2050	110	2524	1871
APR-AUG	1782	2111	109	2623	1936
JAN-SEP	2153	2436	110	2945	2215
JAN-JUL	2011	2343	112	2817	2098
OCT-SEP	2351	2634	108	3143	2447

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

## Water Supply Forecasts SF FLATHEAD - HUNGRY HORSE 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



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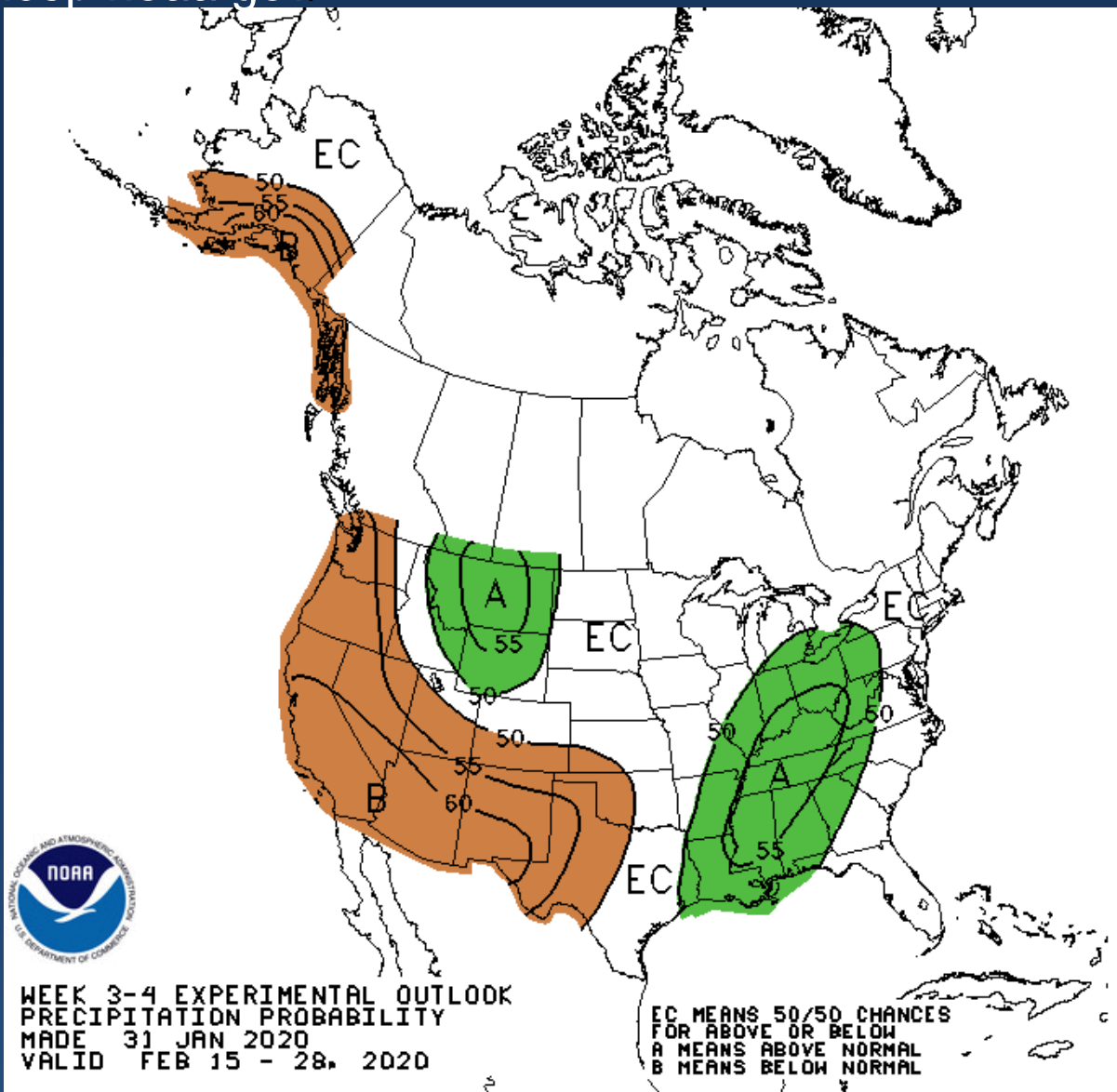
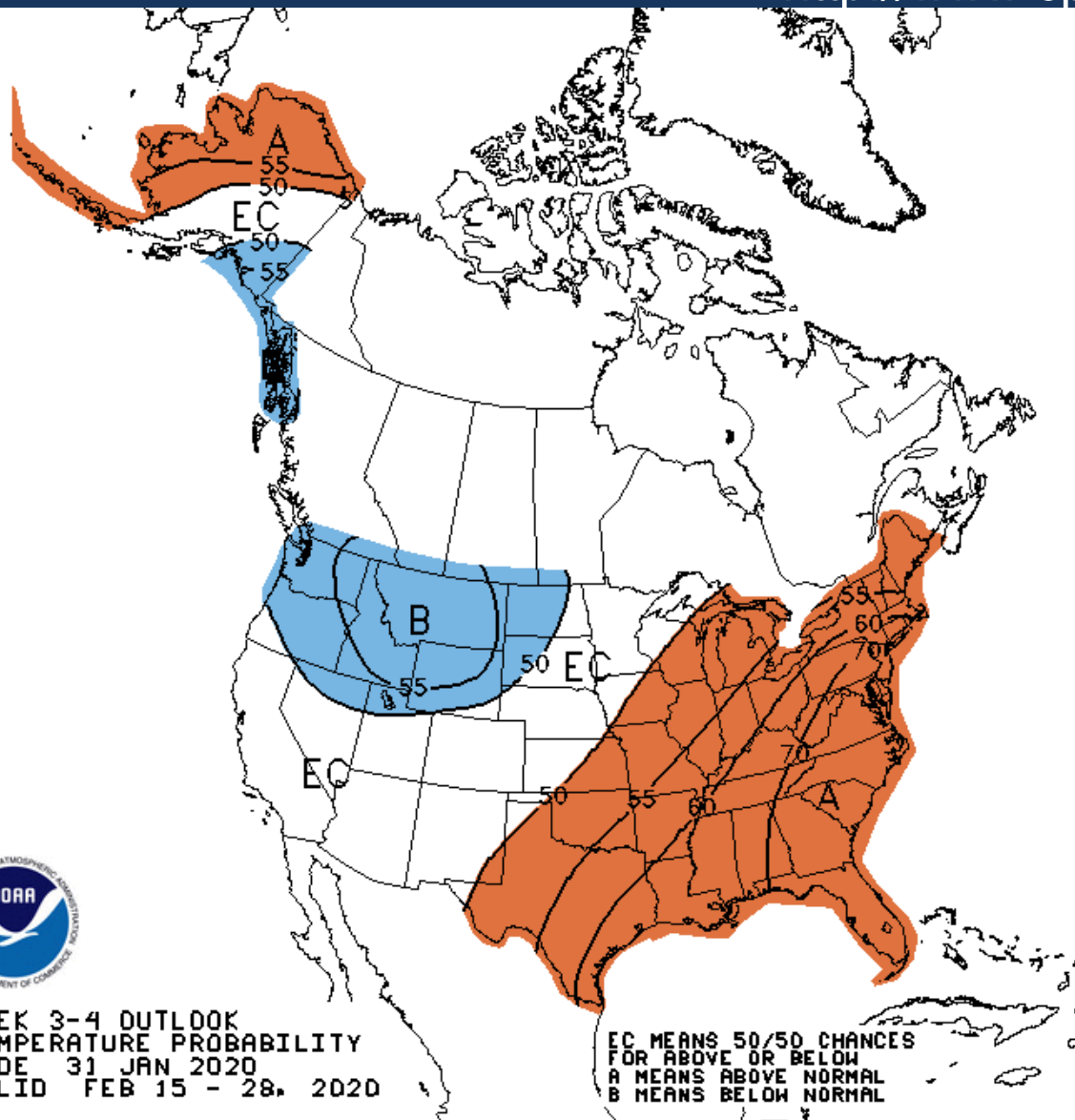
- CPC Climate Outlook

Chalk Talk – Web Tour



# 3-4 Week CPC Outlook

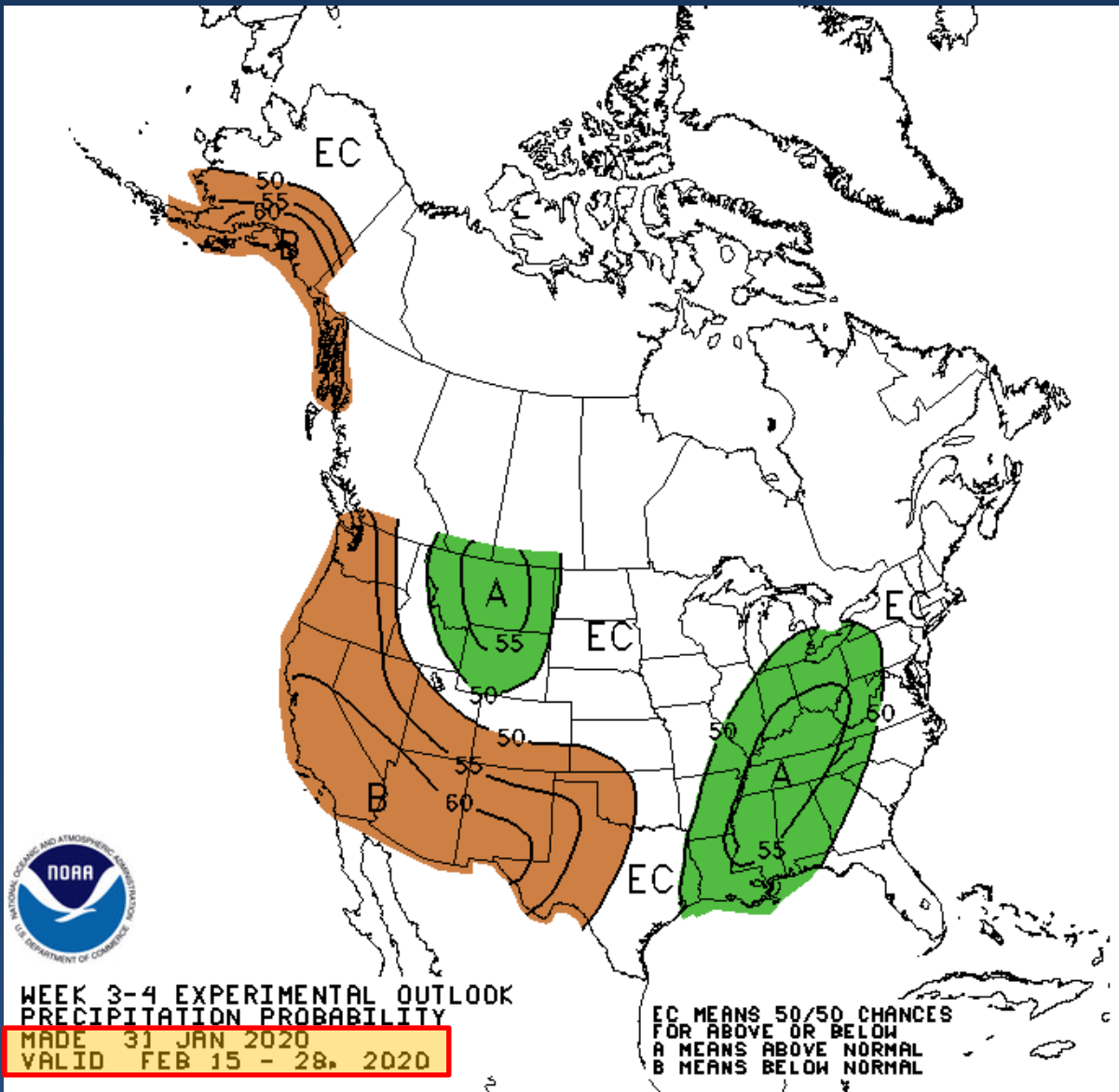
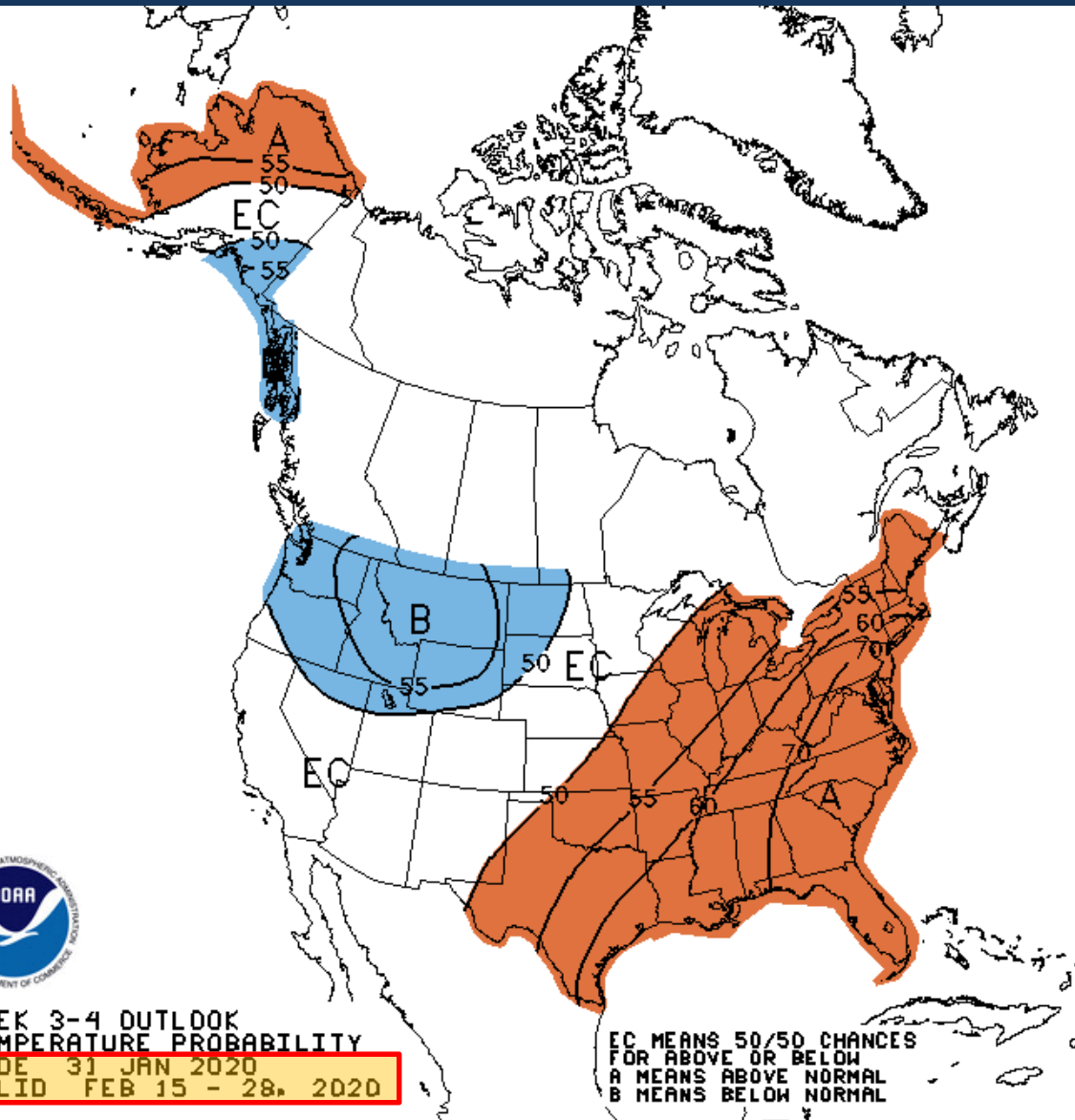
<http://www.cpc.ncep.noaa.gov/>





# 3-4 Week CPC Outlook

<http://www.cpc.ncep.noaa.gov/>





# Web Tour

## Water Supply <https://www.nwrfc.noaa.gov/ws/index.html>

- ESP Forecast
  - Seasonal evolution [https://www.nwrfc.noaa.gov/water\\_supply/ws\\_forecasts.php?id=HHWM8](https://www.nwrfc.noaa.gov/water_supply/ws_forecasts.php?id=HHWM8)
  - Monthly forecasts [https://www.nwrfc.noaa.gov/water\\_supply/monthly/monthly\\_forecasts.php?id=HHWM8](https://www.nwrfc.noaa.gov/water_supply/monthly/monthly_forecasts.php?id=HHWM8)
  - Interactive <https://www.nwrfc.noaa.gov/espadp/espadp.cgi>
- Climate Indices Regressions  
[https://www.nwrfc.noaa.gov/runoff/enso/enso\\_runoff\\_analysis.php?id=HHWM8&wstype=WS](https://www.nwrfc.noaa.gov/runoff/enso/enso_runoff_analysis.php?id=HHWM8&wstype=WS)

## Snow <https://www.nwrfc.noaa.gov/snow/index.html>

- Basin breakdown [https://www.nwrfc.noaa.gov/snow\\_comp/snowcomp.cgi?id=HHWM8](https://www.nwrfc.noaa.gov/snow_comp/snowcomp.cgi?id=HHWM8)
- Basin summary [https://www.nwrfc.noaa.gov/snow\\_comp/basin\\_summary.php](https://www.nwrfc.noaa.gov/snow_comp/basin_summary.php)

## Forcing summaries [https://www.nwrfc.noaa.gov/water\\_supply/wy\\_summary/wy\\_summary.php?tab=2](https://www.nwrfc.noaa.gov/water_supply/wy_summary/wy_summary.php?tab=2)

## Downloads <https://www.nwrfc.noaa.gov/misc/downloads/>



# Water Year 2020 Summary

- January monthly precipitation was generally above normal
- Countered by significant snow melt (atmospheric river event Jan 30 to Feb 2)
- Adjusted runoff numbers are generally up
- Water supply forecasts are generally down from a month ago
  - Exception is in the Upper Columbia basins, where increases were modest
  - Apr-Sep Volume Forecast at The Dalles is up 4 percentage to 107%
- Near normal WS forecasts through out the basin
  - A bit higher in the north and west
  - A bit lower in much of the Snake River basins
  - Eastern Oregon is below normal



# Bottom Line

Above normal precipitation for most basins in January.

Significant January snowmelt impacted water supply.

With the exception of E Oregon and SW Idaho, volume forecasts are near normal for this time of year.



## 2019 Schedule for Live Water Supply Briefings

March

April

May

5

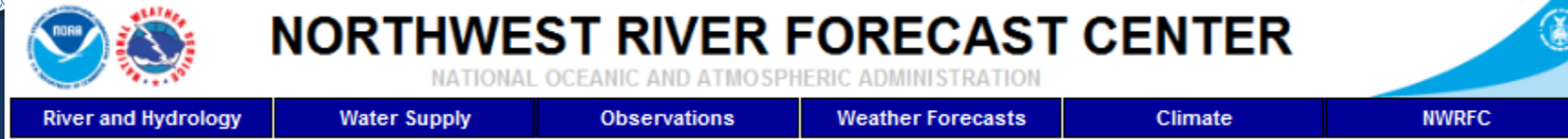
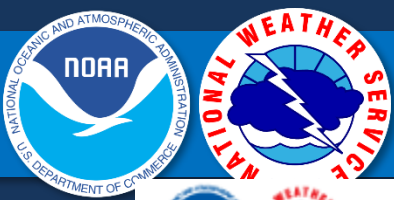
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7

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.

ryan.lucas@noaa.gov  
W-ptr.Webmaster@noaa.gov  
(503) 326-7291

