



January 2019 Water Supply Briefing

2018 Regional Summary and 2019 ESP Forecast



Telephone Conference : 1-415-655-0060

Pass Code : 217-076-304

2019 Briefing Dates:

Jan 3 – 10am Pacific Time

Feb 7 - 10am Pacific Time

March 7 - 10am Pacific Time

April 4 - 10am Daylight Savings Time

May 2 - 10am Daylight Savings Time

June 6 - 10am Daylight Savings Time

Federal Government Shutdown

NWRFC services are necessary to protect lives and property and will continue uninterrupted throughout the current partial federal government shutdown.

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Water Supply Forecast Briefing Outline



- Review of WY2018 Water Supply Season
- Observed Conditions WY2019:
 - Precipitation
 - Temperature
 - Snowpack
 - Runoff
- Future Conditions for WY2019:
 - 10 days of quantitative forecast precipitation (QPF)
 - 10 days of quantitative forecast temperature (QTF)
 - Historical climate forcings appended thereafter
 - Climate Outlook
- Summary

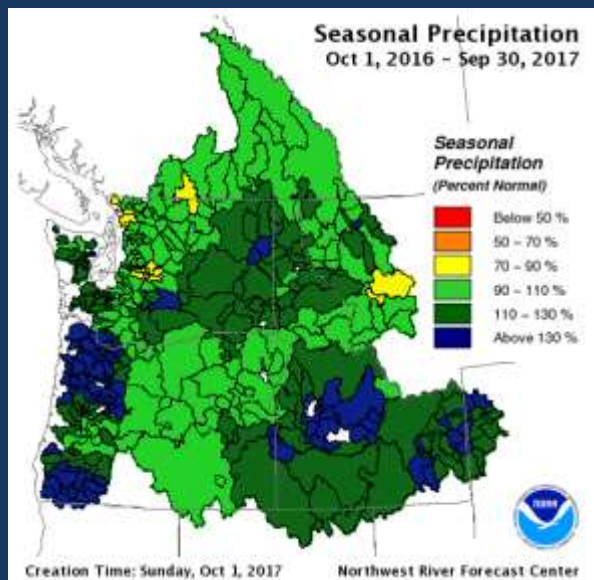
Hydrologic model
states

Climate
Forcings

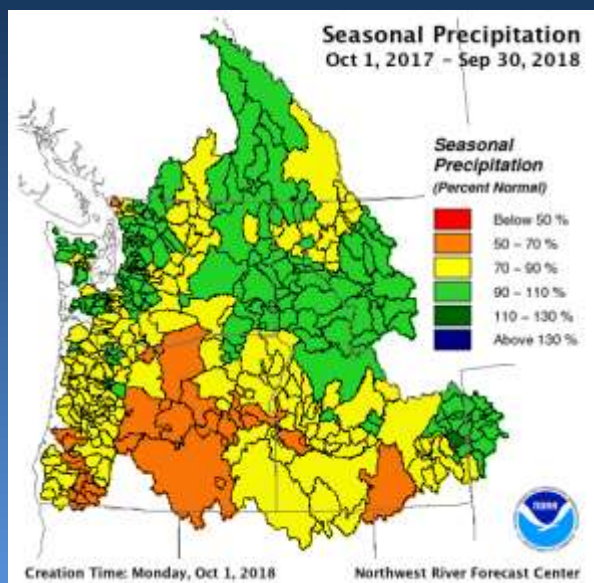


Observed Seasonal Precipitation

Water Year 2017/2018 Comparison



DIVISION NAME	2017wy % Norm	2018wy % Norm
Columbia R abv Grand Coulee	103	94
Snake R abv Hells Canyon	124	81

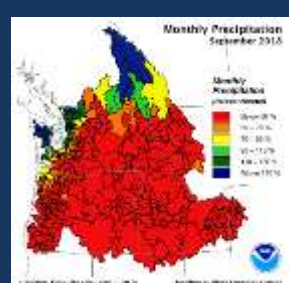
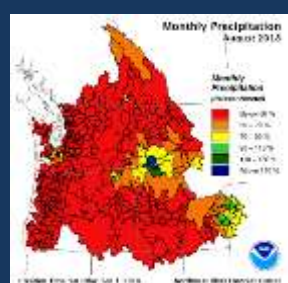
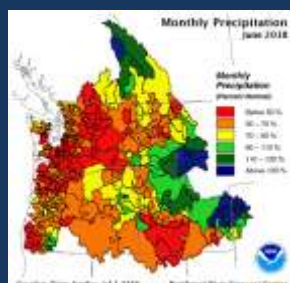
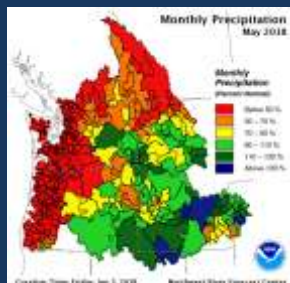
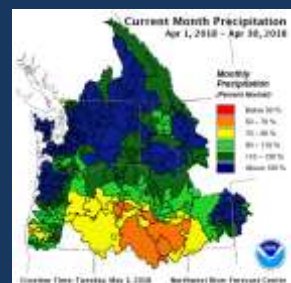
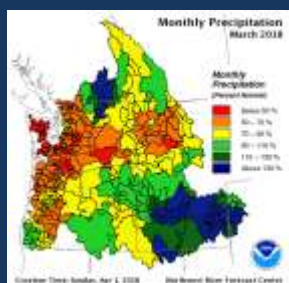
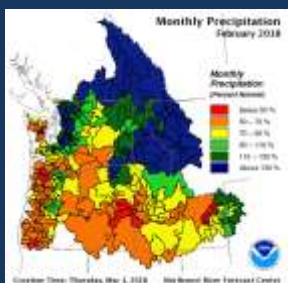
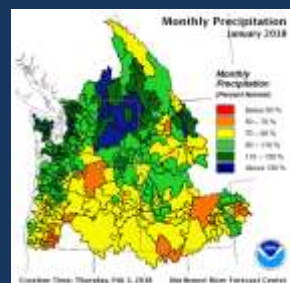
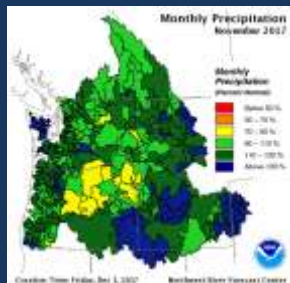
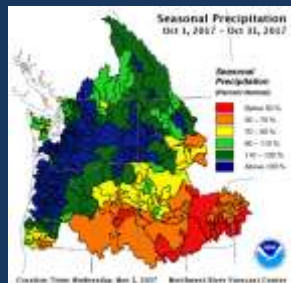


Columbia R abv The Dalles	108	89
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Observed %Normal Monthly Precipitation

Water Year 2018



Upr Columbia Precip %Normal – WY2018	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	WY2018
Clark Fork River Basin	81	121	133	82	175	79	127	102	139	4	49	25	100
Flathead River Basin	115	123	99	110	207	76	135	74	77	16	37	20	96
Kootenai River Basin	118	116	73	114	140	87	133	45	76	32	32	86	91
Spokane River Basin	140	118	115	106	147	64	136	73	60	11	43	7	98
Columbia River Basin abv Arrow Dam	118	105	54	92	160	84	138	54	117	47	51	185	98

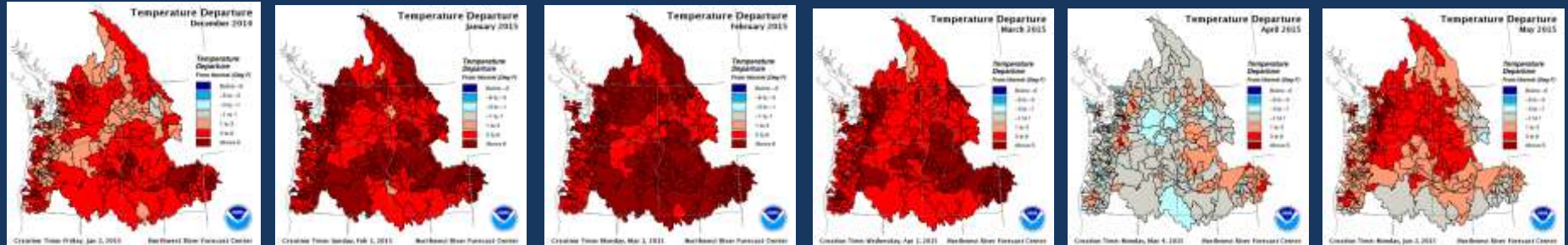
SNAKE RIVER Precip %Normal – WY2018	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	WY2018
Henrys Fork River Basin	58	139	54	96	104	133	158	113	147	15	74	4	99
Upper Snake abv American Falls Dam	49	145	57	84	95	135	126	100	108	12	62	4	89
Middle Snake Tributaries	57	133	39	80	59	149	85	127	59	3	19	7	82
Payette River Basin	81	126	45	91	79	110	99	83	76	0	26	2	82
Clearwater River Basin	122	111	127	91	165	79	140	90	102	1	95	10	103
SNAKE BASIN abv Hells Canyon Dam	78	123	70	85	71	108	94	96	85	4	52	4	81



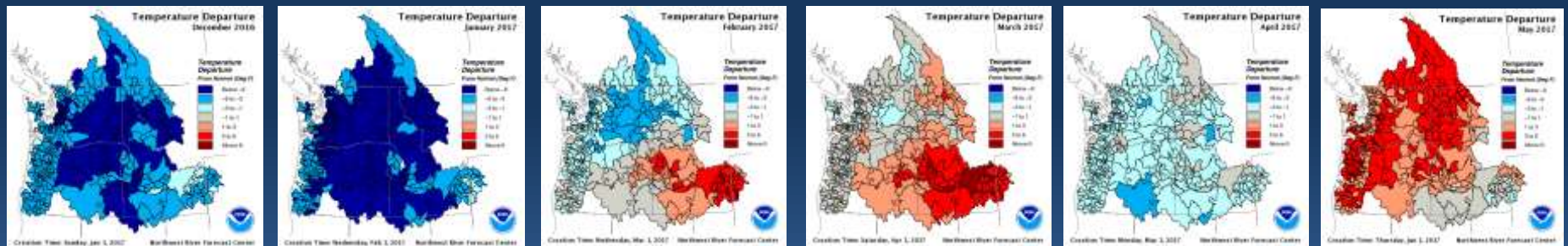
Temperature Departures from Normal Water Year Comparison



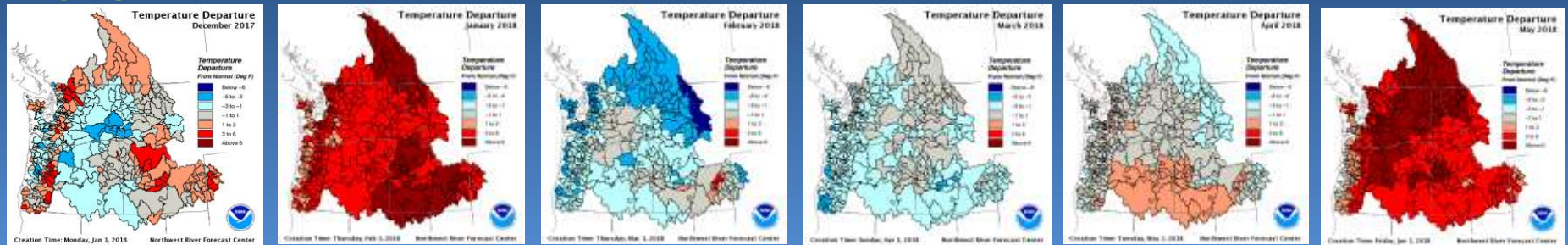
2015



2017



2018



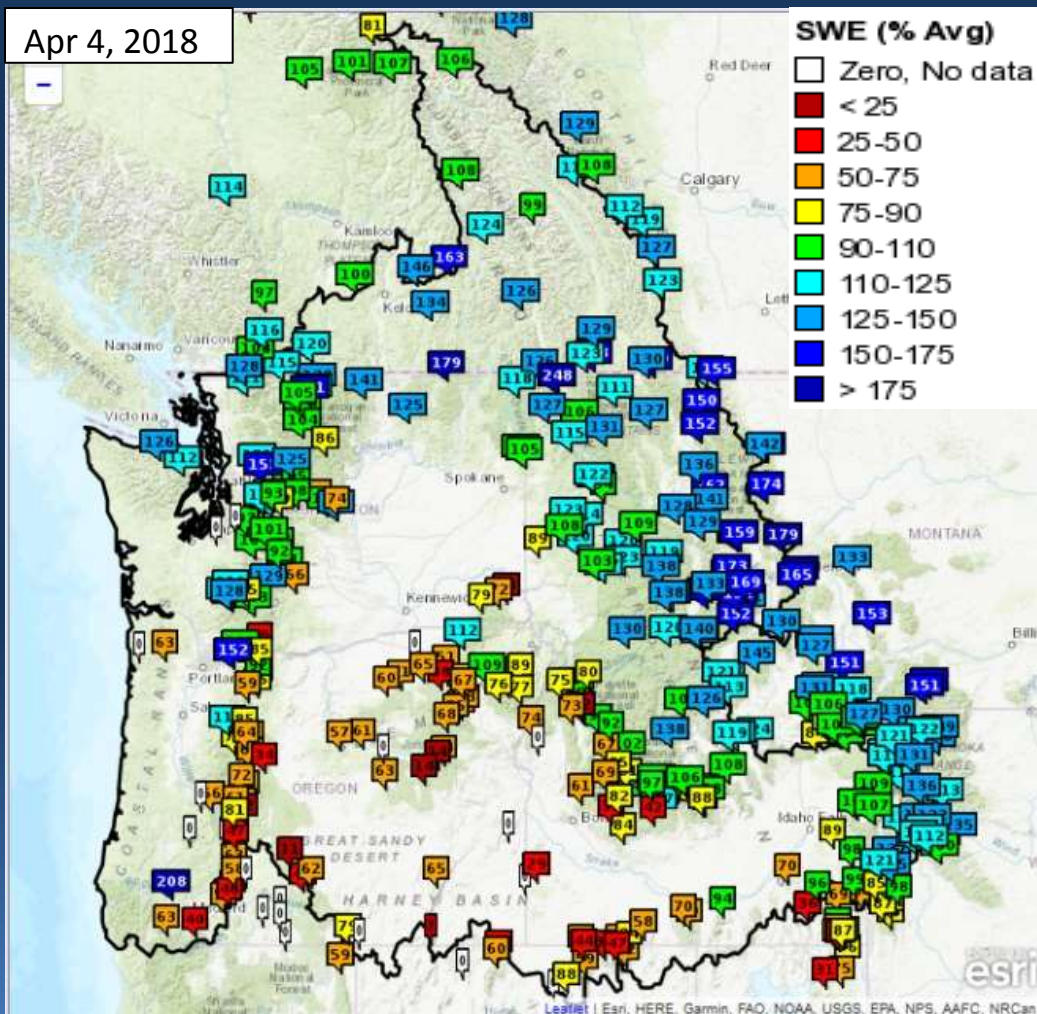


WY2018 Snowpack Conditions

%Normal SWE



Apr 4, 2018



April SWE Comparison 2017/2018

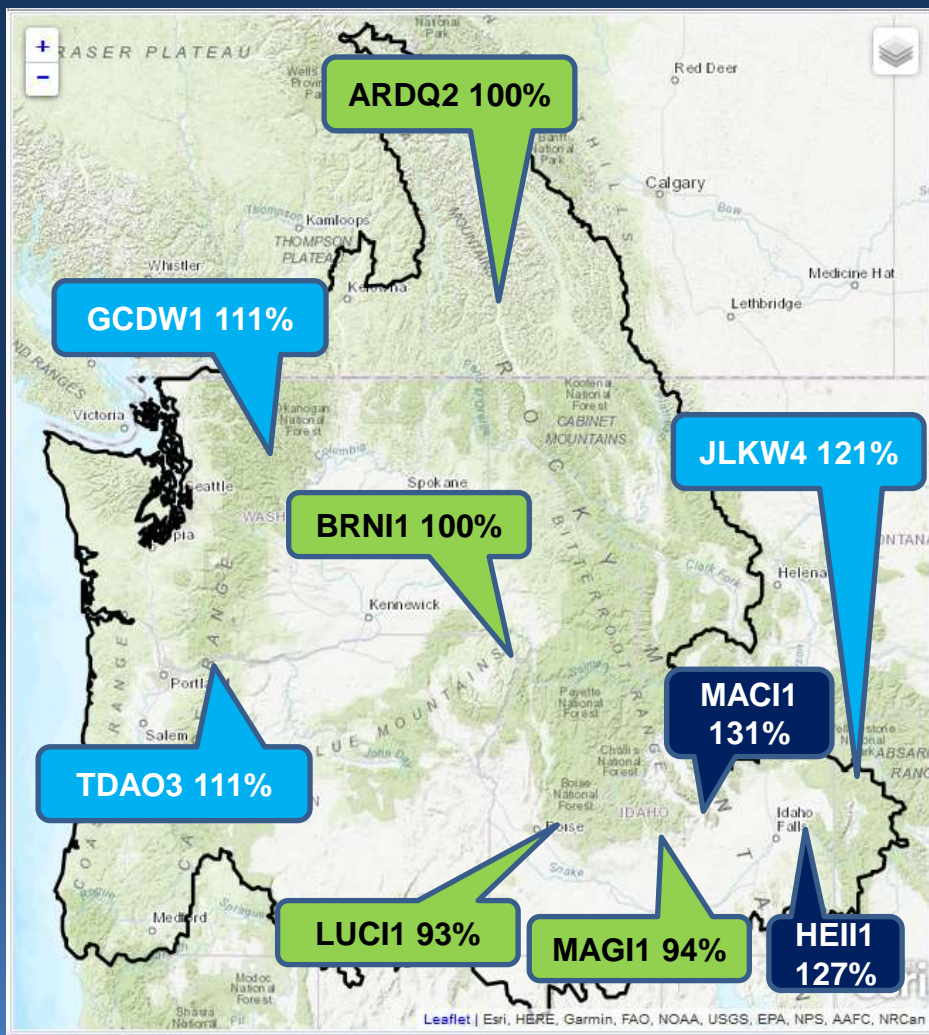
Basin	2017	2018
Kootenai	103	128
Flathead	109	141
Upr Clark Fork	96	155
Lwr Clark Fork	105	125
Snake abv Palisades	155	123
Big & Little Wood	172	96
Big & Little Lost	159	107
Weiser, Payette, Boise	131	87
Clearwater, Salmon	116	116
Willamette	134	80

- Observed snow water equivalent (SWE) values provided by:
 - Natural Resources Conservation Service (NRCS) SNOTEL network
 - Environment Canada (EC) Automated Snow Pillow network



WY2018 Observed Runoff Volume %Normal

Oct 1 2017 – Sept 30 2018



LOCATION	Oct1 - Sep 2018 %Norm	Jan – Sep 2018 %Norm	Apr – Sep 2018 %Norm
	2017 %Norm	2017 %Norm	2017 %Norm
Columbia River – Arrow Lakes – ARDQ2	100	102	103
	108	106	105
Columbia River - Grand Coulee – GCDW1	111	114	115
	126	120	113
Snake River – Jackson Lake – JCLKW4	121	120	120
	144	143	140
Snake River – Heise HEII1	127	126	125
	156	161	159
Boise River – Lucky Peak LUCI1	93	89	90
	184	194	180
Big Wood – Magic Dam MAGI1	94	88	78
	280	293	267
Big Lost – Mackay MACI1	131	131	134
	175	188	204
Snake River – Brownlee BRNI1	100	100	103
	145	162	167
Columbia River – The Dalles – TDAO3	111	113	114
	130	130	123



Water Supply Forecast Briefing Outline



- Review of WY2018 Water Supply Season

- **Observed Conditions WY2019:**

- Precipitation
- Temperature
- Snowpack
- Runoff

Hydrologic
model states

- **Future Conditions for WY2019:**

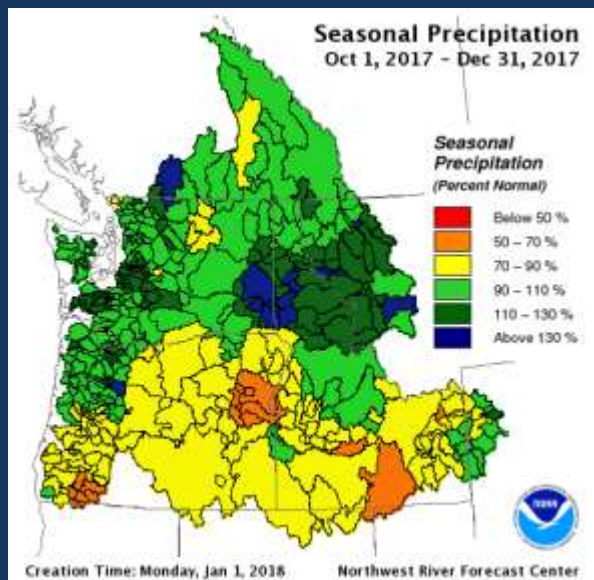
- 10 days of quantitative forecast precipitation (QPF)
- 10 days of quantitative forecast temperature (QTF)
- Historical climate forcings appended thereafter
- Climate Outlook

Climate
Forcings

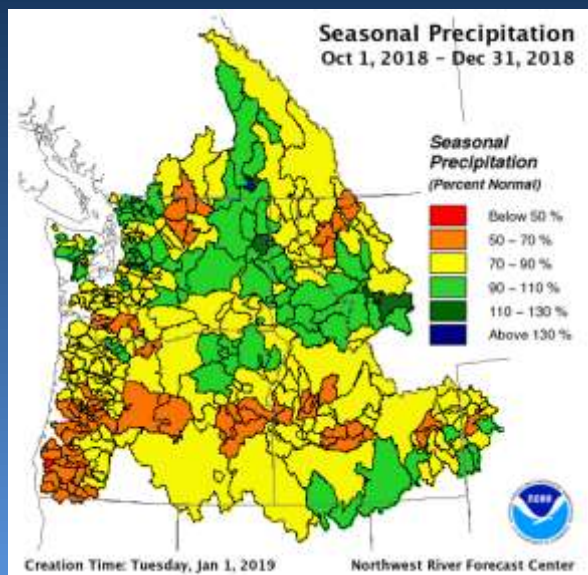
- **Summary**



Current Observed Seasonal Precipitation October 1 – December 31 %Normal



DIVISION NAME	WY2018 % Norm	WY2019 % Norm
Columbia R abv Grand Coulee	102	88
Snake R abv Hells Canyon	83	81



Columbia R abv The Dalles	98	85
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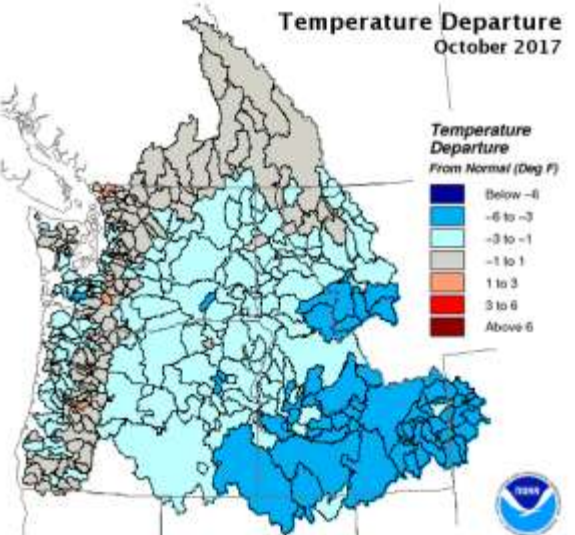
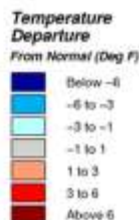
Detailed basin precip information available at:
https://www.nwrhc.noaa.gov/water_supply/wy_summary/wy_summary.php?tab=2



Monthly Temperature Departures from Normal Water Year 2018/2019 Comparison

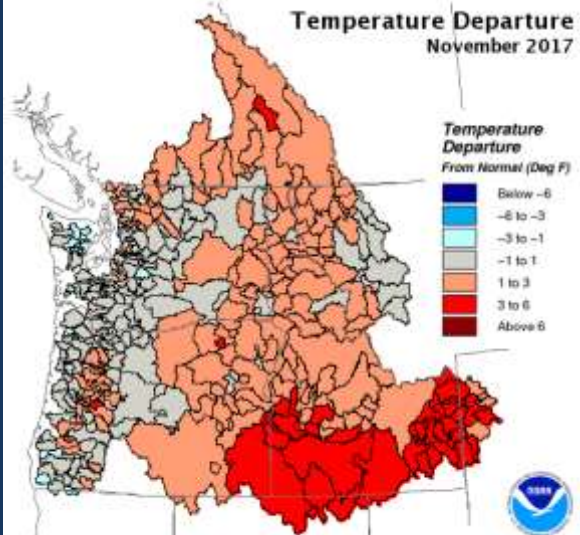
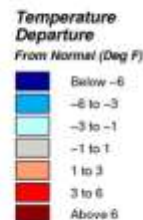


Temperature Departure
October 2017



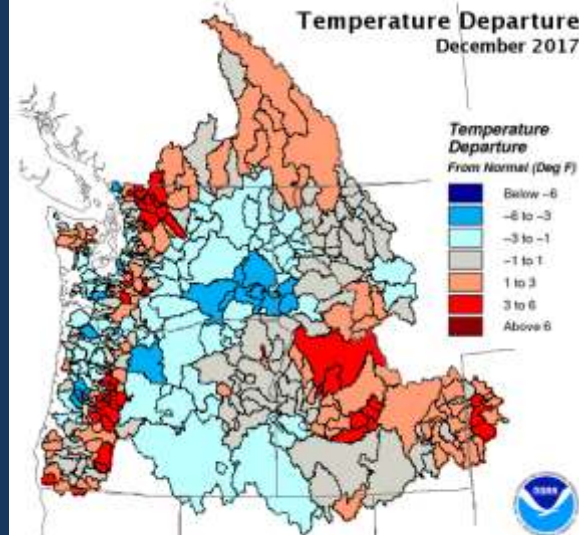
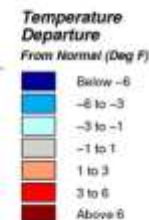
Creation Time: Wednesday, Nov 1, 2017 Northwest River Forecast Center

Temperature Departure
November 2017



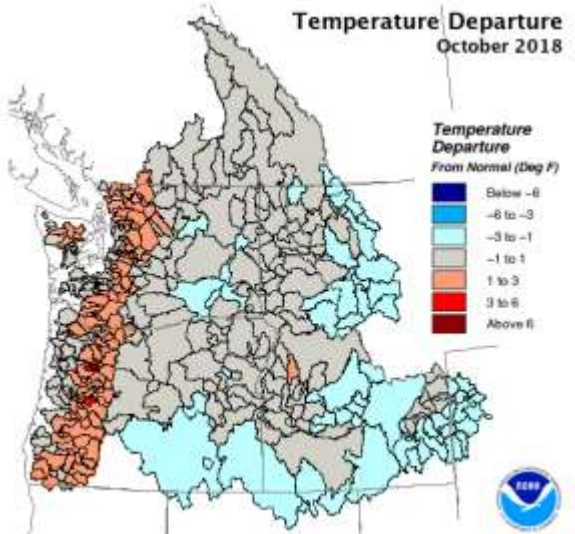
Creation Time: Friday, Dec 1, 2017 Northwest River Forecast Center

Temperature Departure
December 2017



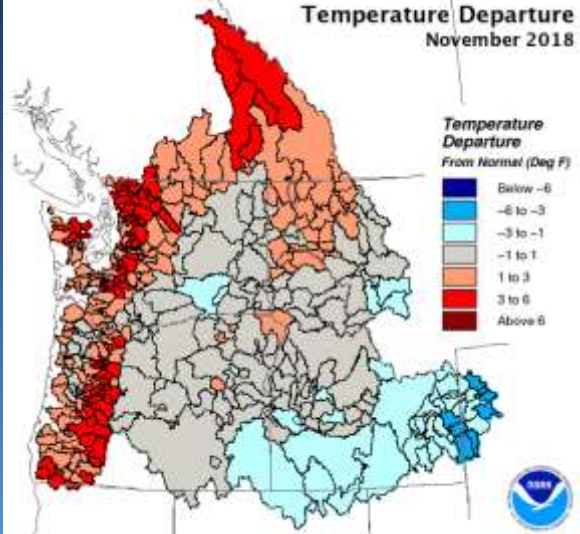
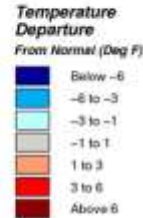
Creation Time: Monday, Jan 1, 2018 Northwest River Forecast Center

Temperature Departure
October 2018



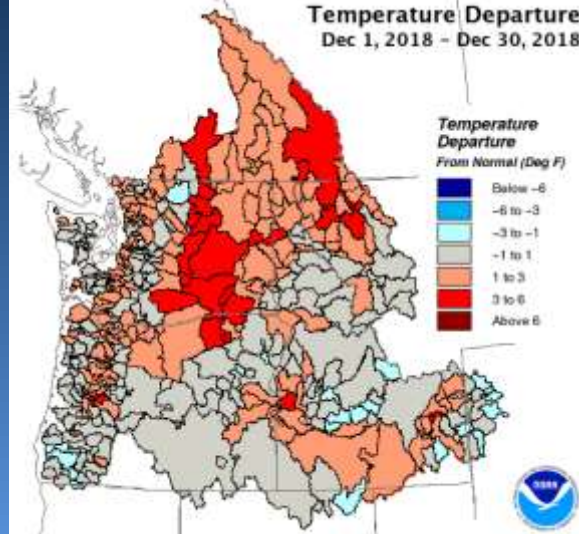
Creation Time: Thursday, Nov 1, 2018 Northwest River Forecast Center

Temperature Departure
November 2018



Creation Time: Saturday, Dec 1, 2018 Northwest River Forecast Center

Temperature Departure
Dec 1, 2018 - Dec 30, 2018



Creation Time: Monday, Dec 31, 2018 Northwest River Forecast Center

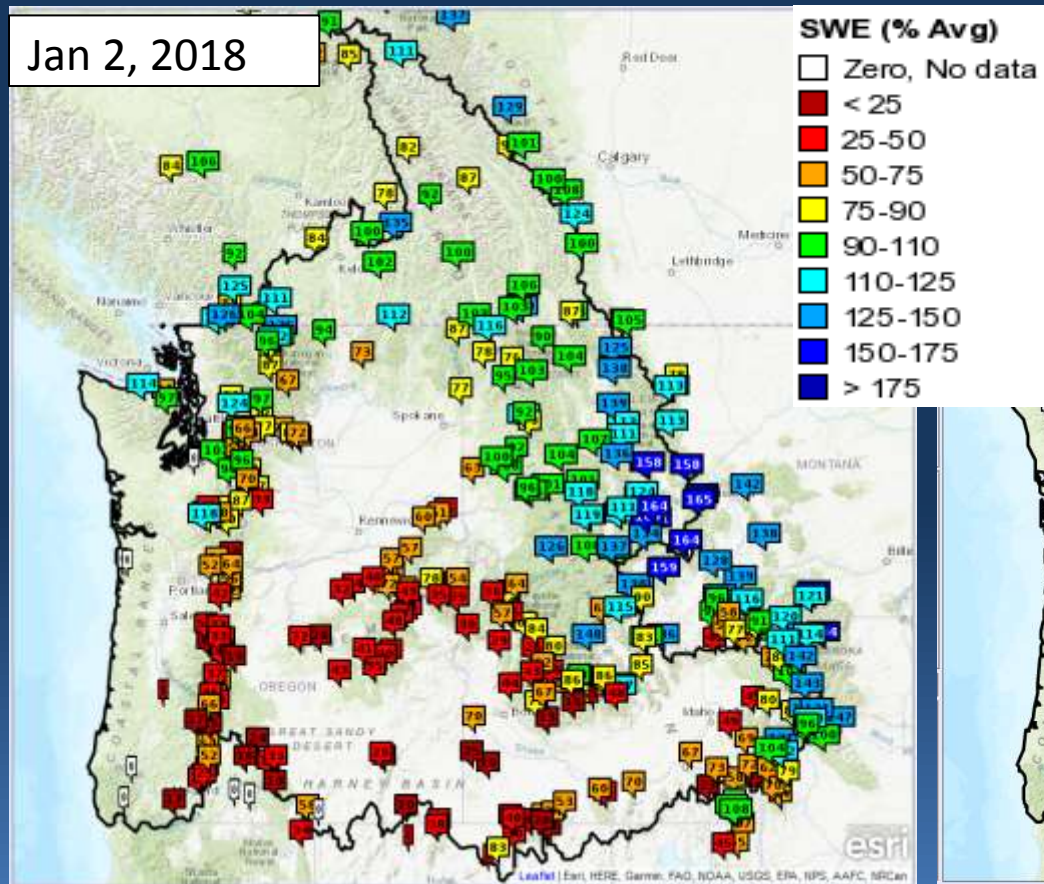


Snowpack Summary

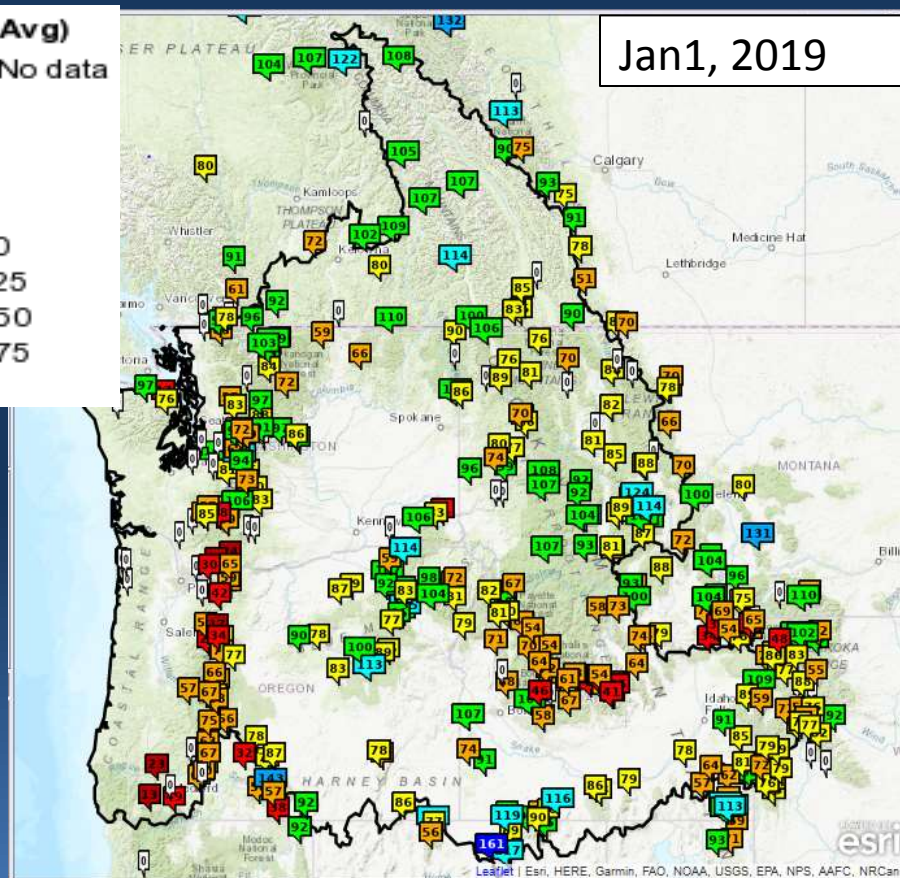
Water Year 2018 / 2019 January Comparison - % of Normal



Jan 2, 2018



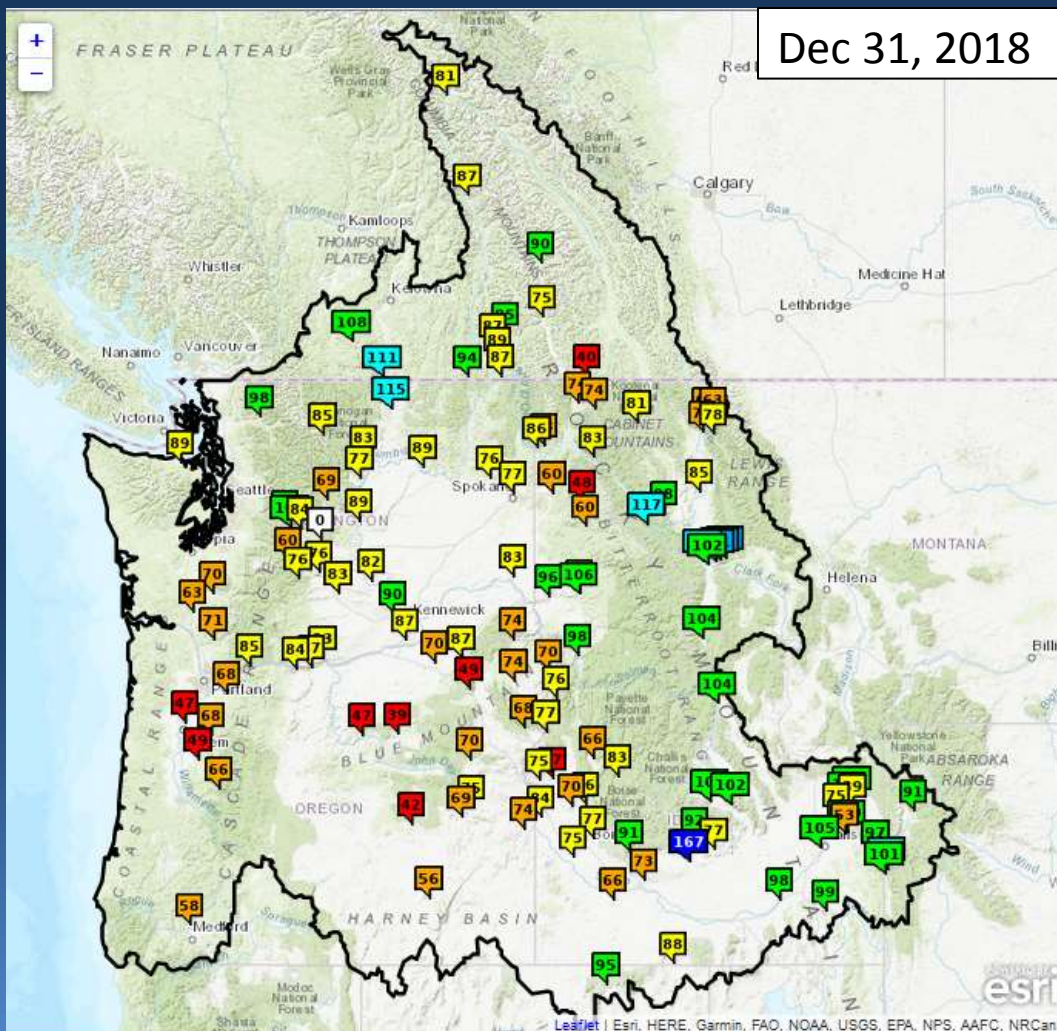
Jan1, 2019





Current Adjusted Runoff Volume

WY2019



UPPER COLUMBIA BASIN

MICA	81
DUNCAN	89
QUEENS BAY	75
LIBBY	82
HUNGRY HORSE	79
GRAND COULEE	89

SNAKE RIVER BASIN

JACKSON LAKE	92
PALISADES	97
DWORSHAK	78
LOWER GRANITE	84

LOWER COLUMBIA BASIN

THE DALLES	84
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Hydrologic
model states

- **Future Conditions:**
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Climate
Forcings

- **Summary**



CPC ENSO Discussion

Three Month Outlook - JFM



ENSO Alert System Status: El Nino Watch

- ENSO-neutral conditions present
- SST are above average across most of the Equatorial Pacific
- Patterns of convection and winds are mostly near average over the Tropical Pacific
- Weak El Nino is expected to form and continue through North Hemisphere Winter (90% chance) and into Spring (60% chance)

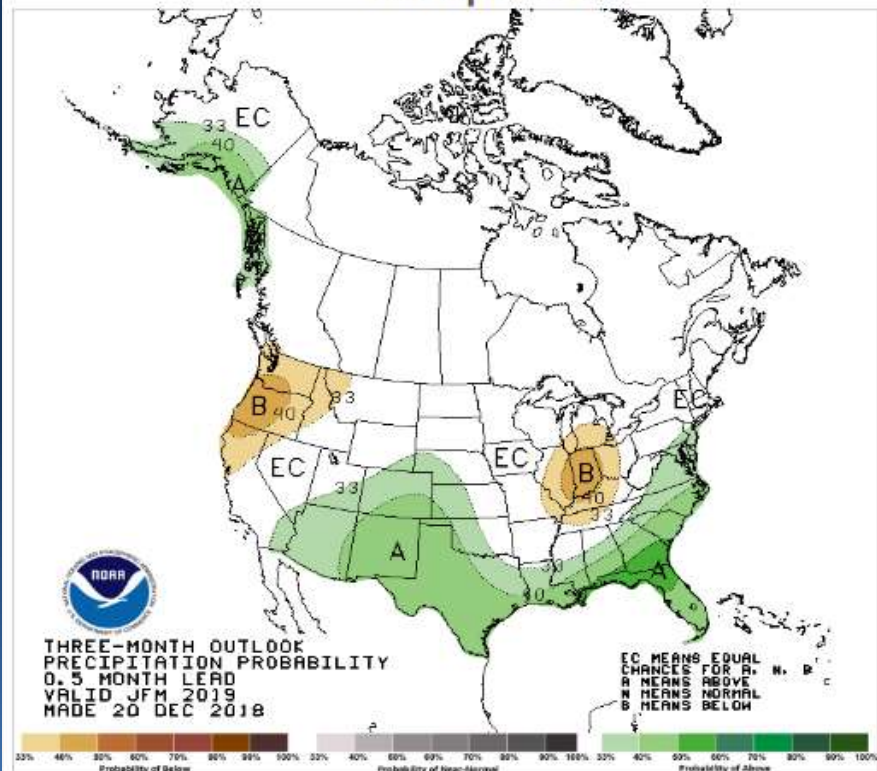


CPC Climate Outlook

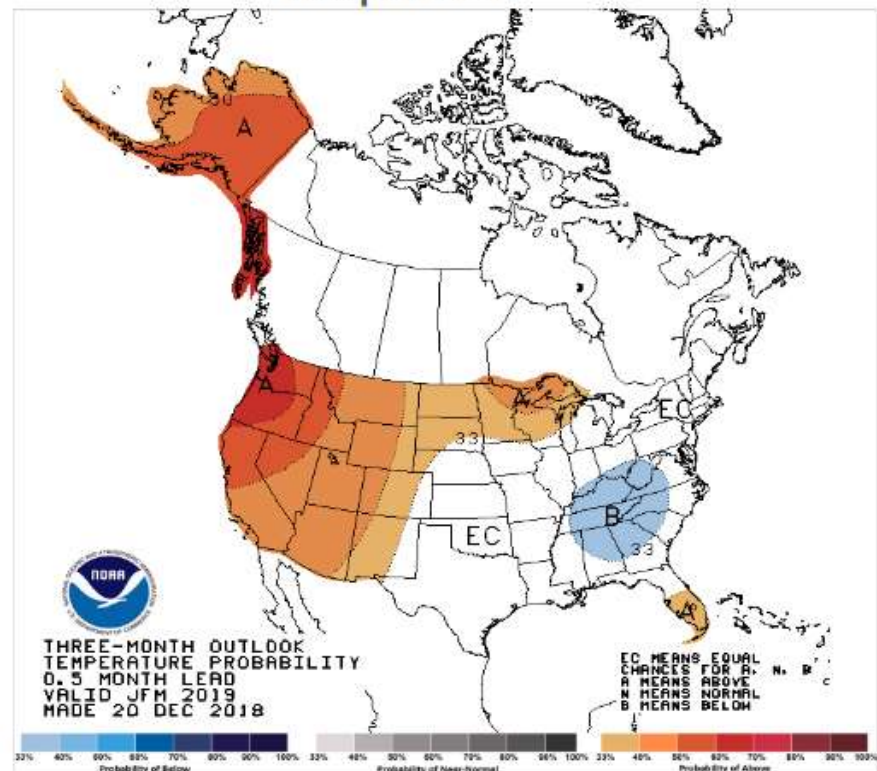
Three Month Outlook - JFM



Precipitation



Temperature



Three-month outlook provided by the Climate Prediction Center
http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=01



Cumulative 10 Day Precipitation

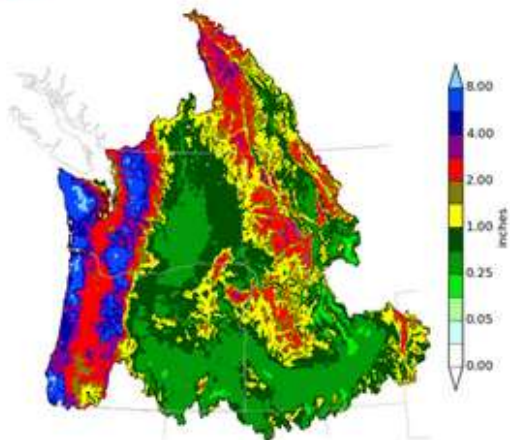
01/02/2019 – 1/12/2019



10 Day Forecast Precipitation: Volume Analysis



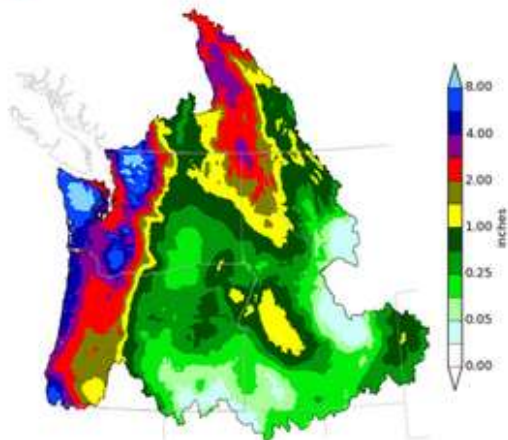
Northwest River Forecast Center
10 Day Precipitation Climatology, Ending 12Z, 01/12/19



Creation Time: Wed Jan 2 15:34:02 UTC 2019



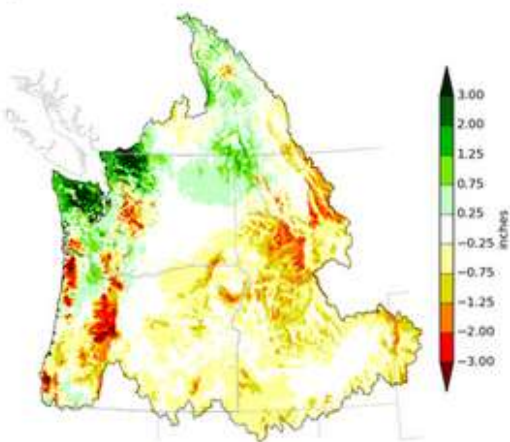
Northwest River Forecast Center
10 Day QPF, Ending 12Z, 01/12/19



Creation Time: Wed Jan 2 15:33:39 UTC 2019



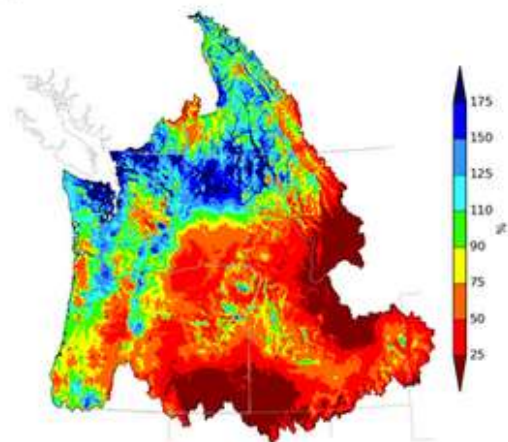
Northwest River Forecast Center
10 Day QPF (Deviation from Climatology), Ending 12Z, 01/12/19



Creation Time: Wed Jan 2 15:34:48 UTC 2019



Northwest River Forecast Center
10 Day QPF (Percent of Climatology), Ending 12Z, 01/12/19



Creation Time: Wed Jan 2 15:34:25 UTC 2019

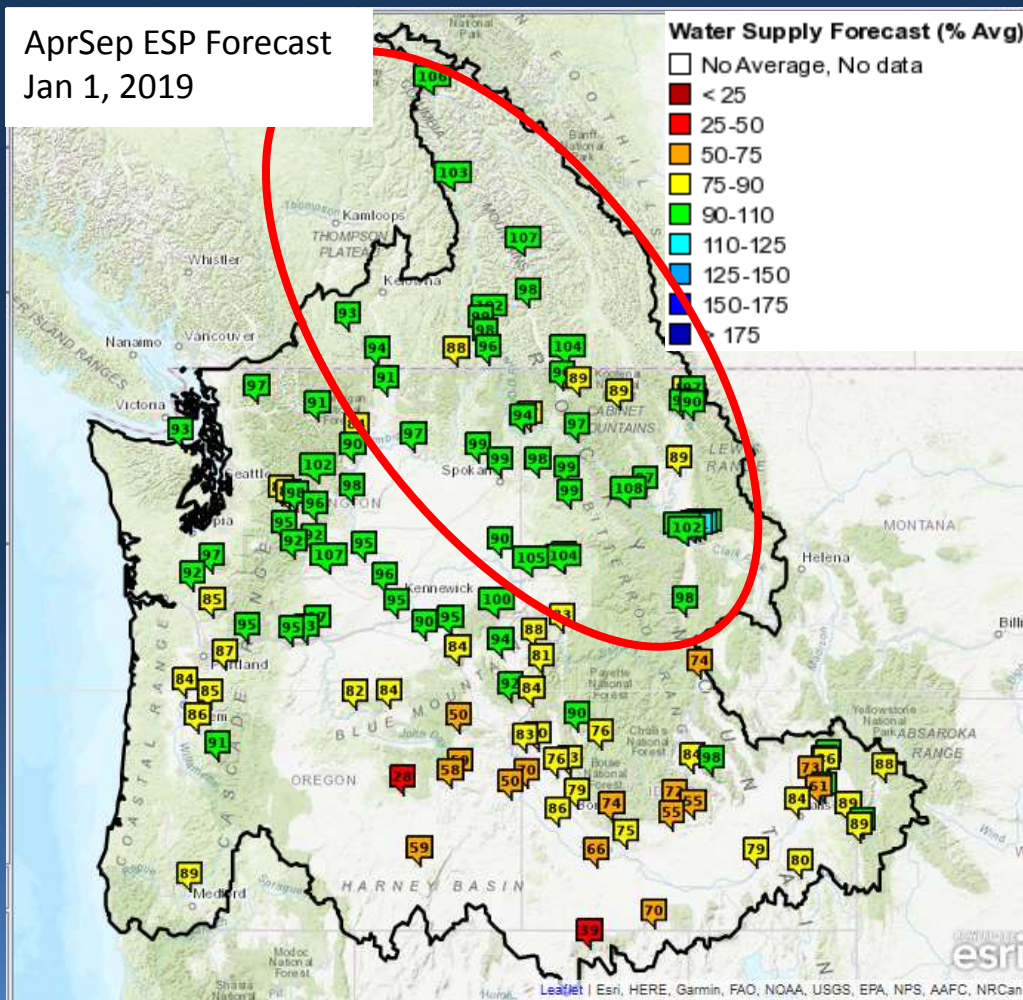


AprSep ESP Water Supply Forecasts

Upper Columbia Basin – 10 Day QPF



AprSep ESP Forecast
Jan 1, 2019



	JanSep	AprSep
Columbia River - Mica Dam	105%	106%
Kootenai River - Libby Dam	88%	89%
Coeur d'Alene River - Coeur d'Alene Lake	94%	98%
SF Flathead River - Hungry Horse Dam	92%	90%
Pend Oreille River Albeni Falls Dam	93%	94%
Columbia River - Grand Coulee Dam	96%	97%



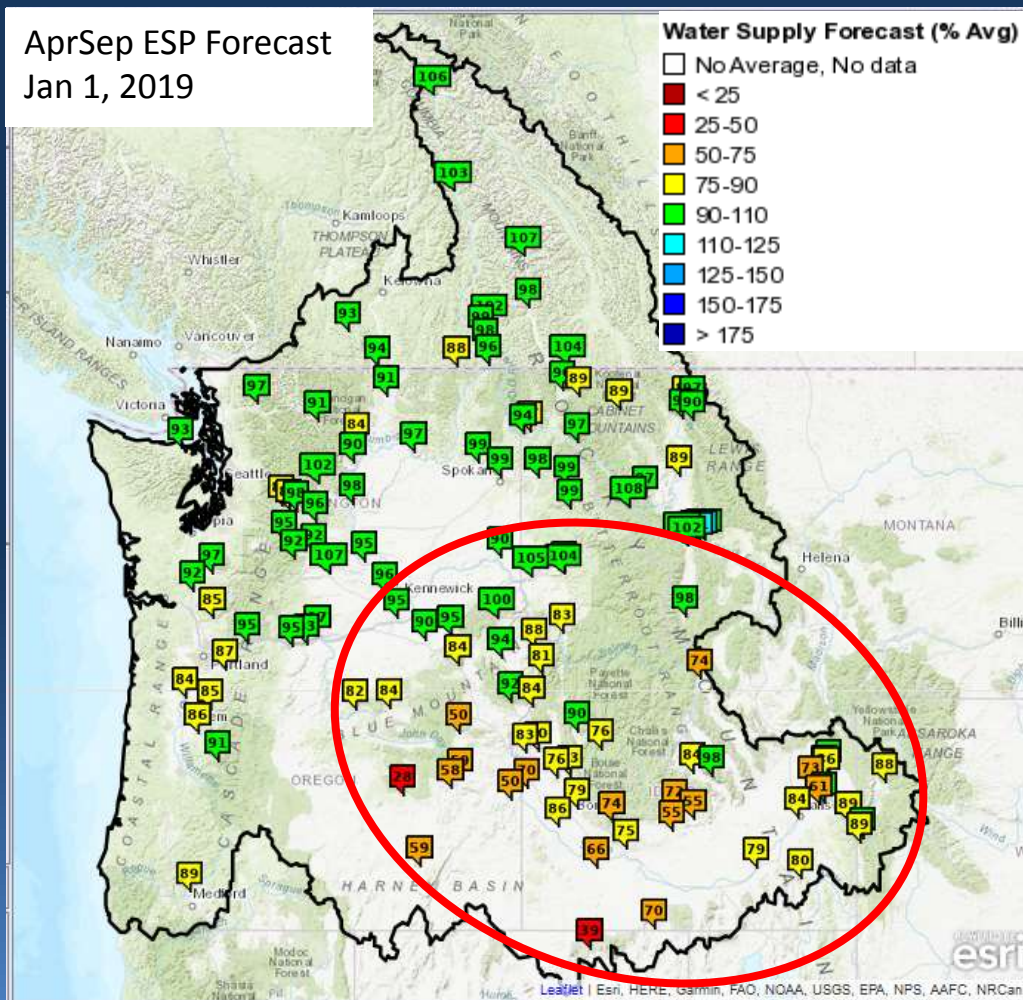
Apr/Sep ESP Water Supply Forecasts

Snake River Basin – 10 Day QPF



JanSep AprSep

AprSep ESP Forecast
Jan 1, 2019



Upper Snake River

- Jackson Lake Dam	87%	88%
- Palisades Dam	89%	89%
- at Heise	91%	90%

Boise River

- Lucky Peak Dam	73%	79%
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NF Clearwater River

- Dworshak Dam	101%	99%
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Lower Snake River

- Lower Granite Dam	86%	90%
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Lower Columbia

- The Dalles Dam	93%	95%
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Apr/Sep ESP Natural Water Supply Forecasts

Western Oregon and Washington Cascades



Jan 1, 2019



JanSep AprSep

Skagit River

- near Concrete 100% 99%

Green River

- Howard Hanson Res 98% 94%

Cowlitz River

- Mossyrock Reservoir 95% 95%

- Mayfield Reservoir 96% 97%

North Santiam

- At Mehama 88% 88%

Willamette River

- At Salem 84% 81%

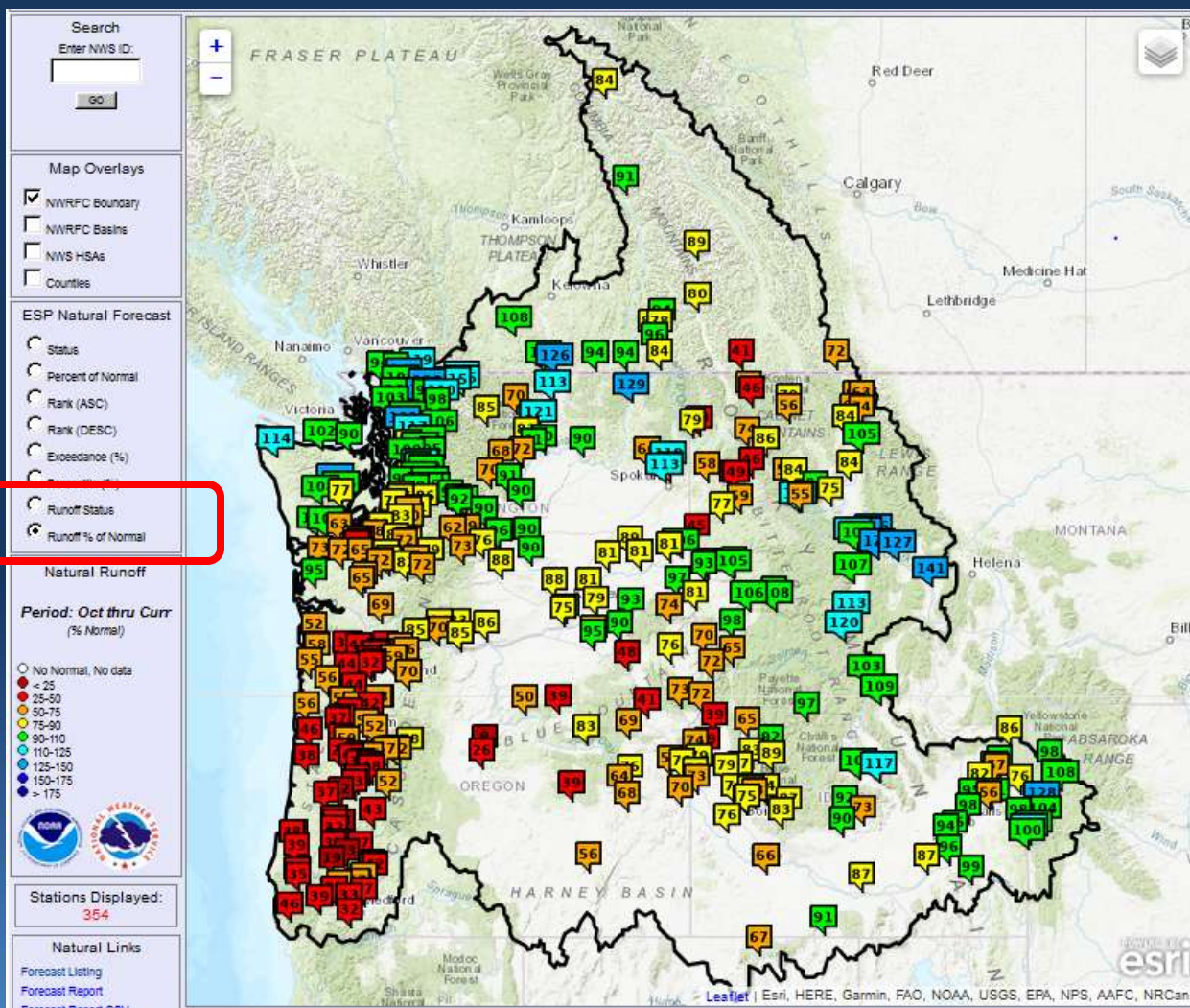
Rogue River

- Applegate Reservoir 89% 85%



NEW RFC Webpage Tool

Natural Adjusted Observed Runoff Volume %Normal



<https://www.nwrfc.noaa.gov/natural/index.html?version=20181015v2>



Summary



Water Year 2018 Review Summary

- Slightly below normal precip in Upper Columbia (95-100%)...below normal in the Snake (75-90%)
- Western WA near normal (90-100%), Western OR well below normal (70-85%)
- All areas extremely dry June - Sept
- Very warm Jan and May temperatures ...cooler than normal Feb-Apr
- SWE well above normal in Upper Columbia, Upper Snake, WA Cascades...well below normal in the Mid/Lwr Snake and all of OR
- Observed runoff near to above normal in Upper Columbia...below to near normal in Snake basin

Water Year 2019 Summary

- Below normal precipitation across the Upper Columbia and Snake River basin, well below normal in OR
- SWE below normal across the Upper Columbia and Snake, well below normal in the OR Cascades
- Apr-Sep ESP forecast near normal in the Upper Columbia, well below normal in the Snake and OR



NWRFC 2019 Water Supply Briefing Schedule



2019 Schedule for <i>Live</i> Water Supply Briefings					
Jan	Feb	Mar	Apr	May	June
3	7	7	4	2	6
<i>All presentations held at 10:00am PDT/PST, unless noted otherwise</i>					
Click here for Registration Information					

Telephone Conference Call Number (same for each month's brief):
(415) 655-0060
Pass Code:
217-076-304

<https://register.gotowebinar.com/rt/2347037705893874947>



Questions?



National Weather Service - Northwest River Forecast Center

<https://www.nwrfc.noaa.gov/rfc>

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