

Northwest River Forecast Center



Hydrology: Current Status and Outlook

Summary of Runoff and Streamflow Conditions for western Oregon and Washington as of September 21, 2015

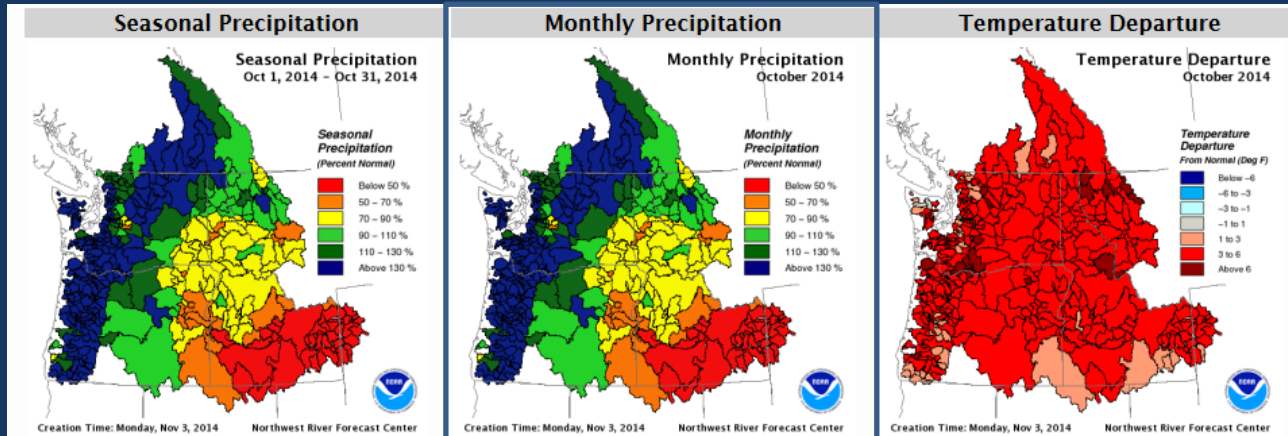
Steve King
Development and Operations Hydrologist
NOAA/NWS/Northwest River Forecast Center
Portland, OR



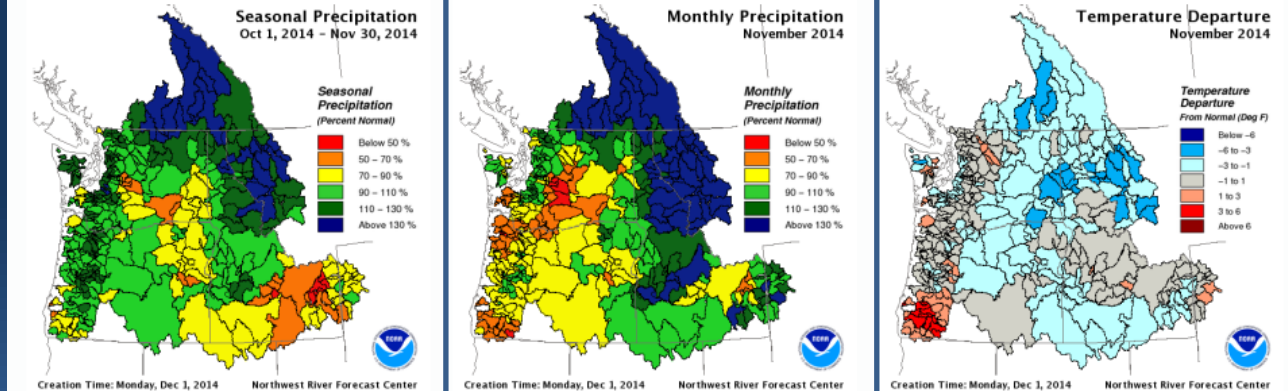
Fall Precipitation and Temperature (Oct, Nov, Dec)



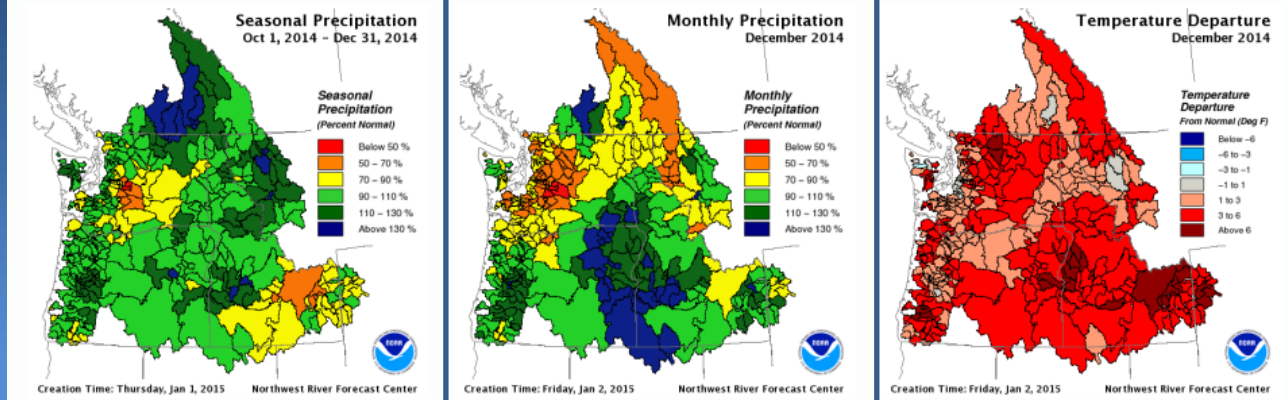
Oct

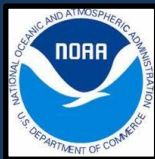


Nov



Dec



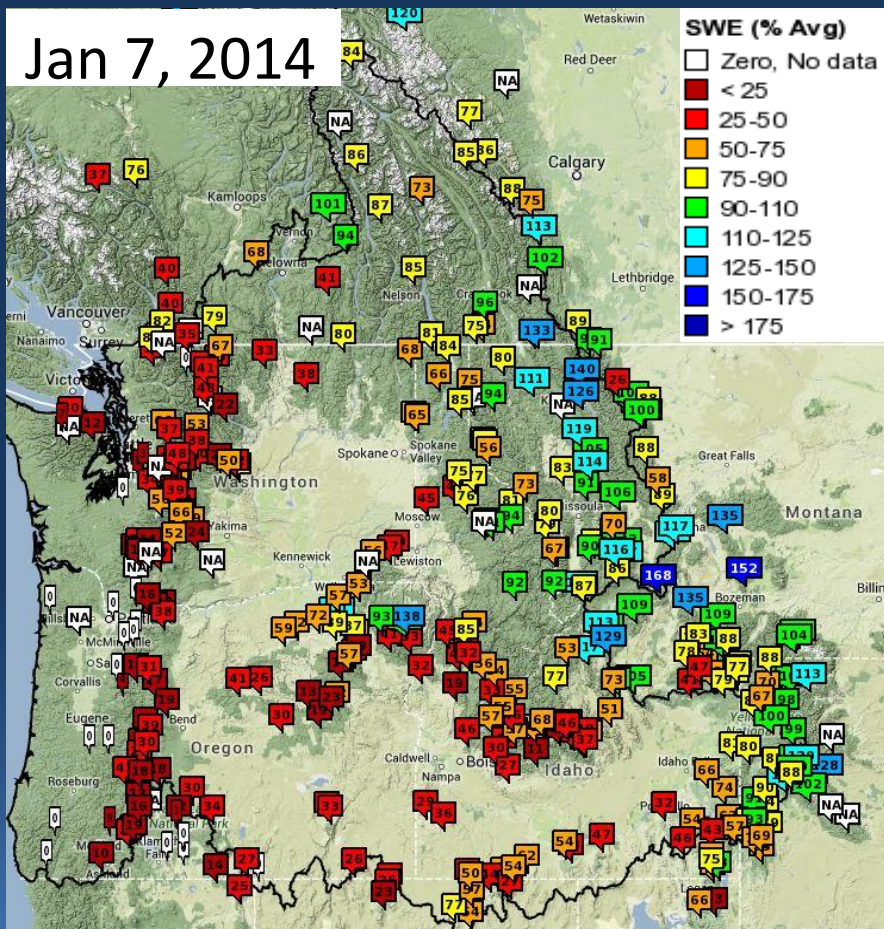


Snow Conditions (SWE)

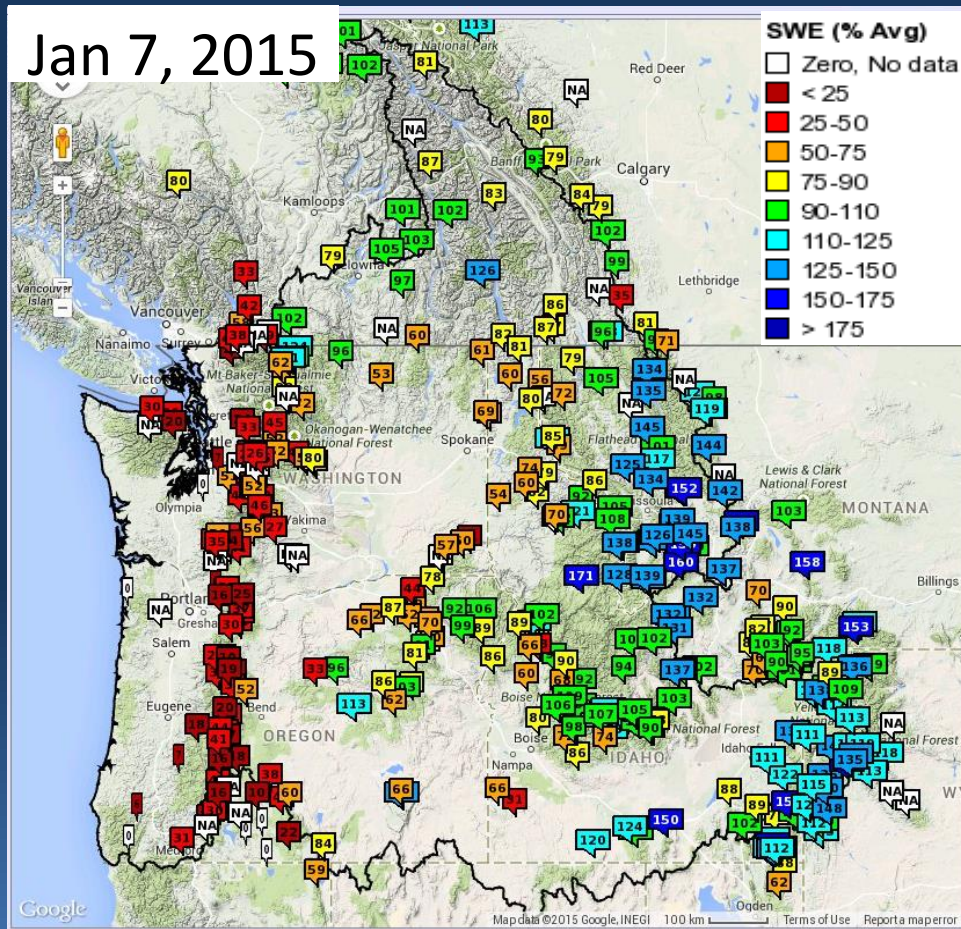
January 8th NWRFC Briefing



Jan 7, 2014



Jan 7, 2015



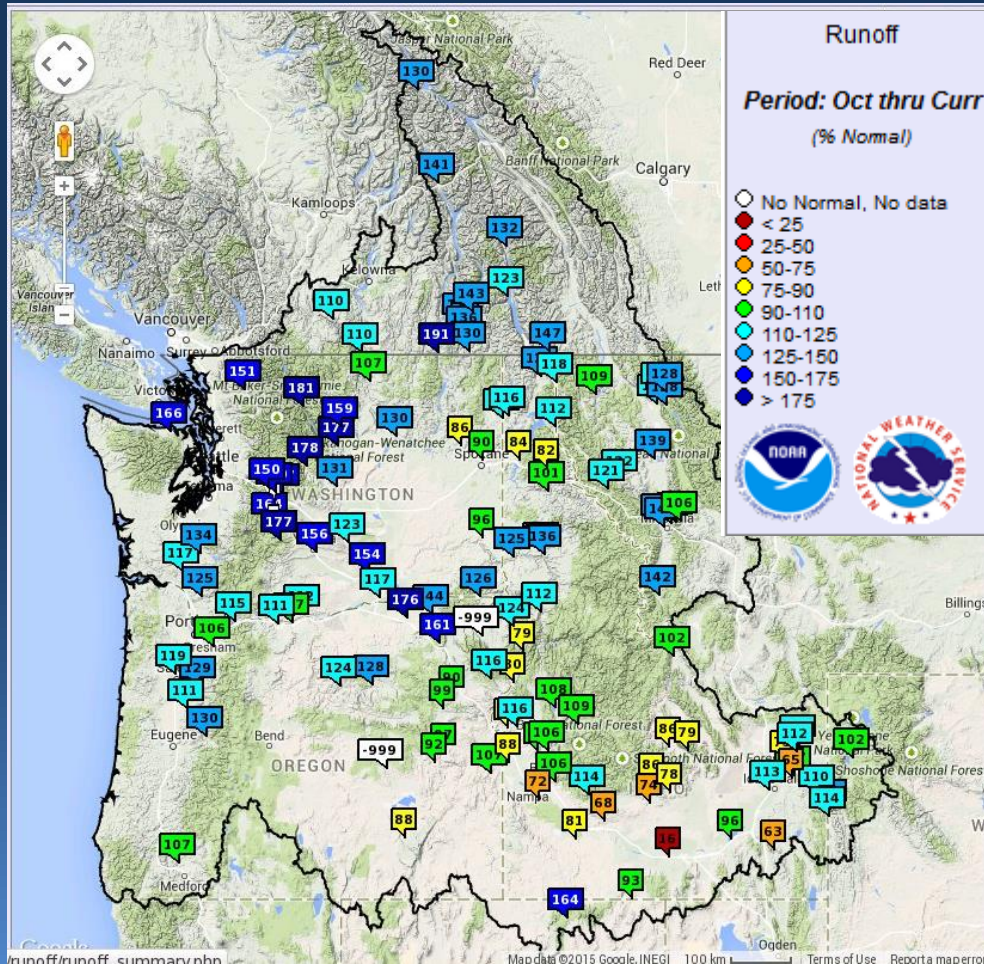
Data provided by:

- Natural Resources Conservation Service (NRCS) SNOTEL network
- Environment Canada (EC) Automated Snow Pillow network



Adjusted Runoff Conditions

January 8th NWRFC Briefing



Percent of Normal

Oct 1– Jan 6

DUNGENESS RIVER	166%
SKAGIT RIVER	151%
COWLITZ RIVER	134%
CLACKAMAS RIVER	106%
WILLAMETTE RIVER	119%
ROGUE RIVER	107%



Water Supply Summary

January 8th NWRFC Briefing



Percent of Normal

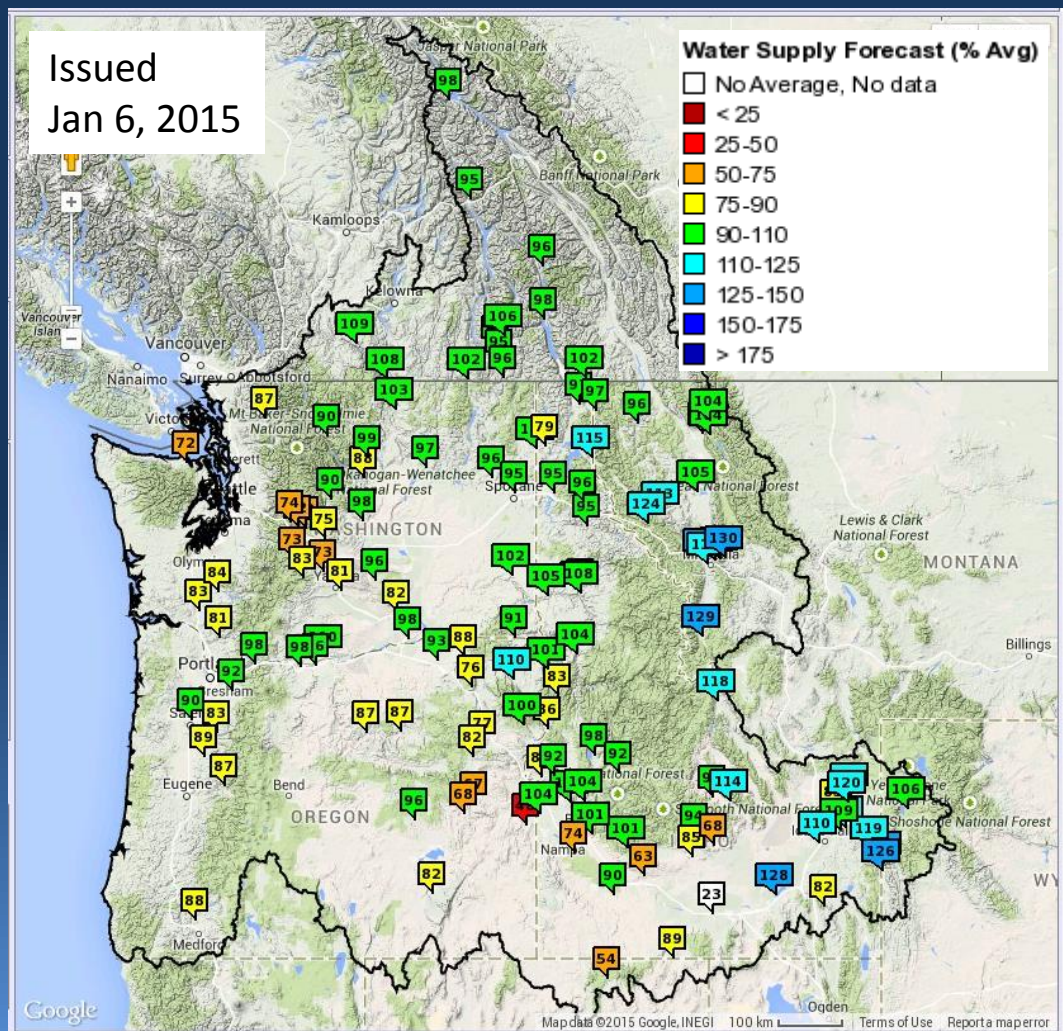
DUNGENESS RIVER
SKAGIT RIVER
COWLITZ RIVER

72%
87%
84%

CLACKAMAS RIVER
WILLAMETTE RIVER
ROGUE RIVER

92%
90%
88%

APR-SEP



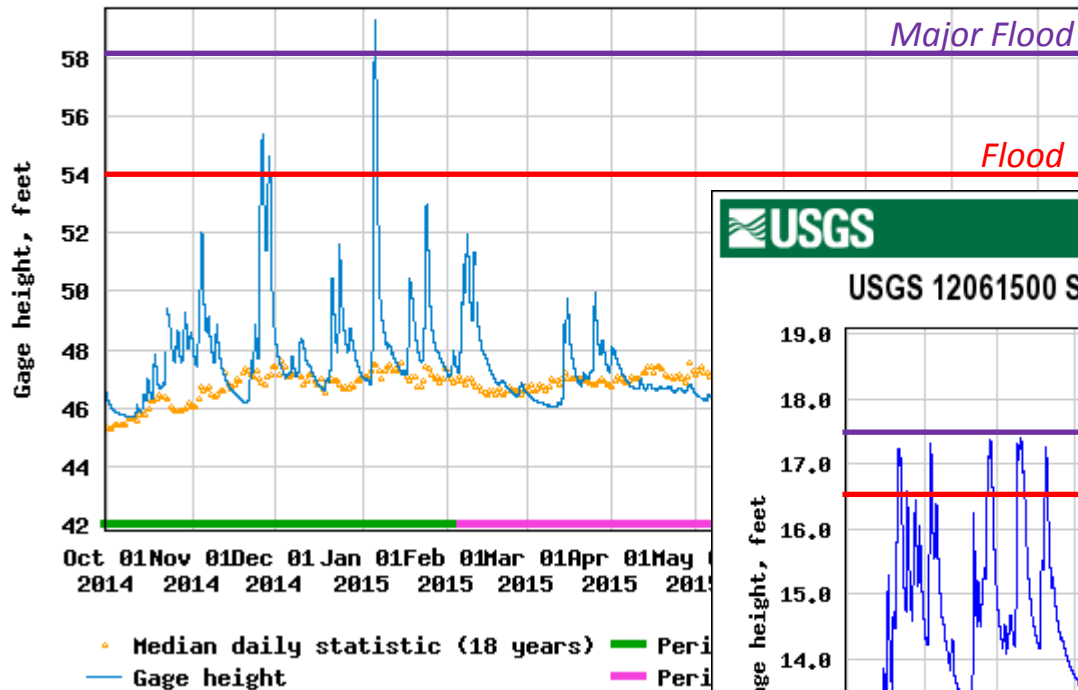


Winter Flooding Common

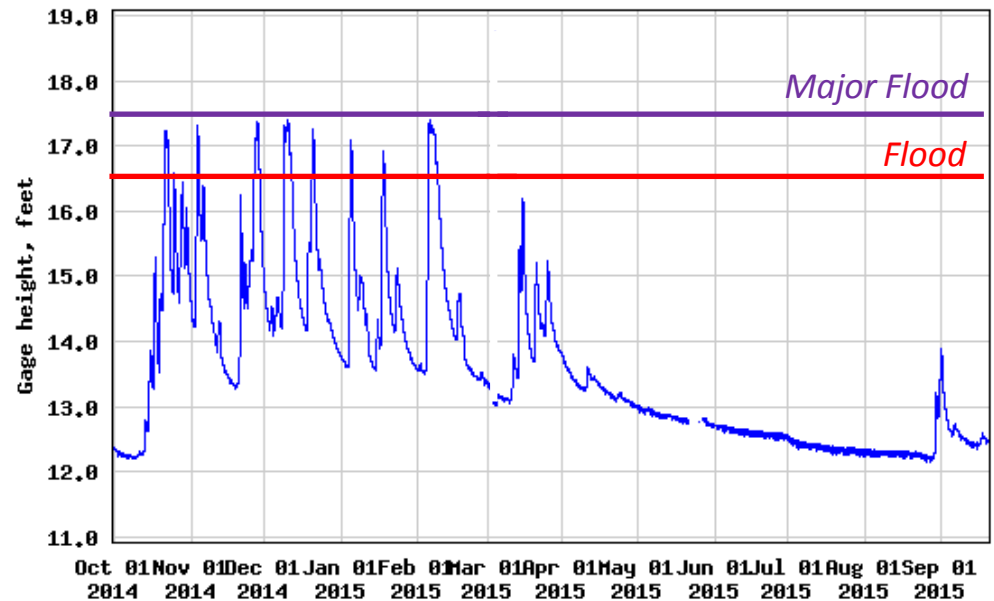
~7 Events West of the Cascades



USGS 12149000 SNOQUALMIE RIVER NEAR CARNATION, WA



USGS 12061500 SKOKOMISH RIVER NEAR POTLATCH, WA



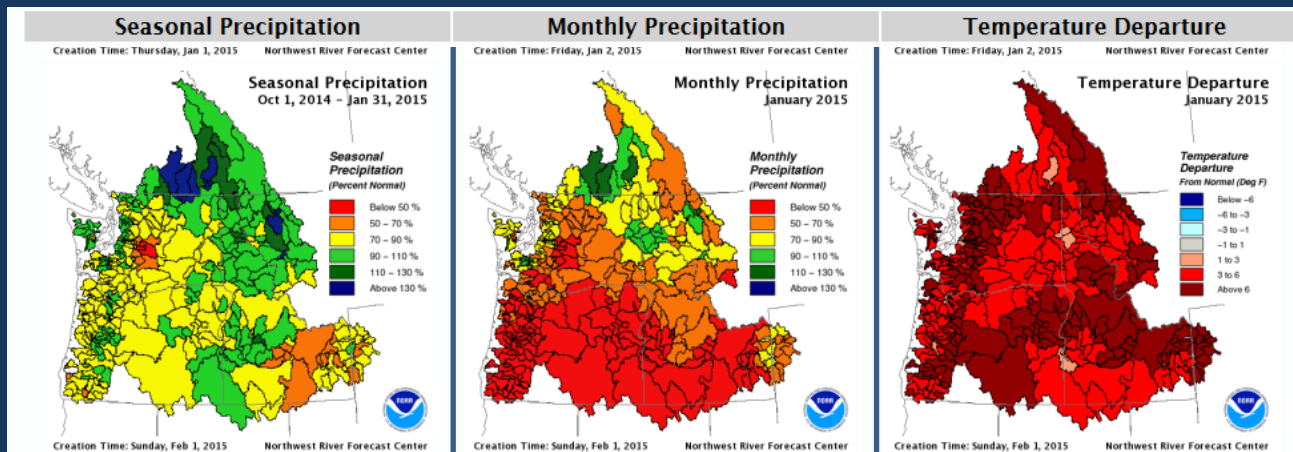
---- Provisional Data Subject to Revision ----



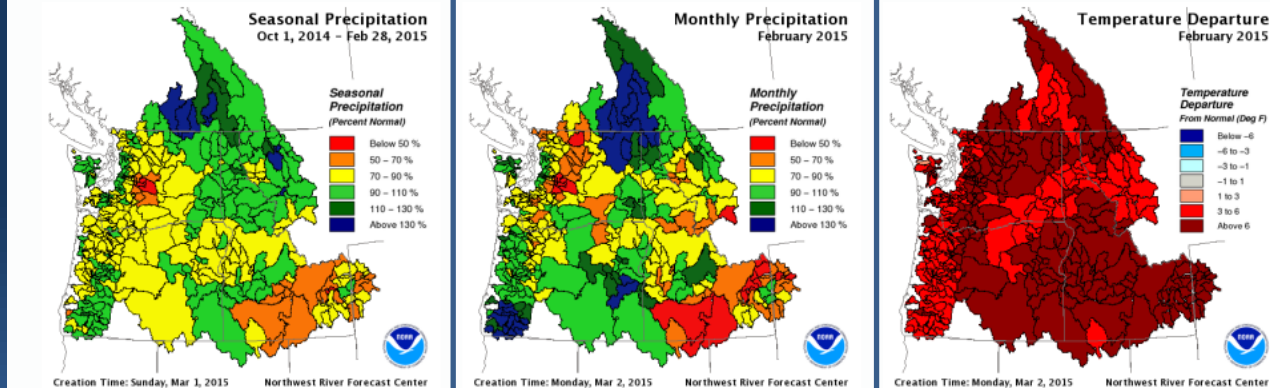
Winter Precipitation and Temperature (Jan, Feb, Mar)



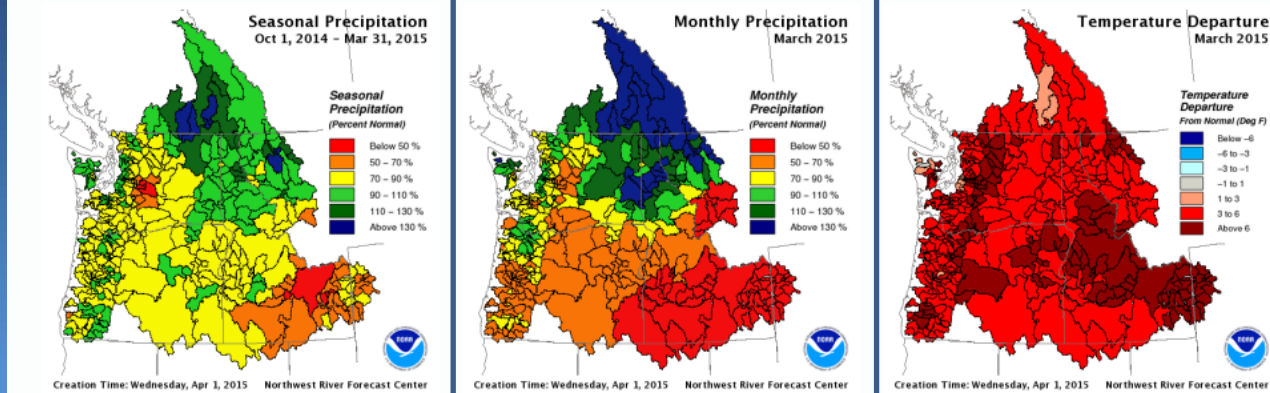
Jan



Feb

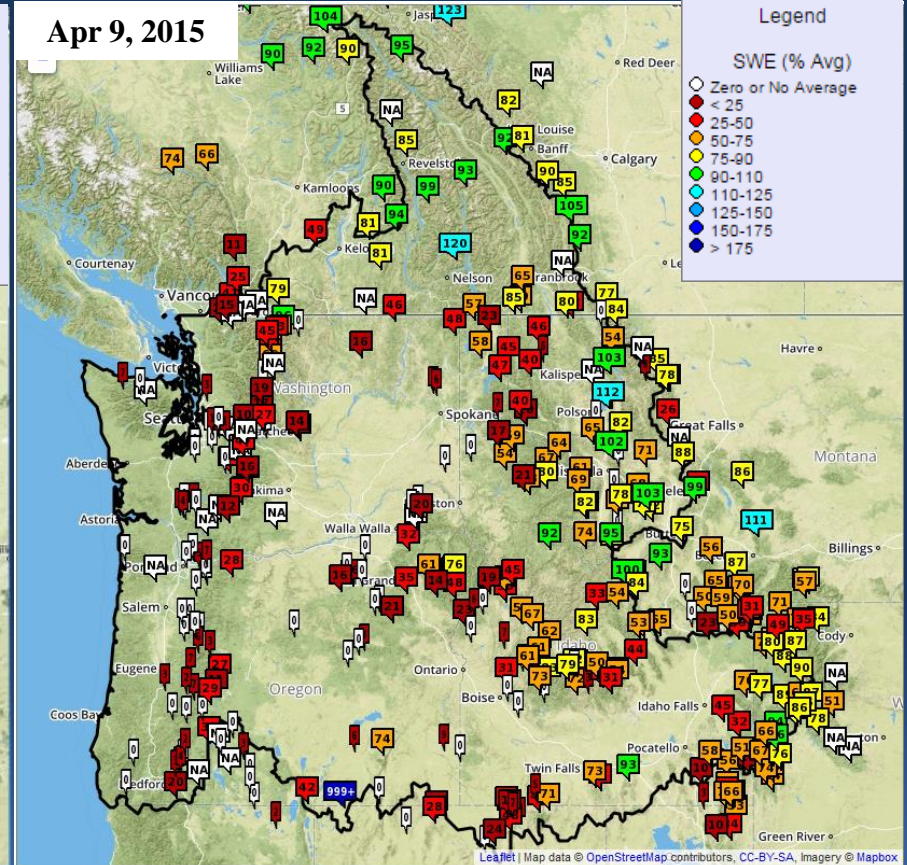
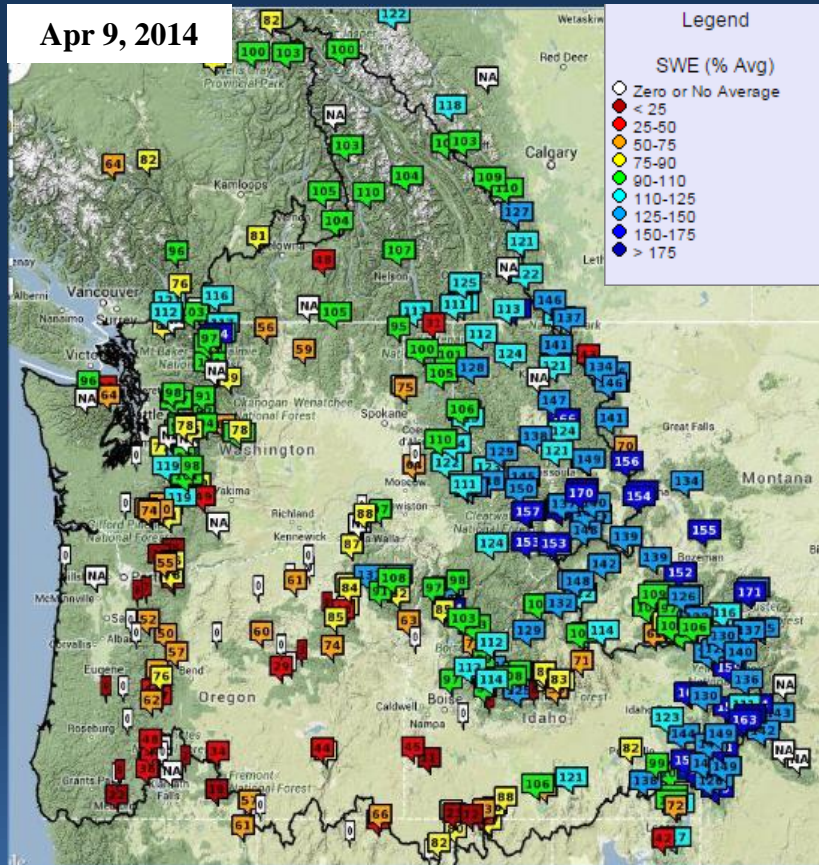


Mar



Snow Conditions (SWE)

April 9th NWRFC Briefing



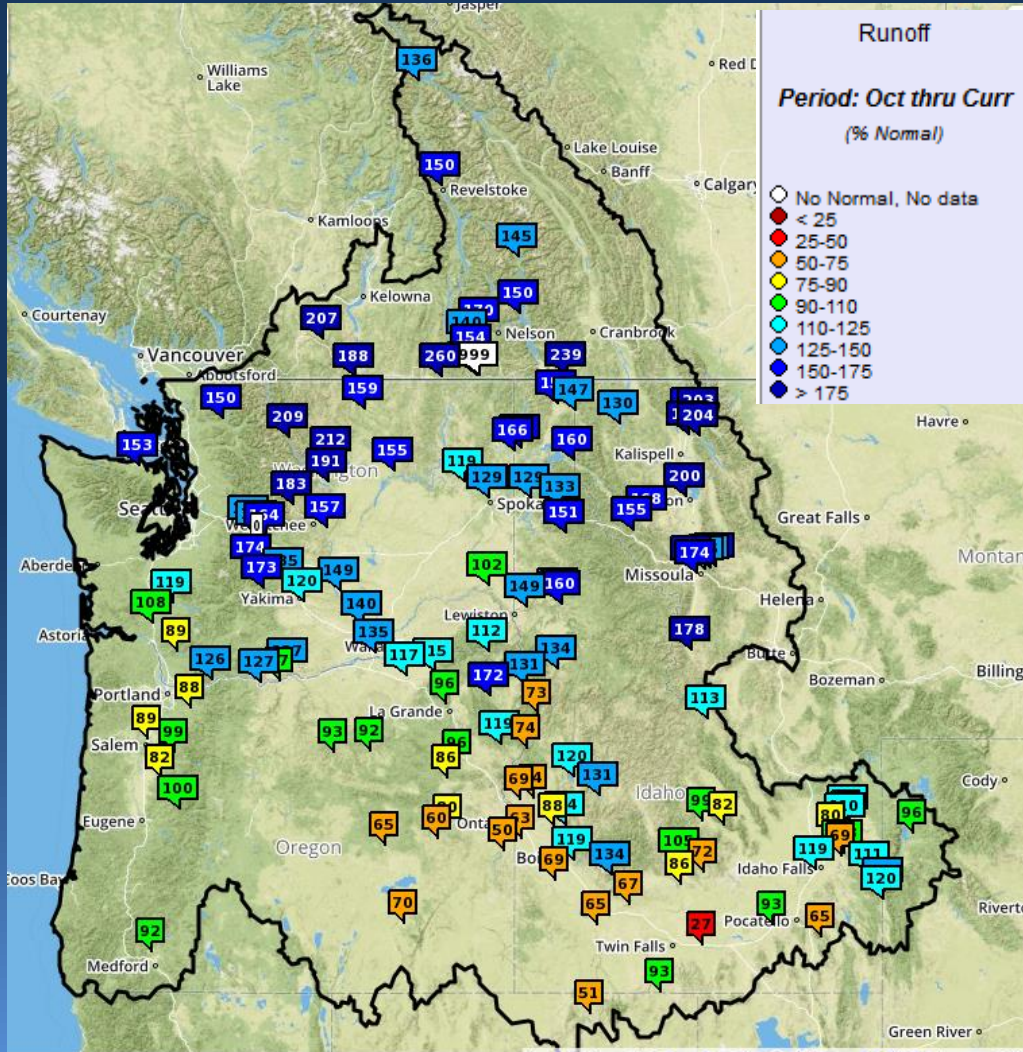
Data provided by:

- Natural Resources Conservation Service (NRCS) SNOTEL network
- Environment Canada (EC) Automated Snow Pillow network



Adjusted Runoff Conditions

April 9th NWRFC Briefing



Percent of Normal

Oct 1 - Apr 6

DUNGENESS RIVER 153%
SKAGIT RIVER 150%
COWLITZ RIVER 119%

CLACKAMAS RIVER 88%
WILLAMETTE RIVER 89%
ROGUE RIVER 92%



Official Water Supply Forecasts

April 9th NWRFC Briefing

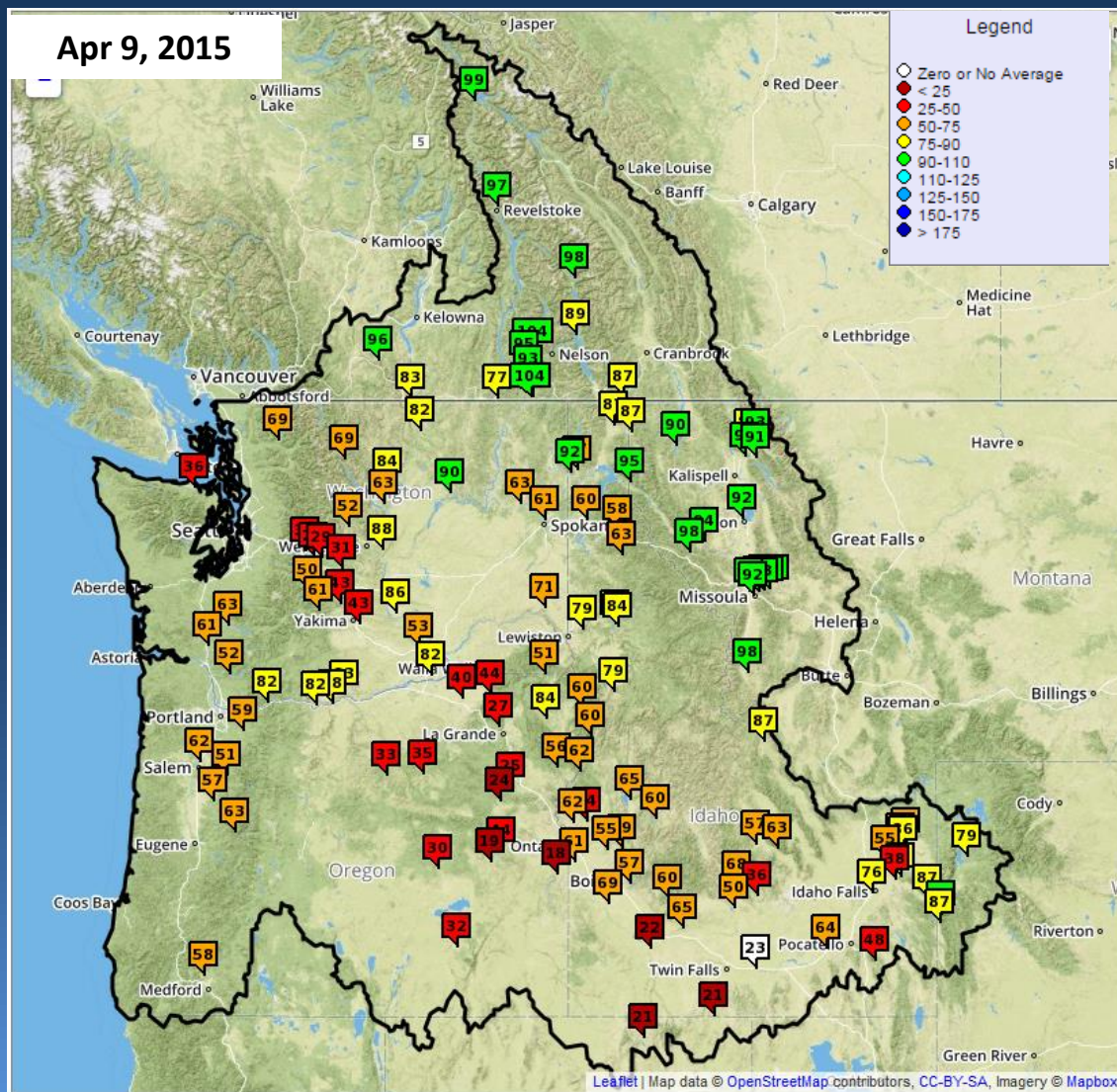


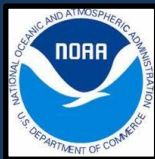
Percent of Normal

DUNGENESS RIVER 36%
SKAGIT RIVER 69%
COWLITZ RIVER 63%

CLACKAMAS RIVER 59%
WILLAMETTE RIVER 62%
ROGUE RIVER 58%

APR-SEP

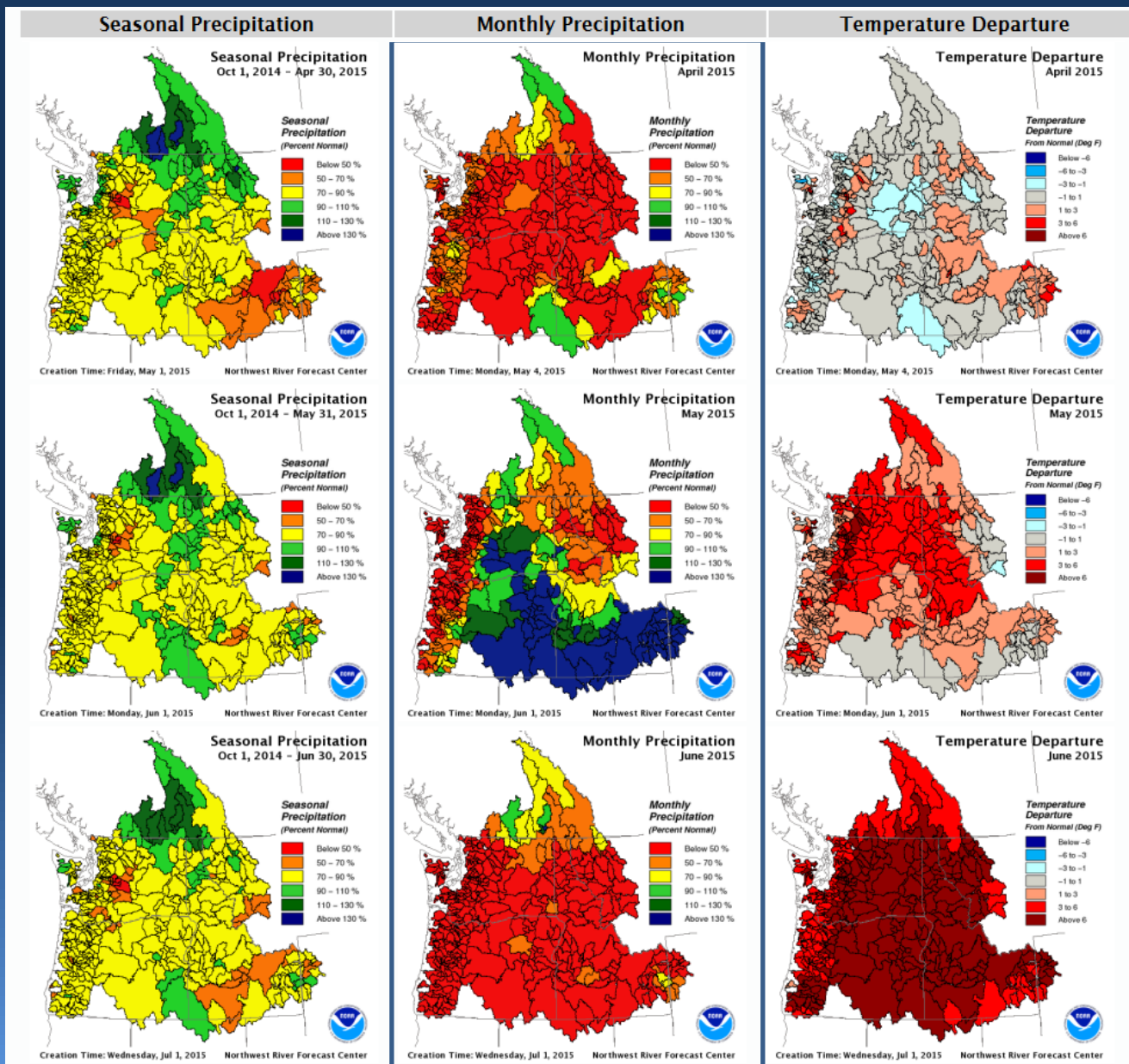




Spring Precipitation and Temperature (Apr, May, Jun)



Apr



May

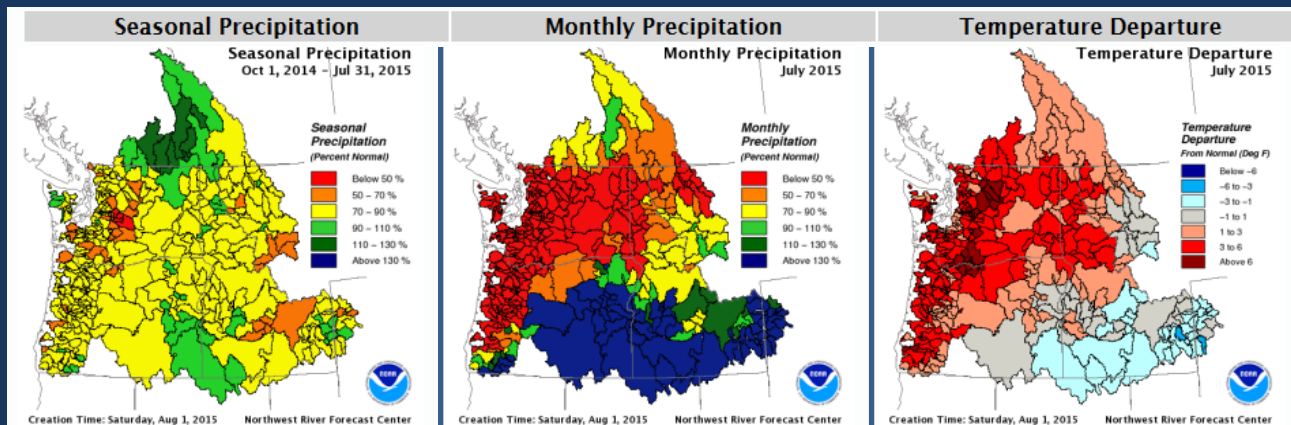
Jul



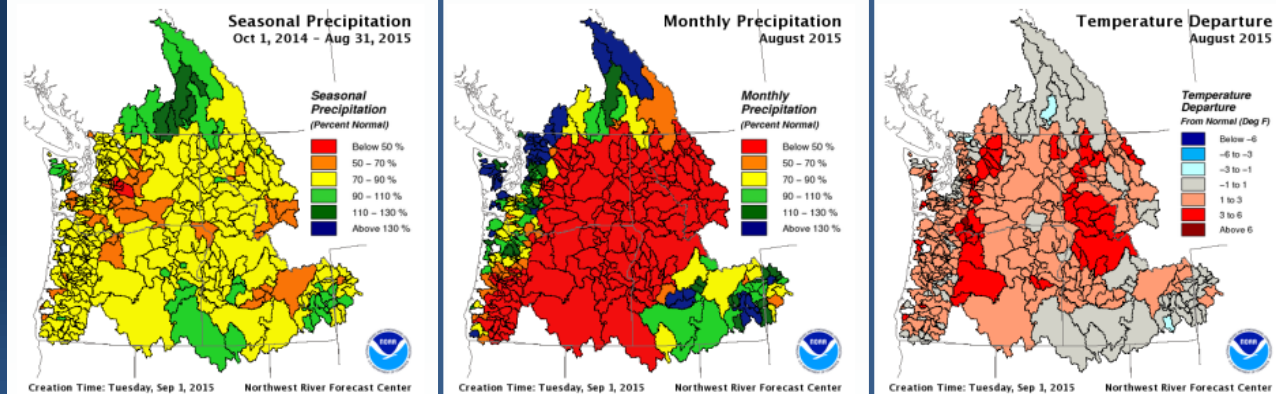
Summer Precipitation and Temperature (Jul, Aug, Sep)



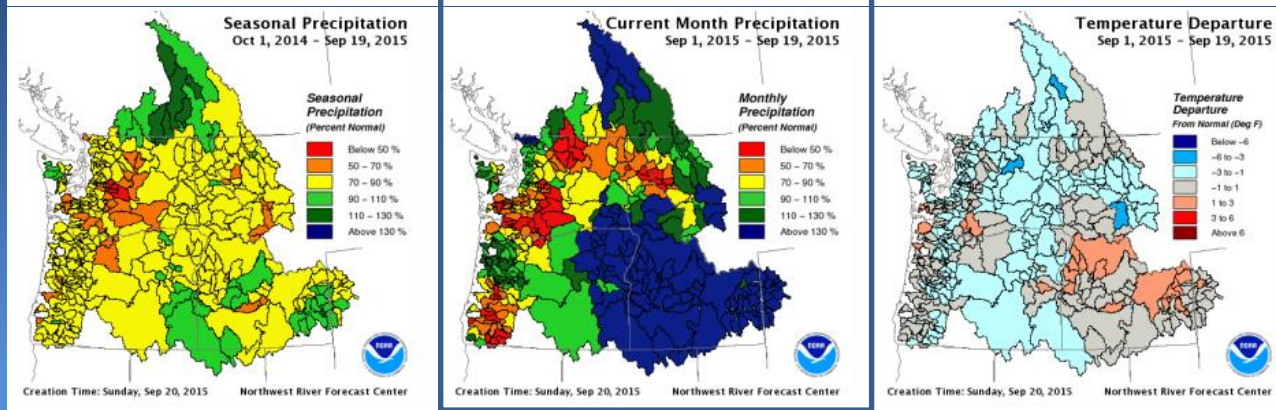
Jul

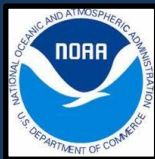


Aug

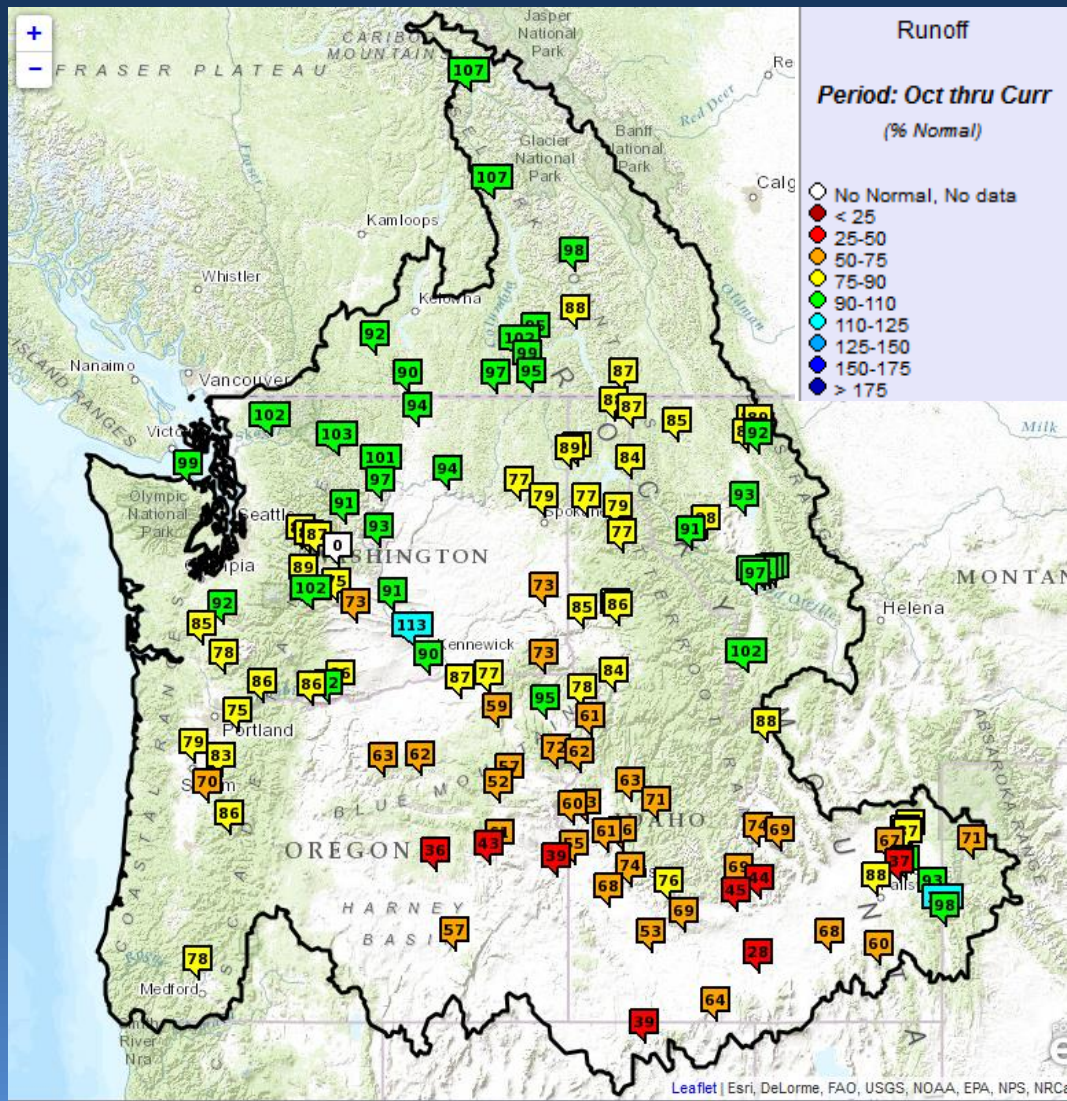


Sep*





Adjusted Runoff (Oct 1-Sep 15 2015)



Percent of Normal

Oct 1– Sep 15

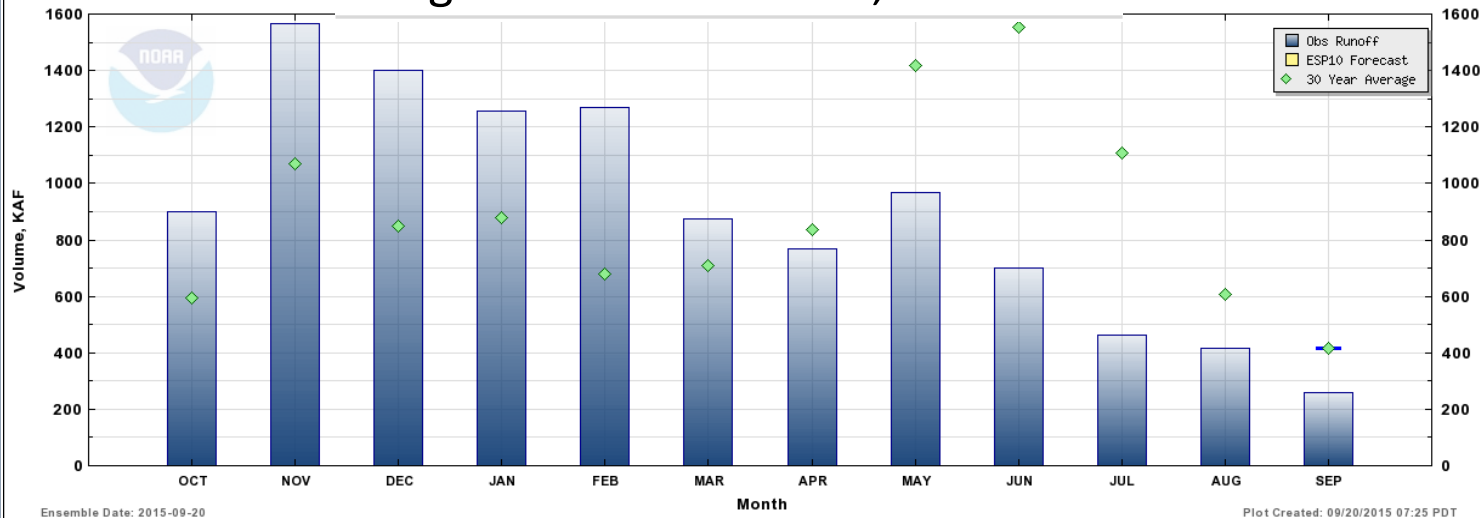
DUNGENESS RIVER	99%
SKAGIT RIVER	102%
COWLITZ RIVER	92%
CLACKAMAS RIVER	75%
WILLAMETTE RIVER	79%
ROGUE RIVER	78%



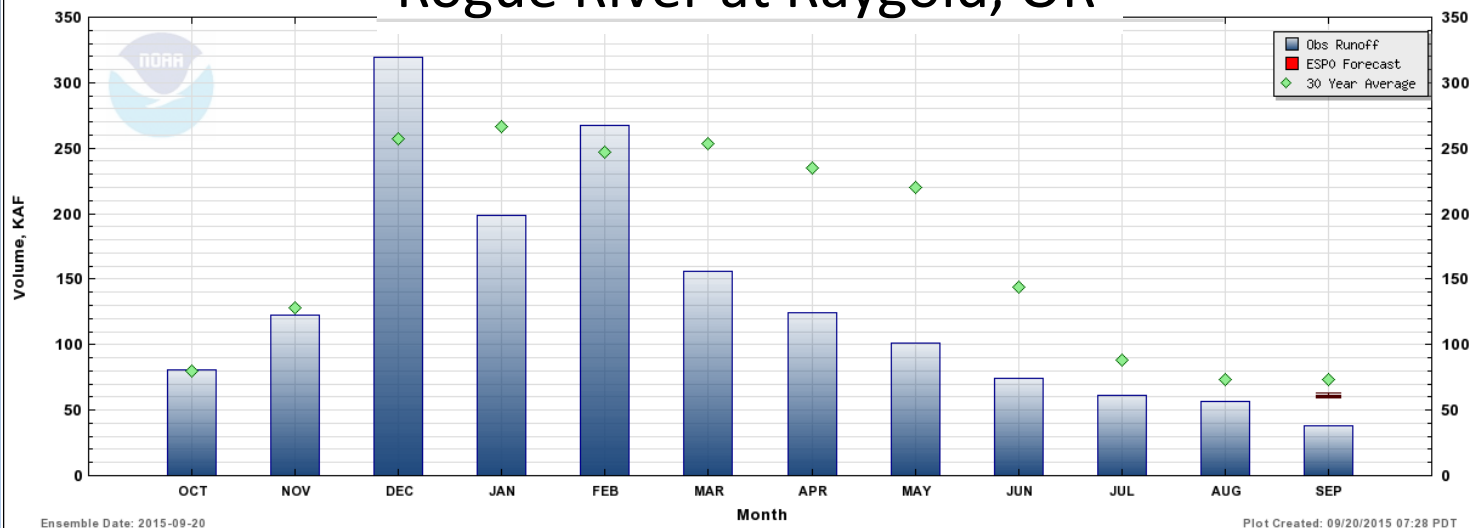
Monthly WY 2015 Adjusted Runoff (Oct 1-Sep 15)

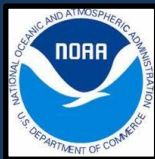


Skagit River nr Concrete, WA



Rogue River at Raygold, OR





Natural Volume *Forecast* (Apr-Sep)

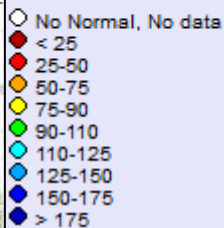
(Forecasts include Runoff for Apr 1 – Sep 15)



Expressed as
Percent of Normal

Water Supply Forecast

Period: APR-SEP
(% Normal)

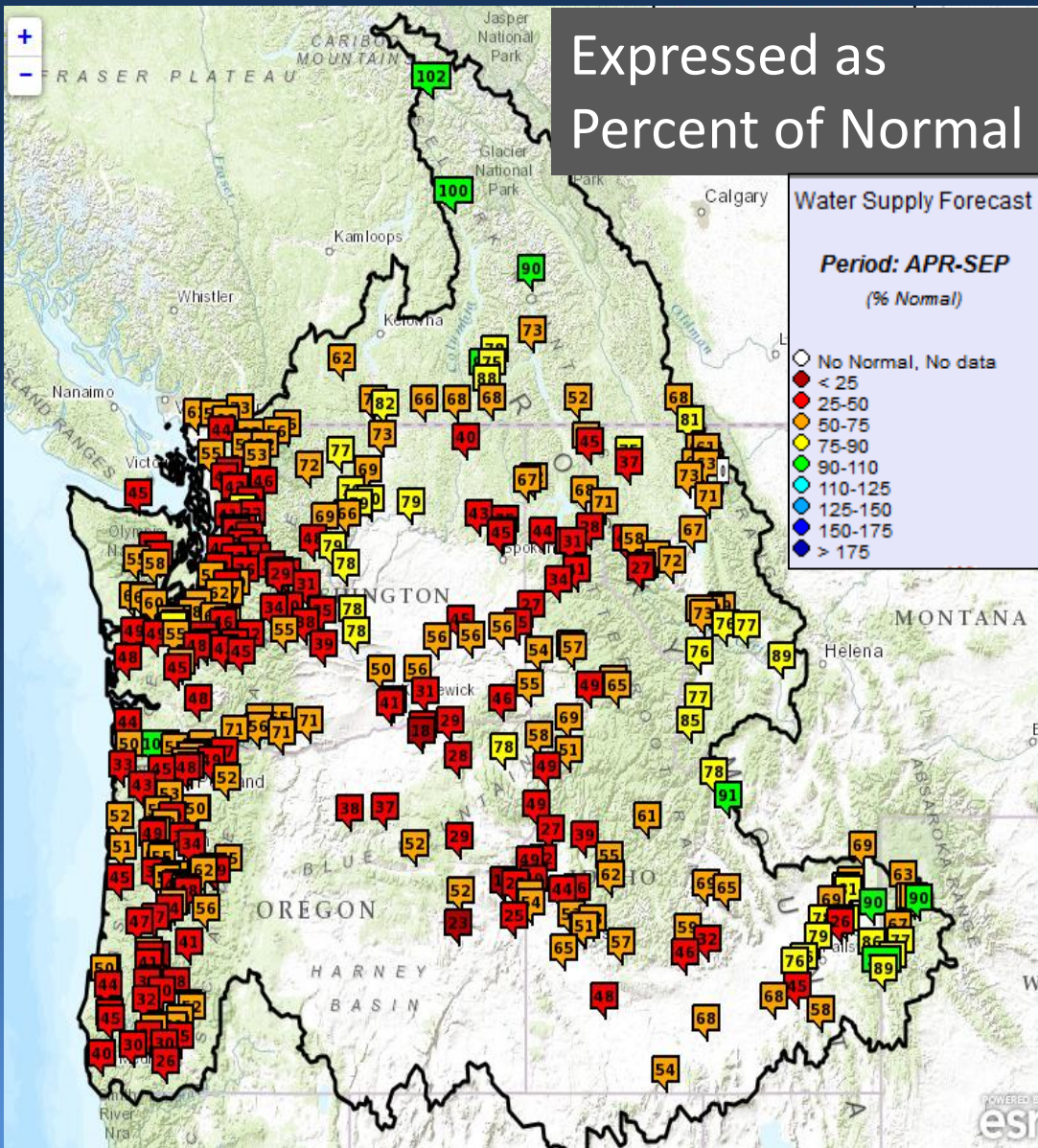


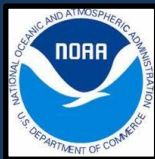
Percent of Normal

Apr 1– Sep 15

DUNGENESS RIVER 45%
SKAGIT RIVER 63%
COWLITZ RIVER 51%

CLACKAMAS RIVER 52%
WILLAMETTE RIVER 52%
ROGUE RIVER 57%



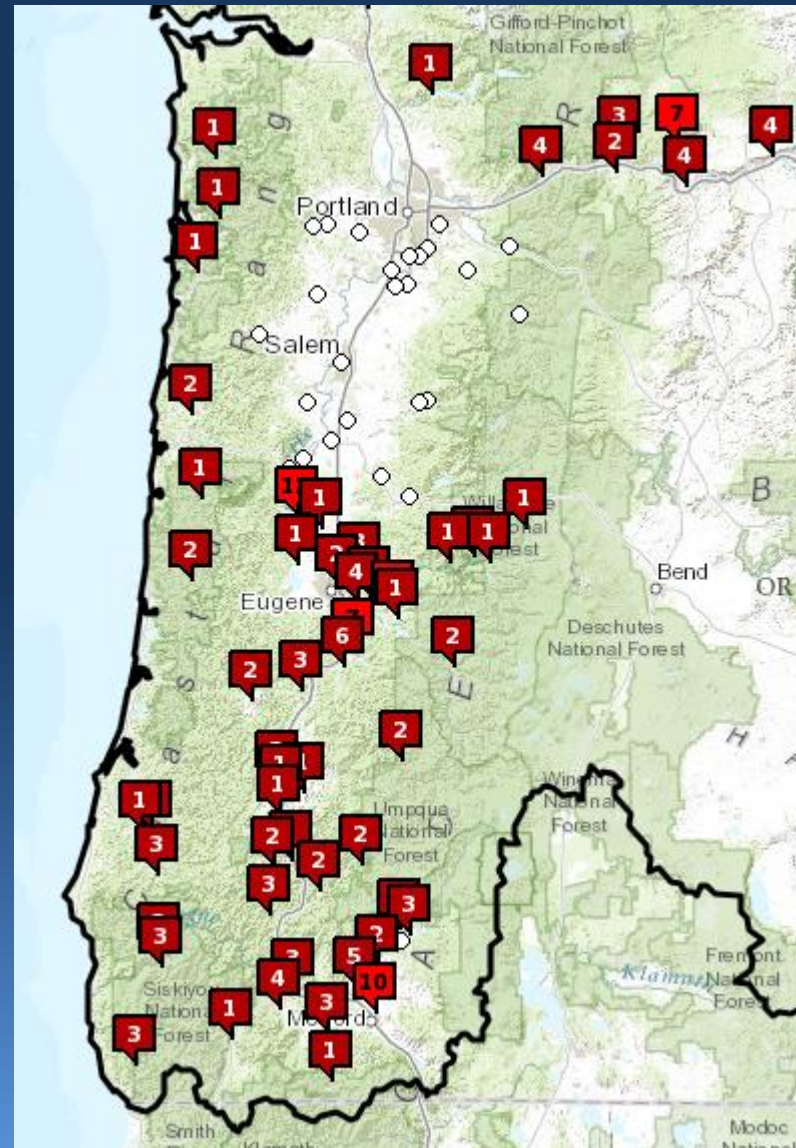
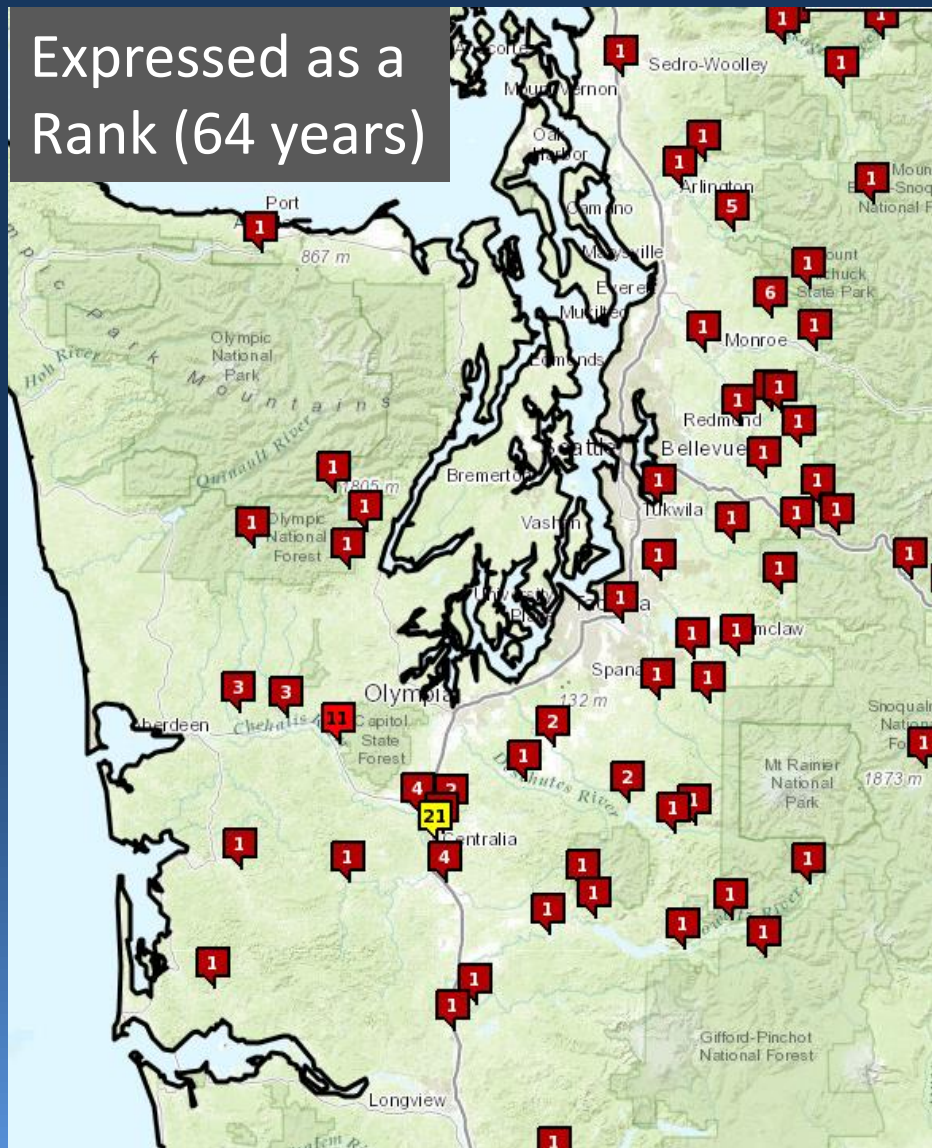


Current Natural Volume *Forecast* (Apr-Sep)

(Forecasts include Runoff for Apr 1 – Sep 15)



Expressed as a
Rank (64 years)





Naturalized Monthly Runoff – August 2015



Western Washington
63 locations sampled
64 years of record

22 Locations (34%)
Lowest on Record
(within 2nd Percentile)

41 Locations (65%)
within 10th Percentile

52 Locations (83%)
within 20th Percentile

Western Oregon
43 locations sampled
64 years of record

9 Locations (21%)
Lowest on Record
(within 2nd Percentile)

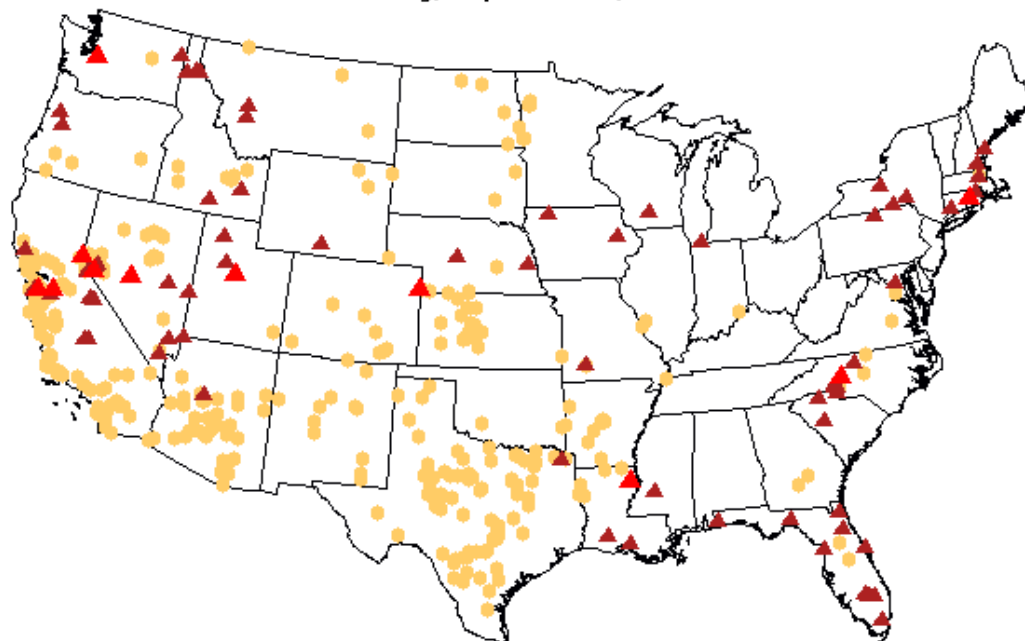
21 Locations (49%)
within 10th Percentile

52 Locations (77%)
within 20th Percentile

USGS Water Watch: 7-Day Streamflow Graphics

Map of Record Low 7-day Streamflow

Sunday, September 20, 2015

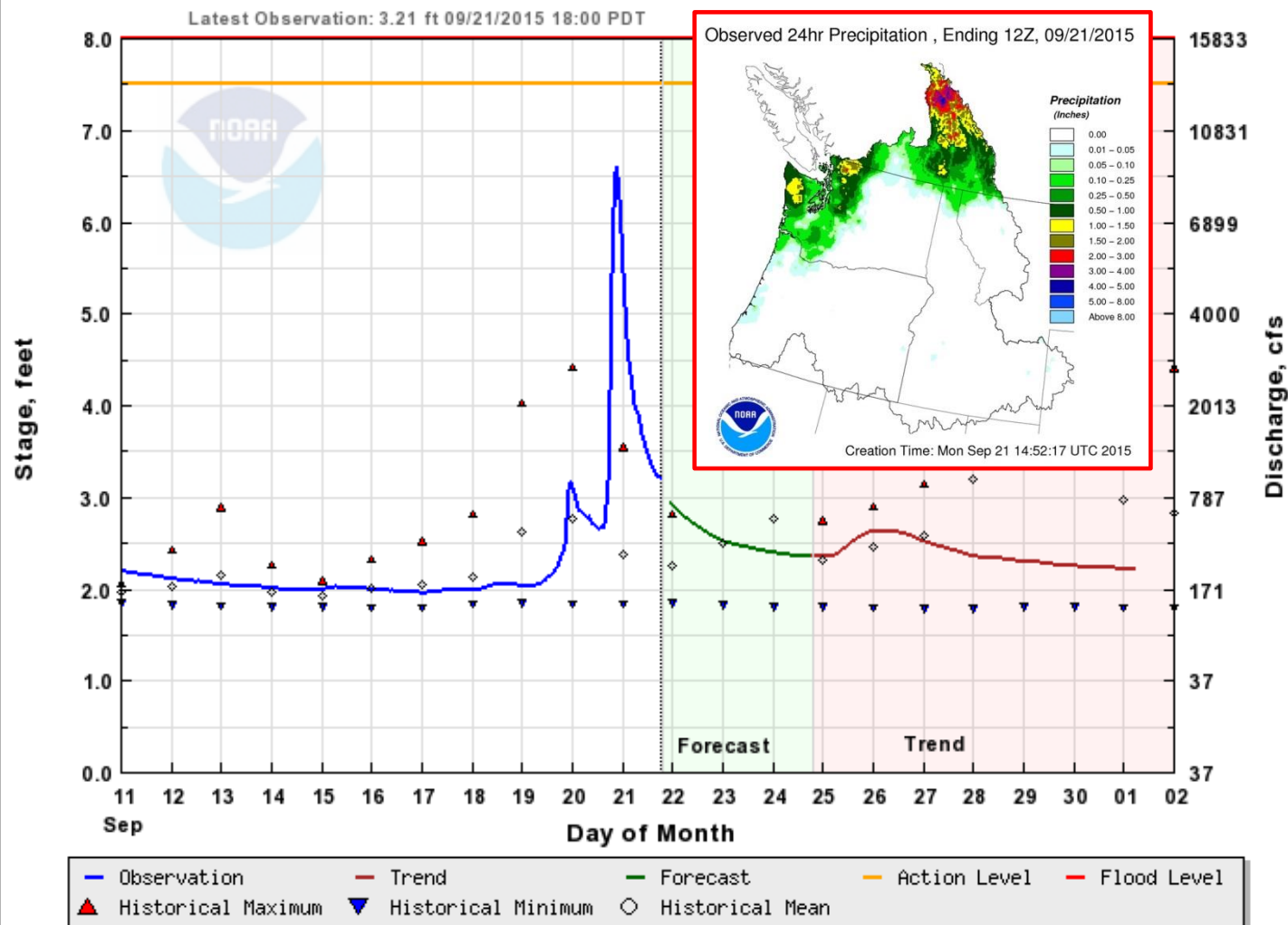


Explanation

- ▲ Record low flow with more than 30 years data
- ▲ Record low flow with less than 30 years data
- Zero flow sites

Effect of Recent Rainfall on Streamflow








SF NOOKSACK - AT SAXON BRIDGE (NSSW1)



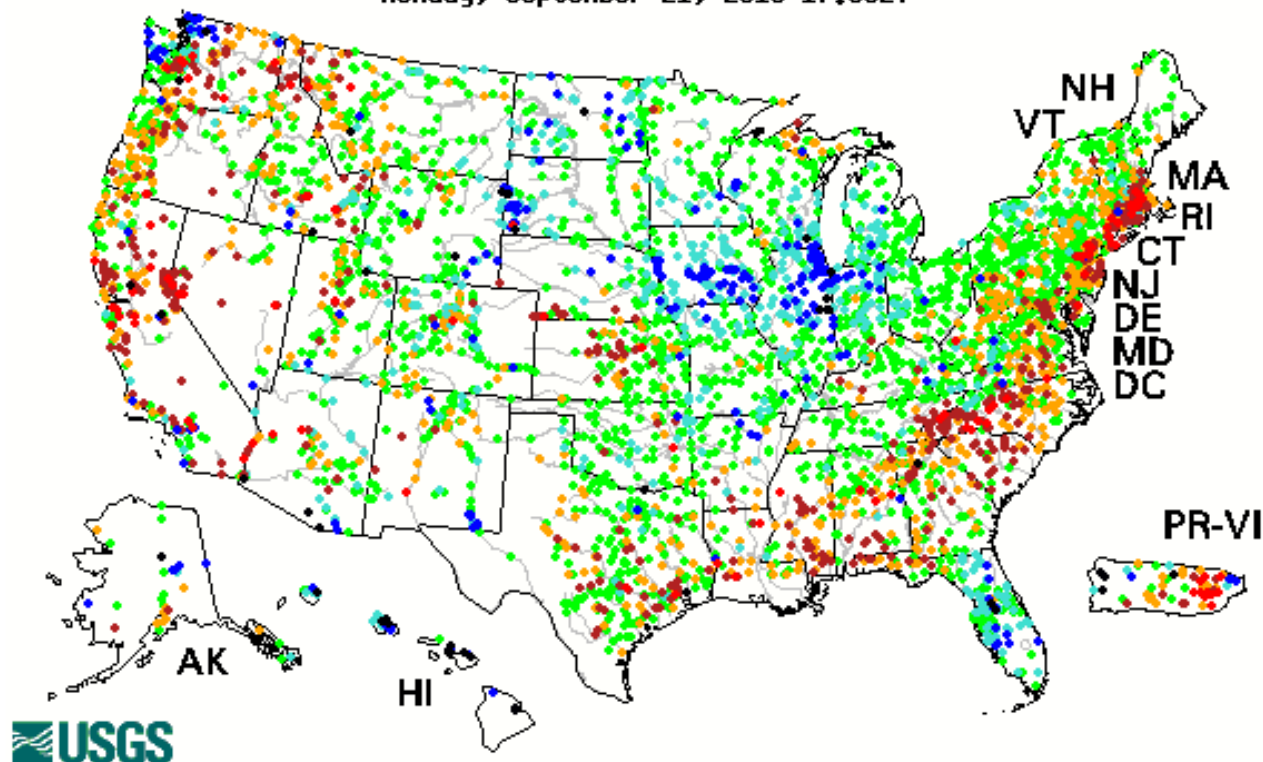
Forecast Created: 09/21/2015 08:29 PDT
Plot Created: 09/21/2015 19:55 PDT

USGS Water Watch: Current vs Mean Streamflow

Map of real-time streamflow compared to historical streamflow for the day of the year (United States)

Explanation - Percentile classes						
						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

Monday, September 21, 2015 17:00ET



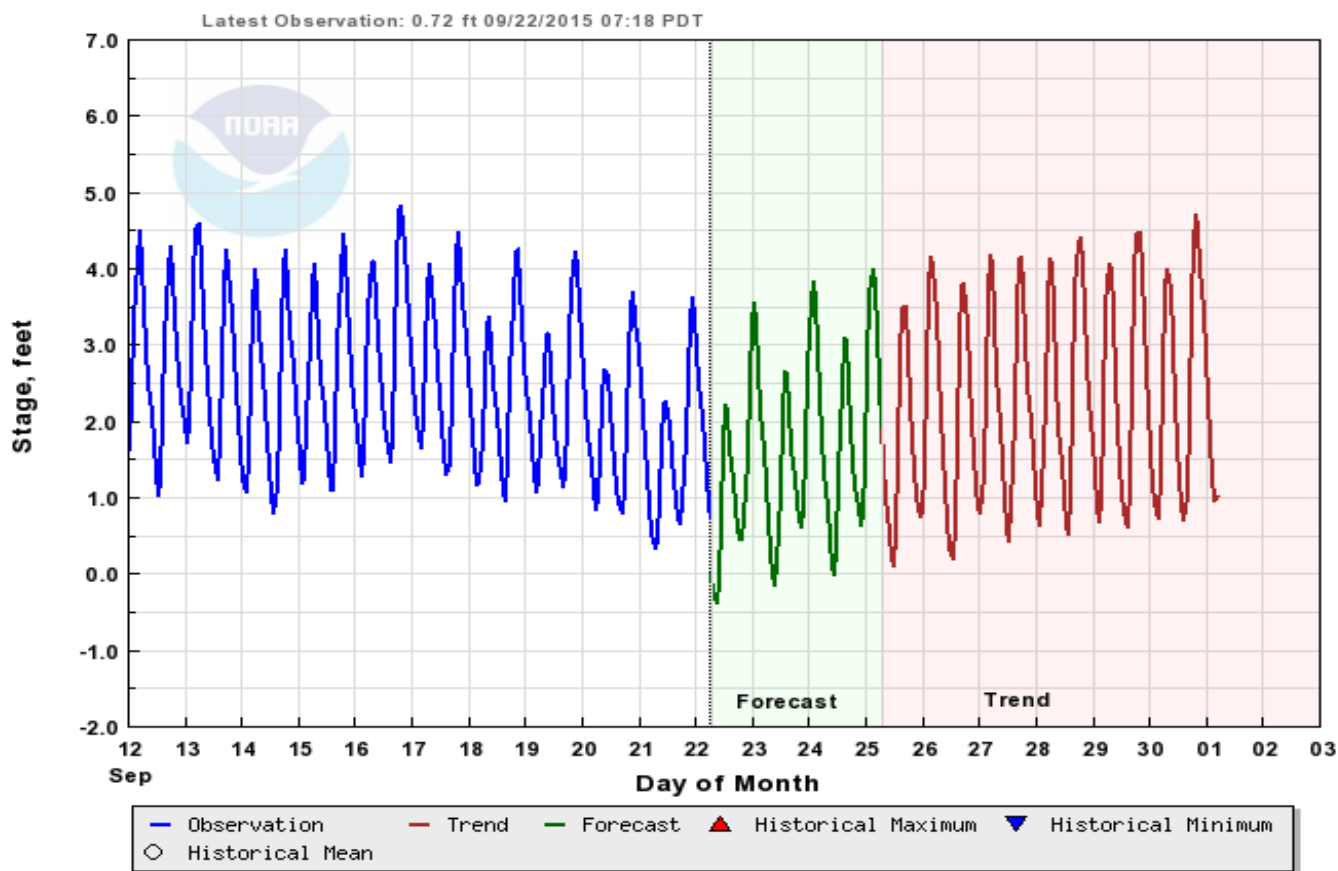


Attention Boaters & Houseboat Owners:

Potential for LOWEST RIVER LEVELS

for Willamette at Portland and Columbia at Vancouver since 2001

COLUMBIA - AT VANCOUVER POP (VAPW1)



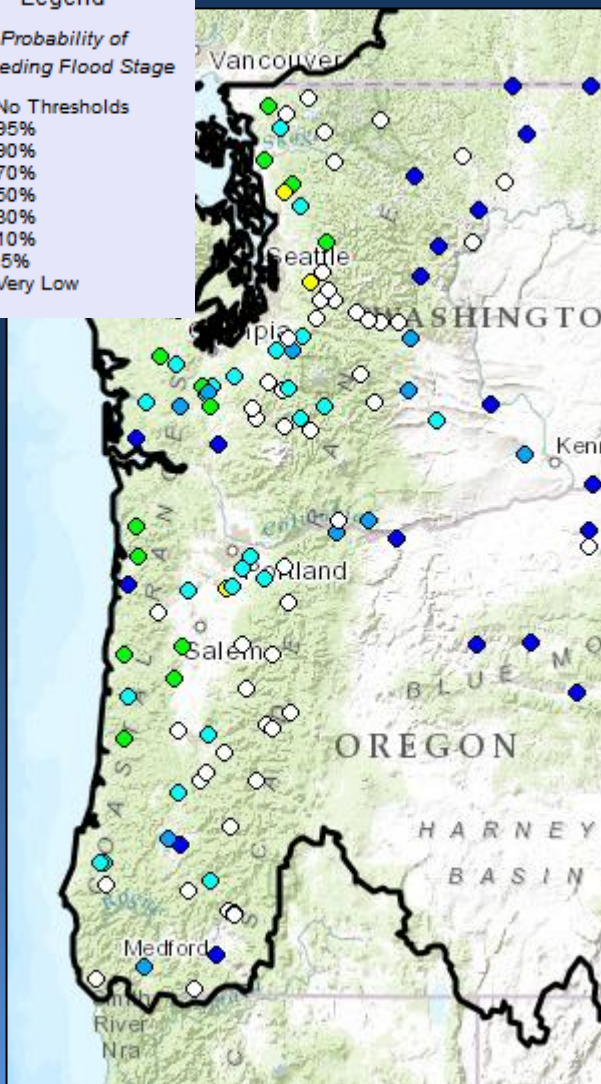
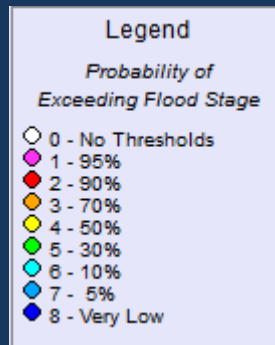
Forecast Created: 09/21/2015 12:59 PDT
Plot Created: 09/22/2015 07:37 PDT

Observations Provided by POP



Fall / Early Winter Peak Flow Forecast

Probability of Exceeding Flood Stage through 2015



Rivers most likely to flood (50% chance) between now and Dec 31st (**yellow dots**):

- Stillaguamish River nr Arlington, WA
- Snoqualmie River nr Snoqualmie, WA
- Pudding River at Aurora, OR

Green dots = 30% chance

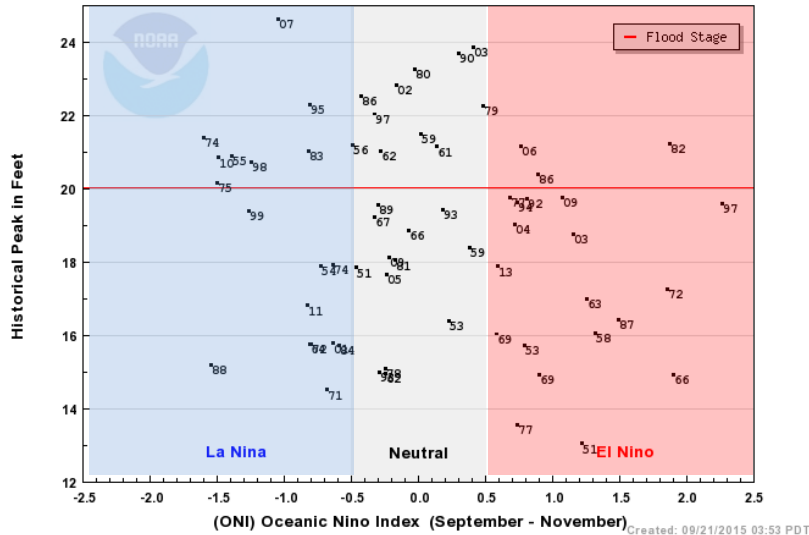
Light blue = 10% chance



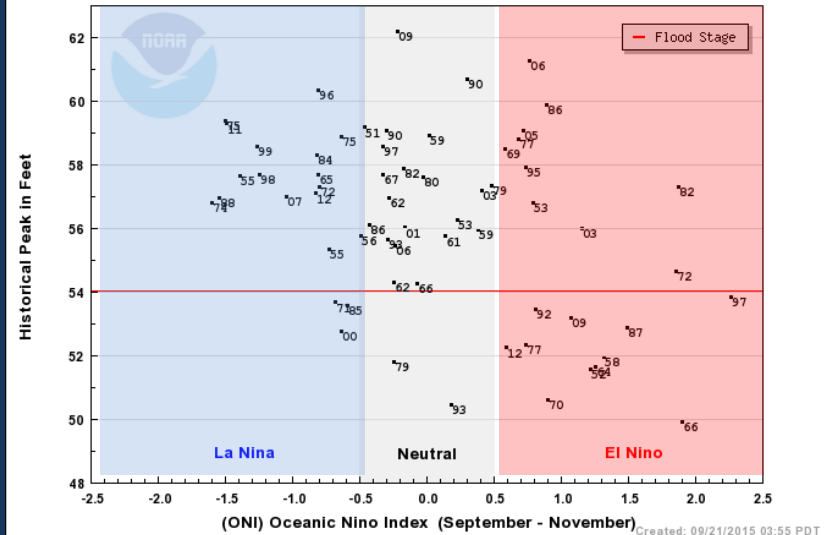
Historical Annual Peaks (ft) vs ONI (SON)



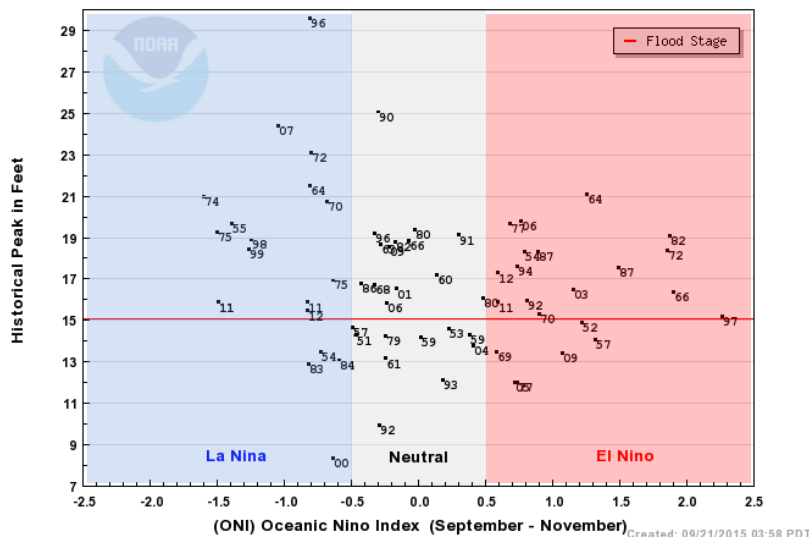
Comparison of Historical Peaks to (ONI) Oceanic Nino Index
(ELWW1) ELWHA-AT MCDONALD BRIDGE NEAR PORT ANGELES



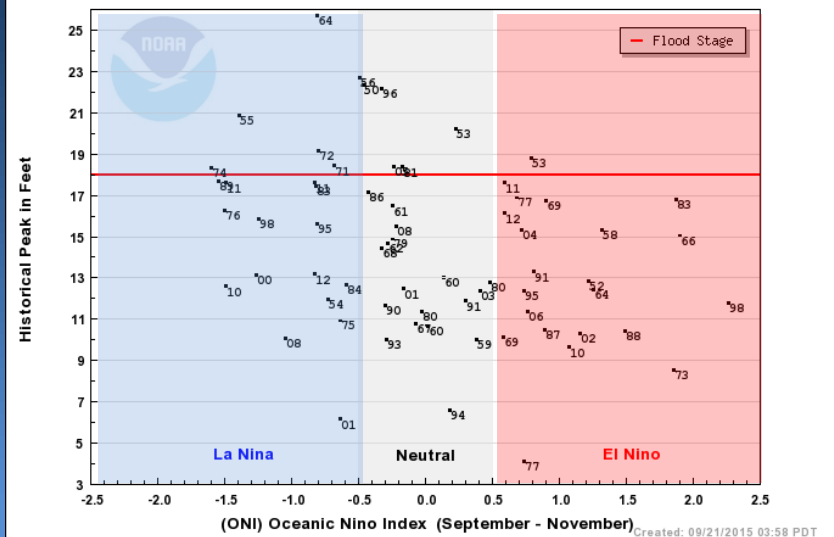
Comparison of Historical Peaks to (ONI) Oceanic Nino Index
(CRNW1) SNOQUALMIE-NEAR CARNATION



Comparison of Historical Peaks to (ONI) Oceanic Nino Index
(FSSO3) NEHALEM-FOSS



Comparison of Historical Peaks to (ONI) Oceanic Nino Index
(TILO3) S UMPQUA-AT TILLER

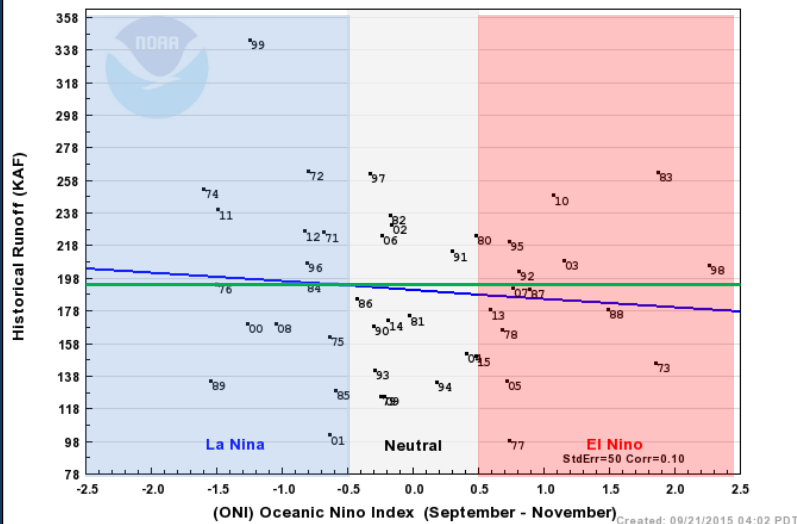




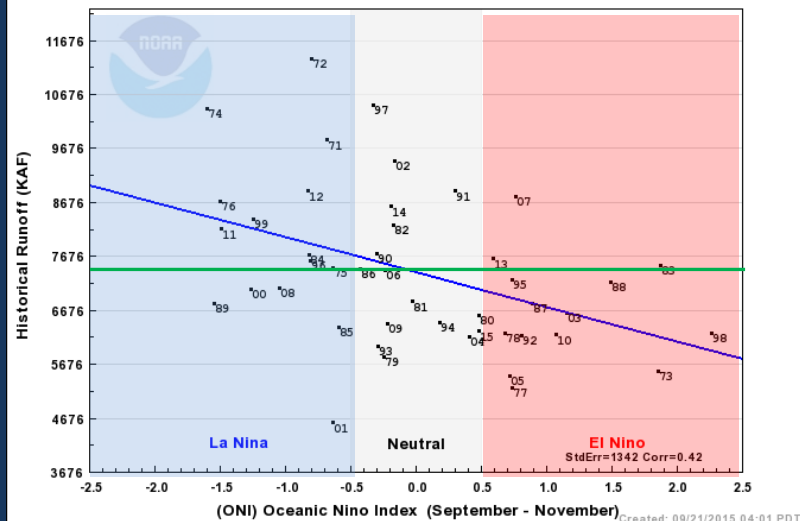
Historical Jan-Jul Runoff vs ONI (SON)



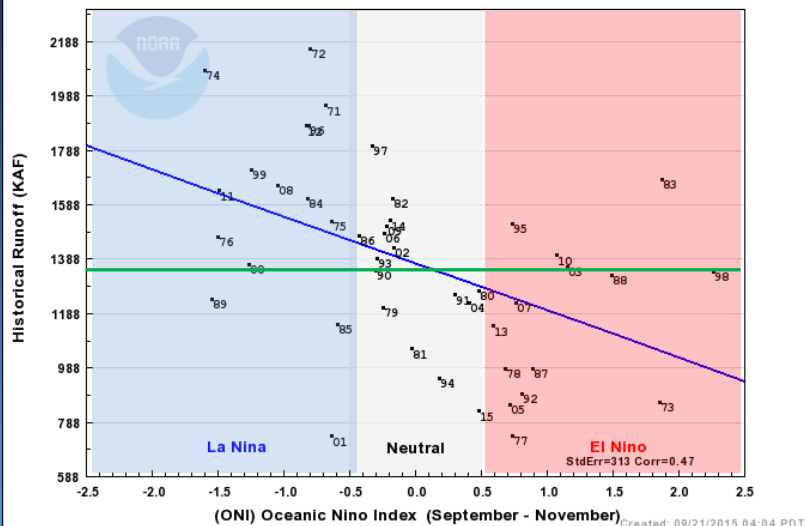
Comparison of Historical Runoff to (ONI) Oceanic Nino Index
(DRSW1) DUNGENESS-NEAR SEQUIM



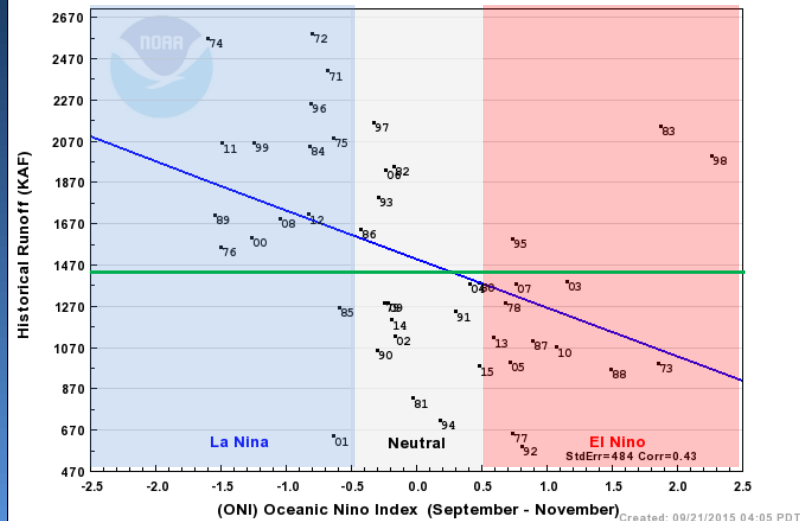
Comparison of Historical Runoff to (ONI) Oceanic Nino Index
(CONW1) SKAGIT-NEAR CONCRETE



Comparison of Historical Runoff to (ONI) Oceanic Nino Index
(ESTO3) CLACKAMAS-AT ESTACADA



Comparison of Historical Runoff to (ONI) Oceanic Nino Index
(RYGO3) ROGUE-AT RAYGOLD

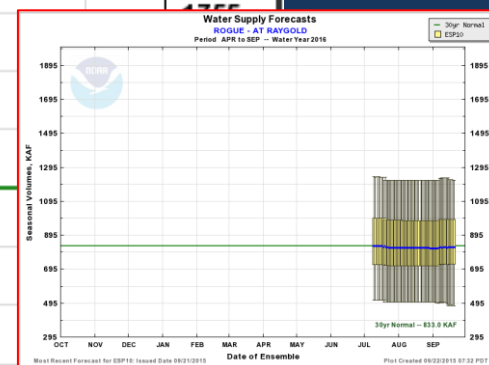
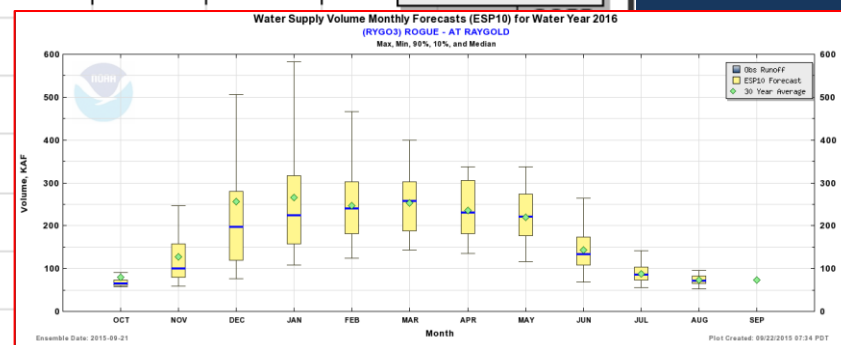
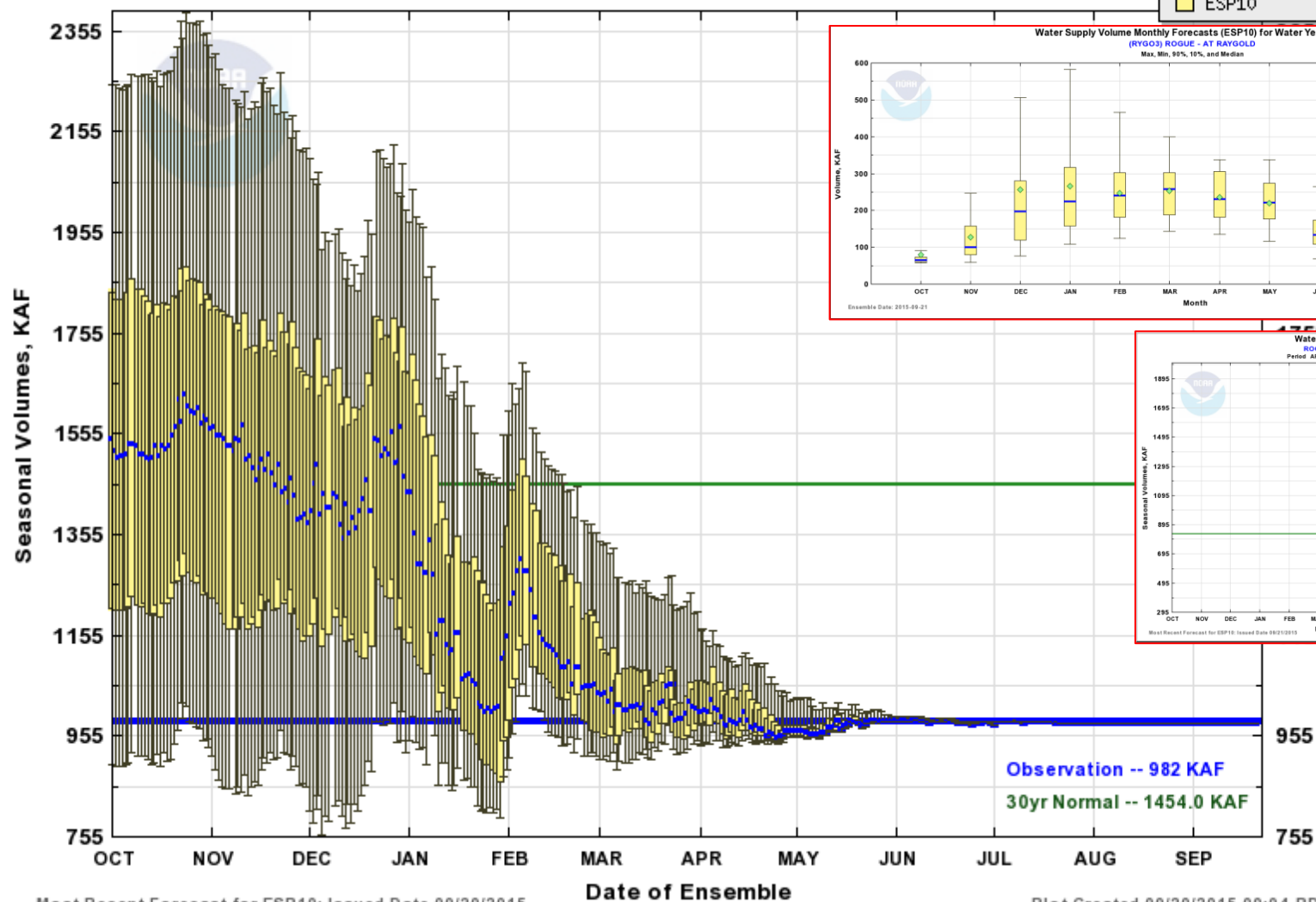




Jan-Jul 2015 Water Supply Forecasts



Water Supply Forecasts ROGUE - AT RAYGOLD Period JAN to JUL -- Water Year 2015





www.nwrfc.noaa.gov



Thank You!



Southside Government Island Looking East From I-205
Vancouver Gage (VAPW1) at ~0 feet (CRD)

Source: PDX WFO