March 2015 Water Supply Briefing

National Weather Service, Northwest River Forecast Center

Telephone Conference: 1-877-501-8577
Pass Code: 71967

Upcoming Briefing Dates:

April 9 2015 – 10 am PDT
May 7 2015 – 10 am PDT

Presentation available after brief at:
www.nwrfc.noaa.gov/presentations/presentations.cgi

Taylor Dixon, NWRFC
W-ptr.Webmaster@noaa.gov
(503) 326-7291

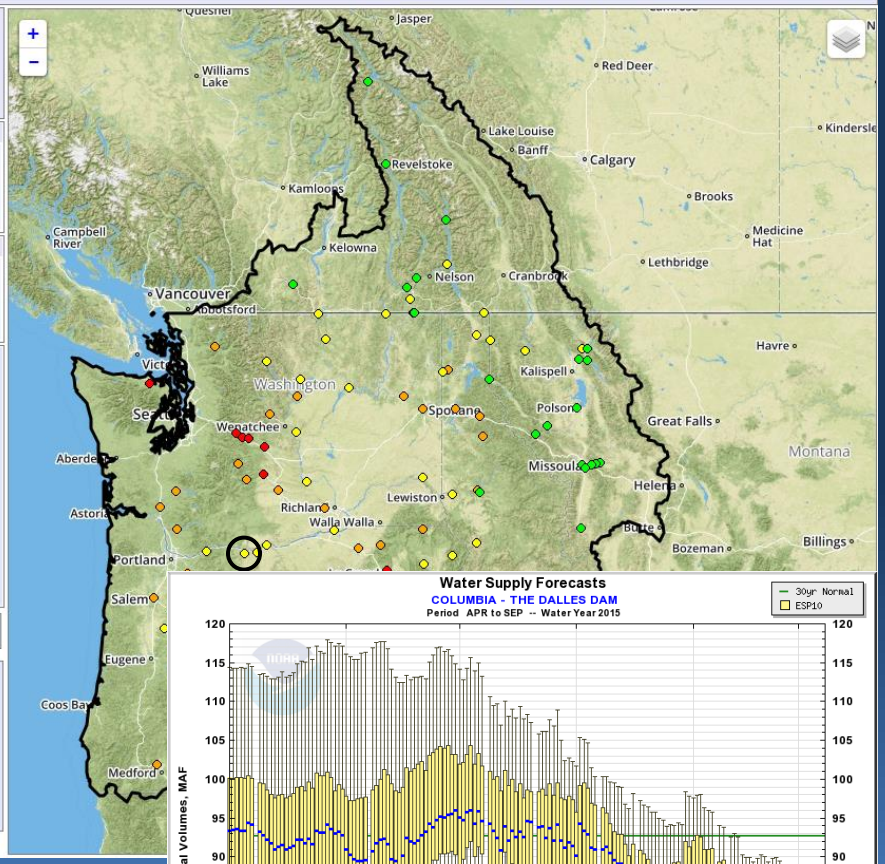
www.nwrfc.noaa.gov/ws/

Northwest River Forecast Center

Water Supply Forecasts

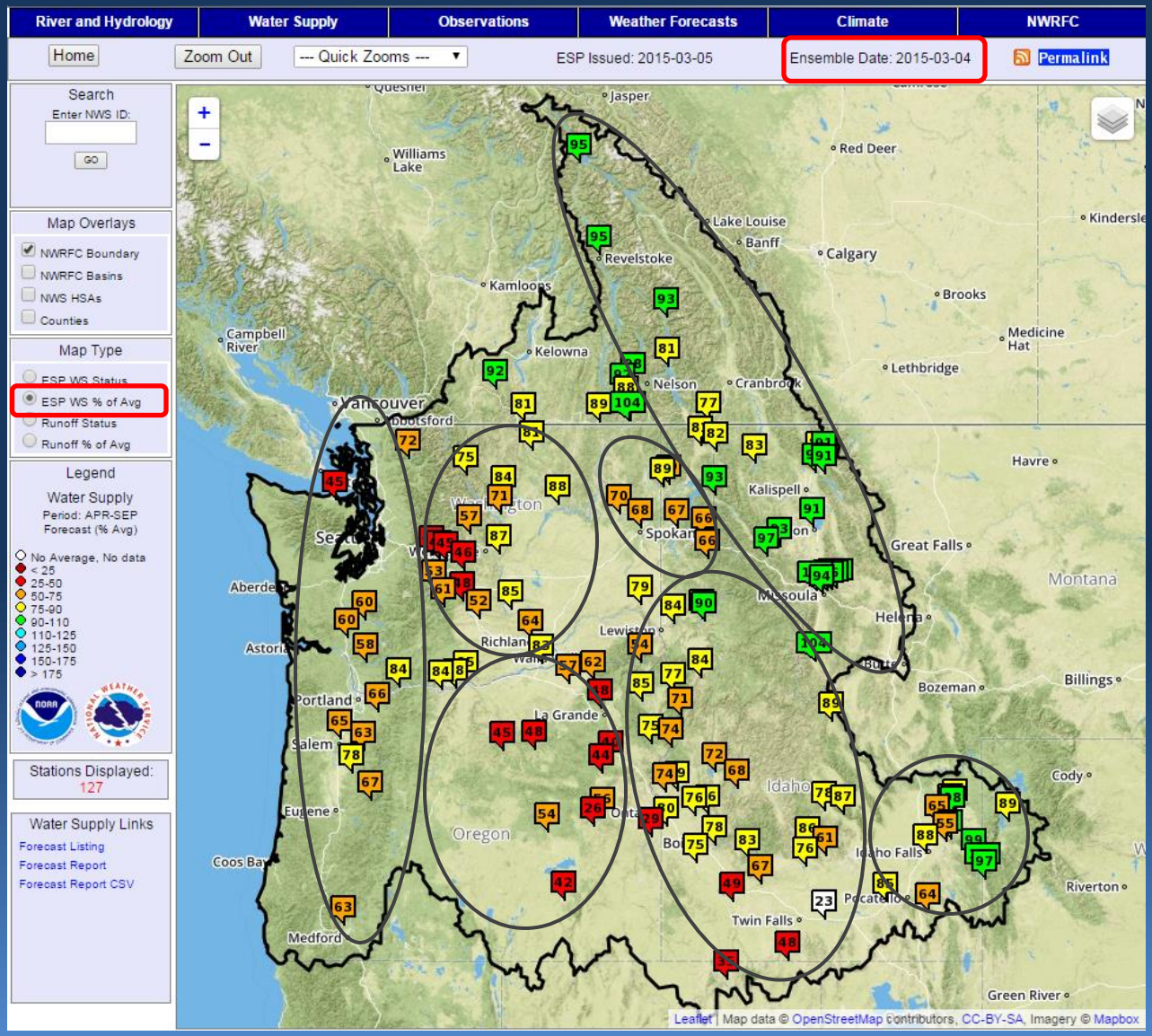
River and Hydrology | Water Supply | Observations | Weather Forecasts | Climate | NWRFC

Home | Zoom Out | --- Quick Zooms --- | ESP Issued: 2015-03-05 | Ensemble Date: 2015-03-04 | Permalink



- ESP: Ensemble Streamflow Prediction
- Official ESP water supply products include:
  - 10 days of quantitative precipitation forecast (QPF)
  - 10 days of quantitative temperature forecast (QTF)
  - Historical observations appended thereafter
- NWRFC also offers 5 and 0 day QPF/QTF products
- Forecasts are updated daily
- Model states and observed runoff updated continuously
- Forecasts are compared to 30 year observed runoff normals (1981-2010)

Water Supply Summary



- Upper Columbia:
  - B.C. and W. Montana near to slightly below normal
  - N. Idaho below normal
- Upper Snake:
  - Slightly below to near normal
- Middle/Lower Snake:
  - Below normal
- E. Washington/Oregon:
  - Well below to below normal
- W. Washington/Oregon:
  - Well below to below normal

www.nwrfc.noaa.gov/ws/

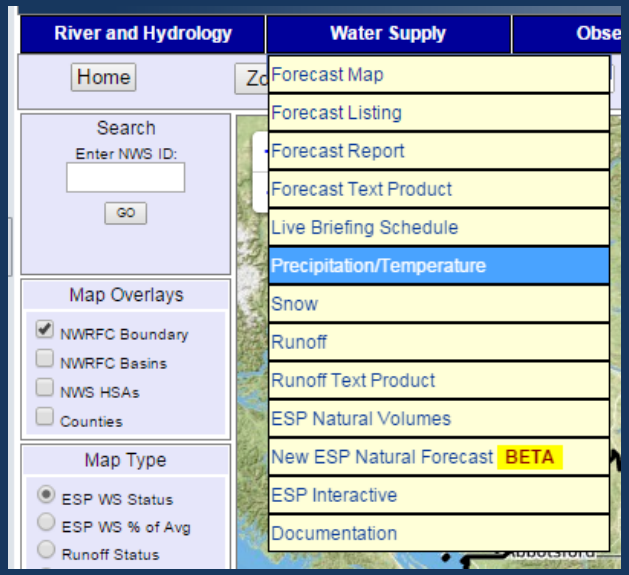
Water Supply Forecast Inputs

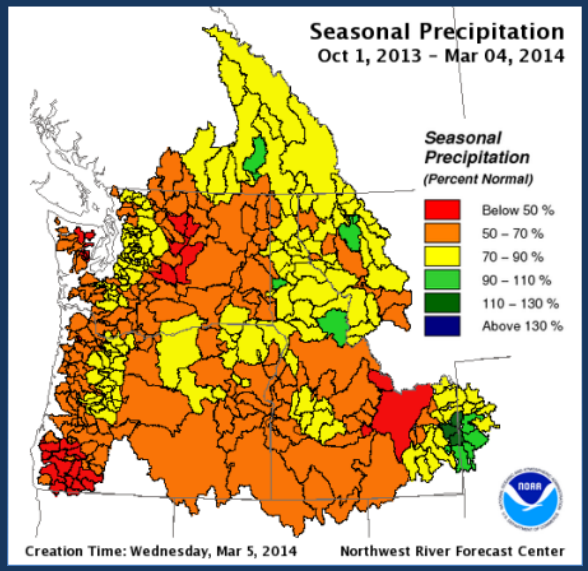
- Observed Conditions:
  - Precipitation
  - Temperature
  - Snowpack
  - Runoff

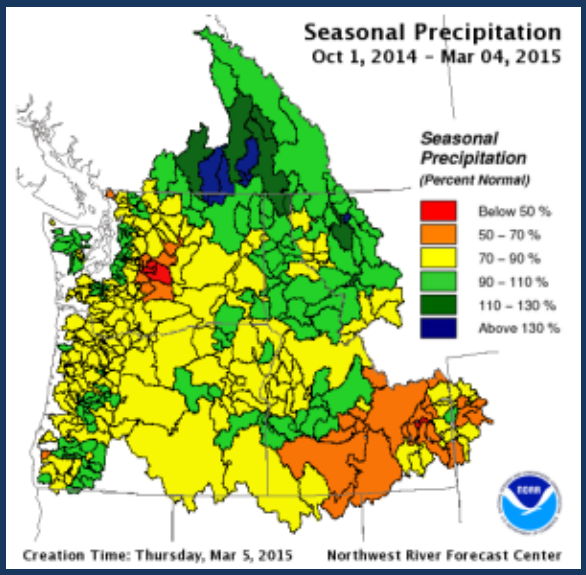
Hydrologic model states

- Future Conditions:
  - 10 days of quantitative forecast precipitation (QPF)
  - 10 days of quantitative forecast temperature (QTF)
  - Historical observations appended thereafter

Observed Seasonal Precipitation





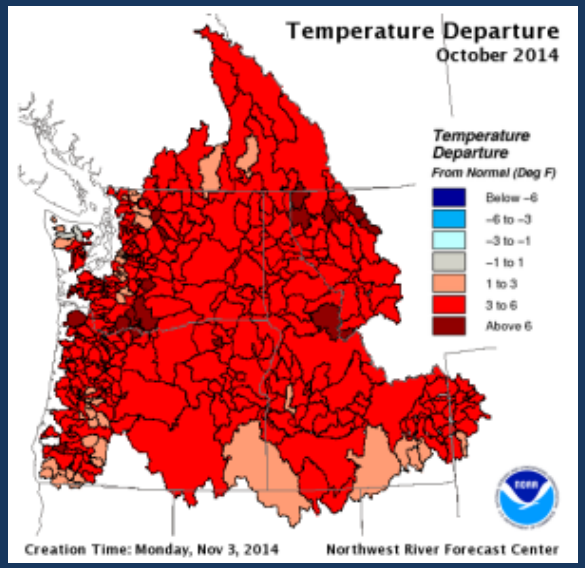


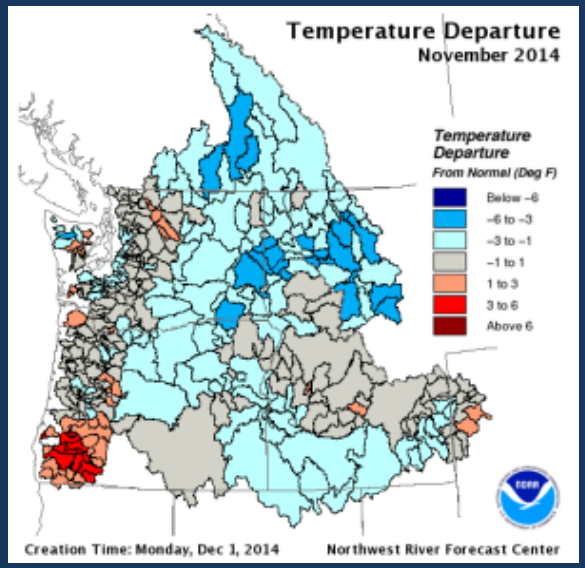
DIVISION NAME	WY 2014 % NORM	WY 2015 % NORM	WY 2015 OBS
Columbia River Basin above Grand Coulee Dam	77	105	21 in
Snake River Basin above Ice Harbor Dam	72	84	10 in
Middle Columbia Lower Tributaries	60	83	12 in
Columbia River Basin above The Dalles Dam	72	91	14 in
*Western Washington	66	86	54 in
*Western Oregon	63	86	38 in

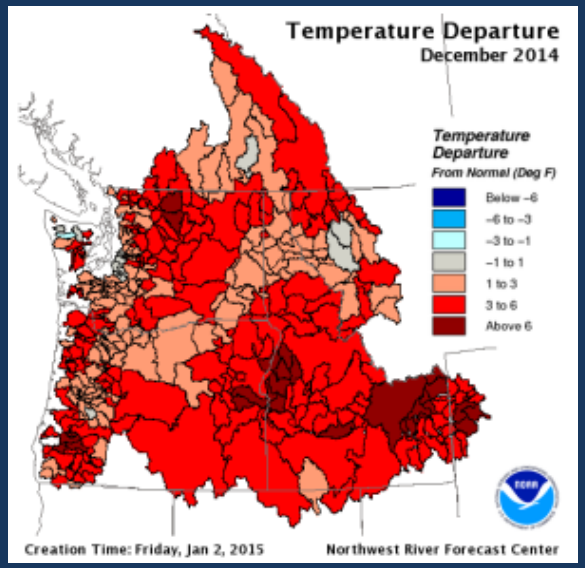
*Average of contributing divisions

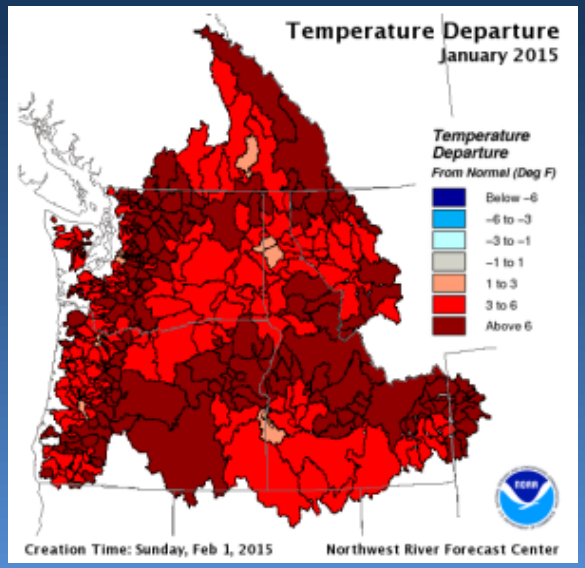
www.nwrfc.noaa.gov/water_supply/wy_summary

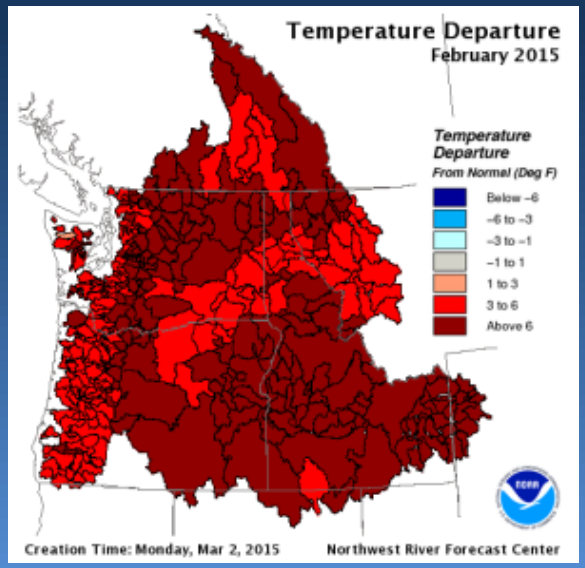
Observed Seasonal Temperatures

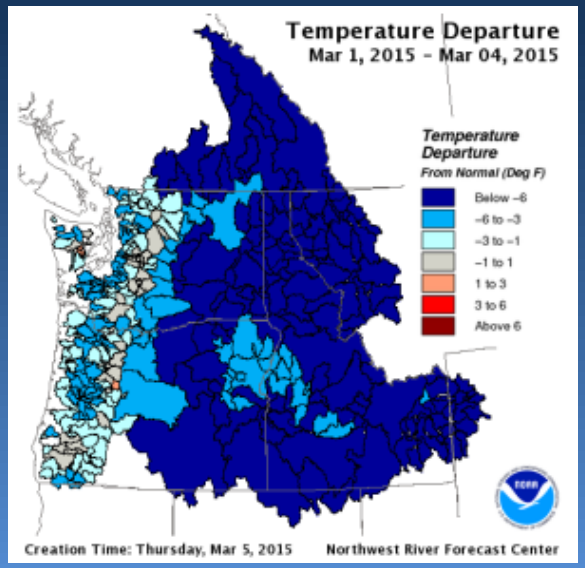






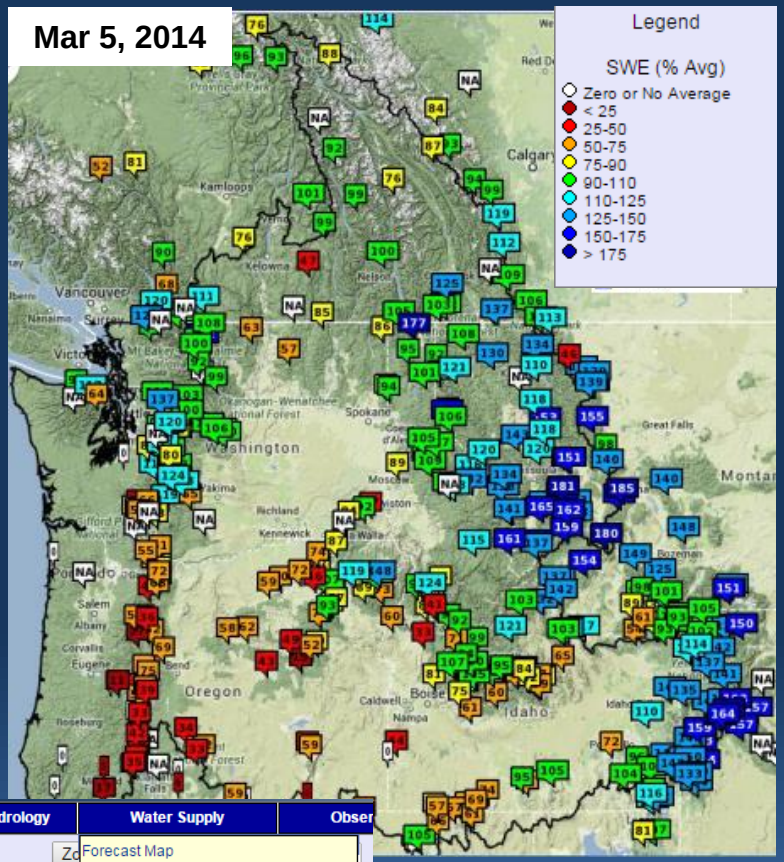


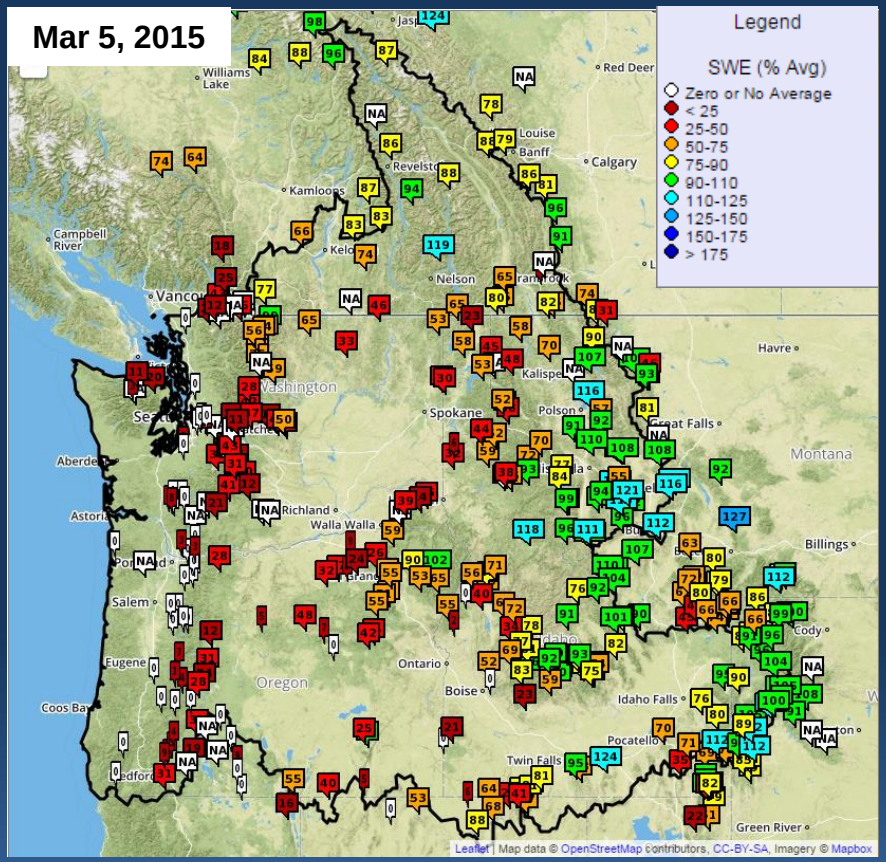


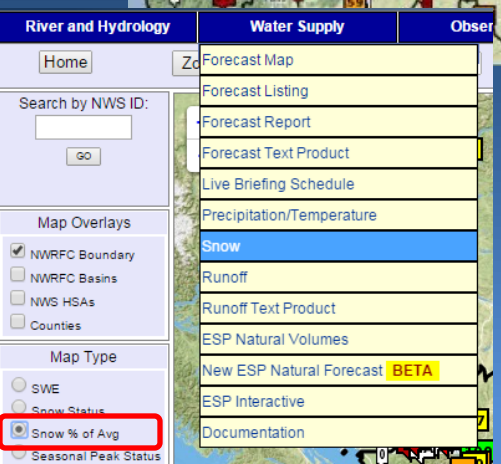


www.nwrfc.noaa.gov/water_supply/wy_summary

Observed Snowpack Conditions



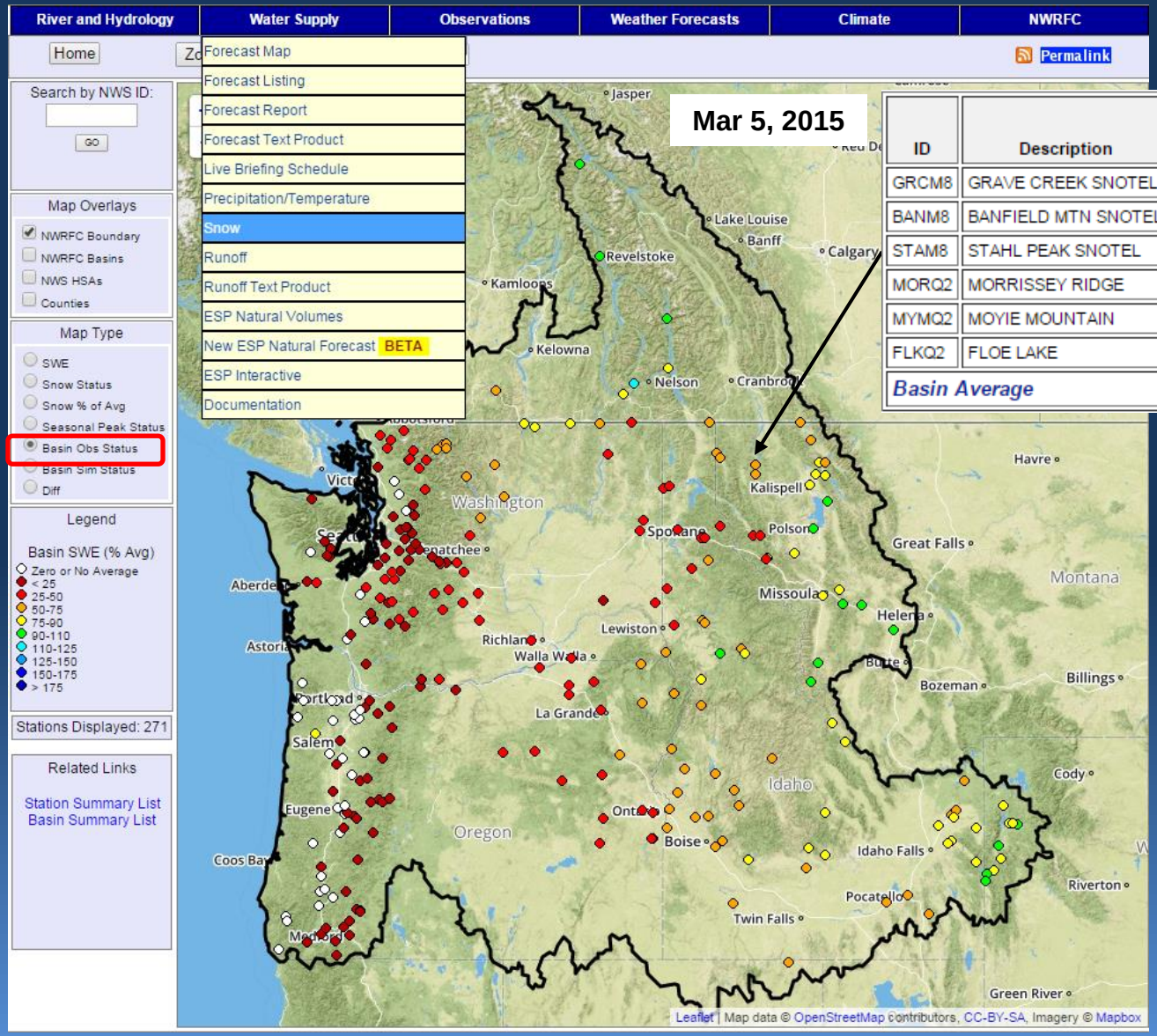




- Observed snow water equivalent (SWE) values provided by:
  - Natural Resources Conservation Service (NRCS) SNOTEL network
  - Environment Canada (EC) Automated Snow Pillow network

www.nwrfc.noaa.gov/snow

“Observed” Snowpack Conditions

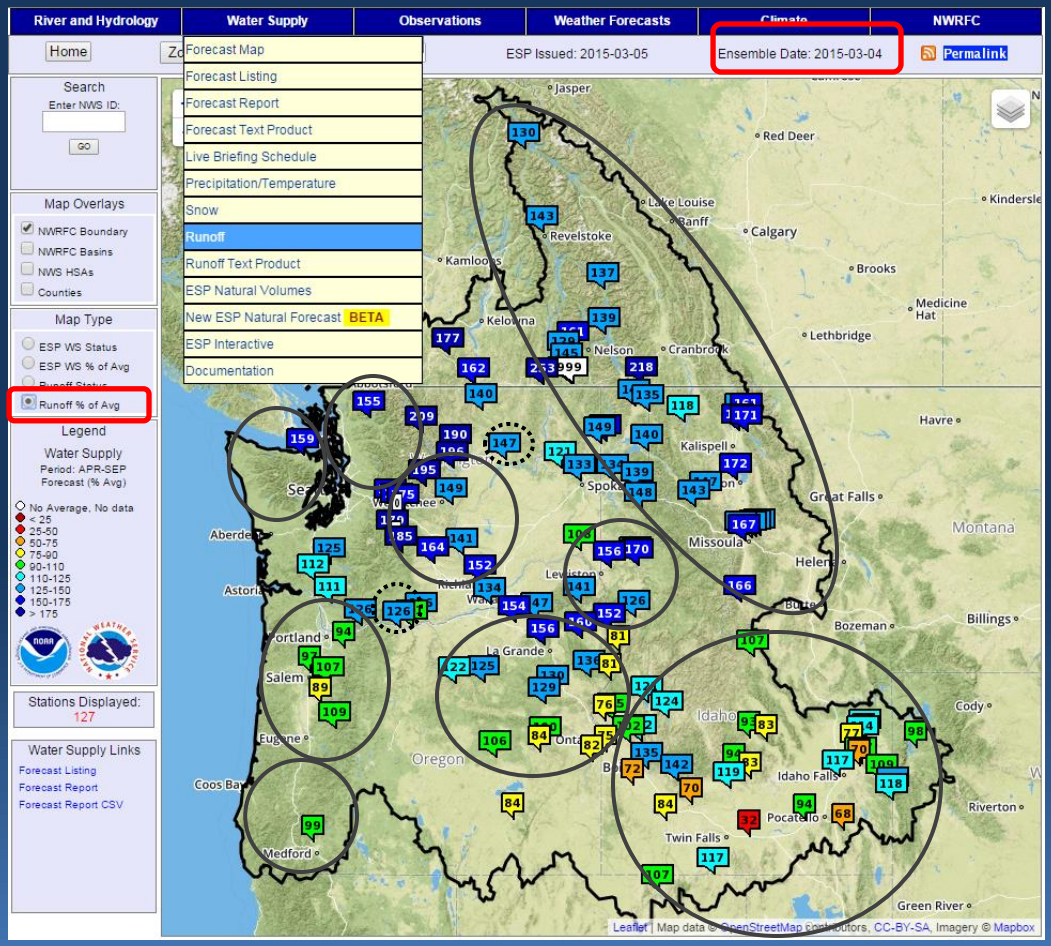


ID	Description	Distance (miles)	Elevation (feet)	Obs Date	Obs	1981-2010 Avg	Percent
GRCM8	GRAVE CREEK SNOTEL	0	4300	03-05	10.1	14.7	69 %
BANM8	BANFIELD MTN SNOTEL	0	5600	03-05	8.9	17.5	51 %
STAM8	STAHL PEAK SNOTEL	0	6030	03-05	24.2	30.5	79 %
MORQ2	MORRISSEY RIDGE	0	6100	03-05	16.6	25.0	66 %
MYMQ2	MOYIE MOUNTAIN	0	6370	03-05	8.9	14.1	63 %
FLKQ2	FLOE LAKE	0	6860	03-05	21.8	22.0	99 %
Basin Average							*73 %*

- Estimate of “observed” <u>basin-wide</u> snowpack conditions
  - Average of nearby stations
- External guidance for modeled basin-wide snowpack conditions
  - Assessed weekly

www.nwrfc.noaa.gov/snow

*Observed Runoff Conditions



LOCATION	OCT 1 – MAR 4 % NORM	JAN 1 – MAR 4 % NORM
Columbia River – Grand Coulee Dam	148	175
Clearwater River – Spalding	159	184
Snake River – Hells Canyon Dam	82	83
Yakima River – Kiona	154	147
John Day River – Service Creek	125	123
Columbia River – The Dalles Dam	127	144
Skagit River – Concrete	156	158
Dungeness River – Sequim	160	147
Willamette River – Salem	98	74
Rogue River – Raygold	100	89

*Observed runoff adjusted for changes in upstream storage

www.nwrfc.noaa.gov/ws/

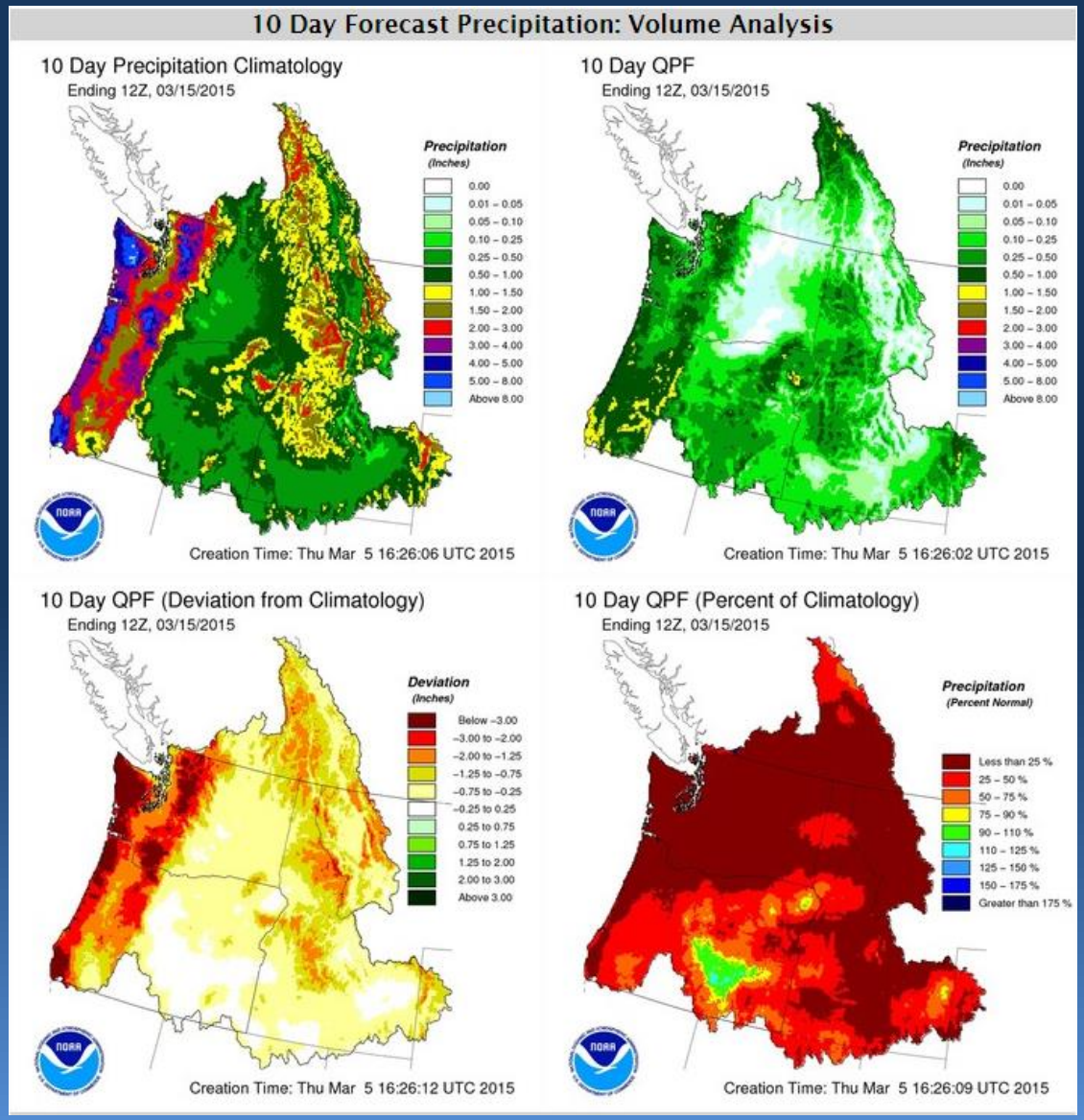
Water Supply Forecast Inputs

- Observed Conditions:
  - Precipitation
  - Temperature
  - Snowpack
  - Runoff

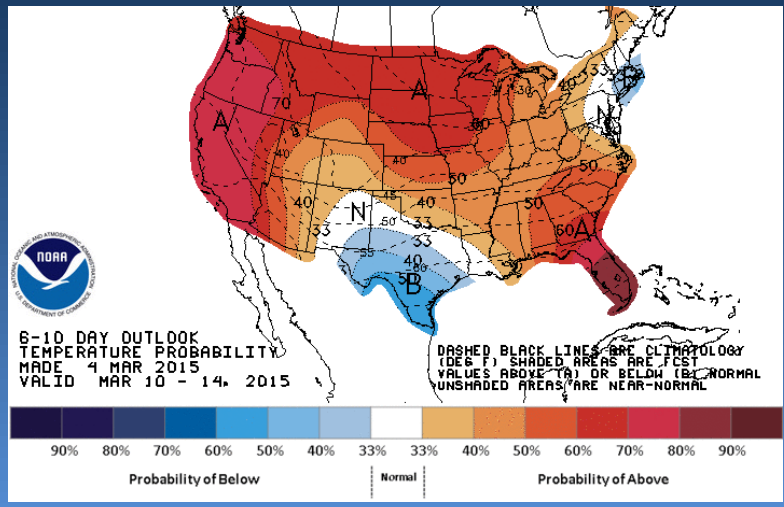
Hydrologic model states

- Future Conditions:
  - 10 days of quantitative forecast precipitation (QPF)
  - 10 days of quantitative forecast temperature (QTF)
  - Historical observations appended thereafter

Precipitation & Temperature Forecasts



- Relatively dry conditions forecasted through mid-March
- First few days of March have been relatively cold, but warmer conditions are expected
- Likely will see continued snowpack declines



www.nwrfc.noaa.gov/water_supply/wy_summary

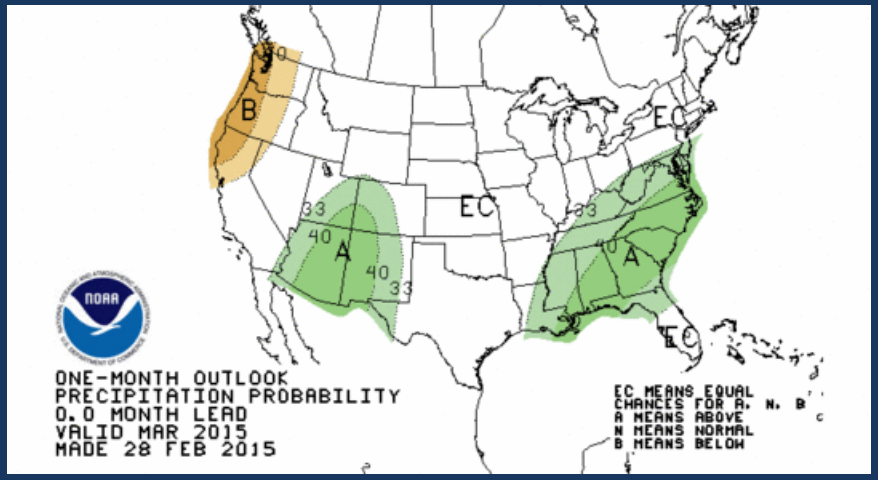
www.cpc.ncep.noaa.gov

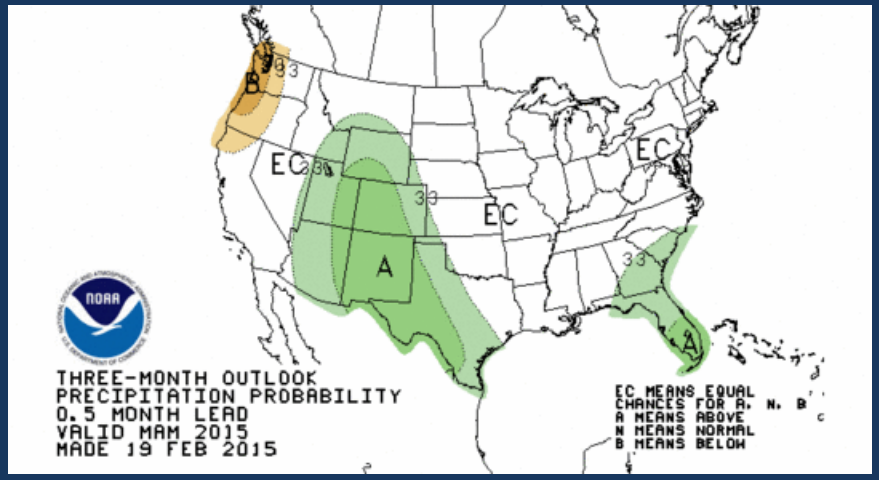
Climate Outlook

Current Month Outlook

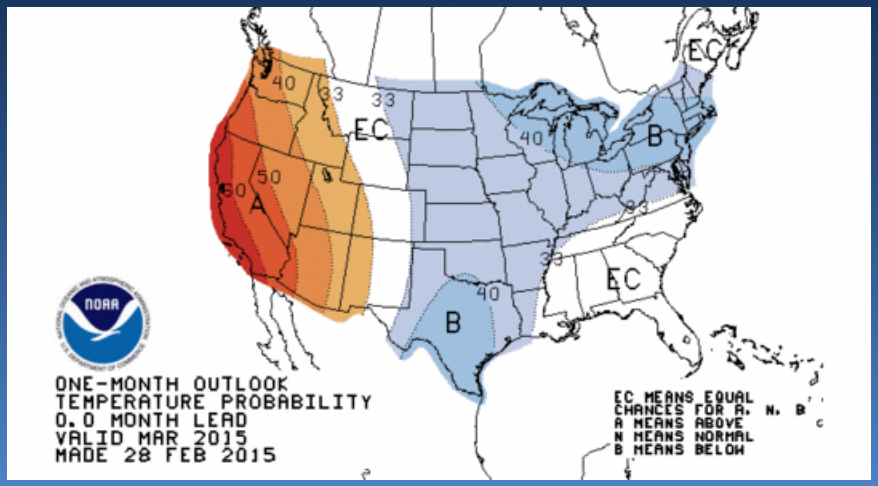
Three Month Outlook

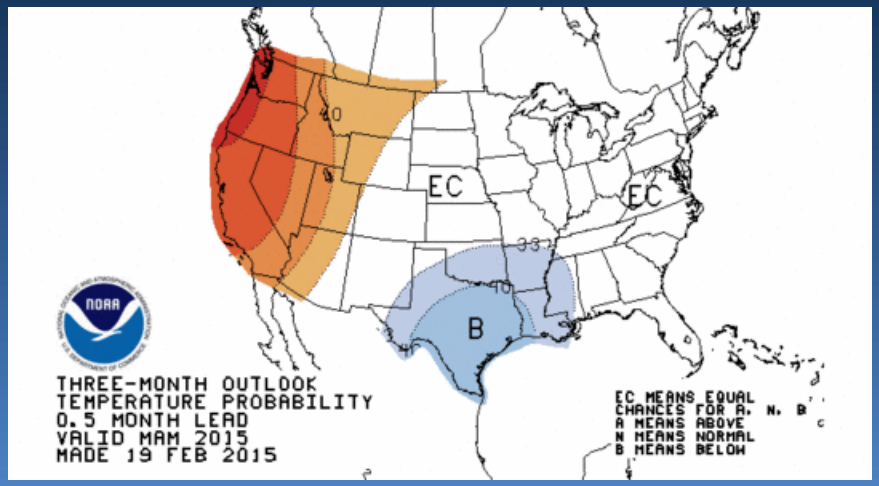
Precipitation





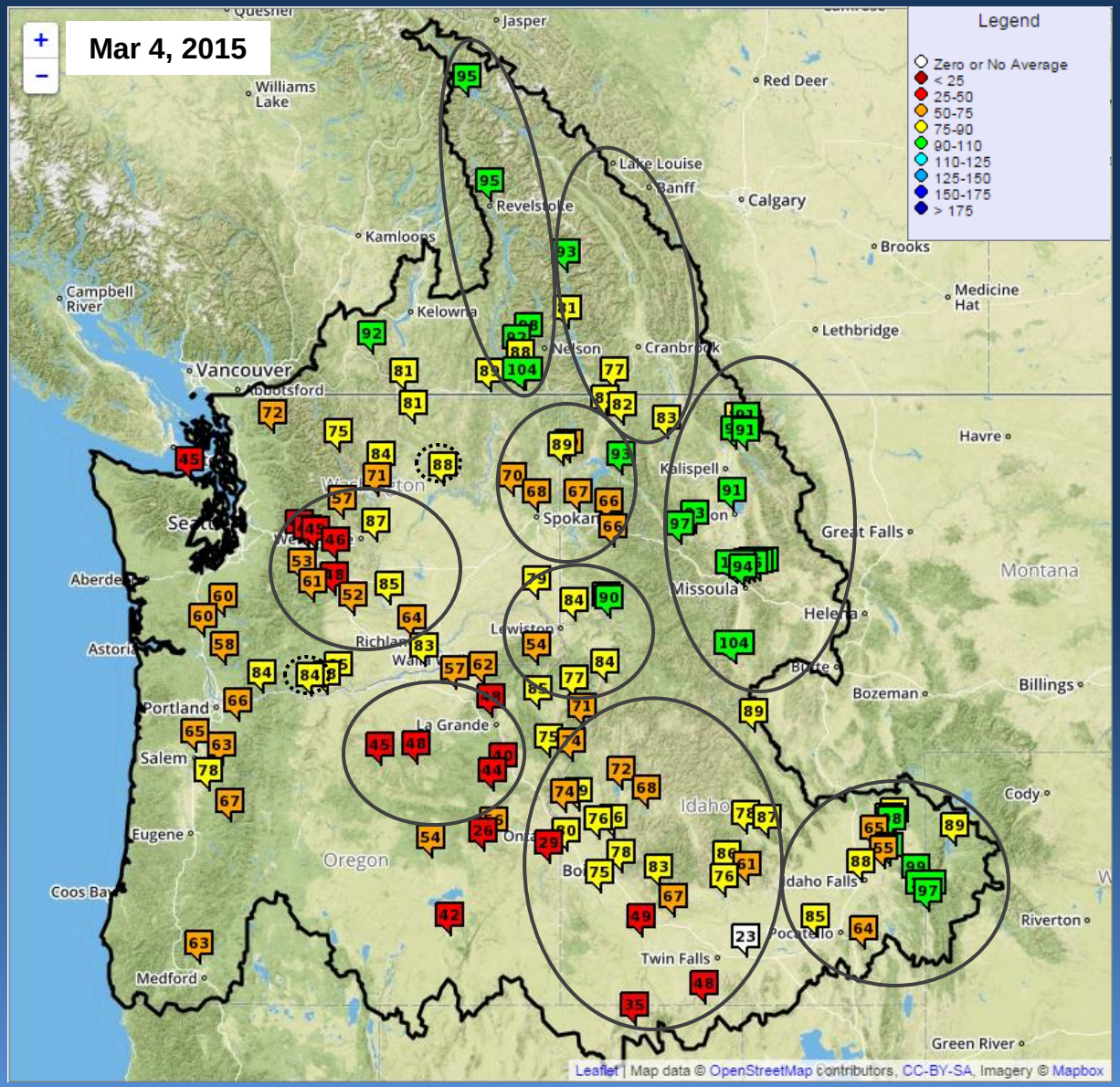
Temperature





www.cpc.ncep.noaa.gov

Official Water Supply Forecasts



www.nwrfc.noaa.gov/ws/

LOCATION	APR – SEP % NORM
Columbia River – Arrow Lakes	92
Kootenai River – Libby Dam	83
Clark Fork – Cabinet Gorge Dam	93
Spokane River – Longlake	70
Columbia River – Grand Coulee Dam	88
Snake River – American Falls Dam	85
Snake River – Hells Canyon Dam	71
Snake River – Lower Granite Dam	79
Yakima River – Kiona	64
John Day River – Service Creek	45
Columbia River – The Dalles Dam	84

Columbia River – The Dalles Dam

COLUMBIA - THE DALLES DAM (TDAO3)
Forecasts for Water Year 2015

Official Forecast

10 days QPF: ***Ensemble:*** 2015-03-04 ***Issued:*** 2015-03-05

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	70112	77476	84	85657	92704
APR-JUL	58441	64475	81	73301	79855
APR-AUG	65123	72072	82	80341	87532
JAN-JUL	84983	91149	90	100846	101368

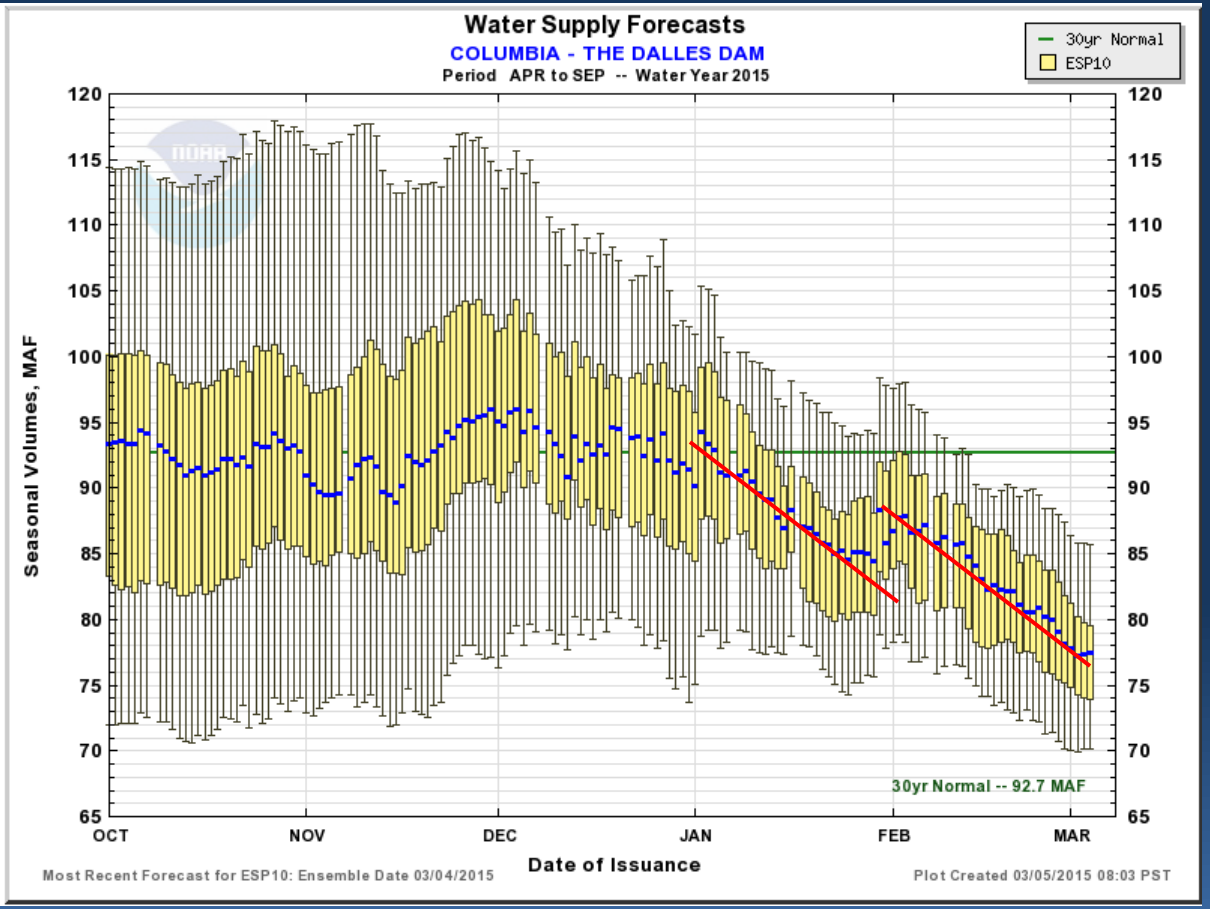
5 days QPF: ***Ensemble:*** 2015-03-04 ***Issued:*** 2015-03-05

APR-SEP	70341	78654	85	88004	92704
APR-JUL	58842	65837	82	73983	79855
APR-AUG	65188	73189	84	81809	87532
JAN-JUL	84600	92695	91	101829	101368

0 days QPF: ***Ensemble:*** 2015-03-04 ***Issued:*** 2015-03-04

APR-SEP	73079	80806	87	90126	92704
APR-JUL	60940	68379	86	77750	79855
APR-AUG	68220	75684	86	85106	87532
JAN-JUL	87526	95006	94	105213	101368

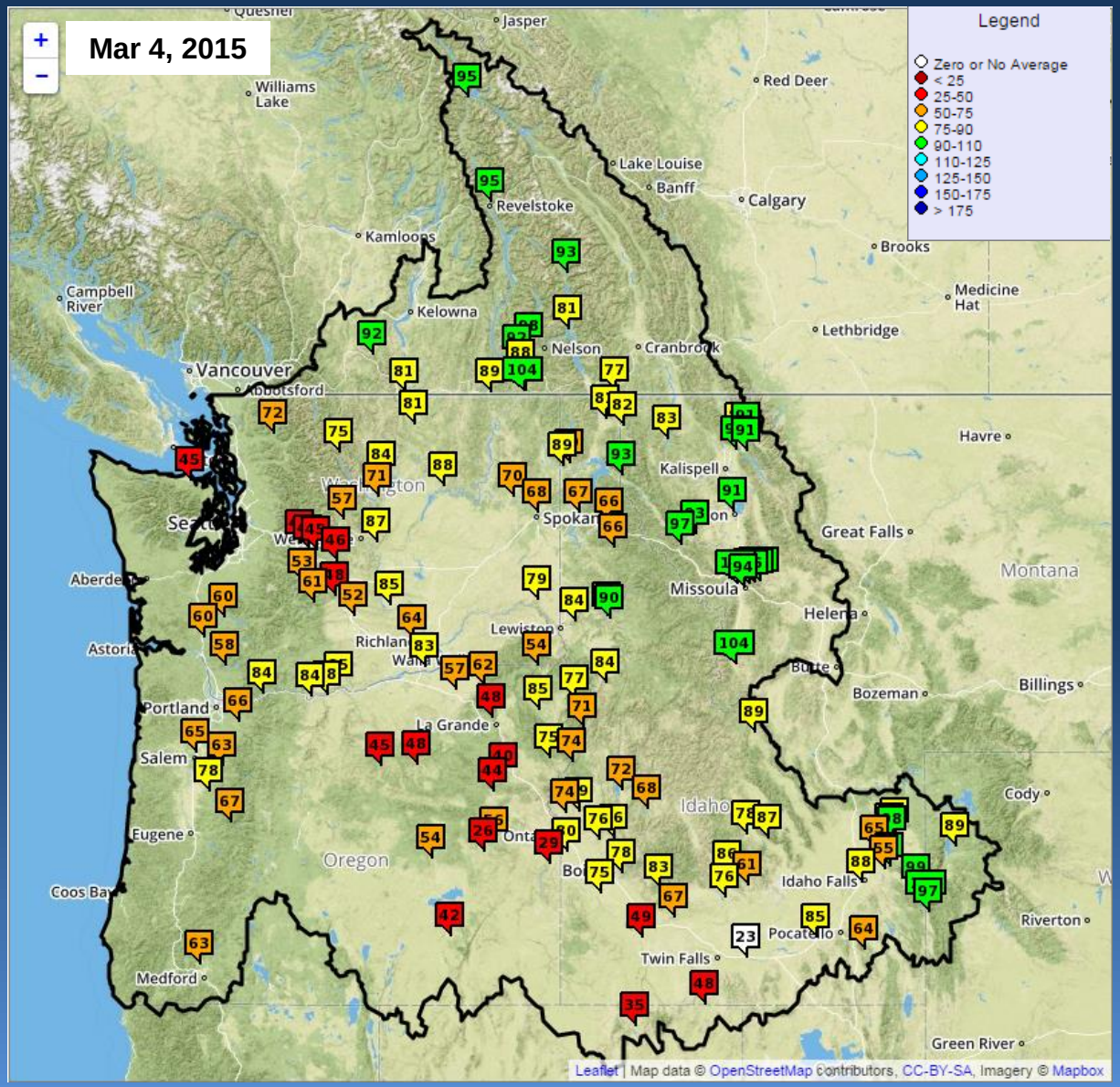
Move the mouse over the desired "Forecast Period" to display a graph.



90% -> 9 in 10 chance of volume being exceeded (quite likely)
10% -> 1 in 10 chance of volume being exceeded (a possibility)
50% -> 5 in 10 chance of volume being exceeded (most likely)

www.nwrfc.noaa.gov/ws/

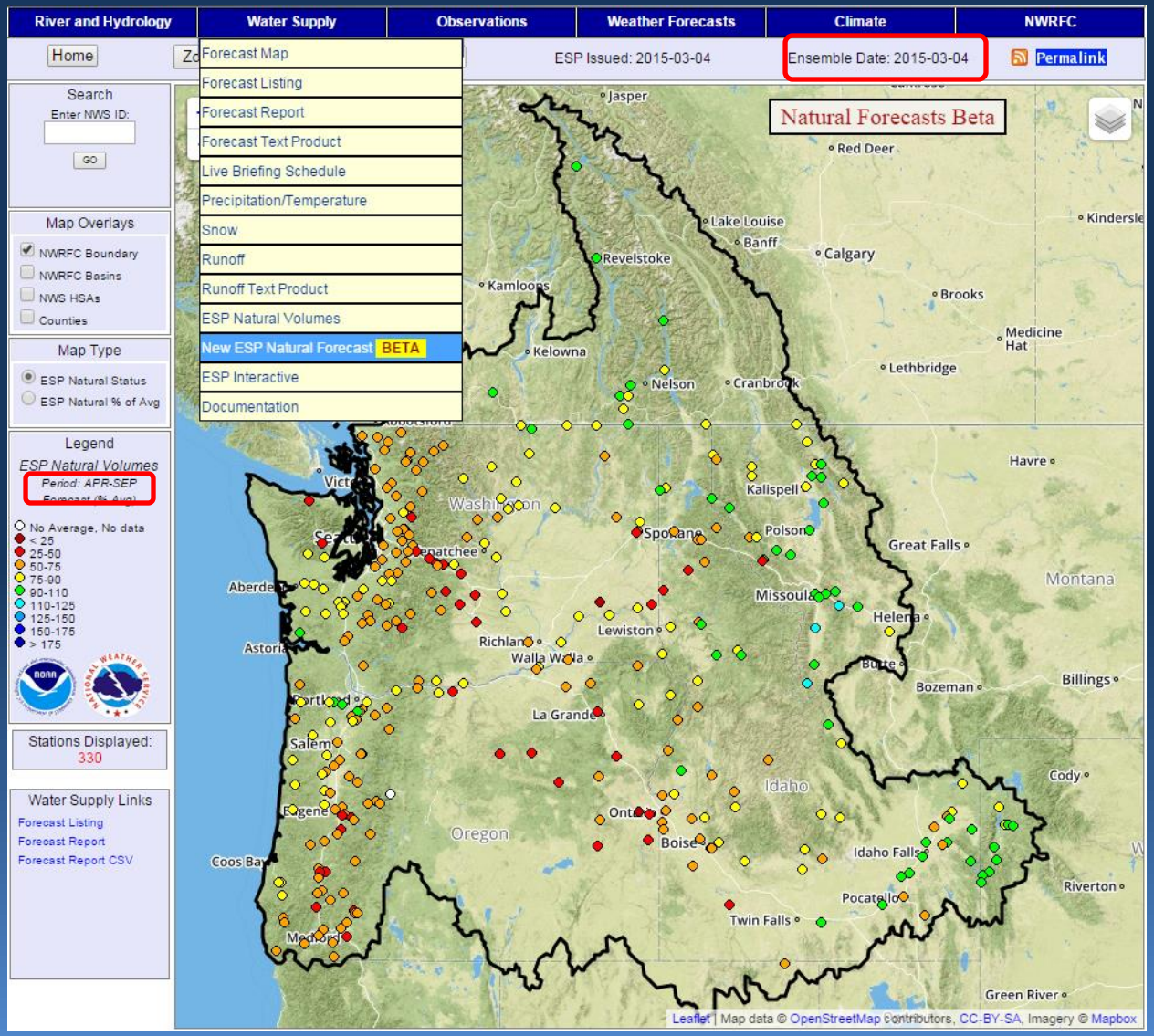
Official Water Supply Forecasts



LOCATION	APR – SEP % NORM
Skagit River – Concrete	72
Dungeness River – Sequim	45
Cowlitz River – Castle Rock	60
Lewis River – Merwin Dam	58
Rogue River – Raygold	63
McKenzie River – Vida	67
South Santiam River – Waterloo	78
North Santiam River – Mehama	63
Willamette River – Salem	65
Clackamas River – Estacada	66

www.nwrfc.noaa.gov/ws/

New Natural Volume Forecasts



- Incorporates new naturalized observed runoff
  - No volume period restrictions
  - Verification now possible
- Same look and feel as traditional water supply forecast products
  - Will be adding more volume periods to both, namely monthly periods

Data Files

CSV (ESP10 / APR-SEP)

Forecast Ensemble

www.nwrfc.noaa.gov/natural/

NWRFC Water Supply Webpage

www.nwrfc.noaa.gov/ws/

2015 Schedule for *Live* Water Supply Briefings					
Jan	Feb	Mar	Apr	May	Jun
8	***5***	***5***	***9***	***7***	***TBD***
All presentations held at 10am PDT/PST, unless noted otherwise					
Click here for Registration Information					
Archive of Previous Briefings					

www.nwrfc.noaa.gov/water_supply/ws_schd.cgi

Kevin Berghoff, Taylor Dixon, NWRFC
W-ptr.Webmaster@noaa.gov
(503) 326-7291

March 2015 Water Supply Briefing

National Weather Service, Northwest River Forecast Center

Questions?

Presentation available after brief at:
www.nwrfc.noaa.gov/presentations/presentations.cgi

Kevin Berghoff, Taylor Dixon, NWRFC
W-ptr.Webmaster@noaa.gov
(503) 326-7291