

Lower Columbia River - Spring 2017



NWS Portland
March 24th, 2017

What's ahead...

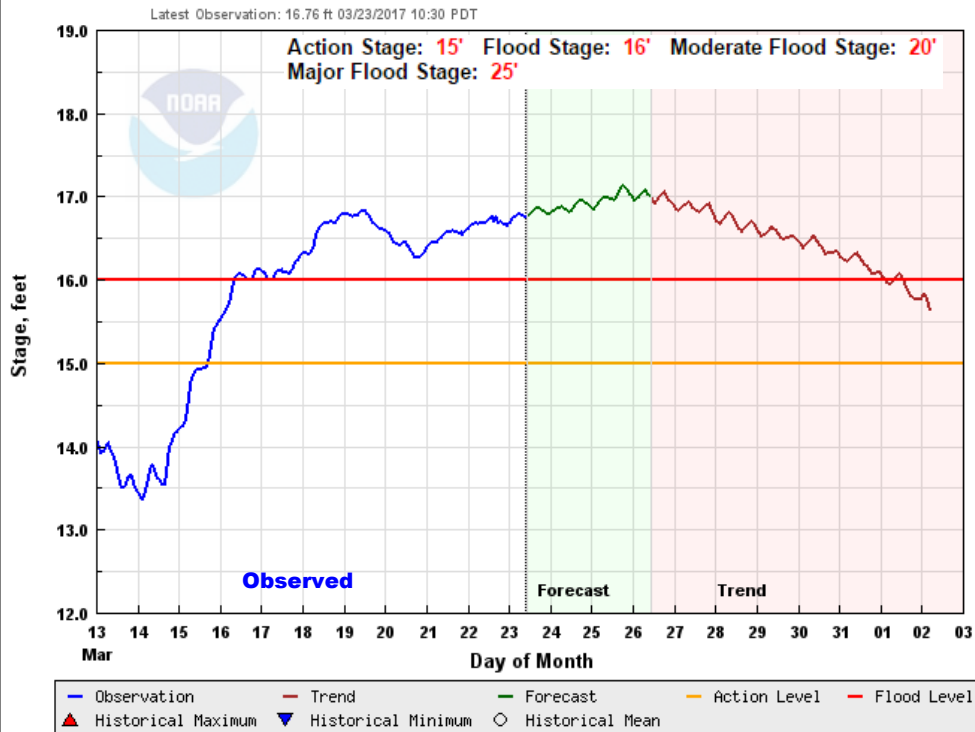
- Review of recent river levels
- Update on current conditions
- Weather Outlook
 - Next 10 days
 - April
 - May & June
- Projections for Columbia River this spring
- Questions?



Columbia River Conditions

as of March 23rd, 2017

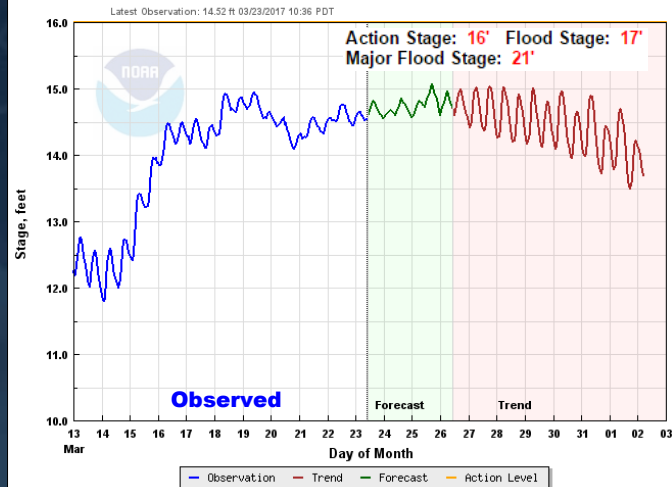
COLUMBIA - AT VANCOUVER POP (VAPW1)



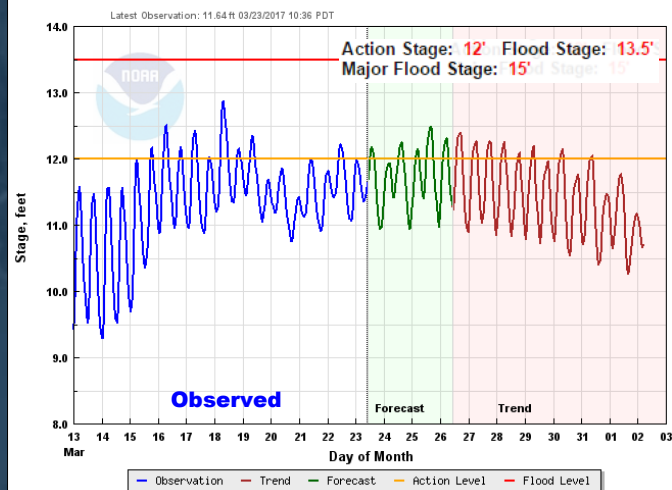
Forecast Created: 03/23/2017 10:15 PDT
Plot Created: 03/23/2017 10:50 PDT

Observations Provided by POP

COLUMBIA - AT ST HELENS (SHN03)



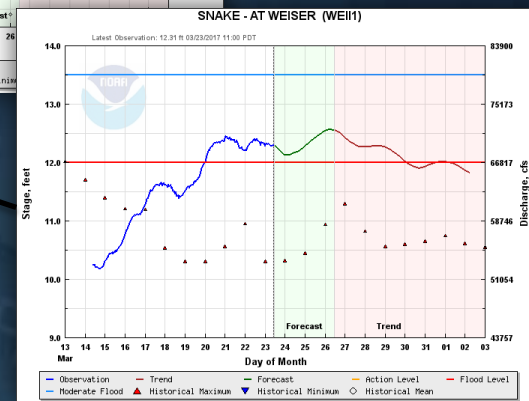
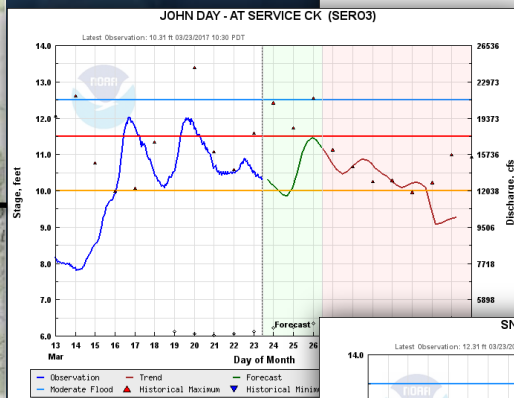
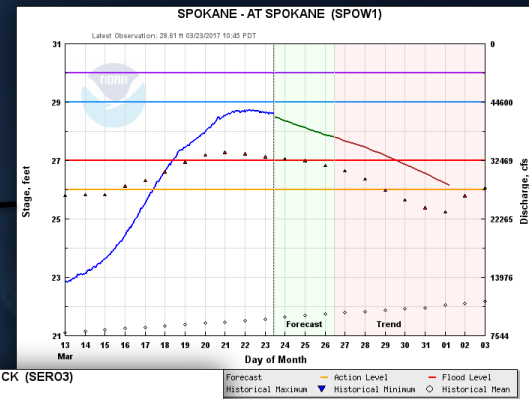
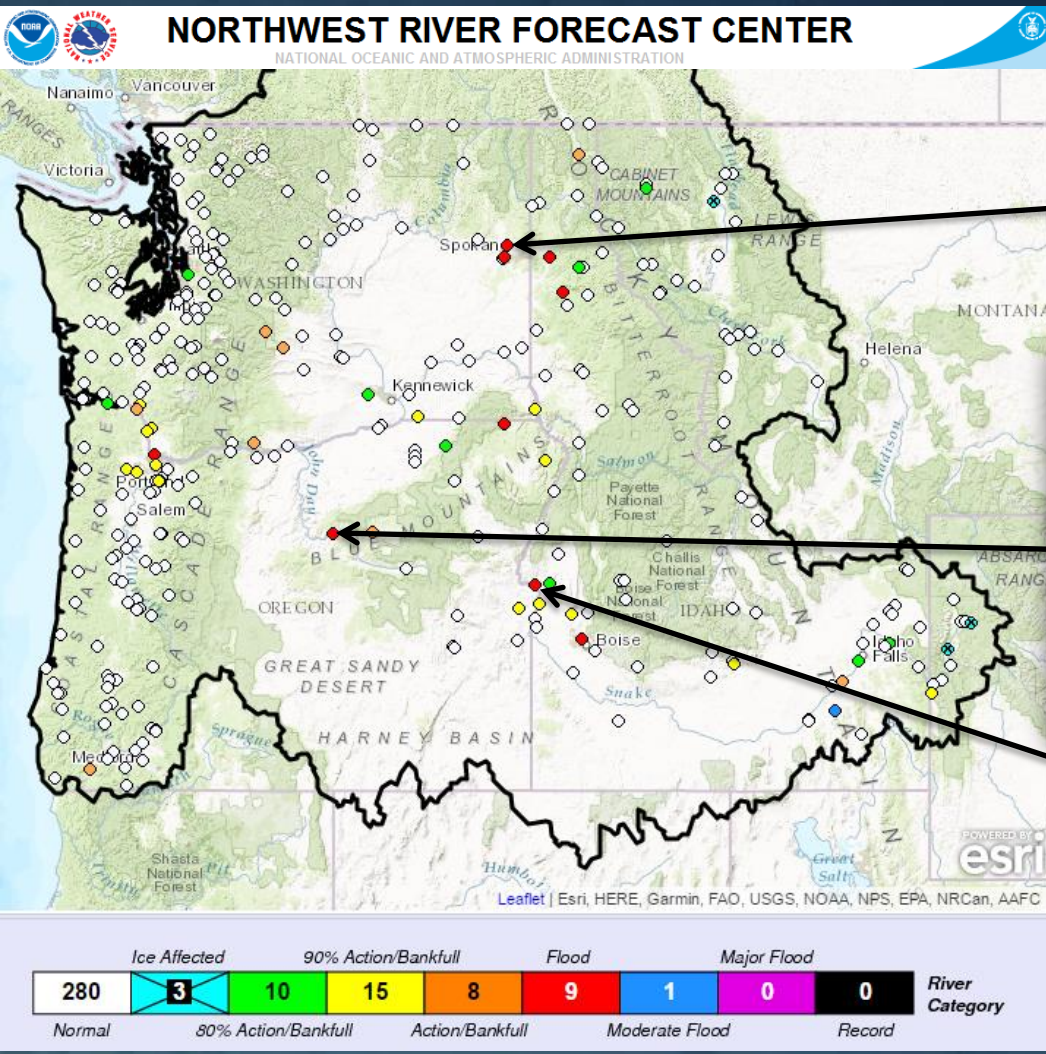
COLUMBIA - AT LONGVIEW (LOPW1)



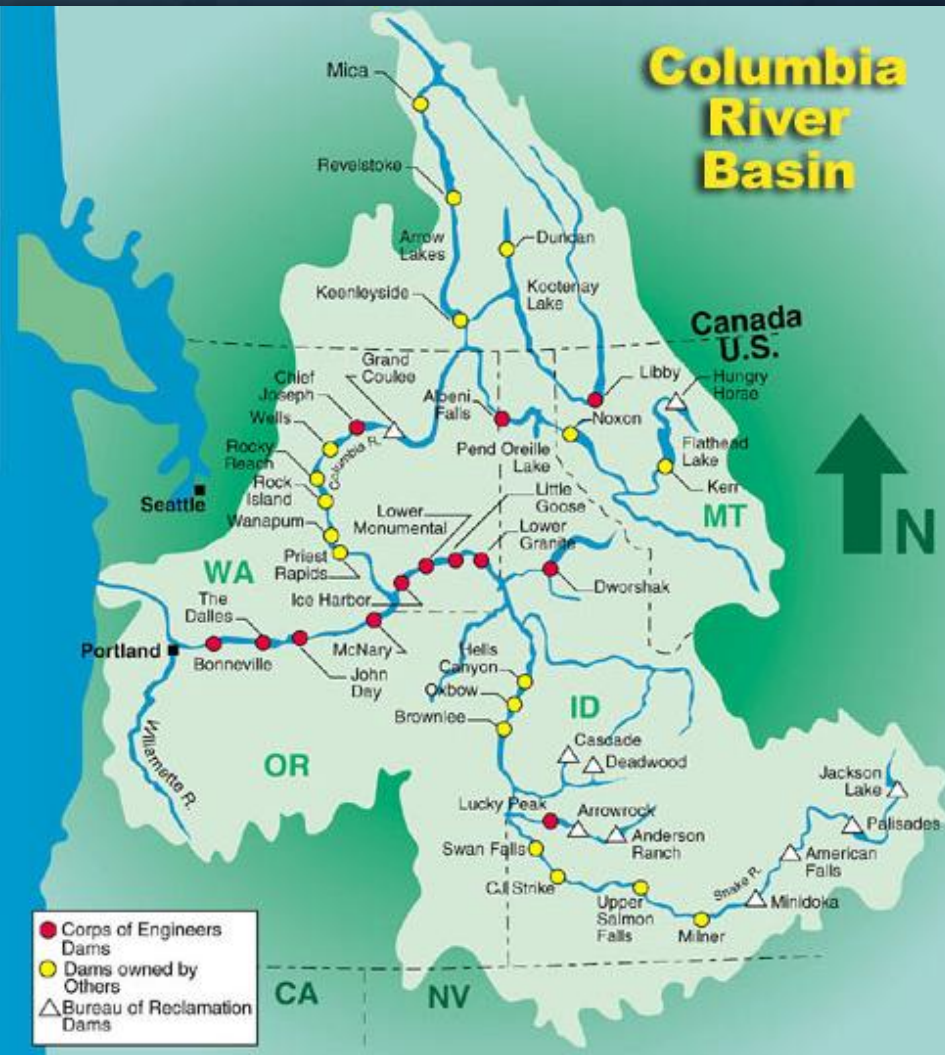
Hydrographs from
www.nwrfc.noaa.gov

Columbia Basin Conditions

High streamflow on several Columbia tributaries



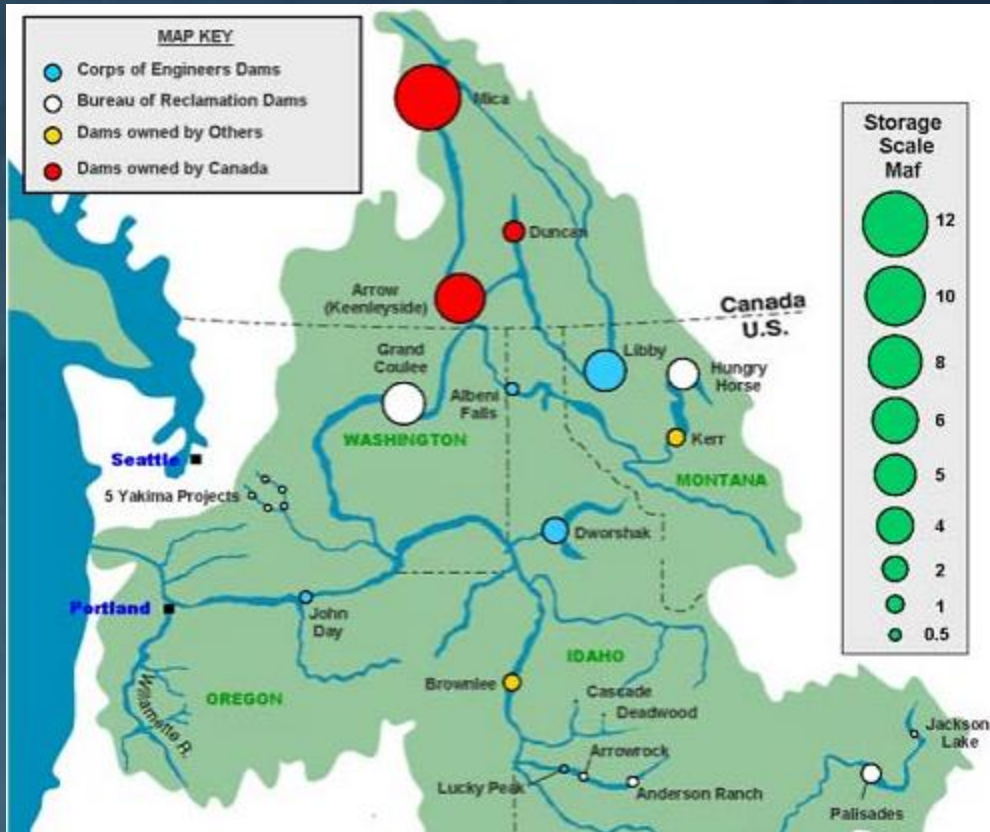
Columbia Basin Water Management



- Corps of Engineers
- Bureau of Reclamation
- BC Hydro
- Numerous private utilities
- Run-of-river dams on the Columbia downstream of Grand Coulee and on the lower Snake - minimal flood storage
- *Inflows to reservoirs and projected releases are coordinated daily with the NW River Forecast Center.*

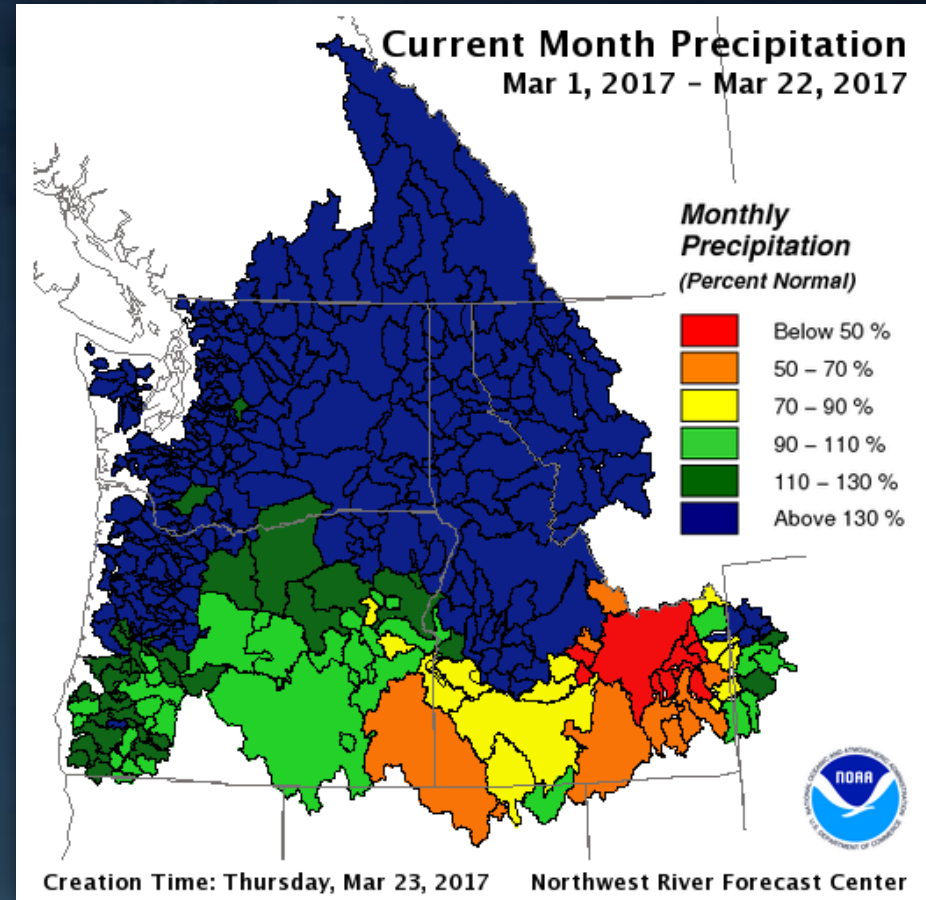
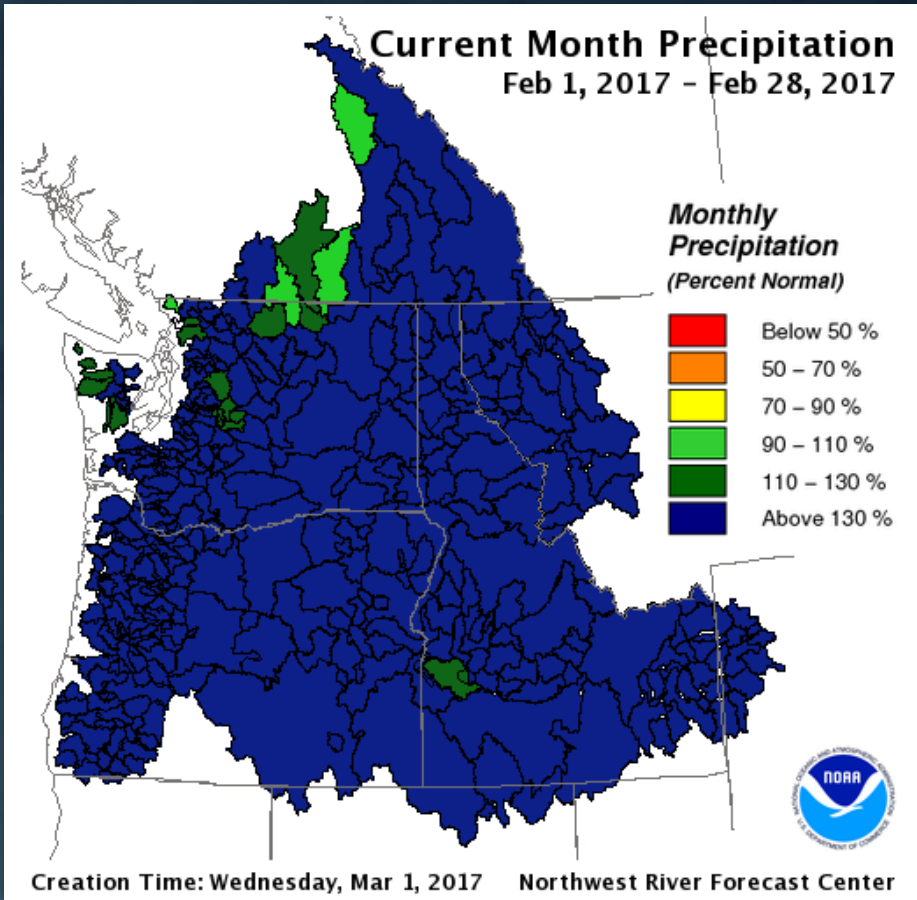


Columbia Basin Reservoir Storage

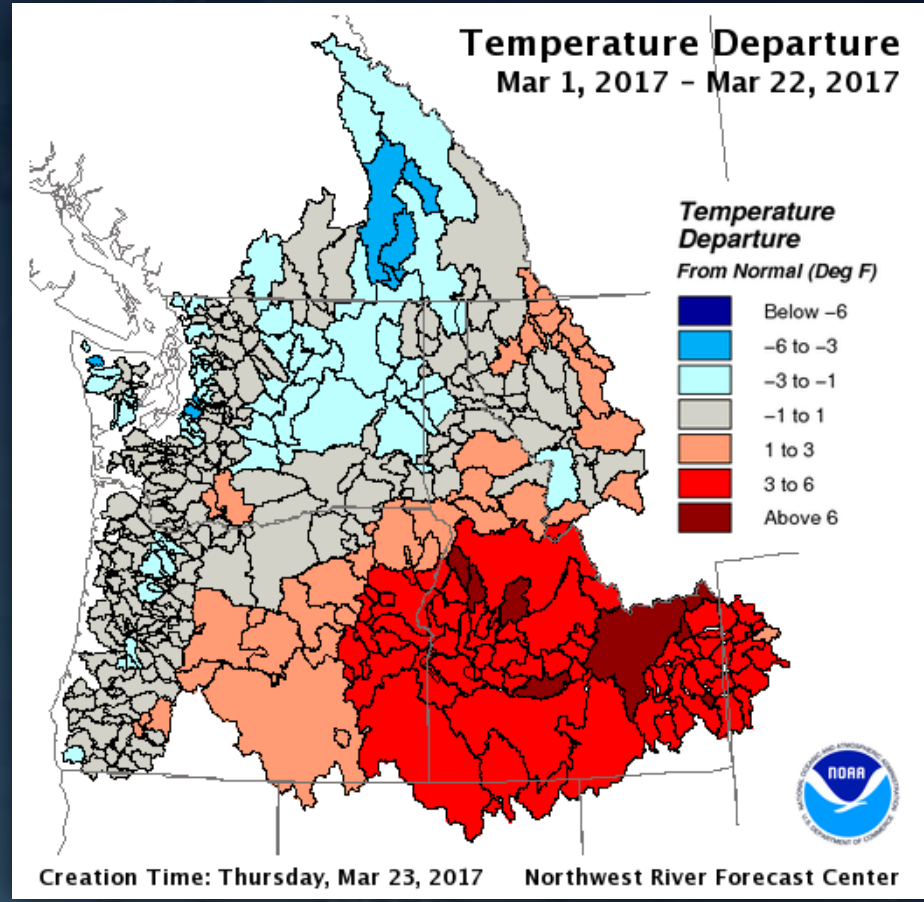
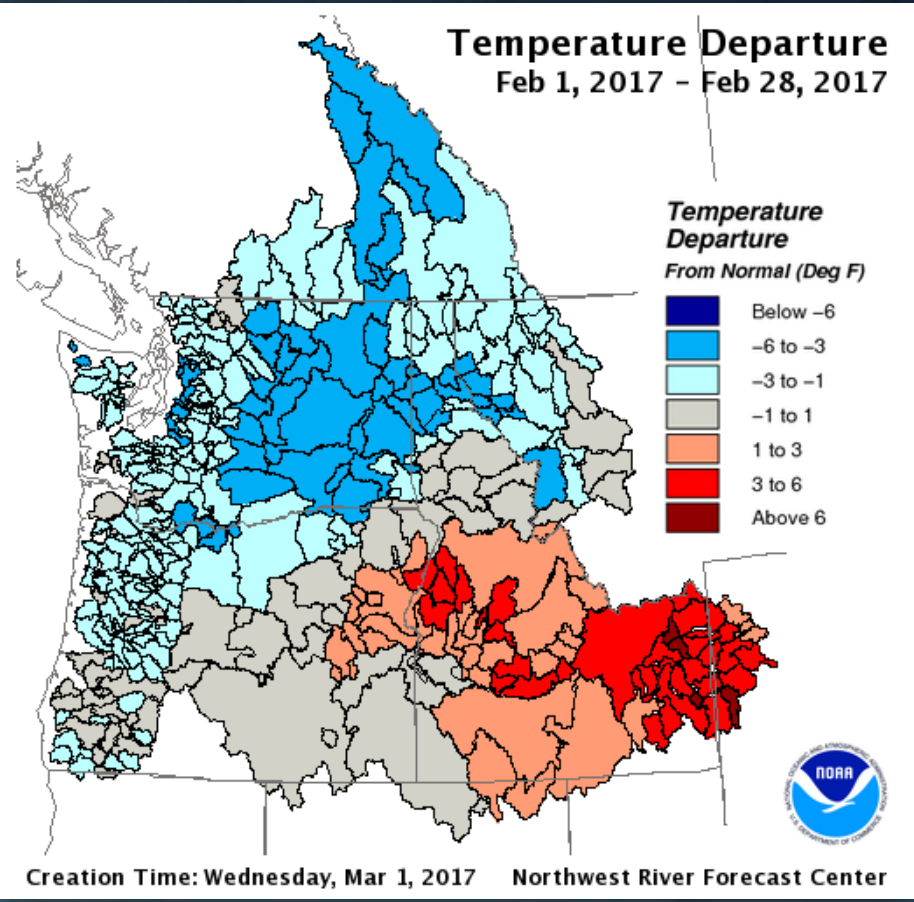


- Several million acre-feet of reservoir storage in British Columbia, along with Grand Coulee in NE Washington and Libby in NW Montana
- Much of the storage has been added since the Spring 1948 flooding, especially in British Columbia.
- *Goal is to reduce magnitude of spring streamflow peak on the Columbia River.*

Precipitation - February & March



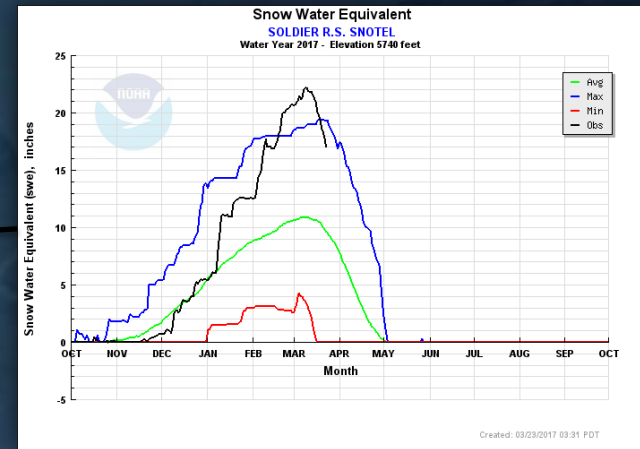
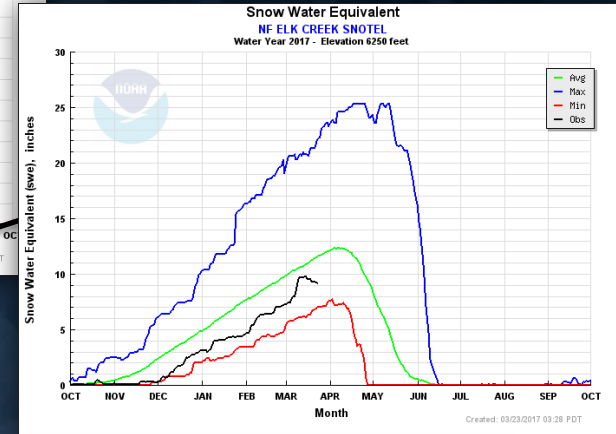
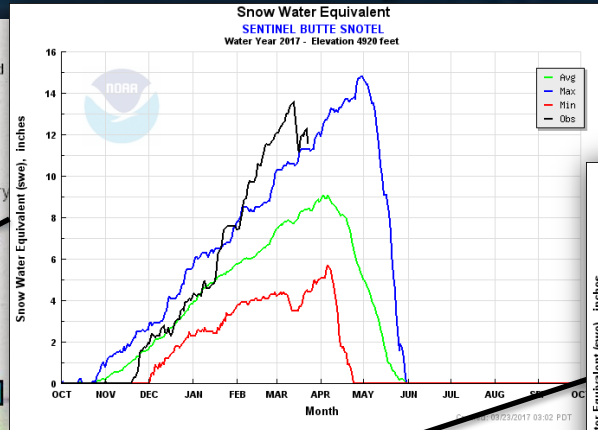
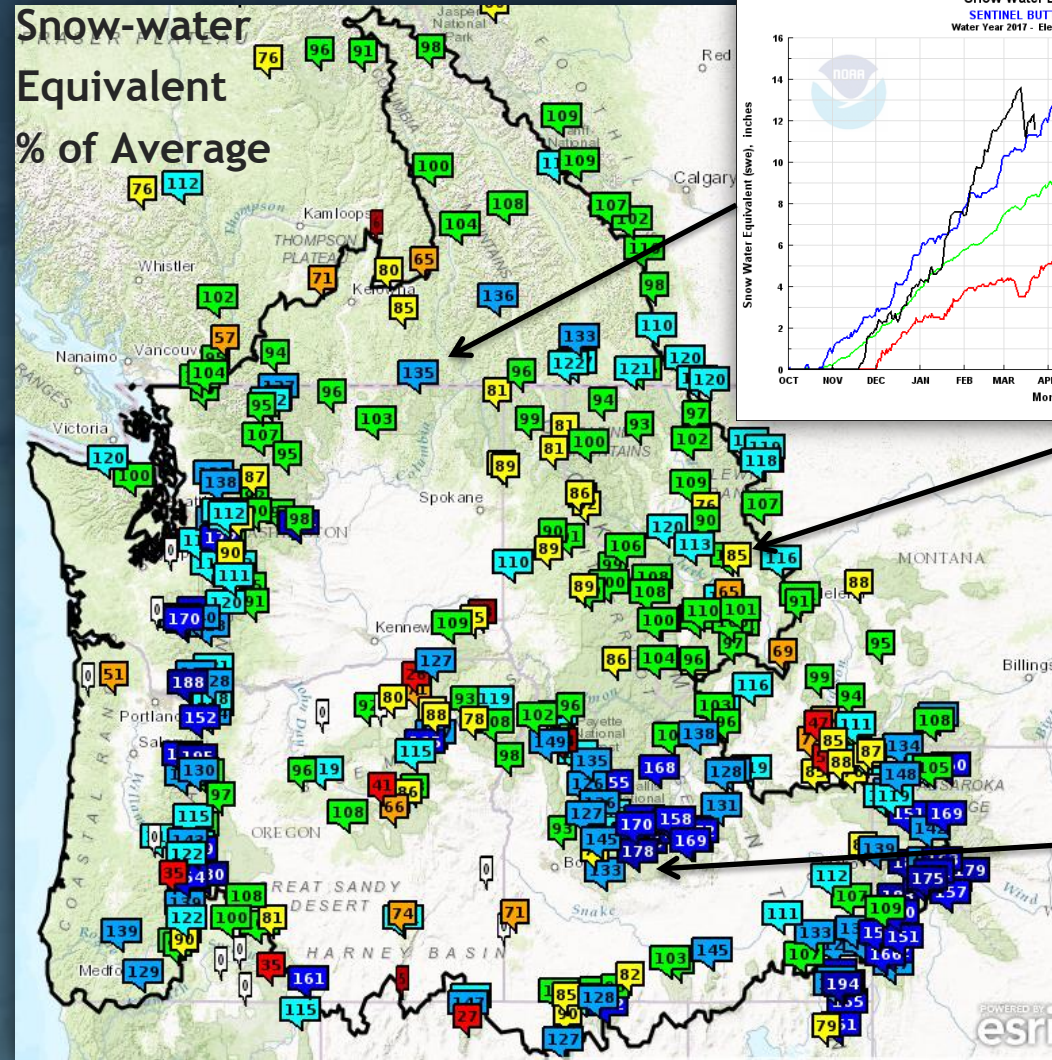
Temperatures - February & March



Snowpack in the Columbia Basin

as of March 23rd, 2017

Snapshots from a few SNOTEL stations...

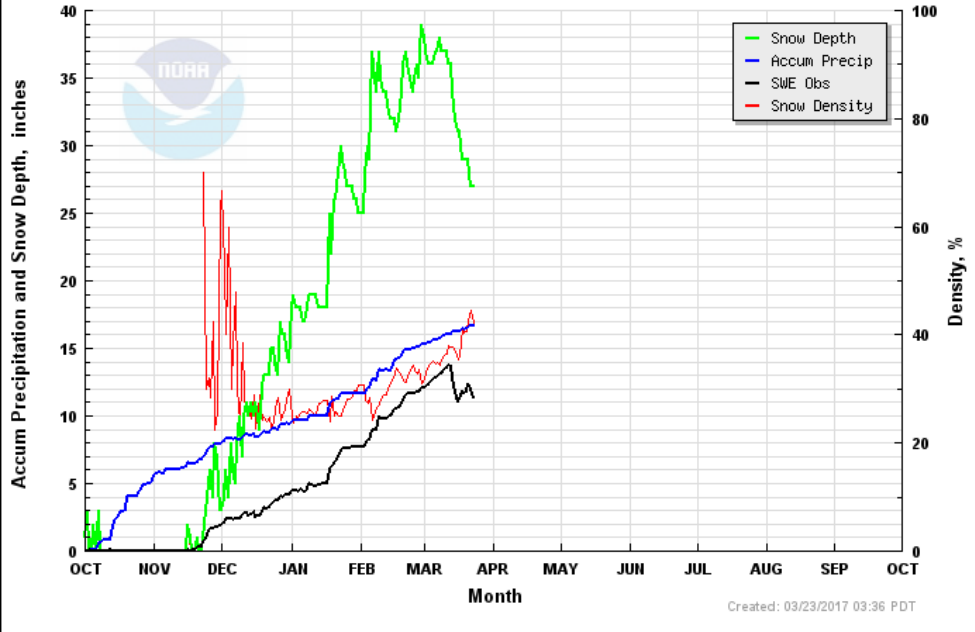


Snow Density

Accum Precipitation and Snow Depth

SENTINEL BUTTE SNOTEL

Water Year 2017 - Elevation 4920 feet

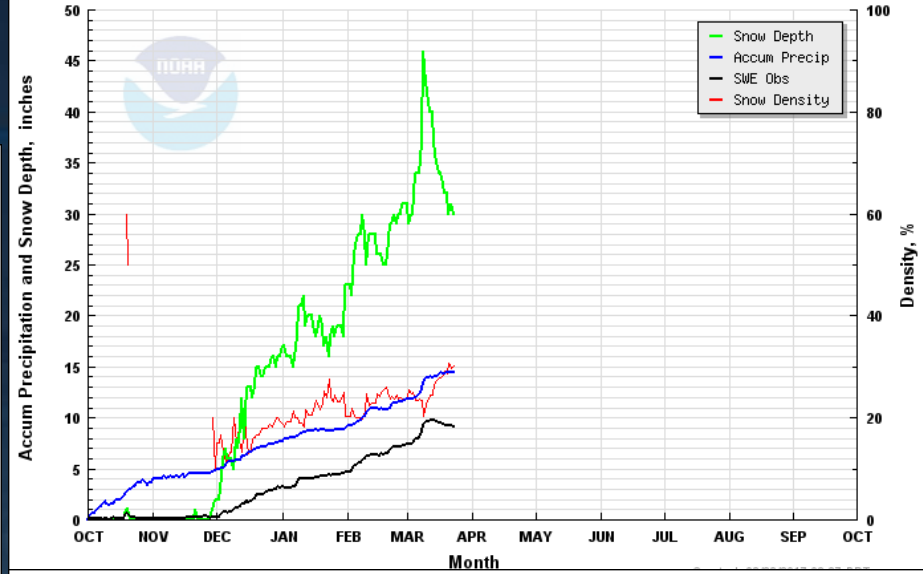


Created: 03/23/2017 03:36 PDT

Accum Precipitation and Snow Depth

NF ELK CREEK SNOTEL

Water Year 2017 - Elevation 6250 feet

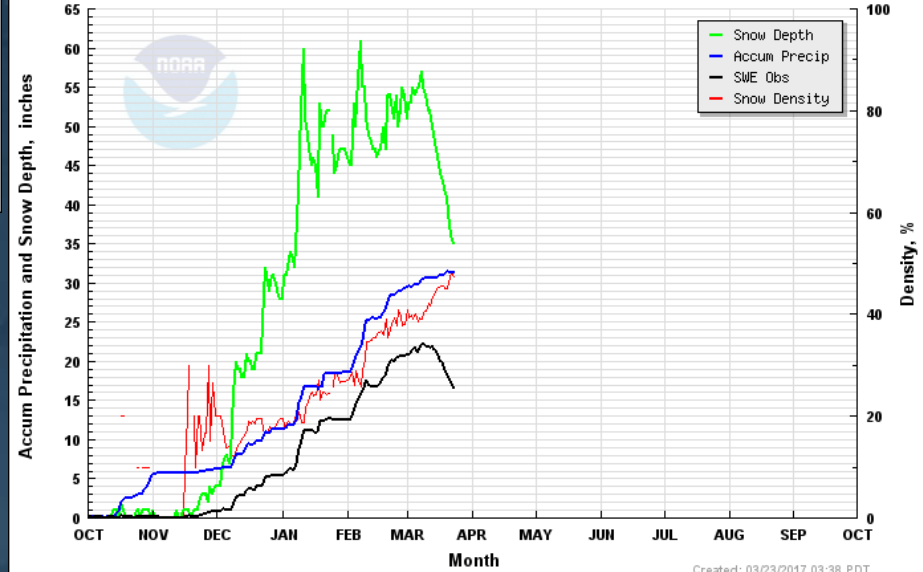


Month

Accum Precipitation and Snow Depth

SOLDIER R.S. SNOTEL

Water Year 2017 - Elevation 5740 feet



Month

Created: 03/23/2017 03:38 PDT

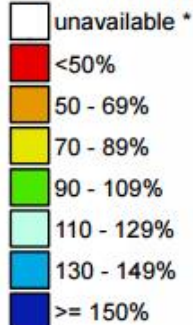
Decreasing snow depth and increasing density > indication of snowpack “ripening” for melt

Basin Snowpack

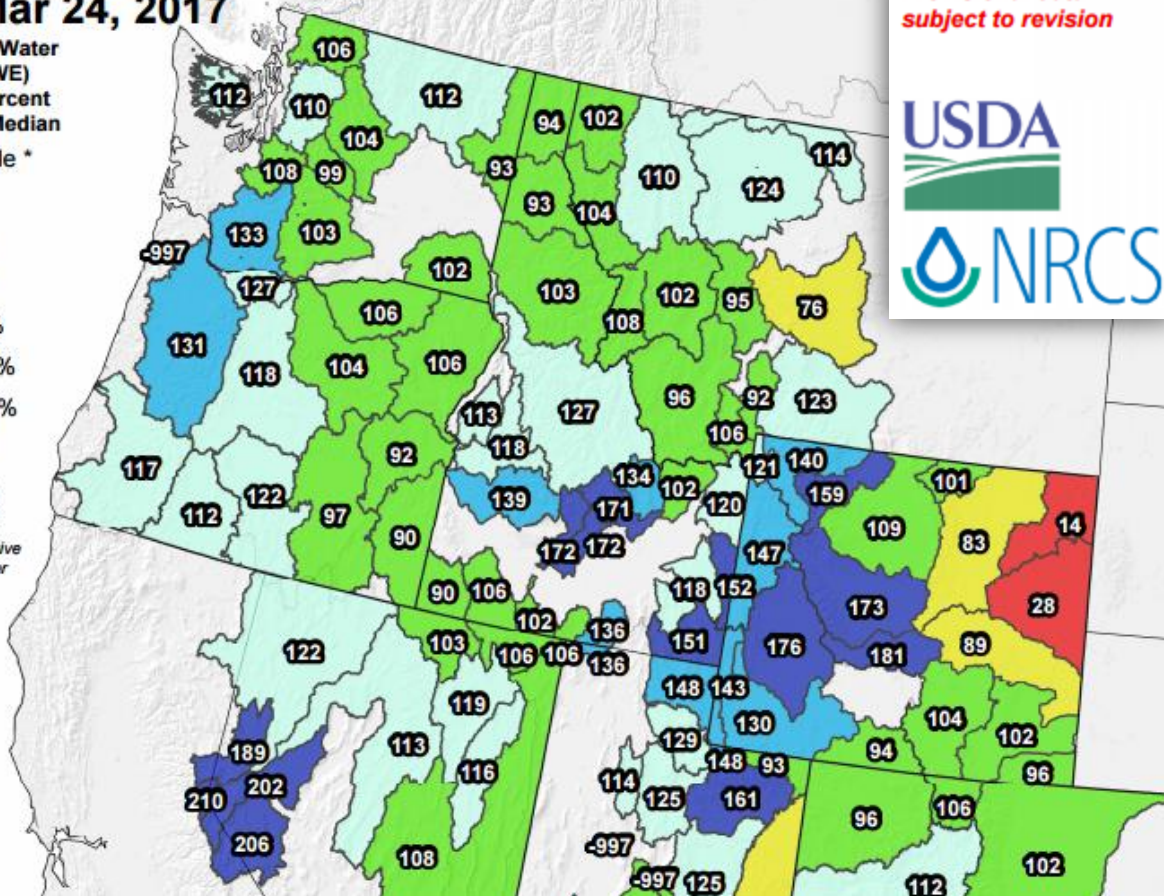
Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Mar 24, 2017

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



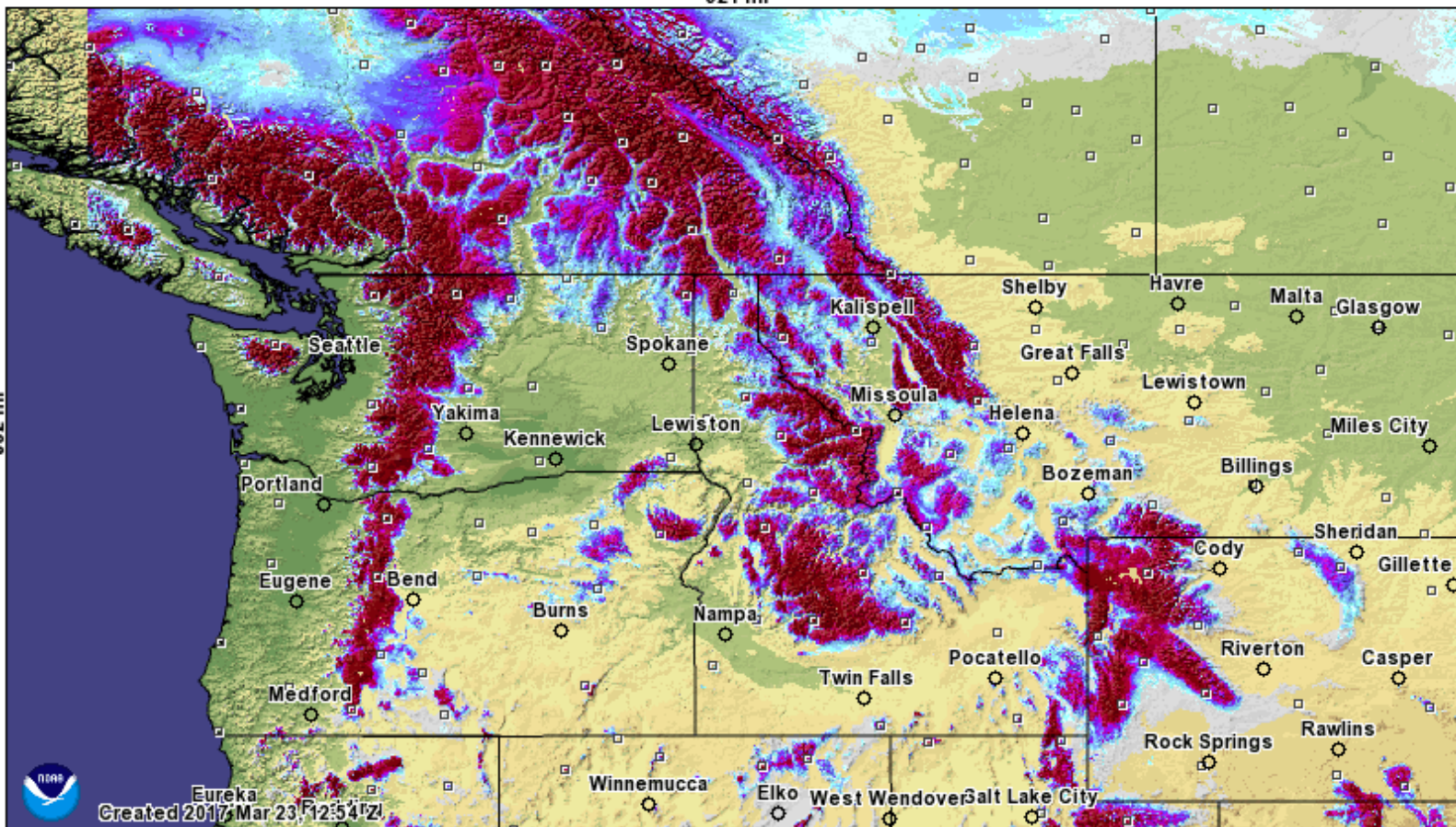
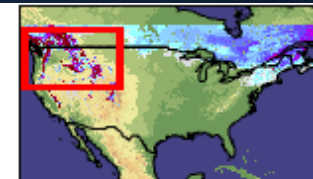
* Data unavailable at time of posting or measurement is not representative at this time of year



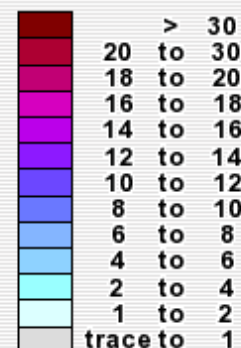
Modeled Snow Water Equivalent

Modeled Snow Water Equivalent forecasted for 2017 March 23, 22:00 UTC

921 mi

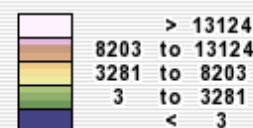


Inches of water equivalent



Not Estimated

Elevation in feet



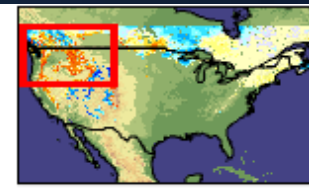
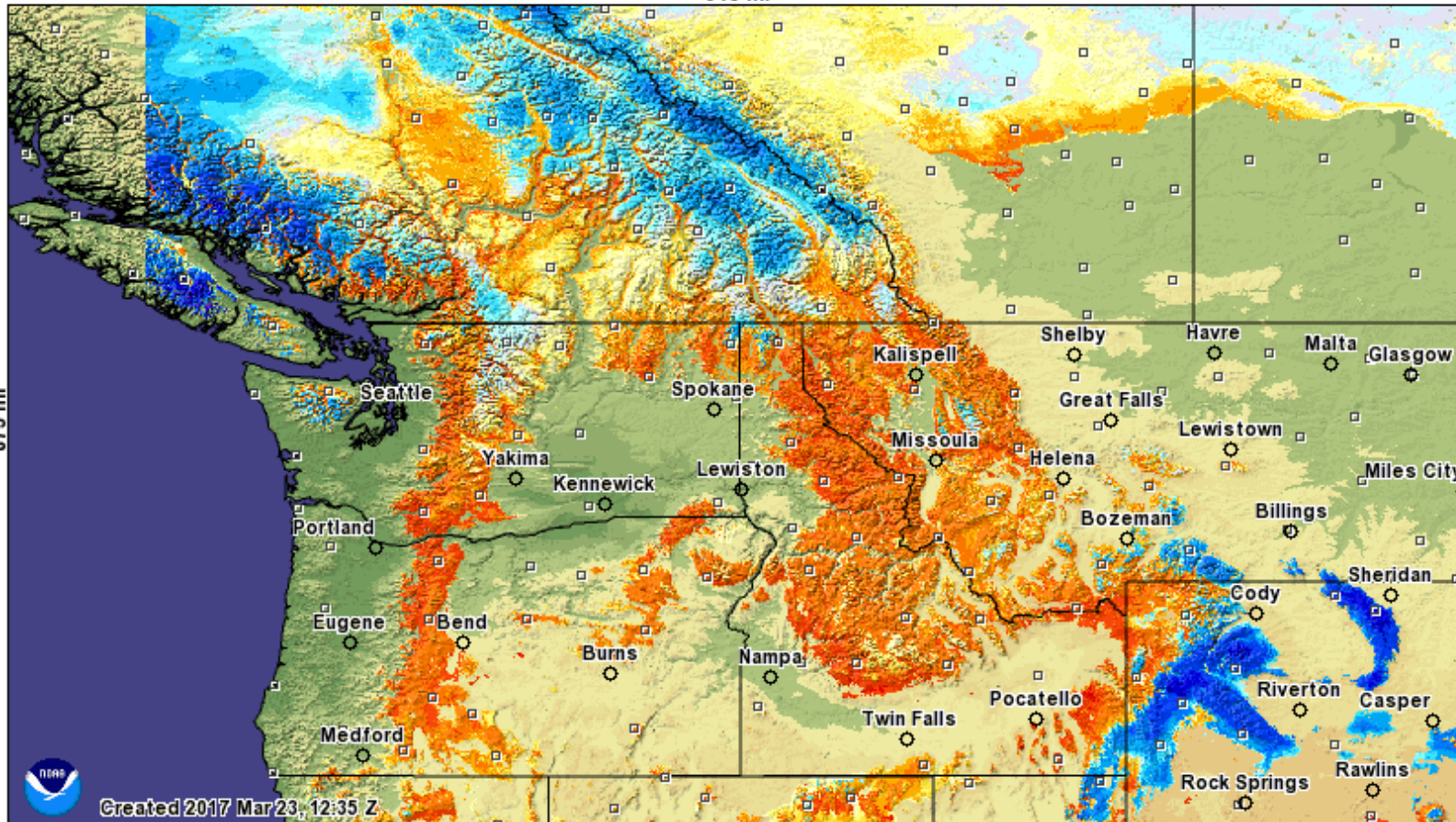
Created 2017 Mar 23 12:54 ZL

www.nohrsc.noaa.gov/interactive/html/map.html

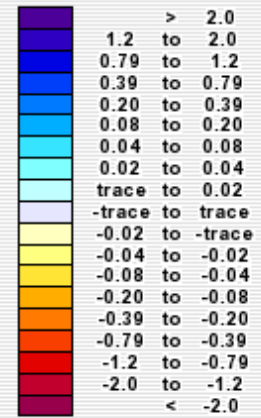


Change in Snow Water Equivalent

Change in Modeled Snow Water Equivalent forecasted for 24h preceding 2017 March 24, 6:00 UTC
916 mi



Inches of water equivalent



Not Estimated

Elevation in feet

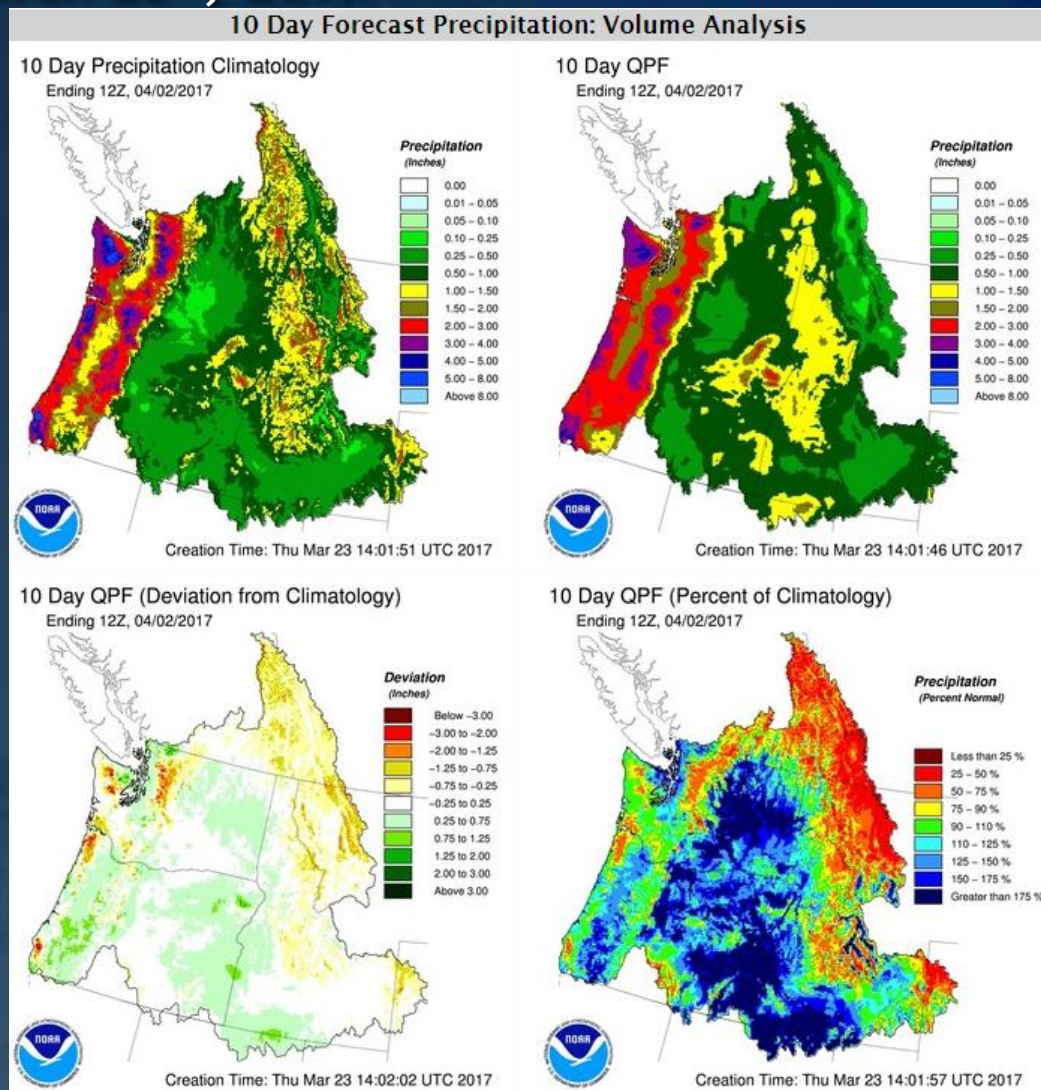


www.nohrsc.noaa.gov/interactive/html/map.html

10-day Outlook for Precipitation

as of March 23rd, 2017

- Precipitation near average west of the Cascades
- Precipitation above average in eastern WA & OR and southern ID
- Precipitation below average in the Rockies
- Temperatures near average
- Visit www.nwrfc.noaa.gov/weather/10_day.cgi for links to precipitation, temperature and freezing level forecast graphics for each day of the 10-day period.



April Outlook

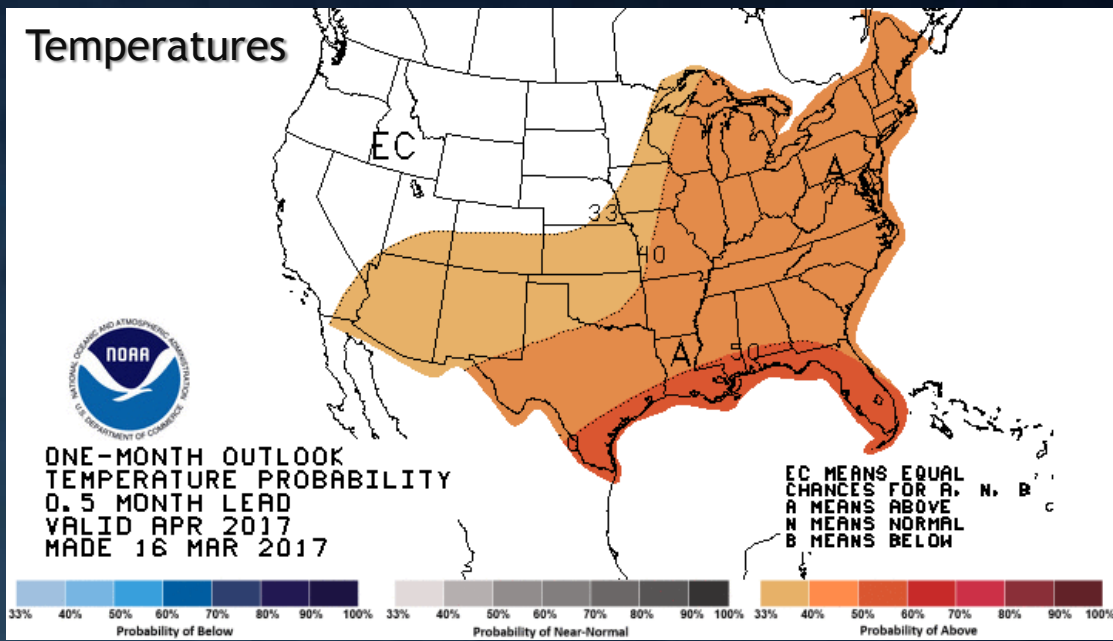
The seasonal outlooks combine the effects of, long term trends, existing soil moisture conditions, and when appropriate, El Niño/La Niña.

- A - Increased chances for Above Normal
- B - Increased chances for Below Normal
- EC - Equal Chances

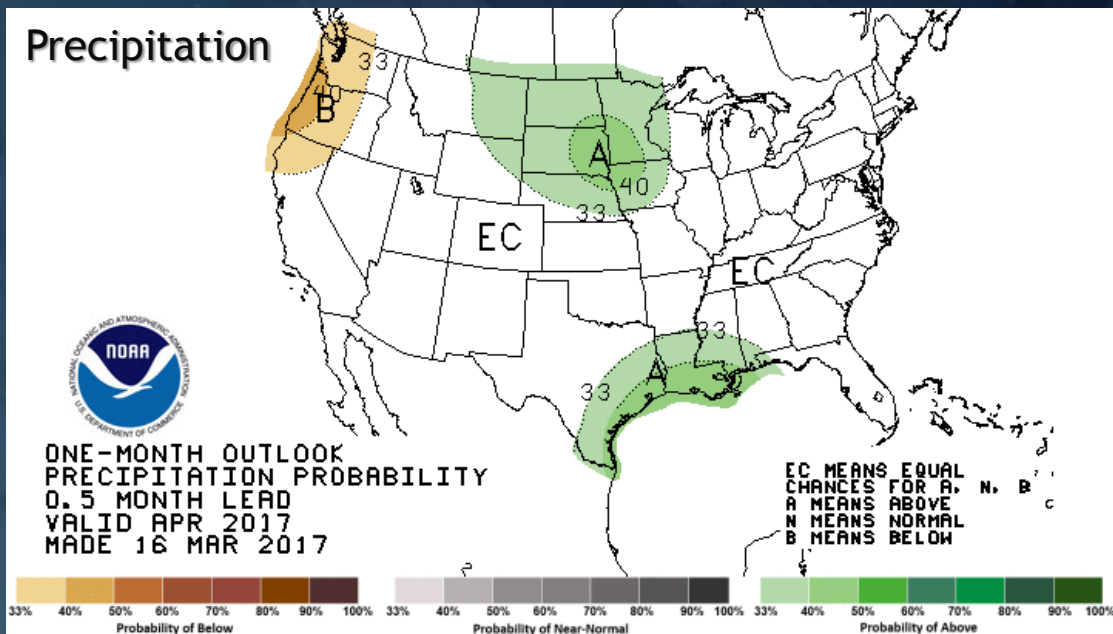


www.cpc.ncep.noaa.gov

Temperatures

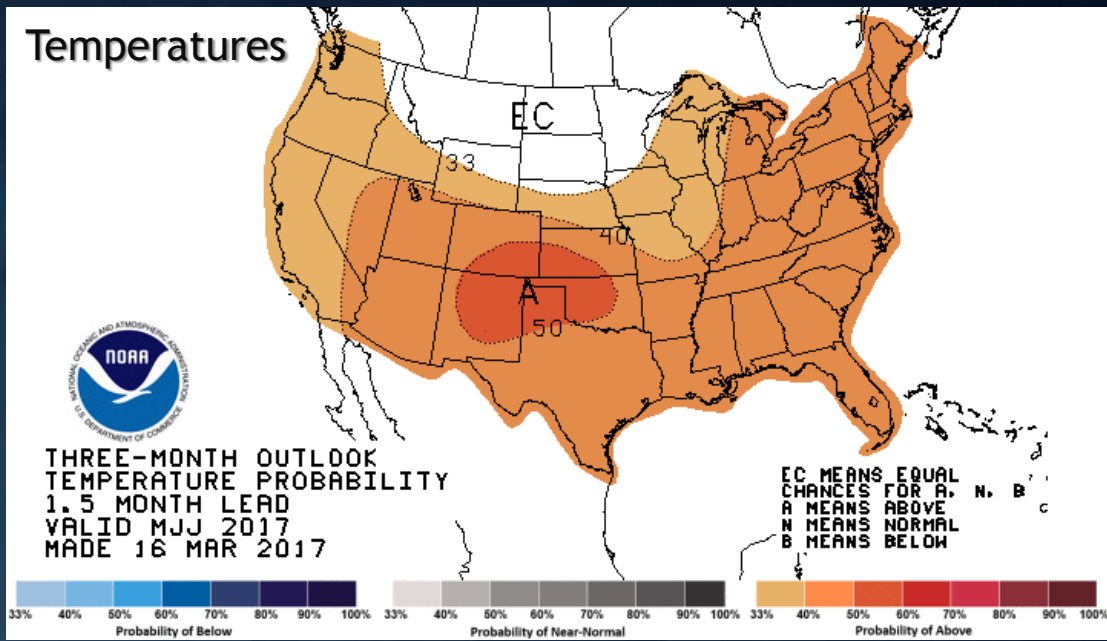


Precipitation

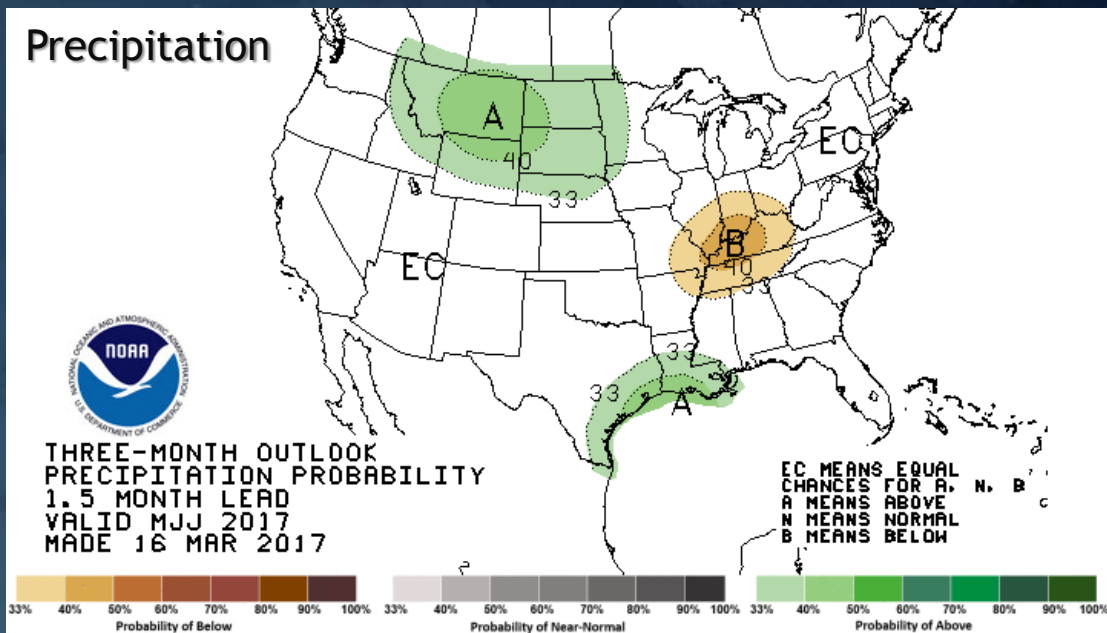


May - July Outlook

Temperatures



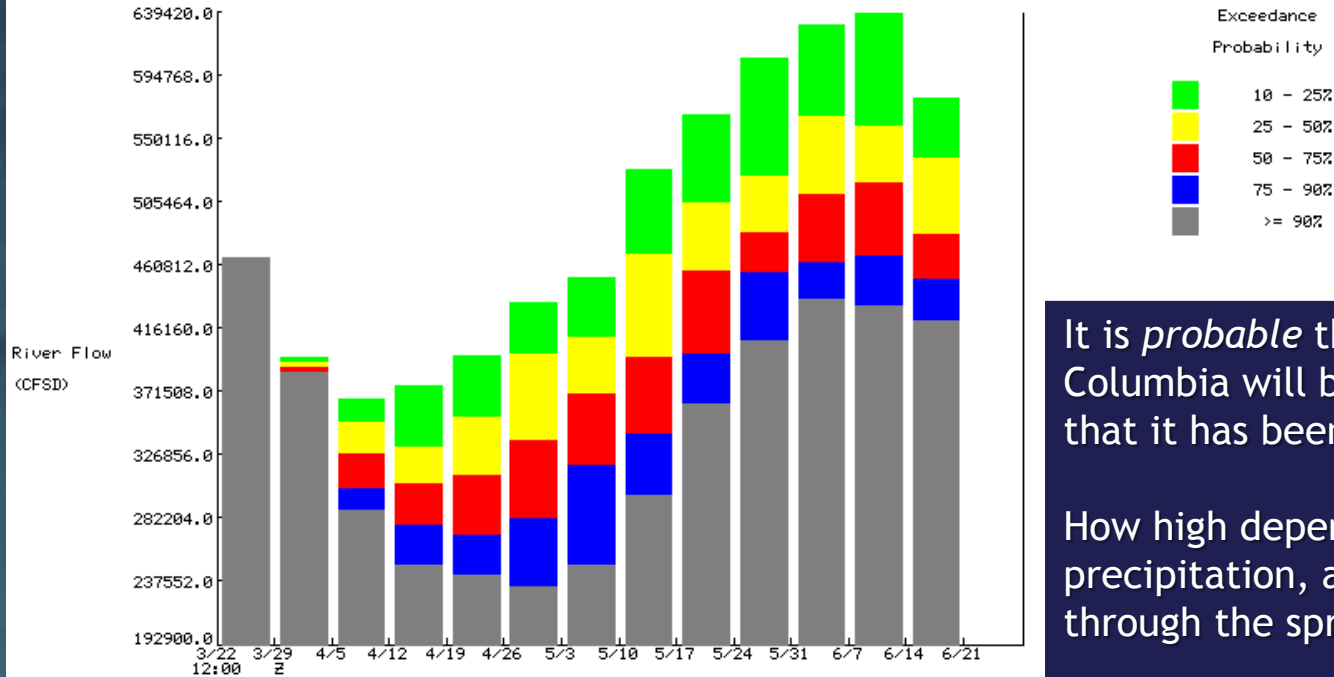
Precipitation



www.cpc.ncep.noaa.gov

Columbia River at The Dalles

1 Week Chances of Exceeding River Levels on the The Dalles (NATURAL)
 Latitude: 45.6 Longitude: -121.2
 Forecast for the period 3/22/2017 - 6/21/2017
 This is a conditional simulation based on the current conditions as of 3/22/2017



It is *probable* that streamflow on the lower Columbia will be higher in May and/or June than it has been in March.

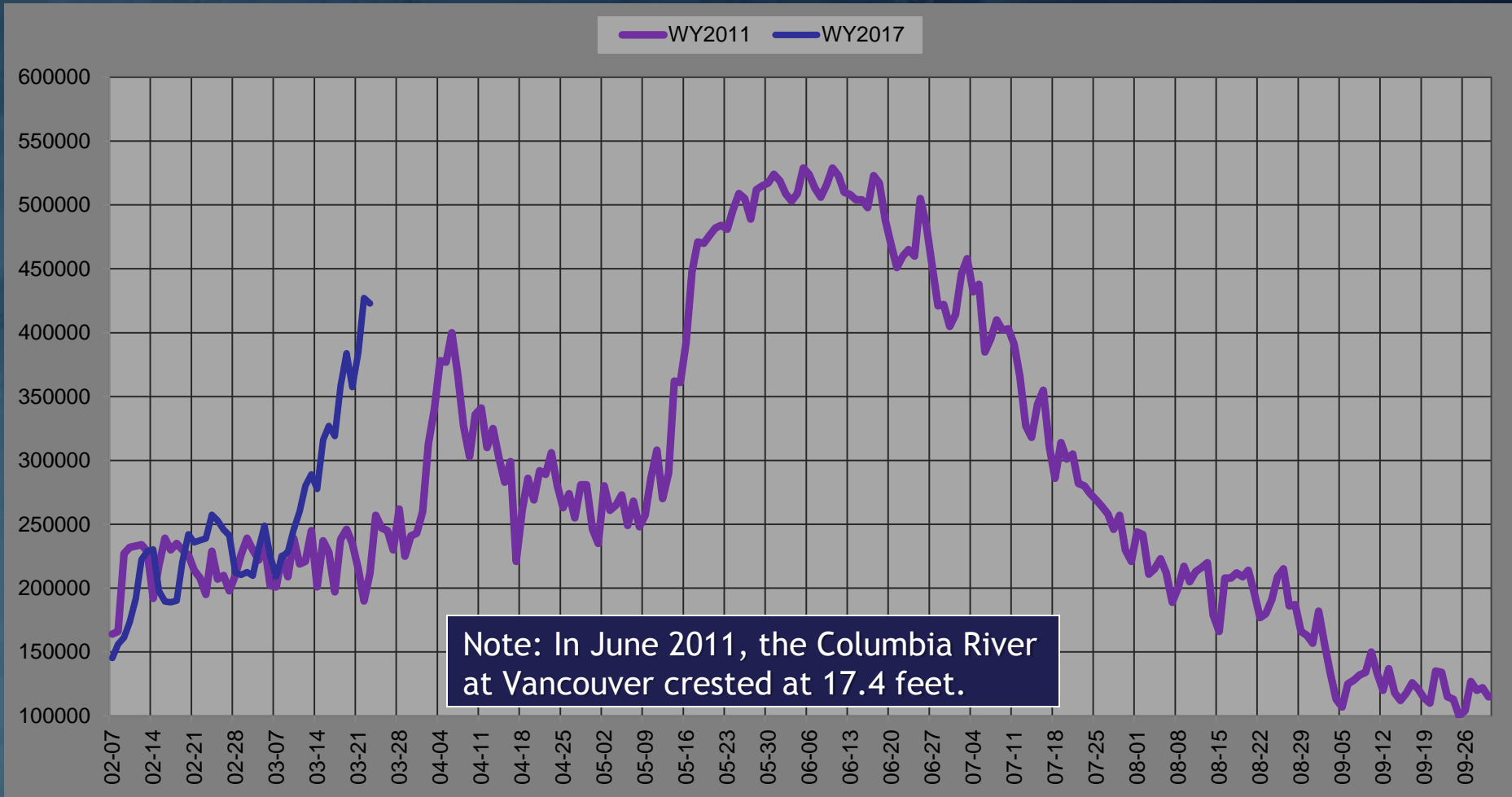
How high depends on temperatures, precipitation, and reservoir regulation through the spring.

Streamflow on the Willamette will likely be much lower in May & June than it is currently. For the Portland/Vancouver harbor, this will help mitigate the effects of higher streamflow on the Columbia.

www.nwrfc.noaa.gov
 Ensemble Streamflow Prediction
 Chart generated using ESP Interactive
 Ensemble Analyzer page

Columbia River at The Dalles

2011 & 2017 Comparison



Stay Tuned This Spring!

- 10-day precip/temp outlook from NWRFC
www.nwrfc.noaa.gov/weather/10_day.cgi
- River forecasts and flood impacts
water.weather.gov/ahps2/index.php?wfo=pqr
www.nwrfc.noaa.gov
- Snow data
www.nwrfc.noaa.gov/snow/index.html
www.wcc.nrcs.usda.gov

Thanks for reading!

