

Water Supply Availability Meeting

Friday, Feb. 2, 2018

Snowpack conditions | Scott Pattee, NRCS

We're continuing to receive adequate precipitation.

Looking across the western U.S., the snow is falling to the north and drifting down across Montana to Wyoming. States to the south are having a harder time with snowpack, especially Oregon and California.

Compared Jan. 1, 2017, we're actually better off for snowpack in most areas. The outlook is good at this time, but are watching the Lower Snake and Walla Walla areas.

Looking at the SNOTEL sites, the recent storms are helping higher elevation sites but lower elevations to the south could use a boost. Looking ahead:

- The Milk Shakes site has been around 12-13 years near the Oregon border. It's currently above normal and the projection is good. We should end the year at a normal at this site. Even though Walla Walla's snow water equivalent isn't looking great, the projection isn't that bad.
- For Lost Horse, it's below normal right now but the projection is ending the year in the below-normal range. This area is a pocket that got missed, unlike last year. The site started out strong but had a complete melt-out in November, which put it behind.

Currently, snow density around the state is about normal. Stevens Pass was about 32 percent. In Colville, the mid and lower elevations are reporting lower densities, which indicates new snow. (Older snow has higher density.) The avalanche danger is close to extreme due to rain falling on snow, causing weak layers.

How much of winter is left? Generally speaking, SNOTEL sites that are 4,500 feet and below are about 60 percent through winter. Above 4,500, it's closer to 50 percent through winter. We still have quite a bit of winter to go and can gain a lot of snow.

Regional climate perspective | Nick Bond, Office of State Climatologist

From October through December, we've had near-normal temperatures and slightly above-normal precipitation. Including January, we've experienced near-normal temperatures, with some areas on the warmer side, and above-normal precipitation for most of the state.

The U.S. Drought Monitor shows a section of south-central Washington in the "abnormally dry" category. This isn't too alarming but reflects the dryer weather. Dryer weather is also reflected in soil moisture.

The extended forecasts show a persistent ridge of high pressure, similar to the one in early December, will park over us in the last half of February.

The world's oceans shows cold water not extending past the international dateline to the west. Off our coast, it's a little warmer than normal, which could be contributing to warmer-than-normal temperatures.

We're still in a moderate La Nina. Models show the tropical Pacific returning to more neutral conditions in spring.

For February through April, the one type of model shows western Canada on the cool side, along with parts of Washington state, but it's not a strong signal. For precipitation, the forecast is on the wet side. However, it looks like February isn't going to be very wet, so even though models show likely to be wet, you have to take that with a bucket of salt.

Last year, in late winter, we had a ton of snow. It was a similar year in the tropical Pacific to this one in many ways. What's different is the "flavor" of La Nina could affect impacts here. There is research looking at deep convection west of the dateline. When there's a big signal, the convection is suppressed compared to years without a big signal.

Looking at analog La Nina years tells us what might happen this year:

- Stevens Pass: Likely above normal snowpack.
- Bumping Ridge: About normal.
- Touchet: Right now, it's a bit below normal but will likely be about normal at the end of the snow season.

In summary:

- It's been on the warm side lately considering it is La Nina.
- The tropical Pacific is apt to return to neutral conditions by spring 2018.
- The climate models used for seasonal weather conditions are projecting cool and wet anomalies of modest amplitude for February through April.
- It seems unlikely that our snowpack on April 1 will be too much different from normal for the date; we're in decent shape.

River forecasts | Brent Bower/Katherine Rowden, NWS

The National River Forecast Center map shows percent of normal volume flow for April through September forecast. Most things are near normal, either plus or minus 10 percent. Some are higher than that and a few are in the 80 percent of normal range.

Looking at natural flows, it looks pretty decent at this time. Not as good in Oregon.

Forecast around the state:

- The Columbia at the Dalles: Starts off pretty high and is staying near normal. Recently, with the snowpack and precipitation, it's bumped up a little higher in terms of expected volumes.
- The Yakima near Parker: In December, it went lower and has increased to about 100 percent normal expected.
- The Skagit near Concrete: Had been normal to below normal in December and has caught up. Now it's sitting at 102 percent of normal expected.

Overall, we're in pretty decent shape for this time; the water supply is looking OK. But keeping an eye on the anomaly in southeast Washington – Asotin County is in the 70s and a few other spots in the 80s.

Current streamflow conditions | Mark Mastin, USGS

The seven-day average streamflow is normal or above normal. We've had plenty of rain to keep river flows up.

The duration hydrograph shows current conditions went up in the wet November followed by a dry December. Conditions have been slowly climbing to above normal in recent months.

Compared to historical streamflow, we are at or above normal. Only one site of 149 is below normal -- and it was regulated and doesn't reflect natural conditions.

Streamflows look much better now than in January 2017 and 2015. But in January 2015, we were in much better shape according to streamflows -- so maybe streamflows in January are not a good predictor of what's to come. Or our snowpack was falling as rain.

Groundwater update:

- The Davenport well (deep, basalt)
 - Rose in last spring's flooding and hasn't come down much
 - Hit the highest peak since 2008
 - You can see 2015 drought impact
- Scatter Creek (shallow, sand & gravel)
 - Follows the same pattern each year

Summary:

- The seven-day average streamflow statewide is normal and above at almost every gage in the state, with many at much above normal.
- As of Jan. 30, daily mean streamflow is at normal and above at all but 1 of 149 sites. The recent rainy weather has kept up flows.
- The seven-day average streamflow at seven index gaging stations is:
 - Normal at one
 - Above normal at four
 - Much above normal at three
- Groundwater in eastern Washington is still well above normal to due an extreme recharge event last spring.

Yakima Basin water supply | Chris Lynch, Bureau of Reclamation

Data from the Yakima airport shows below-average precipitation and warmer-than-normal temperatures.

At the reservoirs, precipitation for the water year to date is at 125 percent of average. Overall, precipitation is looks good and on track.

Snow measured at seven nearby sites in the mountains shows below average at the start of January but levels caught up to 97 percent of average (139.5 in). Even with potential upcoming warm weather, we still have room to absorb it into the snowpack. We won't lose snow water but absorb rain into it, hopefully.

Flows are close to average, bouncing around with wet and dry periods. For the water year, flows are at 125 percent of average.

Downriver at Parker, the river is 128 percent volume of average for the water year. The regulated flow at Parker 126 percent of average.

Right now, the reservoirs are healthy at 128 percent of average. (Full is 1.06M acre-feet.) They're doing well overall in the basin and they have a good forecast. Streamflows are holding up nicely. Reservoir managers are able to save water in the reservoirs. Rimrock may need to have more water released it's so full. It'll be important to keep an eye on the potential warm period in late February, but we could still experience a cold and wet March and April.

Their first official forecast will be released on March 8.

Water manager input

John Chandler with Puget Sound Energy: They're in very good shape for water supply. Snowpack is 115 percent of normal. The density may be a little higher than normal, about 40 percent. It could melt early unless it gets cool.

Elizabeth Garcia with Seattle Public Utilities: Their reservoirs are in good shape. They're looking at the weekend storm and hoping it's not too warm. It's nice to see snowpack increase over the past month. Looking good overall.

Stephanie Martin with the Makah Tribe: They saw significant low flows in October and November. The early winter rains brought things back to saturated. One area recorded over 7 inches of rain in 48 hours. They recently started climate change projections with US Fish and Wildlife and anticipate that by 2040, they will regularly experience conditions equivalent to the 2015 drought.

Crystal Raymond with Seattle City light: Conditions look good and they're slightly above normal.

Summary

It doesn't look like we're at risk of drought conditions based on current conditions.

Next meeting is Thursday, March 8.