

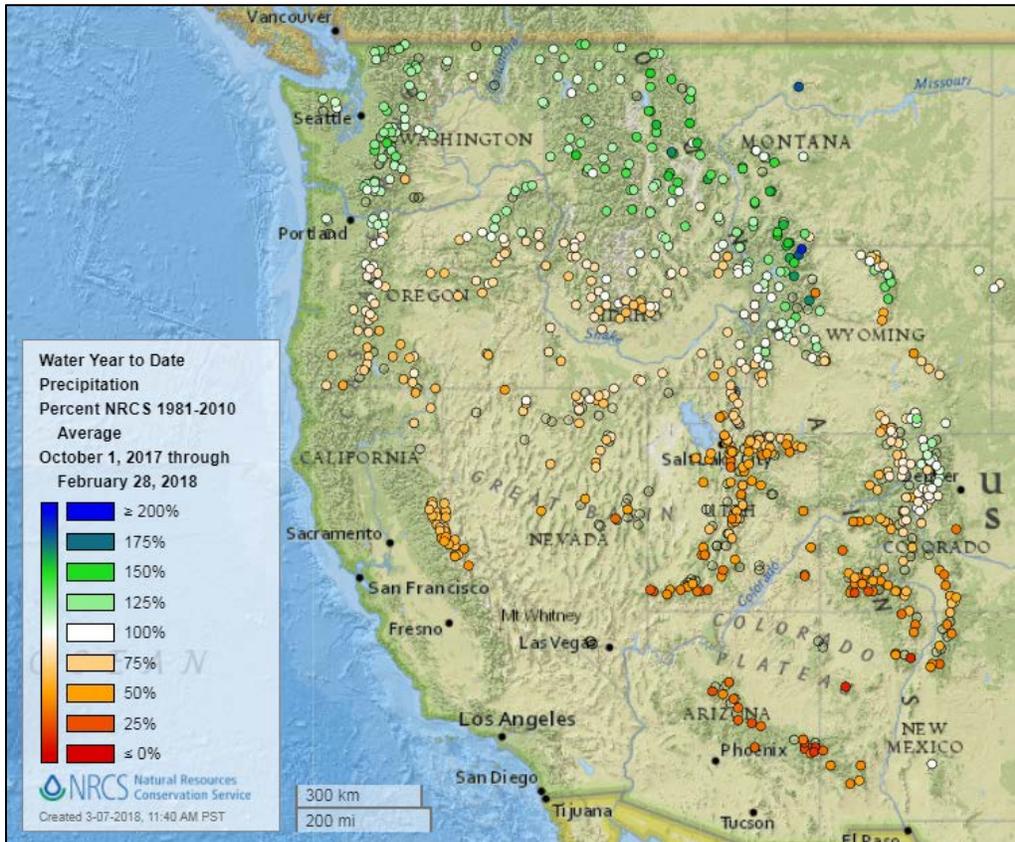
Western Snowpack and Water Supply Conditions March 2018

Overview

This report summarizes Snow Telemetry (SNOTEL) and snow course network data, streamflow forecasts, and reservoir storage data collected and analyzed by the USDA Natural Resources Conservation Service [National Water and Climate Center](#).

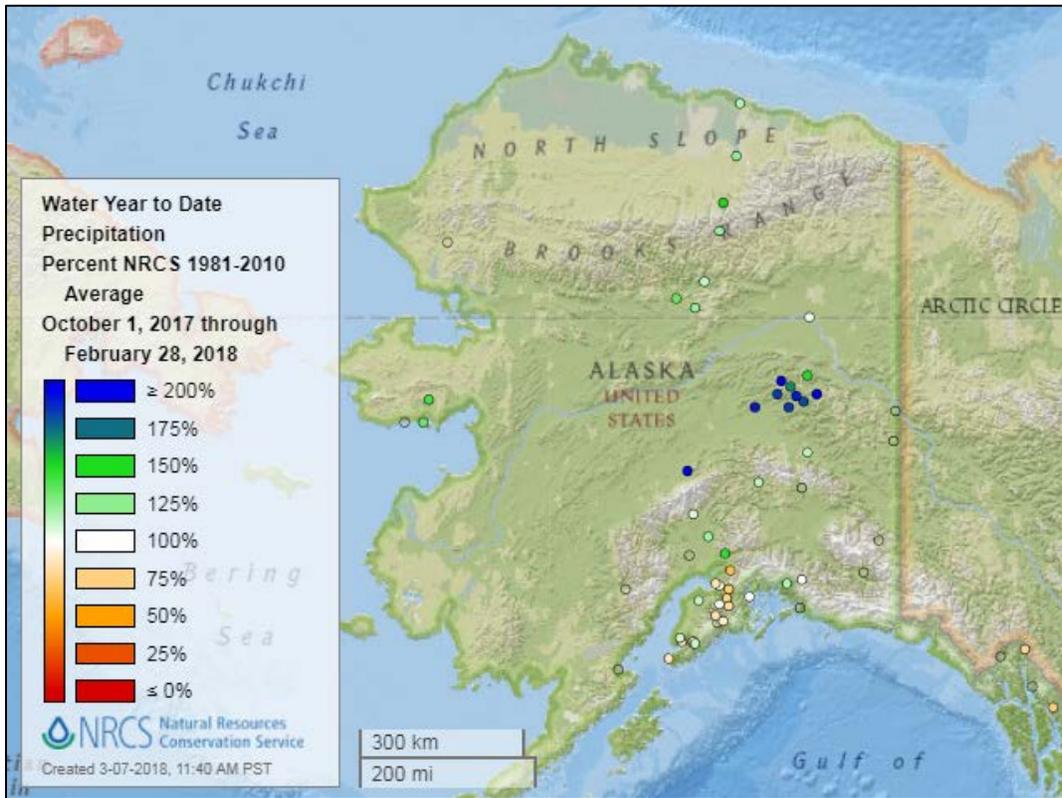
Weather patterns during the month of February have generally continued those of previous months, therefore snowpack and water supply conditions remain very similar to those reported last month. **Precipitation** thus far in the water year (beginning October 2017) has been well below normal in much of the West except for northern areas in Washington, Idaho, Montana, and Wyoming as well as Interior Alaska, where it has been near to well above normal. **Snowpack** shows an extreme contrast between these wet northern areas, with near to well above normal snowpack, and the very low snowpack in the southerly areas. **Streamflow forecasts** reflect the snowpack distribution, with a majority of the West expecting well below average streamflow but the northern areas and Interior Alaska expecting near to well above average streamflow. **Reservoir storage** remains above average in most western states, with only Arizona, New Mexico, and Washington being below average.

Water Year-To-Date Precipitation



[Precipitation for the 2018 water year-to-date](#) has maintained a pattern of wet in the north and dry in the south for the entire five-month period (Oct. - Feb.) thus far.

The northern tier of Washington, northern Idaho, western Montana, and northwestern Wyoming continue to be well above average. Drier than average precipitation begins in southern Oregon and Idaho and continues southward and eastward. Although the four-state area of Utah, Colorado, Arizona, and New Mexico remains extremely dry, there was some improvement from last month.



[Precipitation in Alaska for the 2018 water year-to-date](#) has been somewhat below average in the south coastal areas and near or well above average toward the north and into the Interior.

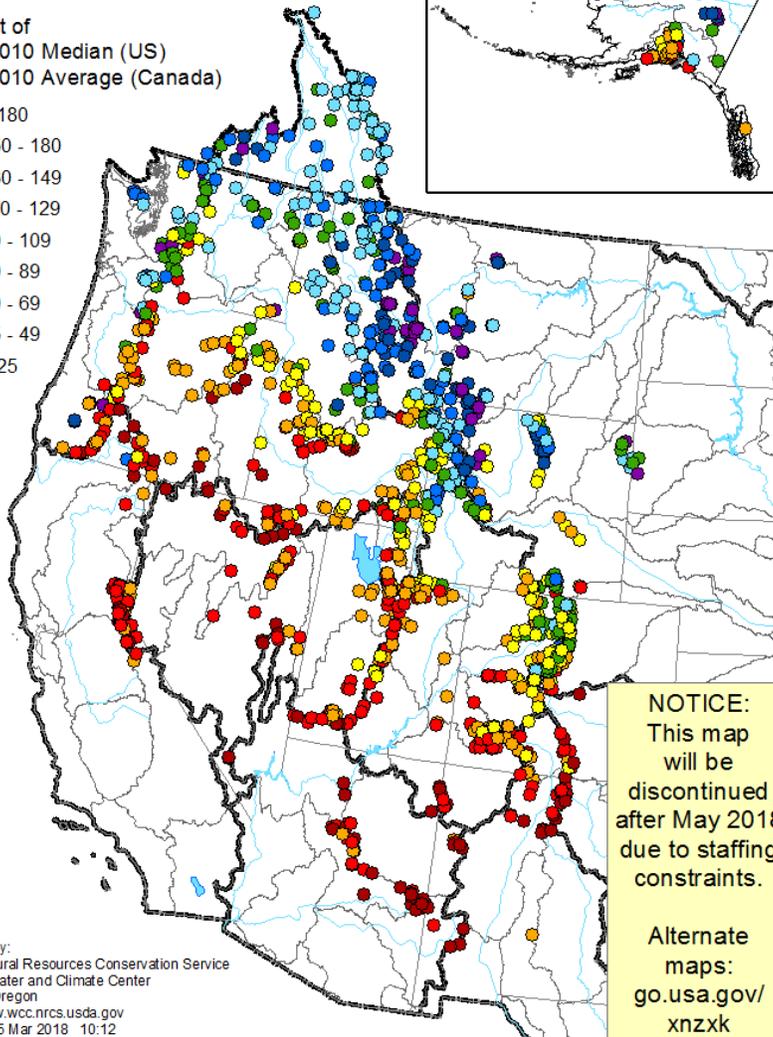
Basin-filled maps containing monthly and daily updates of SNOTEL precipitation are available at: <https://www.wcc.nrcs.usda.gov/gis/precip.html>. Updates can also be obtained via the Interactive Map, available at: https://www.wcc.nrcs.usda.gov/snow/snow_map.html.

Snowpack

Mountain Snowpack as of March 1, 2018

Percent of
1981-2010 Median (US)
1981-2010 Average (Canada)

- > 180
- 150 - 180
- 130 - 149
- 110 - 129
- 90 - 109
- 70 - 89
- 50 - 69
- 25 - 49
- < 25



[Snowpack at SNOTEL sites and snow courses as of March 1](#) in the western U.S. and the Columbia Basin in Canada maintains the same stark contrast as has been the case all winter between the northern and southern parts of the region.

Near to well above median snow water equivalent lies in a northwest to southeast ranging zone, from Washington and British Columbia down into northern Idaho, western Montana, and northwestern Wyoming.

In complete contrast, most areas south and west of this demarcation have well below median snow water equivalent, with several sites registering record low snowpack.

In Alaska, snowpack remains generally below median in southern areas and above median in the Interior.

Maps with daily updates of the snowpack (SNOTEL data only) for the entire West, as well as for individual states, are available at: <https://www.wcc.nrcs.usda.gov/gis/snow.html>. Updates can also be obtained via the Interactive Map, available at: https://www.wcc.nrcs.usda.gov/snow/snow_map.html.

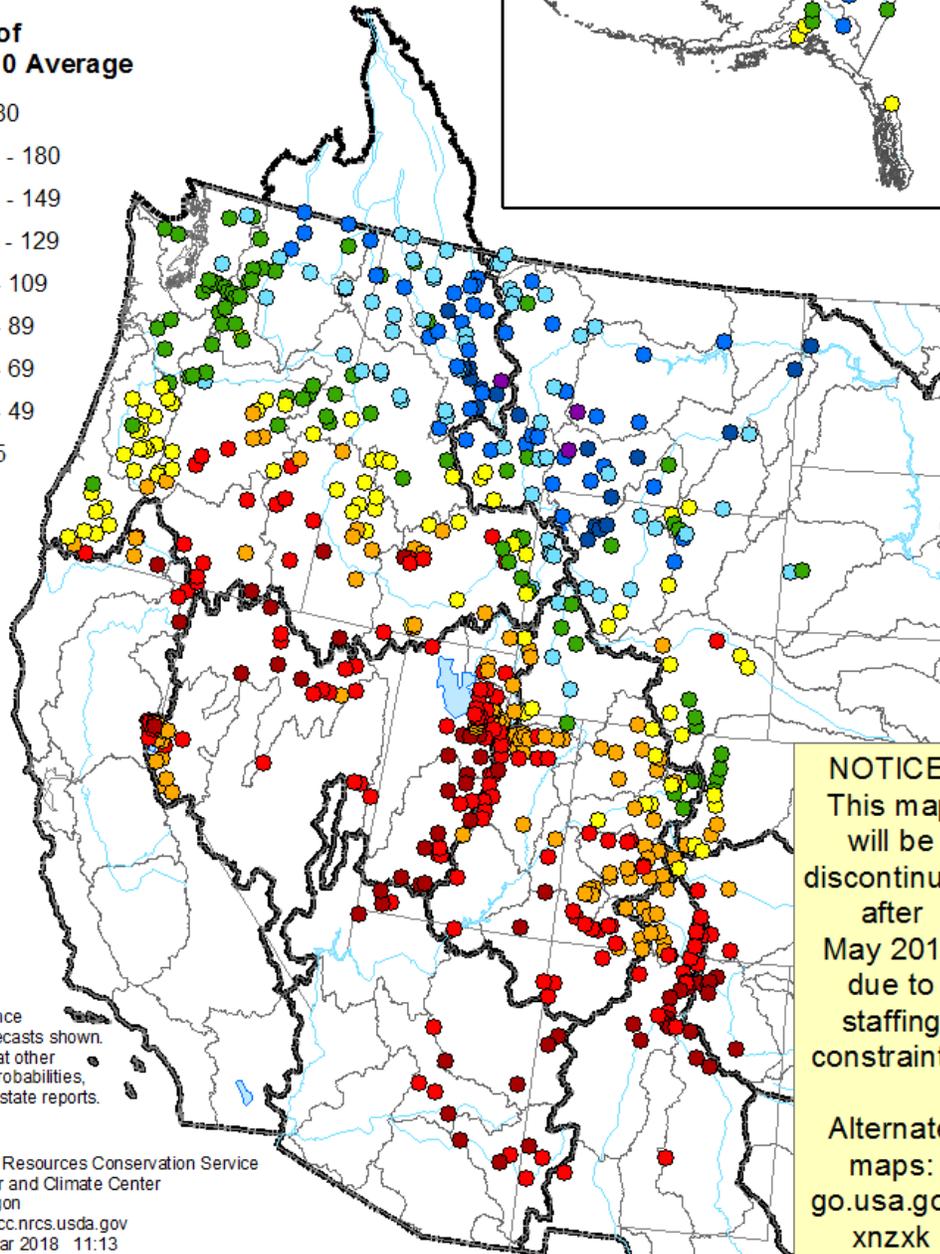
Streamflow Forecasts

[Streamflow forecasts](#) reflect the snowpack distribution, being below average over a majority of the West but near to well above average in the northern parts of the region and in Interior Alaska. Forecasts are exceptionally low in the Southwest and Great Basin regions and quite high in Montana and northwestern Wyoming. Forecast values and their spatial pattern remain very similar to that from last month.

Spring and Summer Streamflow Forecasts as of March 1, 2018

Percent of 1981-2010 Average

- > 180
- 150 - 180
- 130 - 149
- 110 - 129
- 90 - 109
- 70 - 89
- 50 - 69
- 25 - 49
- < 25



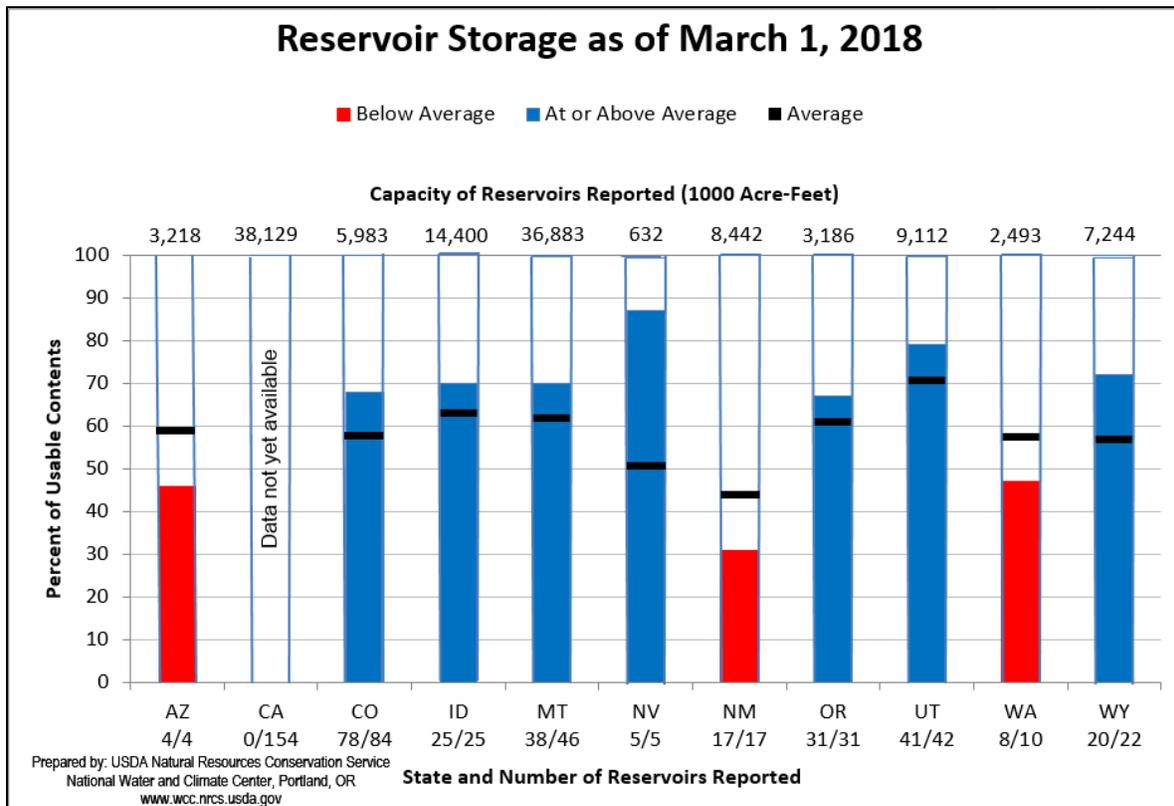
Trends in streamflow forecasts in basins for which daily water supply forecast models are available can be followed at: https://www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html

Reservoir Storage

[Reservoir levels](#) continue to be above average in most western states, with only Arizona, New Mexico, and Washington being below average.

Further data and charts are available at: <https://www.wcc.nrcs.usda.gov/wsf/wsf-reservoir.html>

Data for California are summarized at: <http://cdec.water.ca.gov/cgi-progs/reservoirs/STORSUM>



State Reports

Click a state name to view the full report

Alaska: February brought uneven precipitation across the state. Northern Alaska along with Southwest Alaska and western Cook Inlet had average to much above average snowfall, while Southeast Alaska, much of Southcentral, and portions of the western Interior received below average monthly precipitation. Snowpack near Fairbanks is near twice the median amount for this time of the year while much of the snowpack in Southcentral and Southeast Alaska are much below median amounts.

Arizona: As of March 1, snowpack ranged from 12% of normal in the Gila River Basin to 40% in the Verde River Basin. Monthly precipitation ranged from below normal to well above normal in the major basins. Despite the increased precipitation during February, the cumulative precipitation for the water year remains well below normal.

California: As it did in December, a high pressure system stalled off California's coast through most of February, effectively shutting off all storm activity and further entrenching the state's path toward a very dry water year. The storm track shifted on or around February 22, bringing cold air and snow down from Canada, and boosting the precipitation totals in the north, central, and southern Sierra regions to 14-20%

of normal for February. The week's storms also improved snowpack in the Sierras, bringing the snow water equivalent up from a statewide average of less than 20% to 23% by month's end and to 37% by March 5.

Colorado: Colorado saw the best snow accumulations of the season through the middle of February, making a 13% of median improvement in snowpack. The Upper Rio Grande improved 25% over the course of February. Watersheds in most need of improvement happened to be the real beneficiaries from February storms. But even that was not enough to overcome the near record low snowpack that was in place at the beginning of February. Statewide snowpack is now at 72% of normal.

Idaho:

Montana:

Nevada: Despite a powerful early March storm that increased snowpack percentages +4% to +16% between March 1-5, the overall water supply picture has not changed much since March 1 in Nevada. Snowpacks, water year precipitation, and streamflow forecasts remain well below normal. Excellent reservoir storage will help save the water year, unless you don't have access to stored water, in which case spring precipitation will play a more critical role in when water shortages could occur.

New Mexico: In sharp contrast to conditions across the northern Rockies and Pacific Northwest where they have good water year-to-date moisture accumulations, the Southwest experienced intensifying drought and a lack of vital snowpack statewide. Outside of the heavy but short lived mid-month precipitation in the south and a late February snow event in the northern mountains, the state's snowpack values have reached or are approaching historical lows. With a significant portion of New Mexico's water supply contingent on snowmelt coupled with poor spring runoff prospects, the burden of managing the state's reservoirs will become heavier than normal.

Oregon: February seemed to have two seasons, where the first half of the month resembled springtime weather, and the latter half brought a long-awaited return of winter. Late February storm systems brought new mountain snow measured in feet, but this new snow was not enough to overcome the impacts of a dry December and January. As of March 1, all basins have a below normal snowpack throughout the state. Most of Oregon is expected to experience below average streamflow during the summer water supply season as a result. Water users who have access to stored reservoir water may have a buffer, as most of Oregon's major reservoirs are storing above average amounts of water as of the end of February. Water managers are advised to carefully plan, especially in the southern part of the state where snowpacks remain below 50% of normal. Additionally, the Drought Monitor has outlined a moderate drought category in much of central and southern Oregon: <http://droughtmonitor.unl.edu/>.

Utah: As a statewide average, the below-normal snowpack we had at the beginning of February is almost the same below-normal snowpack we now have at the end of February, and yes that's the good news. The regional picture is a little more complicated, though. Snow water equivalent (SWE) percentage numbers dropped a bit in northern Utah basins (less than 7%) while southern basins saw an improvement, on average, by 10% or more. The Bear River and Northeastern Uintah Basin continue to lead with the highest percentages of normal at 76% and 81%, respectively. The rest of the northern basins that lost a little SWE are: Weber at 55%, Duchesne at 53%, and Provo at 53%. Remaining basins that have seen an improvement in SWE relative to February 1 values as a percent of average are: Tooele (3%), Price (8%), South East (14%), Lower Sevier (21%), Upper Sevier (10%), San Pitch (12%), Dirty Devil (13%), Escalante (7%), and the South West (6%). On average, our recent storms have staved off the snowpack decline, and while we'd all like to hear better news, we'll take what we can get. February precipitation across most of the basins ranges from between 60% to 80% of average. Soil moisture conditions are above to near normal in the north and drop off to very dry conditions in the southern basins. Most reservoirs are at 75% capacity or better thanks to carry over from last year. Most of the streamflow forecasts are estimated to be well below normal (40% to 60%), with higher forecasts in the north and lower forecast numbers as we go south. Surface Water Supply Indexes range from much below to below average across the state.

Washington: February was warm and very wet with appreciable snow accumulation coming only late in the month. Unfortunately, this also brought with it tragedy with six lives lost to avalanche accidents late in

February and early this month. A fresh dump of perfect powder fell upon weak and unstable surface snow, which enticed recreationists back into the mountains. Although warnings were posted, not all took the time to prepare properly.

[Wyoming:](#)

For More Information

The USDA-NRCS National Water and Climate Center website provides the latest available snowpack and water supply information. Please visit us at: <https://www.wcc.nrcs.usda.gov>.