

# Western Snowpack and Water Supply Conditions

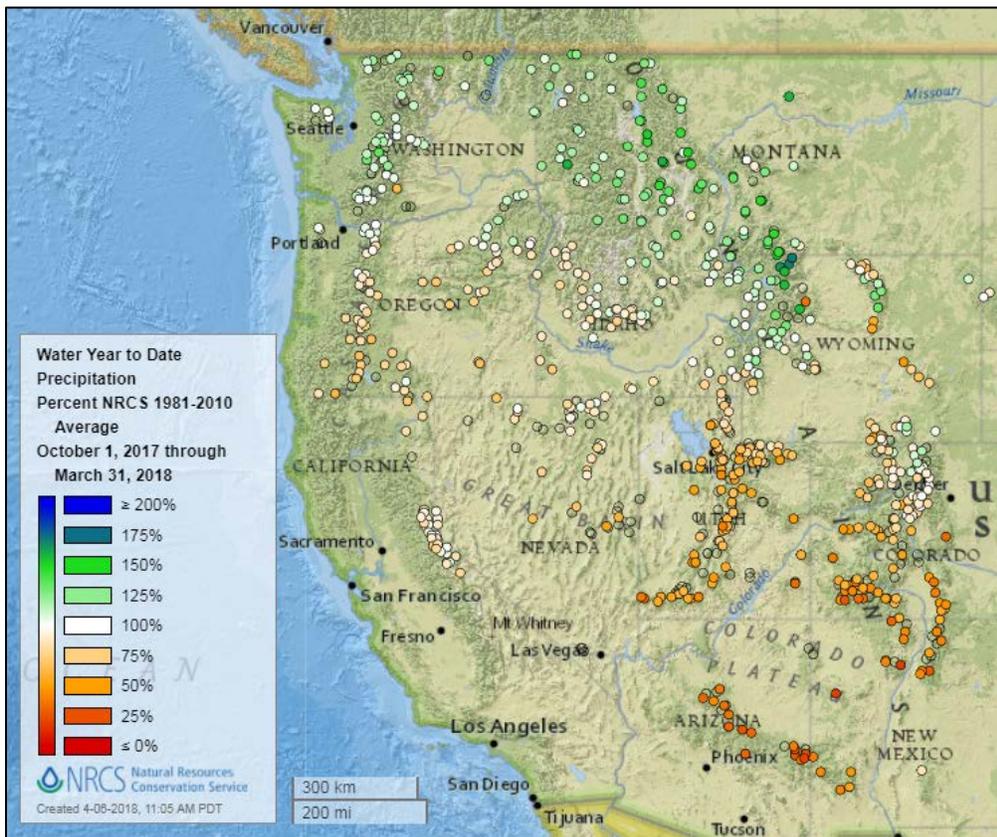
April 2018

## 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](#).

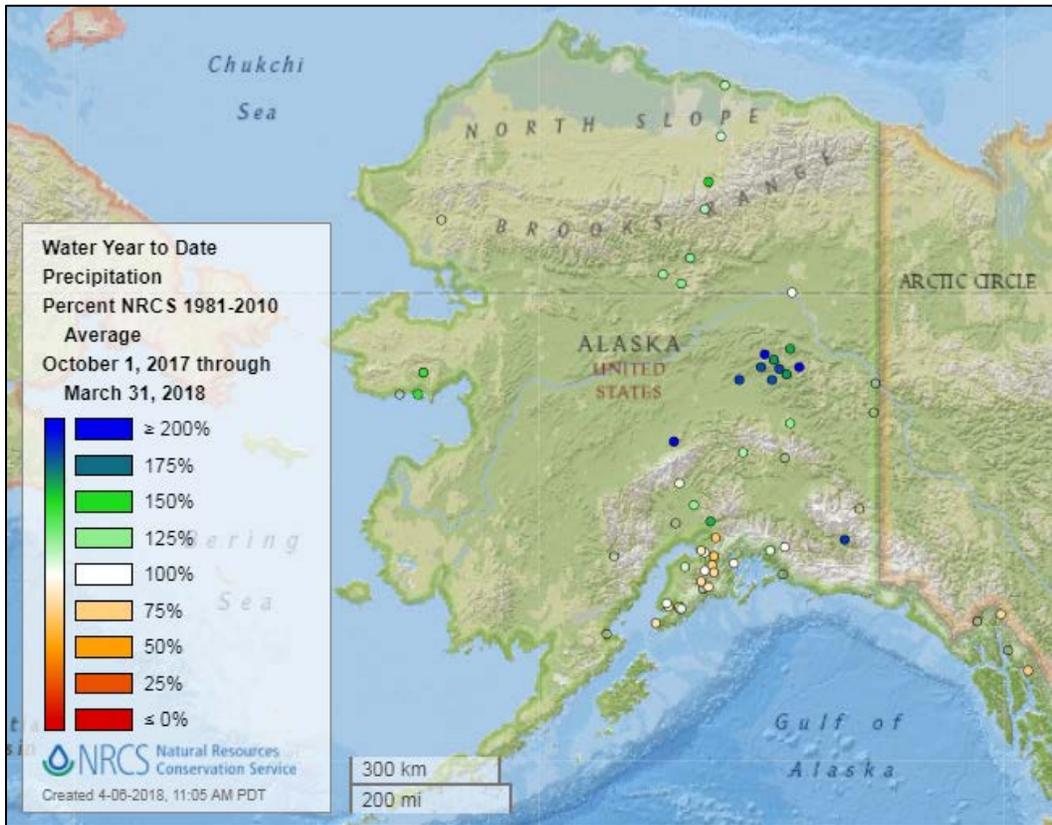
Weather patterns have largely continued those of previous months, therefore snowpack and water supply conditions remain very similar to those reported in March. **Precipitation** thus far in the water year (beginning October 2017) has been well below normal in the four-state area of Colorado, Utah, Arizona, and New Mexico, whereas northern areas in Washington, Idaho, Montana, and Wyoming as well as Interior Alaska have been near to well above normal. **Snowpack** continues to show an extreme contrast between the wet northern areas, with near to well above normal snowpack, and the very low snowpack in the southerly areas. One notable change is in the Sierra, which is still below normal but increased significantly during March. **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 and New Mexico being below average.

## Water Year-To-Date Precipitation



[Precipitation for the 2018 water year-to-date](#) continues the pattern of wet in the north and dry in the south that it has had for the entire six-month period (Oct. - Mar.) thus far.

The northern tier of Washington, northern Idaho, western Montana, and northwestern Wyoming continues to be well above average, whereas the four-state area of Utah, Colorado, Arizona, and New Mexico remains extremely dry. The Sierra had a significant increase since last month, bringing this area to near normal. Central Idaho and northern Nevada also had modest increases.



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

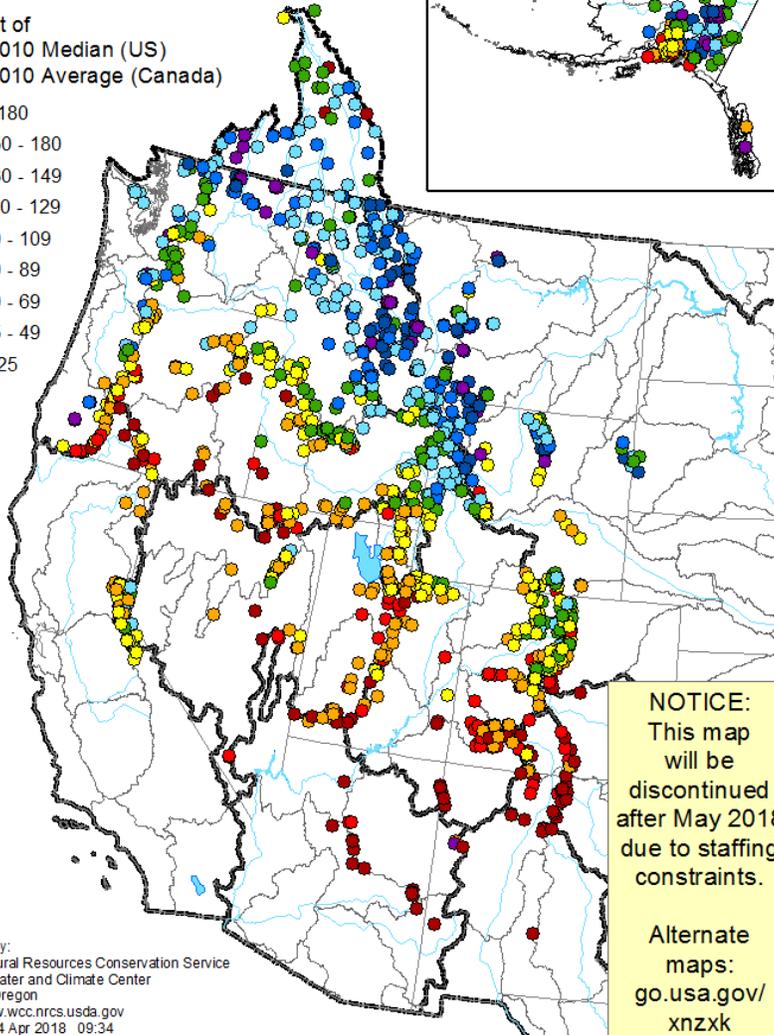
Basin-filled maps containing monthly and daily updates of SNOTEL precipitation are available at: <https://www.wcc.nrcs.usda.gov/gis/precip.html>. Updates can also be obtained via the Interactive Map, available at: [https://www.wcc.nrcs.usda.gov/snow/snow\\_map.html](https://www.wcc.nrcs.usda.gov/snow/snow_map.html).

## Snowpack

### Mountain Snowpack as of April 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 April 1](#)

in the western U.S. and the Columbia Basin in Canada continues to maintain the stark contrast between the northern and southern parts of the region. This contrast, however, has diminished slightly, as some of the low snowpack areas, especially in the Sierra and north and eastward from there, saw gains during the month of March.

Near to well above median snow water equivalent remains in Washington and British Columbia on into northern Idaho, western Montana, and northwestern Wyoming.

In contrast, well below median snow water equivalent persists in southern Oregon, Nevada, most of Utah, southern Colorado, and all of Arizona and New Mexico. Some of these areas, however, did see some modest improvement during March.

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](https://www.wcc.nrcs.usda.gov/snow/snow_map.html).

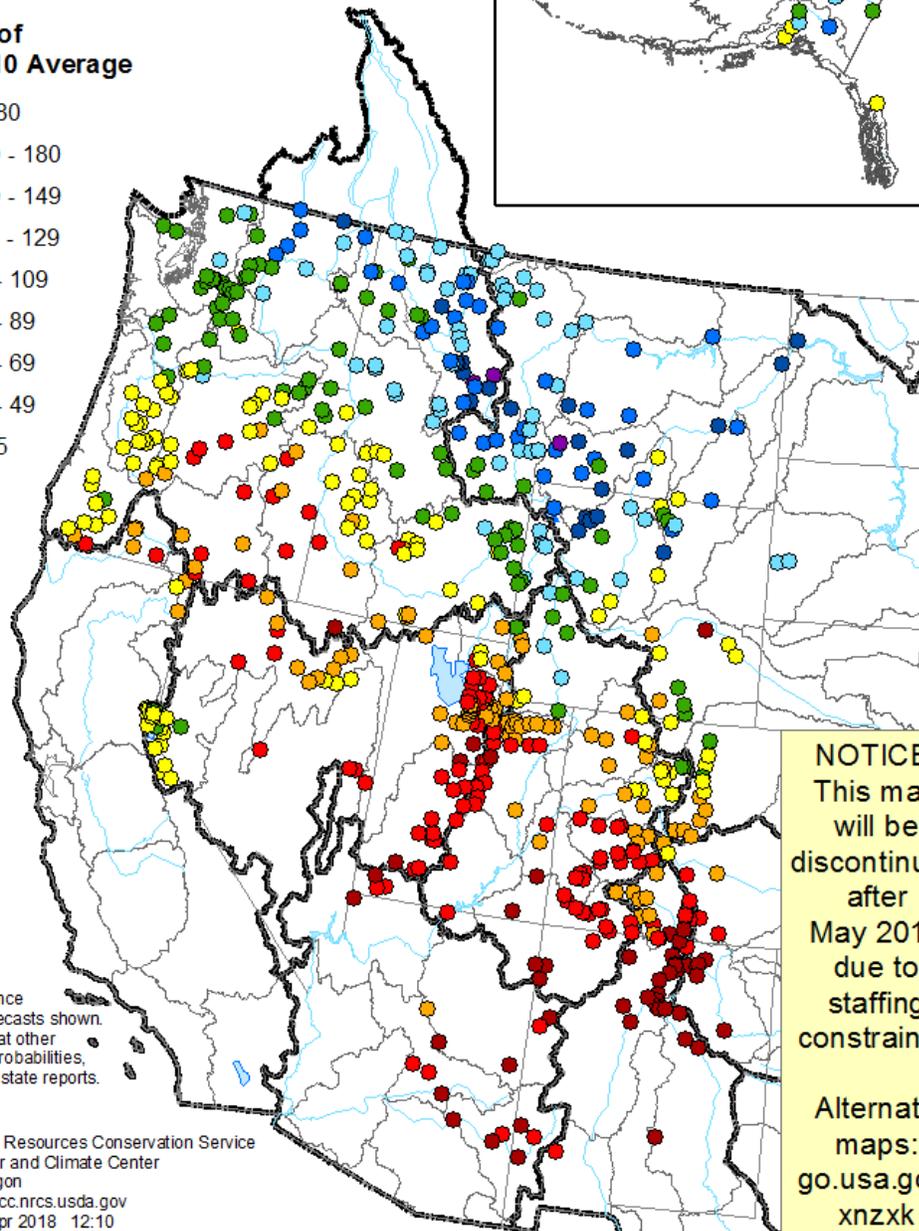
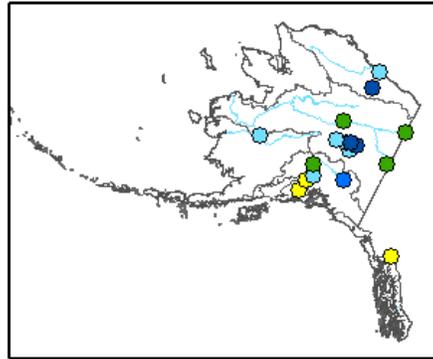
## Streamflow Forecasts

[Streamflow forecasts](#), reflecting the snowpack distribution, are 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. This pattern has persisted throughout the winter, although there was a notable increase in the Sierra during the past month. Forecasts remain exceptionally low in the Southwest and Great Basin regions and quite high in Montana and northwestern Wyoming.

### Spring and Summer Streamflow Forecasts as of April 1, 2018

Percent of 1981-2010 Average

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



50% exceedance probability forecasts shown. For forecasts at other exceedance probabilities, see individual state reports.

Prepared by:  
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Portland, Oregon  
<https://www.wcc.nrcs.usda.gov>  
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**NOTICE:**  
This map will be discontinued after May 2018 due to staffing constraints.  
  
Alternate maps:  
[go.usa.gov/xnzxk](https://go.usa.gov/xnzxk)

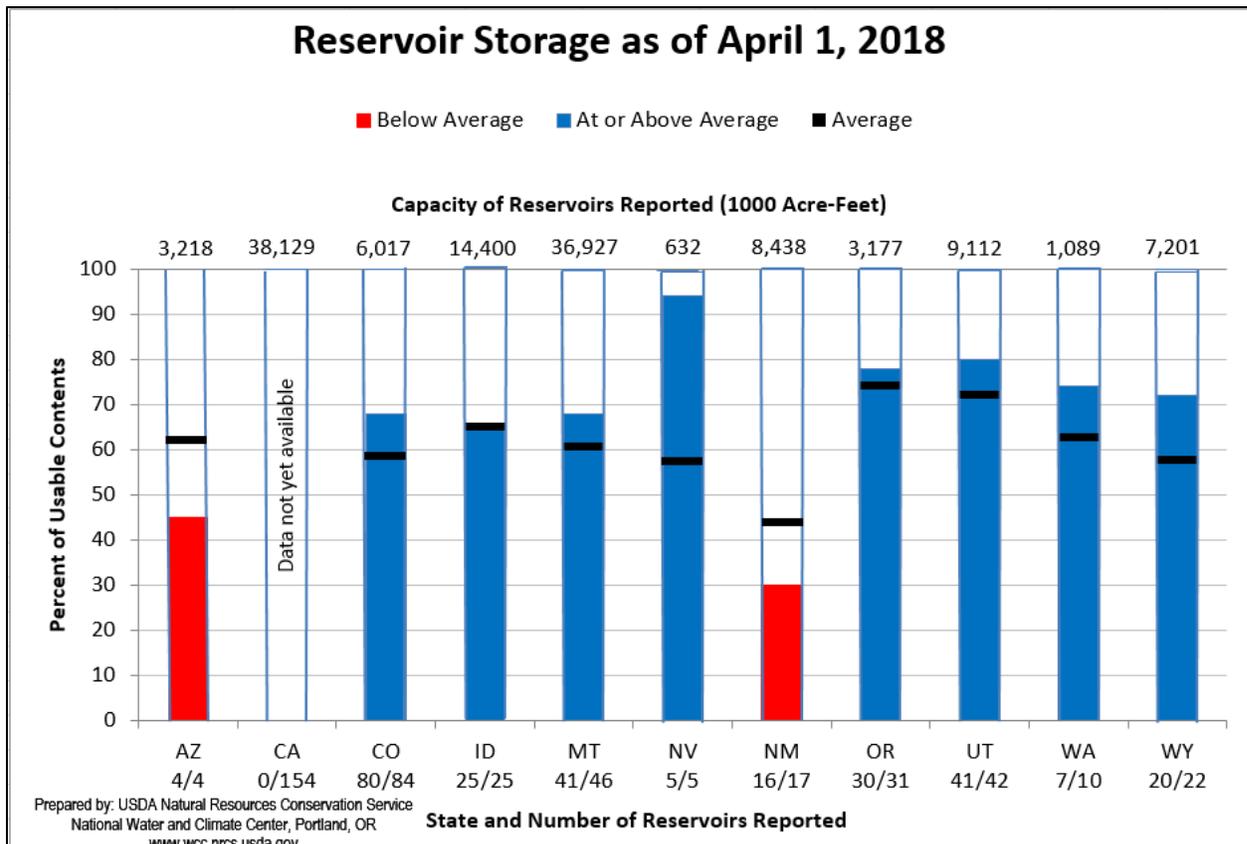
Trends in streamflow forecasts in basins for which daily water supply forecast models are available can be followed at: [https://www.wcc.nrcs.usda.gov/wsf/daily\\_forecasts.html](https://www.wcc.nrcs.usda.gov/wsf/daily_forecasts.html)

## Reservoir Storage

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

**Arizona:** As of April 1, the statewide snowpack is mostly melted out, measuring at 13%, while the snowpack in the basins ranged from 4% in the Verde River Basin to 0% in the Upper Gila River Basin. Precipitation for the month of March, as well as the cumulative precipitation for the water year, remain well below normal.

**California:** California's "March Miracle" actually started in late February, with a regularly spaced series of storms tripling the Sierra snowpack by the end of March and bolstering precipitation totals to between roughly 60 to 80% of the seasonal average for the north, central, and south regions. The impressive totals racked up in March were not enough, however, to compensate for extremely dry conditions in October, December, and February; the statewide snow water equivalent on April 1 was just 54% of the average for the date, and precipitation totals remain well below average, especially in the south. Blessed with carryover from last year, California's major reservoirs remain in relatively good shape.

**Colorado:** Colorado received only 65% of normal precipitation during the month of March. Consequently, snowpack is now down to 68% of normal from 72% last month. Warm temperatures are now driving the beginnings of seasonal snowmelt, which is now transitioning up into the mid-elevations of southern Colorado mountain basins. Streamflows are generally below normal in northern portions of the state and well to extremely below normal in southern Colorado.

**Idaho:** Overall, water supplies will be adequate when combined with reservoir storage. Any excess water will be put to use recharging Idaho's aquifers, producing power, benefiting fish and wildlife, and providing ideal flows for river runners.

**Montana:**

**Nevada:**

**New Mexico:**

**Oregon:** The Columbia River served as a sharp dividing line for snowpack accumulation this season in the Pacific Northwest, bringing near normal snowpack north of the river and below normal to the south. Northern Oregon had the best snowpack in the state, benefiting from the fringes of storms that brought ample snow to the northern latitudes. However, all regions in the state are reporting below normal snowpack as of April 1. In general, the snowpack conditions deteriorate from north to south across the state. While March did bring near to above average precipitation to parts of southern Oregon and offered at least some improvement in snowpack conditions, it wasn't enough to change the water supply outlook.

Oregon's streamflow forecasts closely follow the seasonal trend: only the rivers closest to the Columbia River are expected to see near normal spring and summer streamflows. Elsewhere in the state, streamflow is projected to be well below normal due to the low snowpack levels this season. Reservoir storage may serve as a buffer for water users that have access to it. Most of Oregon's major irrigation reservoirs are storing near average amounts for this time of year. Water users that are not able to take advantage of reservoir storage will likely experience significantly reduced water supplies this summer, especially in the southern and southeastern basins. The Governor declared a drought emergency in Klamath County in March, and more counties may follow.

Spring weather conditions will have some influence on the final water supply outcome, but it is not likely to vastly improve the situation. NOAA's Climate Prediction Center is calling for below average precipitation for the next three months: <http://www.cpc.ncep.noaa.gov/>. If temperatures were to stay cool this spring, it would help to preserve the limited snowpack later in the season in the event that the next few months remain drier than usual. While cooler temperatures would be the best scenario, there is no guarantee. Currently, the drought monitor has most of Oregon in either an abnormally dry status or moderate drought category: <http://droughtmonitor.unl.edu/>.

**Utah:** March storms improved snowpack across Utah by about 10%, moving the statewide percent of normal from the 50% range to 60%. All basins experienced below to much below normal monthly snowpack conditions from November through February, but March was a typical normal snowpack month where, for the most part, we saw snowpack numbers increase across the state. April 1 snowpacks range from 45% of median in the southeastern area to 82% in the Bear and northeastern Uinta. Most basins range from 53% to 64% of normal. Snowmelt streamflows are expected to be much below average across most of the state. Forecast streamflows range from 4% to 102% of average. Most flows are forecast to be in the 22% to 68% range.

**Washington:** With peak snowpack in the books for most of Washington, the state can look forward to favorable water supply. Weather forecasts favor a cool spring, which promotes a normal runoff and sustained flows throughout the summer. Current soil moisture conditions also point to increased runoff.

**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>.