June 1, 2022 Water Supply Forecast Discussion

The <u>Colorado Basin River Forecast Center (CBRFC)</u> geographic forecast area includes the Upper Colorado River Basin, Lower Colorado River Basin, and Eastern Great Basin.

Water Supply Forecast Summary

May weather was similar to April weather - cooler/wetter across northern basins and warmer/drier elsewhere. Multiple storm systems moved through the northern part of the region during May with precipitation mostly targeting higher elevation terrain near the Idaho-Utah-Wyoming border and northwest Colorado. Far southwest Colorado including the southern Gunnison River Basin, Dolores River headwaters, and San Juan River headwaters had a very dry April and May, with most SNOTEL stations in the area ranked in the driest five on record and below the 10th percentile over the past two months. This is also the case in southwest Utah (Sevier and Virgin River Basins) and Arizona (Lower Colorado River Basin).

June 1 snow water equivalent (SWE) conditions are most favorable across higher elevation northern basins within the Upper Green, White/Yampa, and Colorado River headwaters, primarily due to May's unsettled weather across these areas leading to additional snow accumulation in higher elevations. Elsewhere, below average May precipitation and more continuous snowmelt occurred due to warmer and sunnier weather, with significant dust-on-snow conditions increasing snowmelt rates across much of western Colorado during the month.

Upper Colorado River Basin water supply forecasts generally range between 35-95% of the 1991-2020 historical April-July average. Great Basin water supply forecasts are 35-85% of average.

May 1 water supply forecast ranges (percent of normal) by basin:

Basin	Apr-Jul Water Supply Forecast Range
Upper Green	40-75%
Duchesne	35-85%
Yampa/White	40-90%
Upper Colorado Mainstem	55-95%
Gunnison	45-90%
Dolores	45-60%
San Juan	45-65%
Deer	25 750/
bear	35-75%
Weber	45-75%
Six Creeks	40-70%
Provo/Utah Lake	40-85%
Sevier	35-75%

April-July unregulated inflow forecasts for some of the major reservoirs in the Upper Colorado River Basin include Fontenelle 435 KAF (59% average), Flaming Gorge 520 KAF (54%), Green Mountain 220 KAF (79%), Blue Mesa 430 KAF (68%), McPhee 135 KAF (53%), and Navajo 310 KAF (49%). The Lake Powell inflow forecast is 3.5 MAF (55% of average), which is a four percent decrease from May.

An upper low off the Pacific Coast will send a series of weather disturbances through the area into next week. Significant precipitation is not expected, but these disturbances will bring cooler temperatures and cloud cover across the north and warm, windy conditions across the south. A warming and drying trend will begin around the middle of next week and continue into next weekend as high pressure builds across the area.

Seasonal Water Supply Forecasts



Upper Colorado, Great, Virgin River Basins June 2022 April-July forecast volumes as a percent of the 1991-2020 average (50% exceedance probability forecast)

For specific site water supply forecasts click here

Water Supply Discussion

May Weather/Precipitation

May weather was similar to April weather - cooler/wetter across northern basins and warmer/drier elsewhere. Multiple storm systems moved through the northern part of the region with precipitation mostly targeting higher elevation terrain near the Idaho-Utah-Wyoming border and northwest Colorado. May temperatures were generally near to below normal across the northern part of the region and near to above normal across southern basins.

May precipitation, as a percent of the 1991-2020 average, was near to above normal along portions of the Wasatch Range and the north slope of the Uinta Mountains in Utah as well as parts of the Wyoming and Wind River Ranges in west central Wyoming. May precipitation was also near to above normal across northwest Colorado (White/Yampa, Colorado River headwaters). The south slope of the Uintas (Duchesne basin), southwest Utah (Virgin), southwest Colorado (Gunnison, Dolores, San Juan), and Arizona received well below normal precipitation during May.

Far southwest Colorado including the southern Gunnison River Basin, Dolores River headwaters, and San Juan River headwaters had a very dry April and May, with most SNOTEL stations in the area ranked in the driest five on record and below the 10th percentile over the past two months. This is also the case in southwest Utah (Sevier and Virgin River Basins) and Arizona (Lower Colorado River Basin).



May minimum temperature (left) and maximum temperature (right) departure from the 1991-2020 average.



Prepared by NOAA, Colorado Basin River Forecast Center Salt Lake City, Utah, www.cbrfc.noaa.gov

May 2022 percent of normal precipitation. (Averaged by basins defined in the CBRFC hydrologic model)

May Observed Streamflow

May observed unregulated streamflow volumes as a percent of average (image below) were variable across the Upper Colorado River Basin and Great Basin. Far northern basins including the Bear, Upper Green, and Little Snake generally saw less snowmelt runoff during May due to cooler and cloudier weather. Below normal May 1 snowpack conditions and drier than normal soil moisture conditions across portions of southwest Colorado led to below normal May streamflow in much of the Dolores and San Juan River Basins. Notable areas with near to above average May flows include the western Uinta Mountains in northeast Utah, which includes headwaters of the Duchesne, Weber, and Provo Rivers, all of which had near normal antecedent soil moisture conditions entering the runoff season. May flows were also near to above normal in portions of the Gunnison River Basin and much of the Colorado River headwaters/mainstem area. The East Troublesome Fire (October 2020) has continued to have a noticeable impact within the Willow Creek drainage, where runoff timing has been earlier than normal and runoff efficiency has been higher than normal.



Upper Colorado, Great, Virgin River Basins May 2022 observed unregulated volumes as a percent of the 1991-2020 average.

Snowpack

Percent normal (median) snow water equivalent (SWE) can be misleading and vary significantly in the spring after peak snowpack has passed and during the snowmelt season. June historical median SNOTEL SWE values are generally small and it is normal for many areas to have little or no snow remaining. With that said, June 1 SWE conditions are generally below the 1991-2020 normal across the Upper Colorado River Basin and Great Basin.

Current SWE conditions are most favorable across higher elevation northern basins within the Upper Green, White/Yampa, and Colorado River headwaters, primarily due to May's unsettled weather across far northern basins leading to additional snow accumulation in higher elevations and reduced snowmelt rates due to cooler and cloudier weather. Elsewhere, below average May precipitation and more continuous snowmelt occurred due to warmer and sunnier weather, with significant dust-on-snow conditions increasing snowmelt rates across much of western Colorado during the month.

The images below show CBRFC hydrologic model snow conditions and observed (SNOTEL) snow conditions.



Snow Conditions - June 03 2022

Prepared by NOAA, Colorado Basin River Forecast Center Salt Lake City, Utah, www.cbrfc.noaa.gov

CBRFC hydrologic model percent median SWE - June 3, 2022.

For SNOTEL information click <u>here</u>. For CBRFC hydrologic model snow click <u>here</u>.



SNOTEL percent median observed SWE - June 3, 2022.



SNOTEL observed SWE percentiles - June 3, 2022.

Upcoming Weather

An upper low off the Pacific Coast will send a series of weather disturbances through the area into next week. Significant precipitation is not expected, but these disturbances will bring cooler temperatures and cloud cover across the north and warm, windy conditions across the south. The first disturbance will send a cold front through the northern half of the area this weekend dropping temperatures to about five degrees below normal. Further south, temperatures will be 5-10 degrees above normal. Scattered showers and thunderstorms are expected across northern Utah and Colorado on Monday and Tuesday.

A warming and drying trend will begin around the middle of next week and continue into next weekend as high pressure builds across the area. There is disagreement between weather models in regards to how high temperatures will climb. However, there is fairly good agreement that record high temperatures are possible across the southern half of the area next weekend.



NWS Weather Prediction Center precipitation forecast for June 3-10, 2022.



NWS Climate Prediction Center precipitation and temperature probability forecasts for June 10-16, 2022.

Basin Conditions and Summary Graphics

<u>Green River Basin</u> <u>Upper Colorado River Basin</u> <u>San Juan River Basin</u> <u>Great Salt Lake Basin</u> <u>Sevier River Basin</u> <u>Virgin River Basin</u>

End Of Month Reservoir Content Tables

Green River Basin Upper Colorado River Basin San Juan River Basin Great Salt Lake Basin Sevier Basin