June 1, 2020 Water Supply Forecast Discussion

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

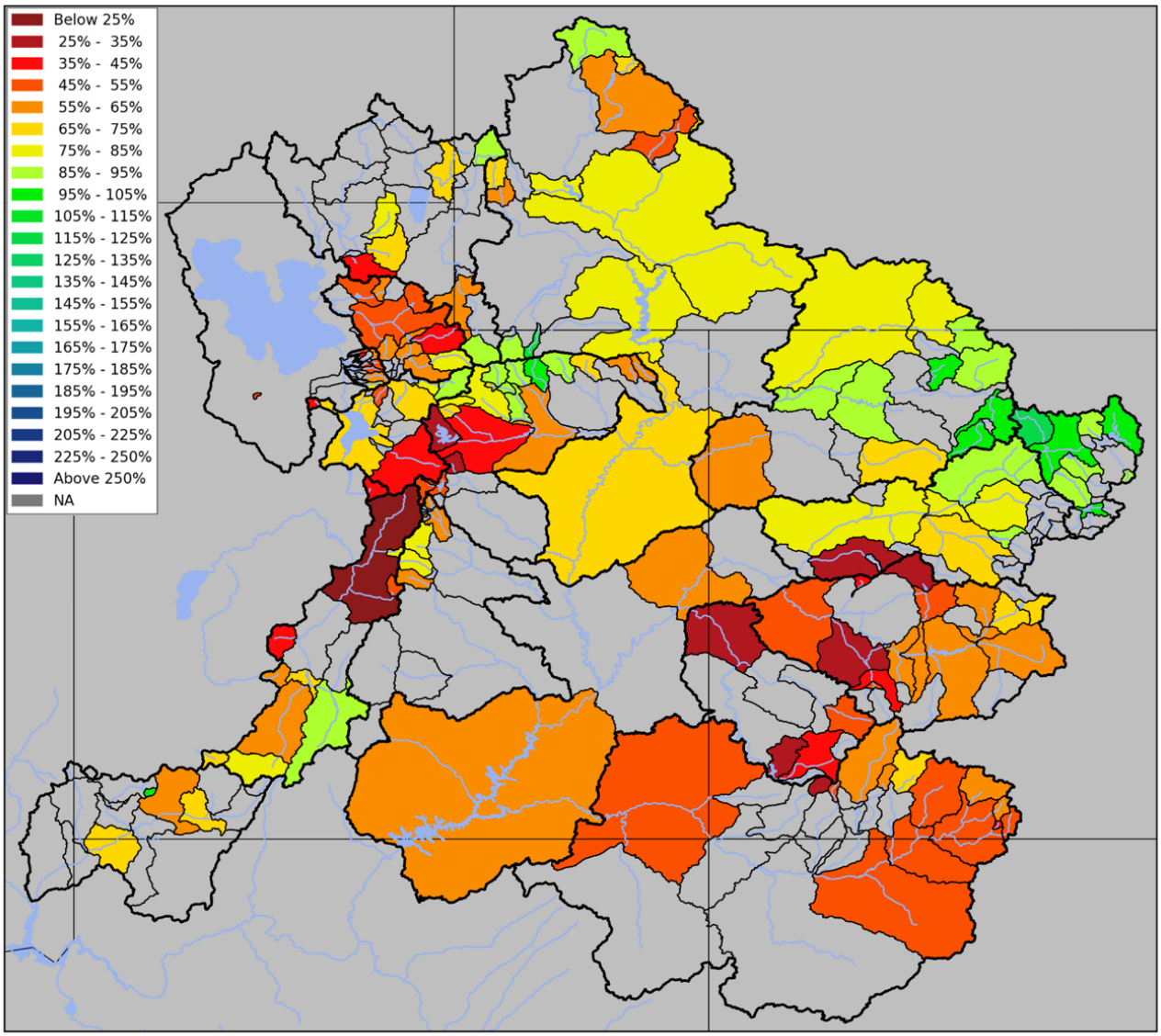
Water Supply Forecast Summary

The weather pattern during the month of May was dominated by general ridging across the Intermountain West. The pattern was not conducive to bringing storm systems across the majority of the Upper Colorado River Basin and Great Basin. This was a continuation of the ridging and dry conditions that prevailed during the preceding month, and has resulted in one of the drier April-May periods (below the 10th percentile), especially over the southern half of Colorado and much of Utah. Average temperatures in May were near to above average over the region with the warmest anomalies (3-7 degrees) over southwest Colorado and southeast Utah. The warm/dry conditions and general lack of cloud cover over the past month has resulted in rapid and early snowmelt over the Upper Colorado River Basin and Great Basin. Early June snowpack conditions are below to much below normal (median) at almost all SNOTEL stations across the Colorado River Basin and Great Basin.

April-July water supply volume forecasts are near to much below average throughout the Upper Colorado River Basin and Great Basin. Volume guidance decreased by as much as 5-20% in the past month across much of the region due to well below average May precipitation. The forecasts at locations that did not decrease had minimal changes from early May. The highest forecast volumes with respect to average are in the White/Yampa, Upper Colorado River mainstem above Kremmling, and parts of the Green and Duchesne basins, where volume forecasts are generally near to slightly below the 1981-2010 historical average. June water supply forecasts are much below average across the Gunnison, Dolores, San Juan, and much of the eastern Great Basin.

April-July unregulated inflow forecasts for some of the major reservoirs in the Upper Colorado River Basin include Fontenelle Reservoir 590 KAF (81% average), Flaming Gorge 740 KAF (76% of average), Blue Mesa Reservoir 395 KAF (59% of average), McPhee Reservoir 95 KAF (32% of average), and Navajo Reservoir 365 KAF (50% of average). The Lake Powell inflow forecast is 4.10 MAF (57% of average), an eight percent decrease from May 1.

Seasonal Water Supply Forecasts



Upper Colorado, Great, Virgin River Basins: June 2020 April-July forecast volumes as a percent of 1981-2010 average.

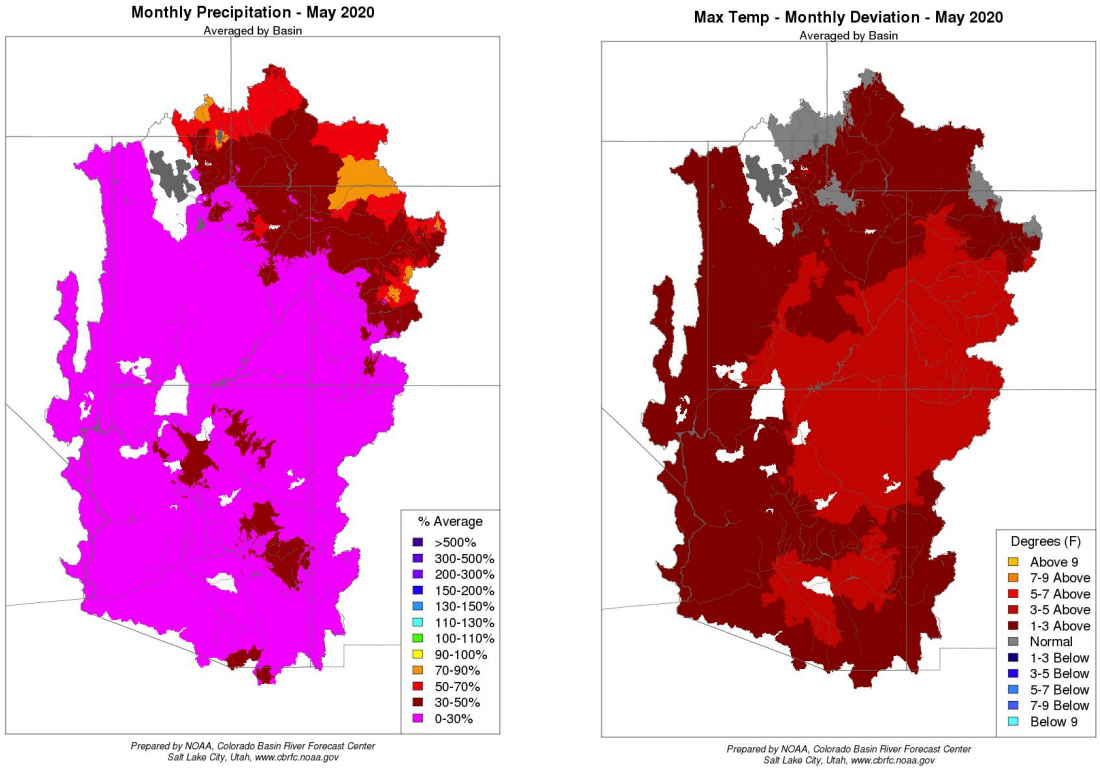
For specific site water supply forecasts click here

Water Supply Discussion

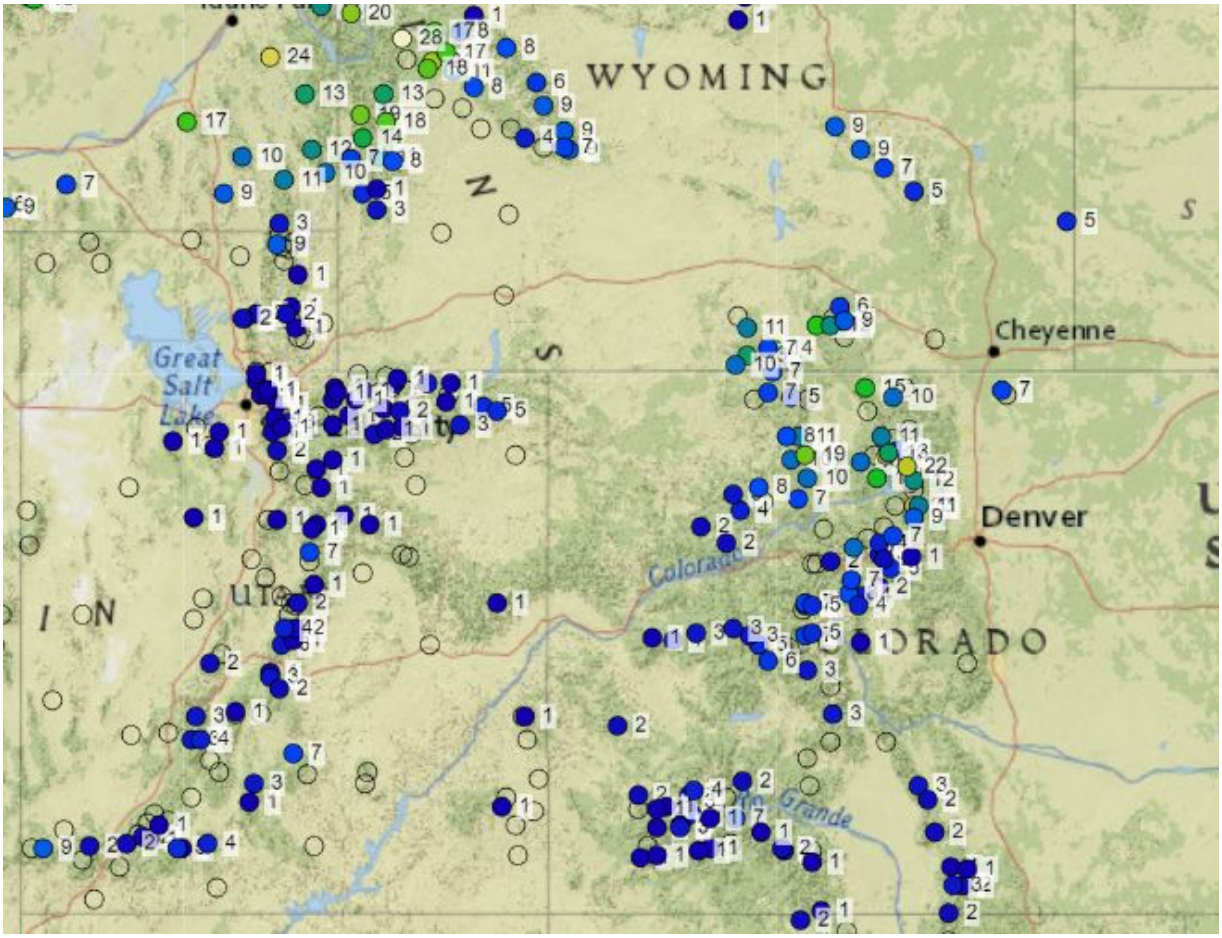
Weather Synopsis / May Precipitation & Temperature

The weather pattern during the month of May was dominated by general ridging across the Intermountain West. The pattern was not conducive to bringing storm systems across the majority of the Upper Colorado River Basin and Great Basin. This was a continuation of the ridging and dry conditions that prevailed during the preceding month, and has resulted in one of the drier April-May periods (below the 10th percentile), especially over the southern half of Colorado and much of Utah. Average temperatures in May were near to above average over the region with the warmest anomalies (3-7 degrees) over southwest Colorado and southeast Utah. The warm/dry conditions and general lack of cloud cover over the past month has resulted in rapid snowmelt over the Upper Colorado River Basin and Great Basin.

May precipitation was mostly below to much below average across the Colorado River Basin and Great Basin. It was exceptionally dry over Utah and southwest Colorado (0-50% of normal monthly precipitation). A few weak storm systems clipped Wyoming and northern Colorado, and portions of the Upper Green and Yampa/Upper Colorado headwaters saw 40-80% of normal precipitation. As mentioned above, a number of SNOTEL sites across Utah and southwest Colorado recorded their driest April-May, with many of the sites having a period of record of at least 35 years. Climatological precipitation really drops off across the Lower Colorado River Basin in May, and this May was no different with minimal precipitation.



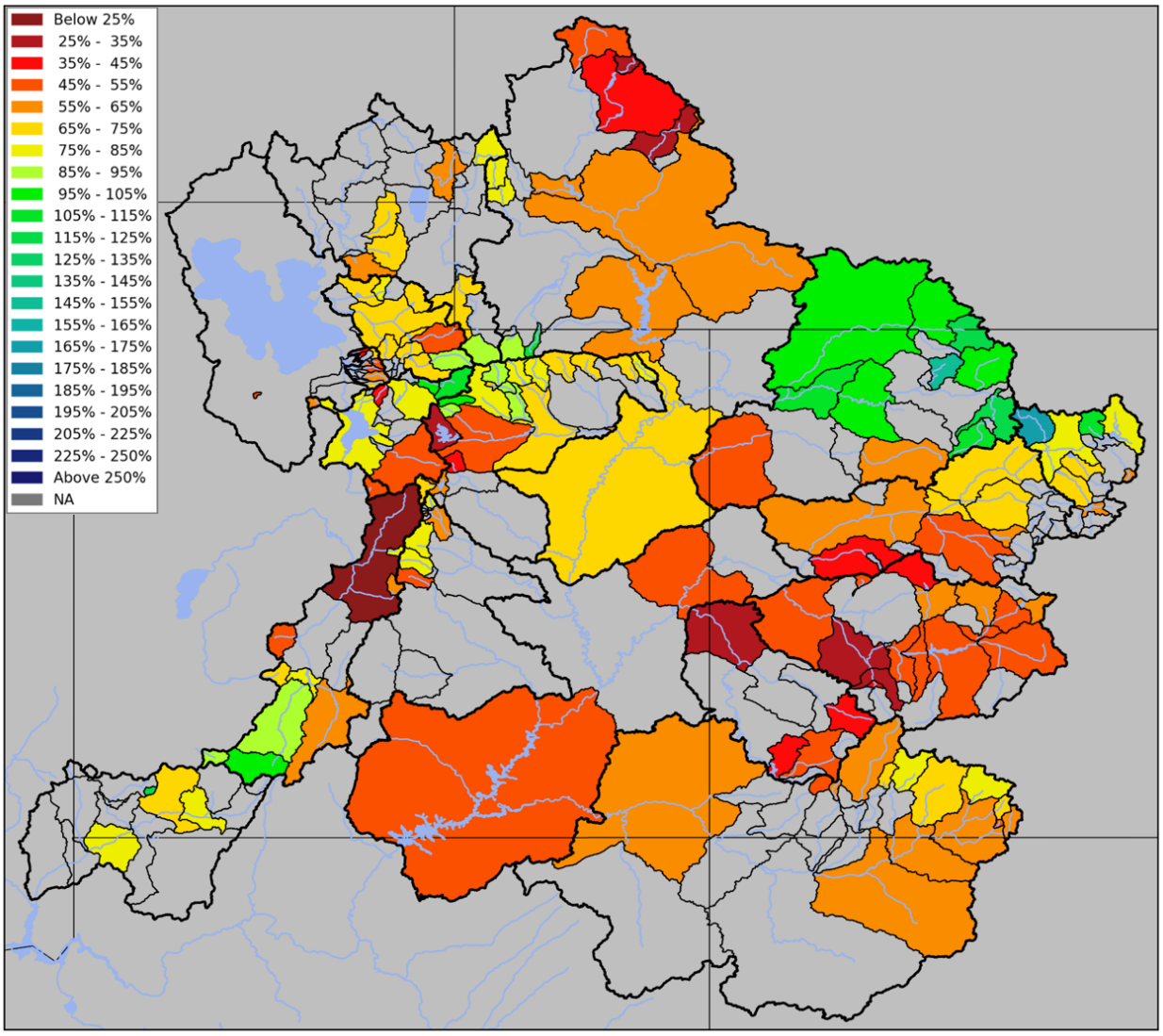
May 2020 percent of average precipitation and maximum monthly temperature departure.
(Averaged by basins defined in the CBRFC hydrologic model)



Minimum precipitation ranking for the April-May period at SNOTEL sites. Note many sites are the top 5 driest, especially over Utah and southwest Colorado. Image source: NRCS.

May Observed Streamflow

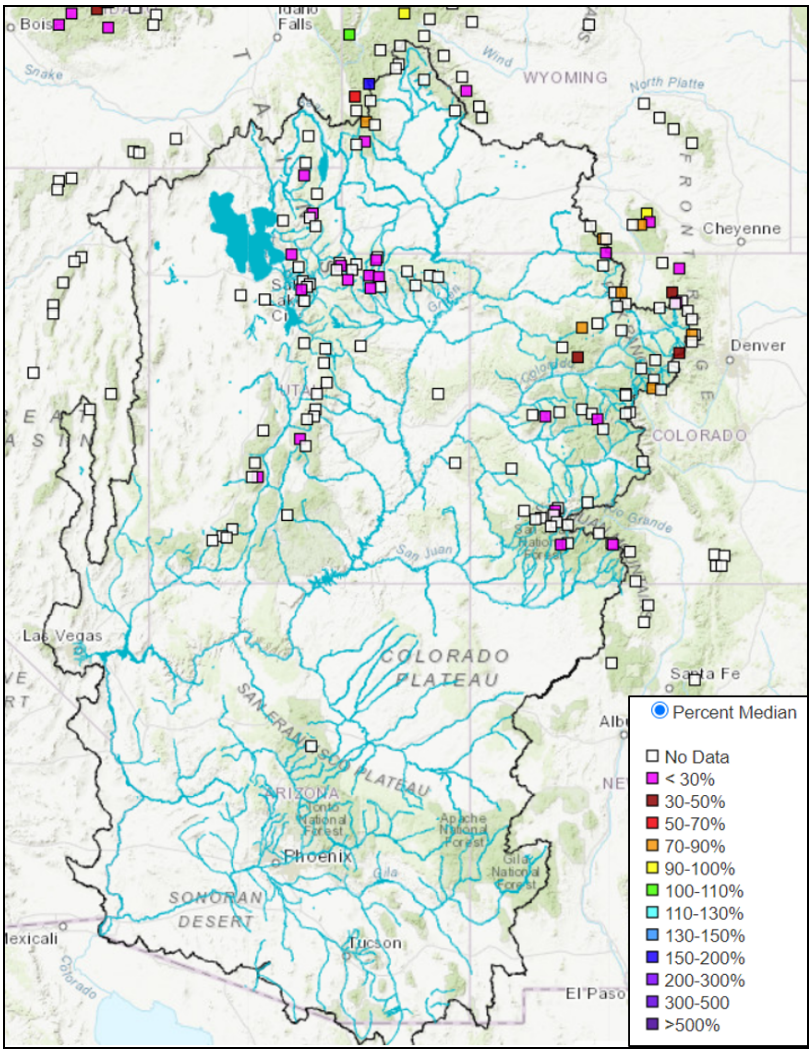
Observed unregulated streamflows during May were variable across the Upper Colorado and Great Basin. The highest flows with respect to the 1981-2010 historical average occurred in the White/Yampa and parts of the Lower Green, Duchesne, Sevier, and Upper Colorado River mainstem basins. Observed flows during May in southwest Colorado were below to much below average due to a lack of precipitation during May, dry antecedent soil conditions, and below average seasonal snowpack conditions. The map below shows May unregulated streamflow volumes as a percent of average.



Upper Colorado, Great, Virgin River Basins: May 2020 unregulated observed volumes as a percent of the 1981-2010 average.

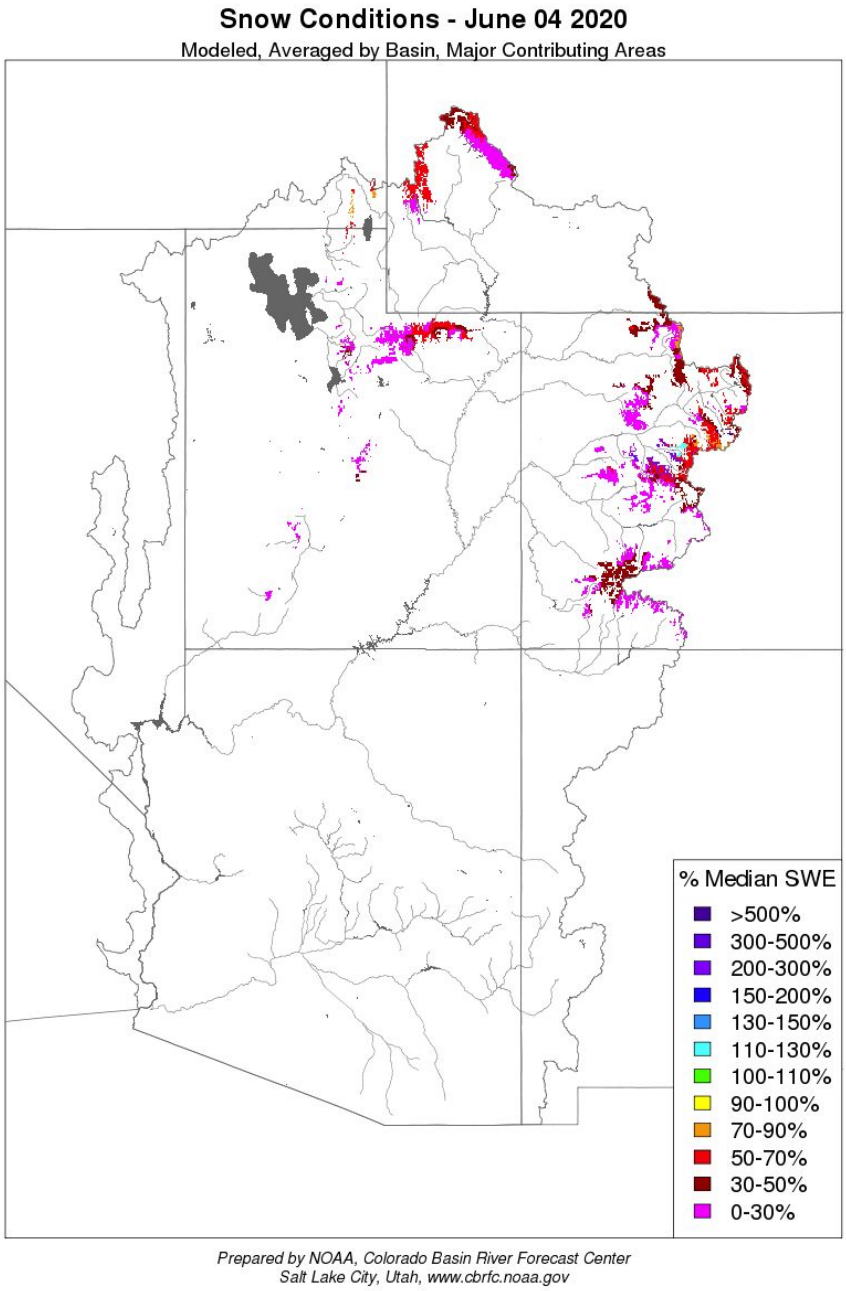
Snowpack

In the spring after the normal time of peak snowpack has passed, percent median snow water equivalent (SWE) can be misleading and vary significantly from day to day, as well as site to site, depending on the rate of snowmelt, new snow accumulation, and the magnitude of the median value. June historical median SWE values are generally small and it is normal for many areas to have little or no snow remaining. That being said, early June observed snowpack conditions are below to much below normal (median) at almost all SNOTEL stations across the Colorado River Basin and Great Basin. The basins with the best remaining snowpack are the Upper Green, White/Yampa, and Upper Colorado River mainstem headwaters. Little to no snow remains in southwest Colorado (Gunnison, Dolores, San Juan basins). Great Basin remaining snow is sparse and not expected to contribute much more to the spring snowmelt runoff volumes. Early June observed (SNOTEL) conditions as a percent of the 1981-2010 historical median are shown in the image below.



Observed (SNOTEL) percent median SWE conditions as of June 4, 2020.

The image below is the representation of early June CBRFC model snow conditions in areas that provide the greatest contribution of April-July runoff. Model snow conditions correlate well with SNOTEL conditions throughout the Colorado River and Great Basins.

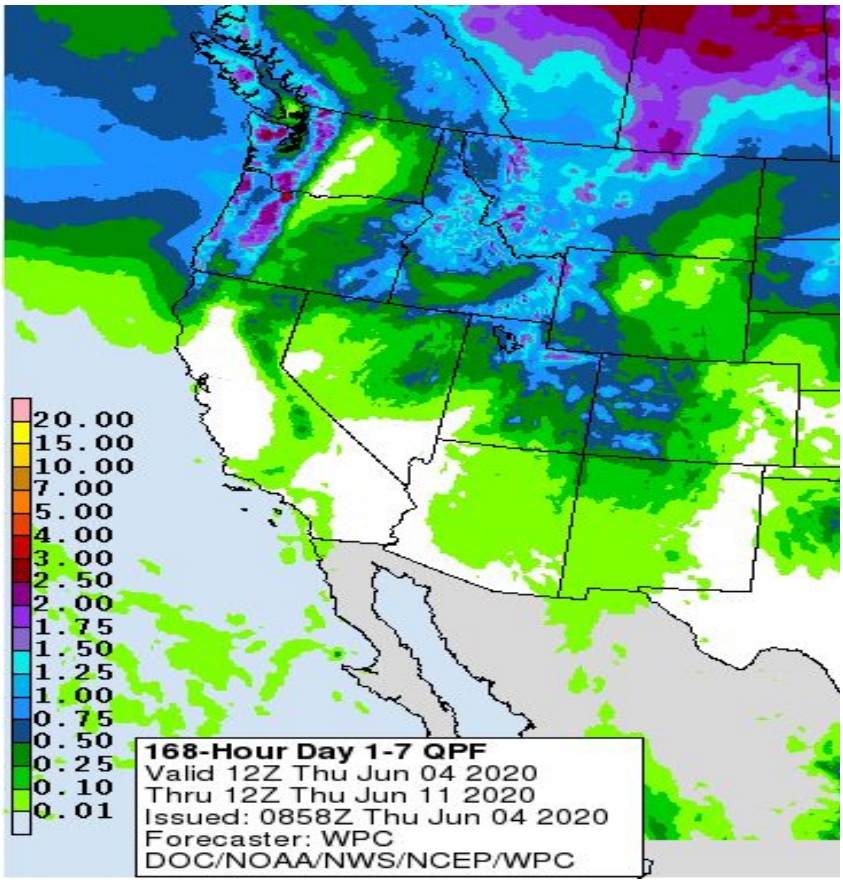


CBRFC hydrologic model snow conditions in significant runoff areas as of June 4, 2020.

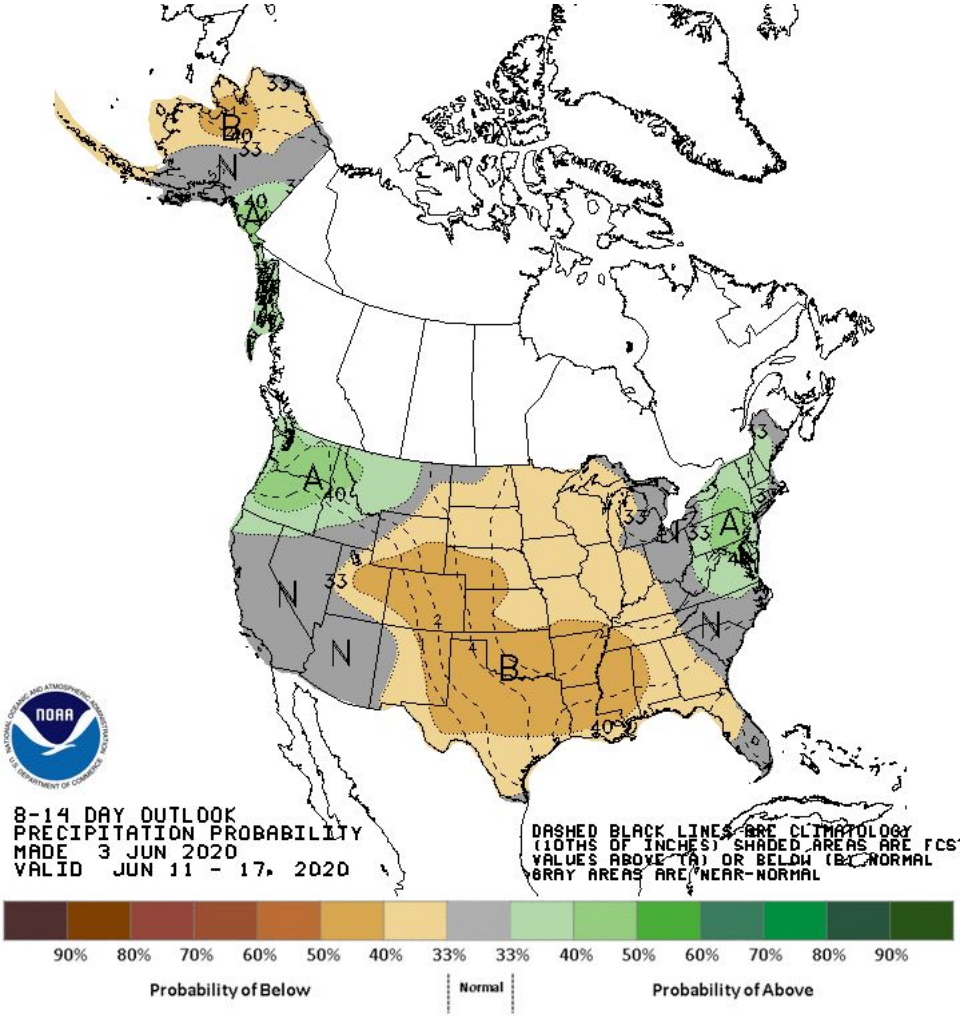
For updated SNOTEL information refer to click here
For CBRFC hydrologic model snow click here

Upcoming Weather

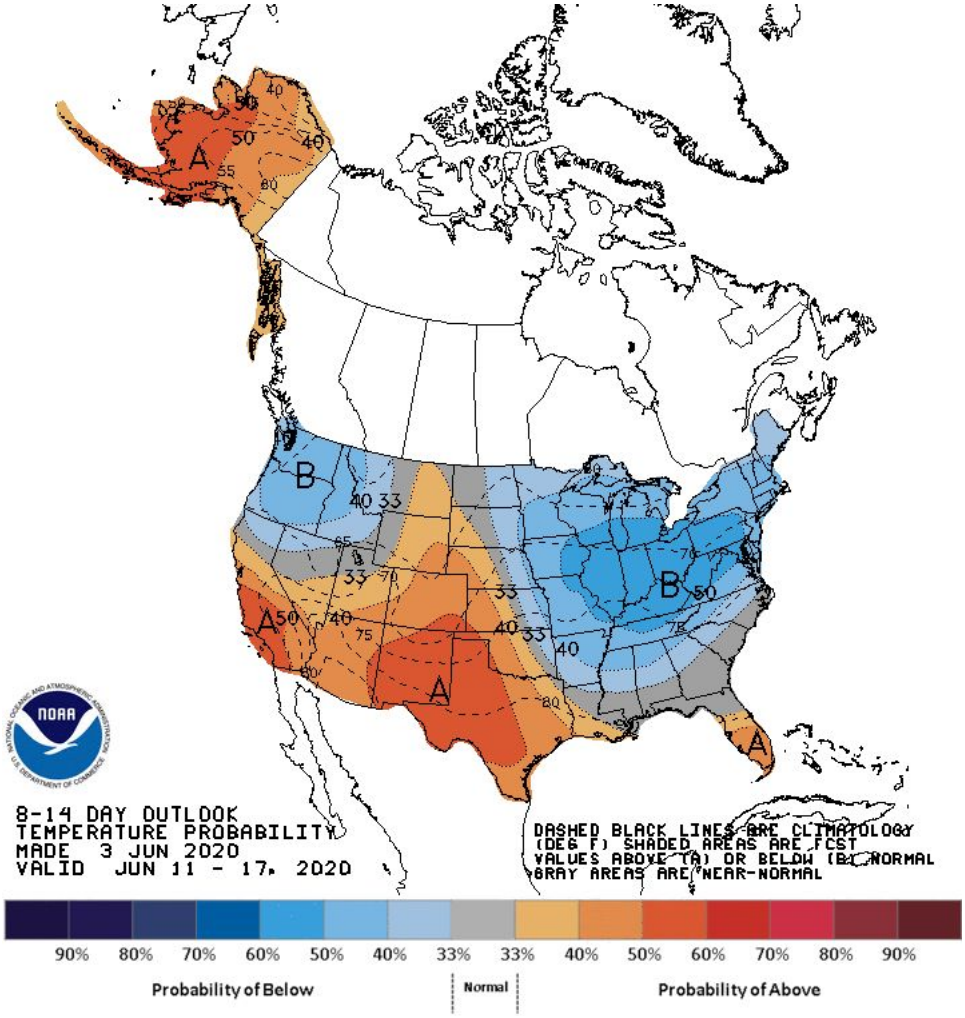
The weather pattern will begin to change by late Friday through the weekend as a substantial trough impacts much of the Intermountain West. This storm system is forecasted to bring much needed widespread precipitation across most of the Upper Colorado Basin and Great Basin. Precipitation amounts from late Friday through Monday morning are expected to be 0.50-1.50 inches, with the highest amounts over the mountainous areas of northern Utah extending northward into Idaho/Wyoming. After a very warm last 10 days across the region, this trough will bring much cooler temperatures (15-20 degrees below normal) by late this weekend into early next week. The weather models are in rather good agreement at showing more ridging and temperatures increasing back to slightly above normal by June 10-13. We are not far from the climatologically dry last half of June where significant precipitation becomes less likely and temperatures rise under a strengthening ridge.



NWS Weather Prediction Center precipitation forecast for June 4-11, 2020.



NWS Climate Prediction Center precipitation probability forecast for June 11-17, 2020.



NWS Climate Prediction Center temperature probability forecast for June 11-17, 2020.

Basin Conditions and Summary Graphics

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

End Of Month Reservoir Content Tables

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