

## June 1, 2018 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:

April-July water supply volume forecasts have trended higher in the upper Green River Basin in Wyoming while generally trending lower for much of southwest Colorado including the Gunnison, Dolores, and San Juan Basins. This trend has played out month after month throughout the 2018 water supply forecast season as wetter conditions have persisted in the headwaters of the Green River Basin with dry conditions dominating elsewhere.

The forecast trends were more of a mixed bag in the Duchesne River Basin, Yampa River Basin, and Great Basin with a mix of increases and decreases. These areas were generally dry in May however once runoff begins in earnest a better assessment can be made of high elevation snow present in the hydrologic model. Increases may not be representative of weather conditions in May but due to model adjustments associated with observed runoff.

April-July water supply volume forecasts are highest with respect to average in the upper Green River Basin and range from near 105 to 155 percent of average above Fontenelle Reservoir. Most of the Colorado River headwaters above Kremmling are expected to yield runoff volumes in the 80 to near 100 percent of average range.

Lowest forecasts with respect to average are in southwest Colorado, most notably in the Dolores River Basin where forecasts are generally less than 20 percent of average. Some volume forecasts are only slightly above the lowest observed volume on record. Low volumes are also likely in the lower elevation and western basins of the San Juan and Gunnison River Basins with many forecasts less than 35 percent of average. In southwest Utah, the Virgin River Basin is generally below 25 percent of average.

In the Great Basin of Utah, Idaho, and Wyoming the highest volumes with respect to average are in the Bear River Basin and range from near 60 to 80 percent of average. Again conditions deteriorate to the south with most volume forecasts falling below 40 percent of average and a few lower elevation sites near 20 percent of average. A couple of locations in the Sevier River Basin of south central Utah may see record low volumes this year.

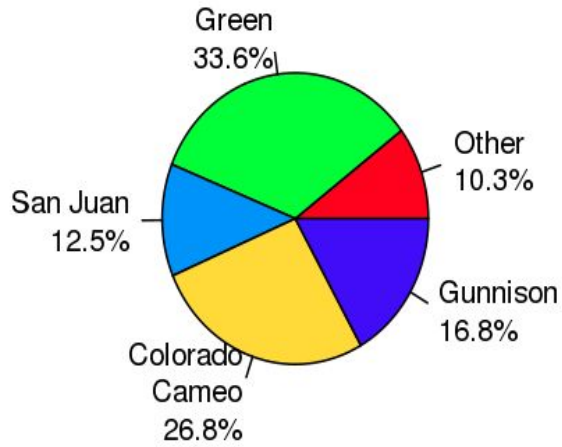
April-July unregulated inflow forecasts for some of the major reservoirs in the Upper Colorado River Basin include Fontenelle Reservoir 980 KAF (135% of average), Flaming Gorge 1120 KAF (114% of average), Blue Mesa Reservoir 270 KAF (40% of average), McPhee Reservoir 46 KAF (16% of average), and Navajo Reservoir 174 KAF (24% of average). The Lake Powell inflow forecast is 2.80 MAF or 39% of average. This would be the 5th lowest April-July inflow on record for Lake Powell dating back to 1964.

On average the Green River Basin provides around 34 percent of the April-July inflow into Lake Powell. This year due to the very low runoff volumes in southwest Colorado the Green River Basin is forecast to contribute 52 percent of the April-July volume into Lake Powell. This is indicated in the graphic below.

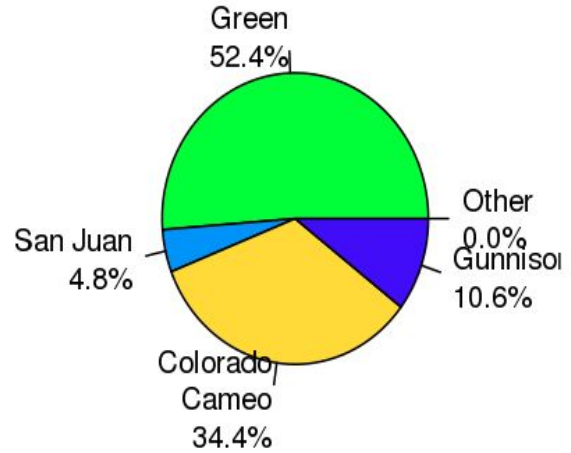
# April - July Unregulated Inflow into Lake Powell

As of 2018-06-04

## Average Streamflow Contribution

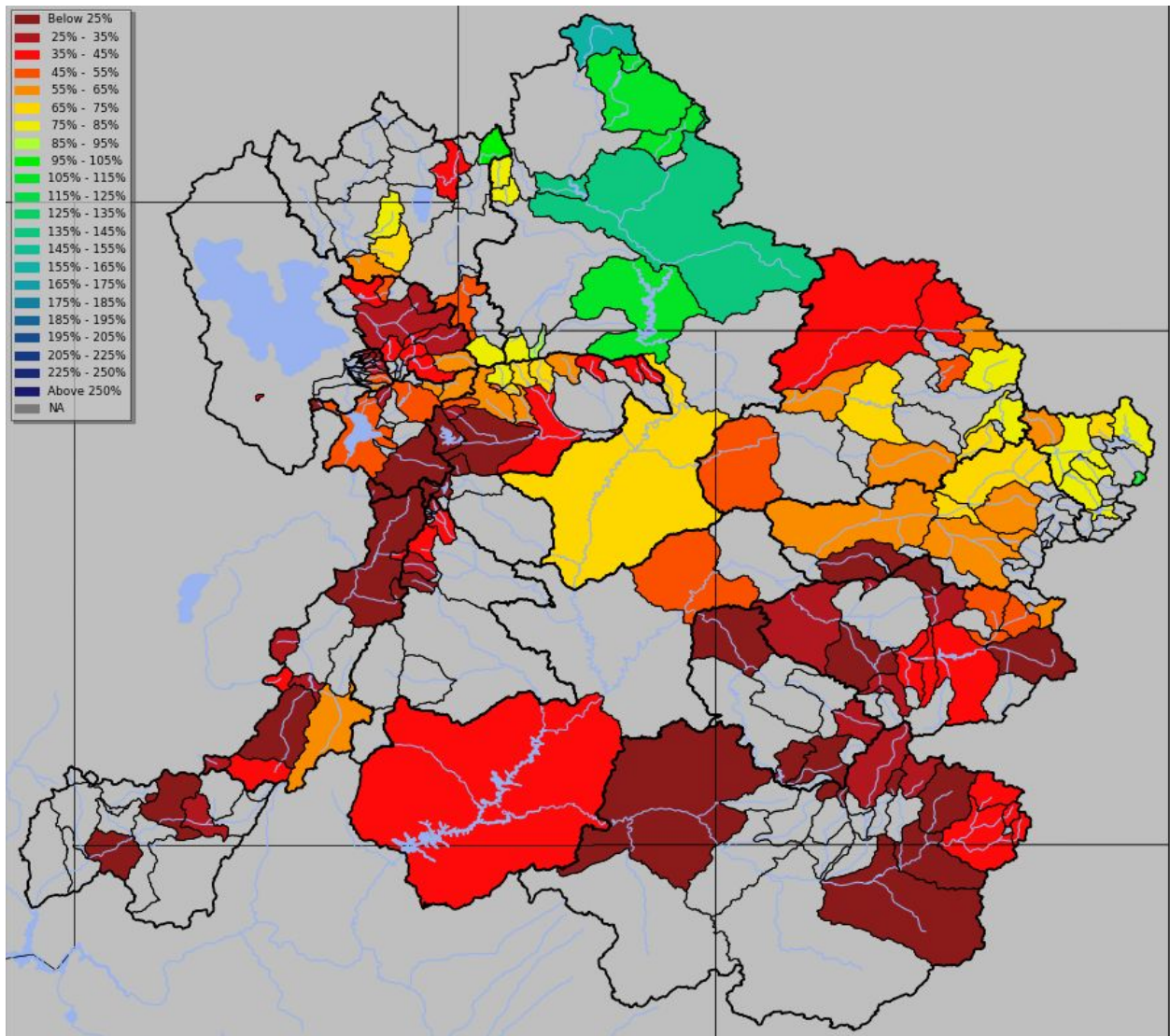


## June Final Forecast

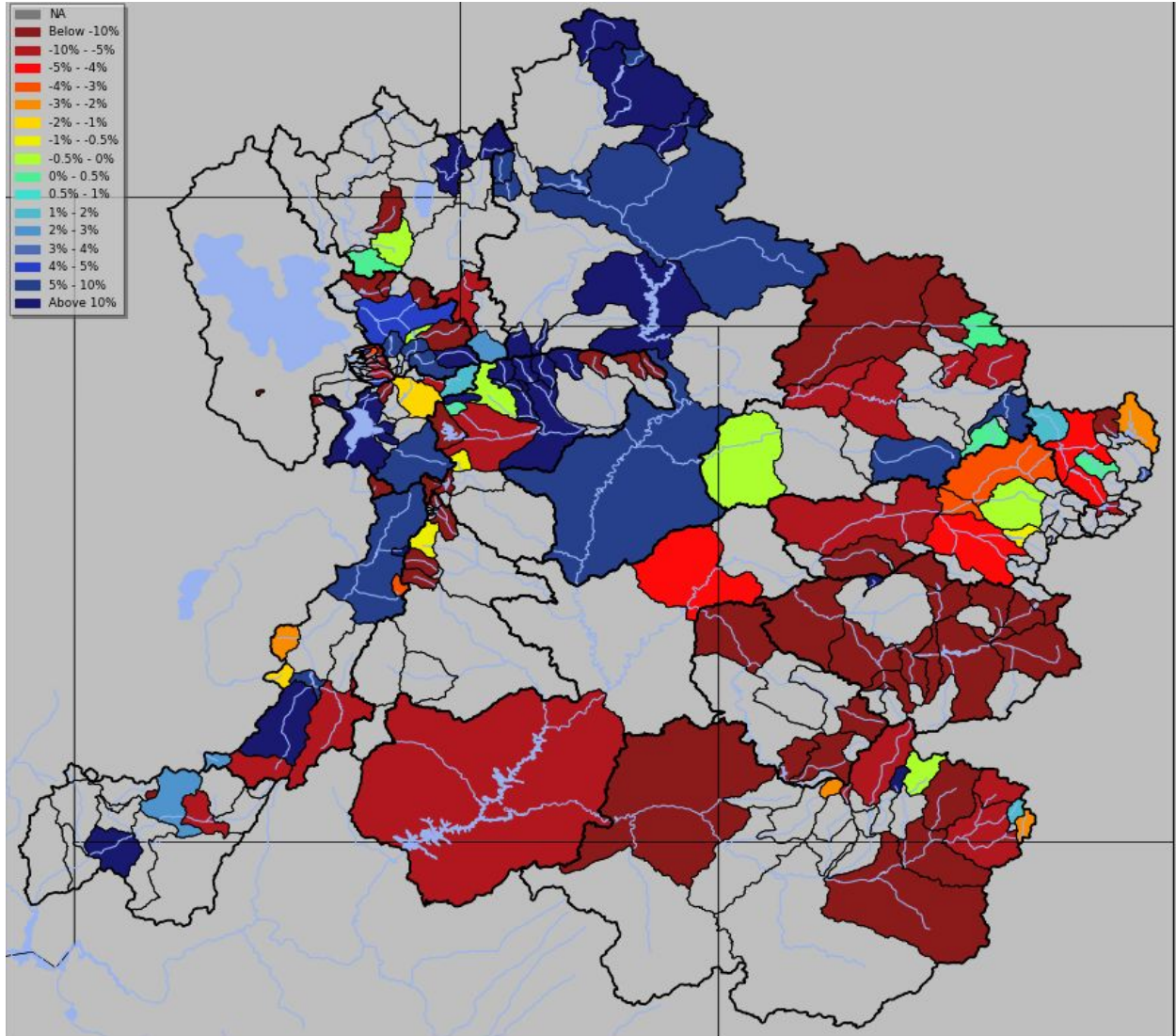


Historical and 2018 April-July unregulated inflow into Lake Powell by major river basins.

Seasonal Water Supply Forecasts:



Upper Colorado, Great, Virgin River Basins:  
June 1st 2018 April-July forecast volumes as a percent of 1981-2010 average  
(50% exceedance probability forecast)



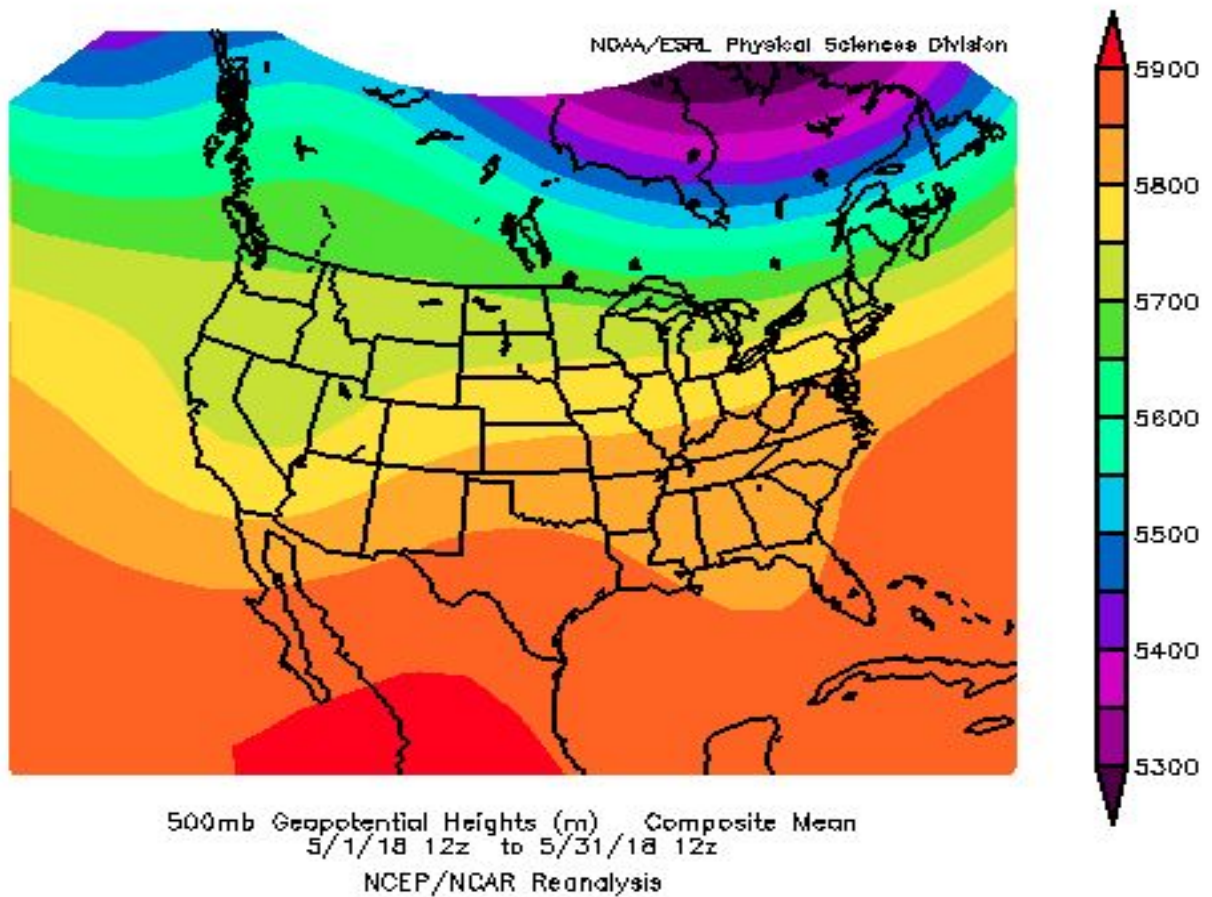
Upper Colorado, Great, Virgin River Basins: Difference in the forecasts between May 1st and June 1st 2018  
(As a percent of the 1981-2010 April-July average)

For specific site water supply forecasts click [here](#)

## Water Supply Discussion

### Weather Synopsis:

While May had a mix of weather it was generally dry outside of the Green River Basin of Wyoming, parts of the Duchesne River Basin, and in parts of the Virgin River Basin of southwest Utah. This pattern was due to low pressure systems that were closed lows that tend to move slowly or at times become stationary for a period of time. In these cases the low pressure systems remained west of the CBRFC forecast area for a time before moving through. Precipitation was limited to the orographically favored areas mentioned above. While some areas continued to receive precipitation, others remained in a warm southwest flow resulting in above average temperatures, significant snow melt, and much below average precipitation.



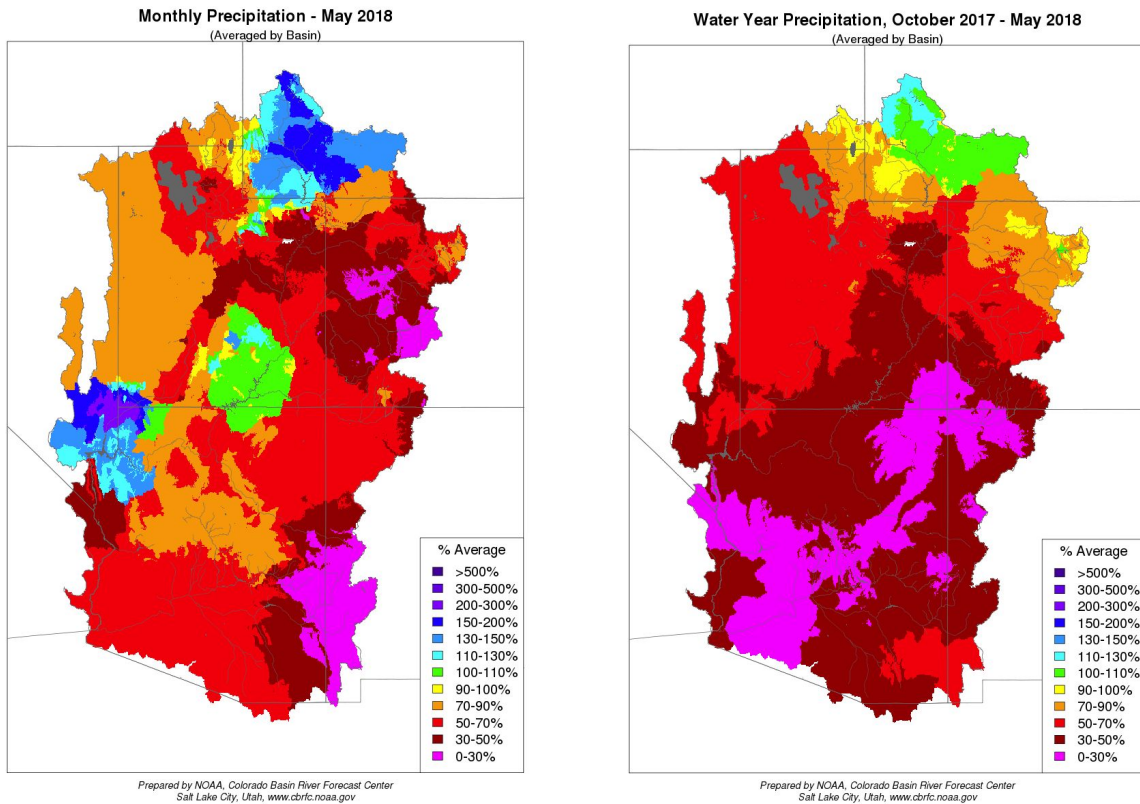
The mean atmospheric pattern during the month of May. Low pressure systems persisted to the west of the CBRFC forecast area before moving through. This resulted in persistent dry and warm conditions over Colorado with cooler and wetter conditions farther to the north and west.

#### **Precipitation and Temperature:**

Very wet conditions occurred in a few areas due to the nature of the low pressure systems that impacted the areas during May. However these were limited to the upper Green River Basin, parts of the Duchesne River Basin, the north slope of the Uinta Mountains, and over parts of southwest Utah. Meanwhile very dry conditions were the result over much of Colorado in particular in parts of the Gunnison and Dolores River Basins and in some tributaries of the Colorado River mainstem above Cameo.

The water year (October-May) precipitation image tells the story of where the bulk of this years runoff into Lake Powell is coming from and where flows amongst the lowest 2 or 3 on record are expected. The upper Green River Basin and headwaters of the Colorado River are the only areas in the upper Colorado River Basin with favorable water year precipitation amounts. Elsewhere water year precipitation amounts are generally below 70 percent of average with some areas in the 30 to 50 percent of average category. In the Great Basin only a few sites in the Bear River Basin headwaters received water year precipitation near average. October-May precipitation was at record lows for many areas in the Dolores and San Juan River Basins. Record low October-May precipitation was also noted over the western and northern Gunnison River Basin and was scattered throughout parts of the Great Basin,

Duchesne River Basin, and tributaries of the Colorado and Green Rivers in southeast Utah.



Images: May 2018 and water year (Oct 2017-May 2018) precipitation graphics  
(Averaged by basins defined in the CBRFC hydrologic model)

Maximum temperatures averaged over the month were above normal over the eastern half of the CBRFC forecast area. This is consistent with the low pressure system to the west that resulted in a warm southwest flow of air over much of the upper Colorado River Basin. Areas closer to the low pressure system were closer to average with some areas to the southwest below average.

Maximum and minimum monthly temperature deviation from average are displayed in the images below.

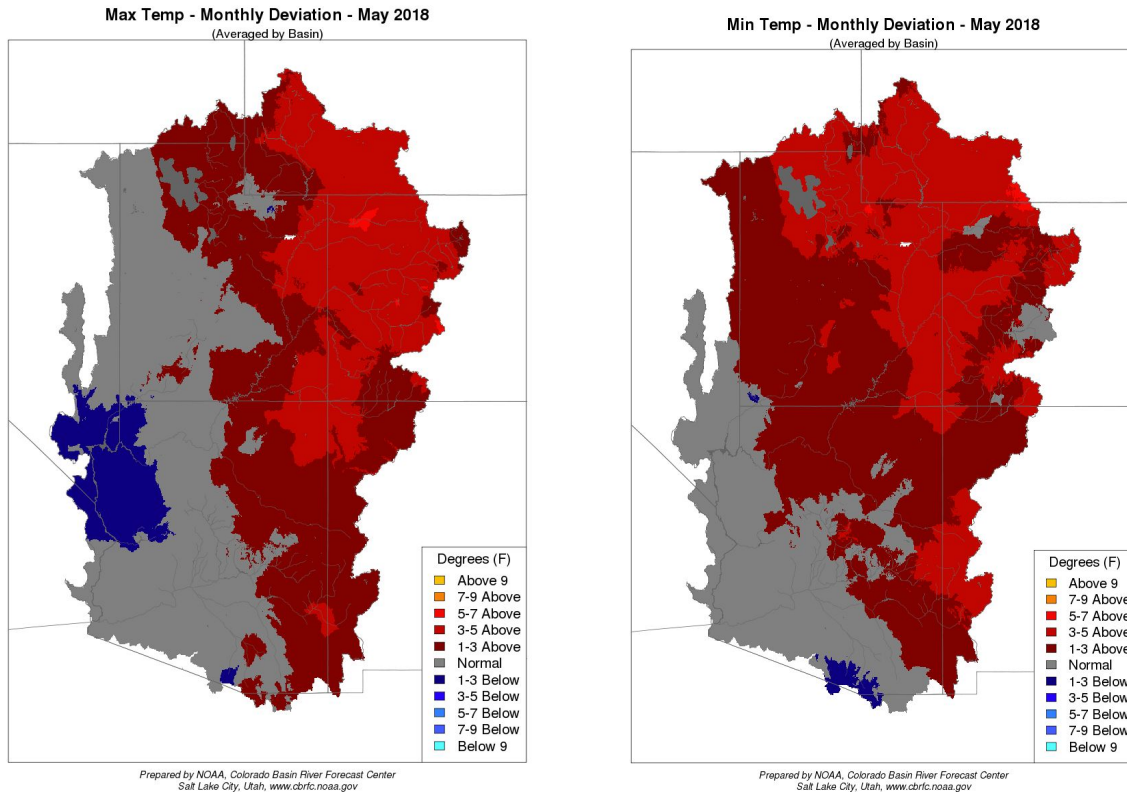


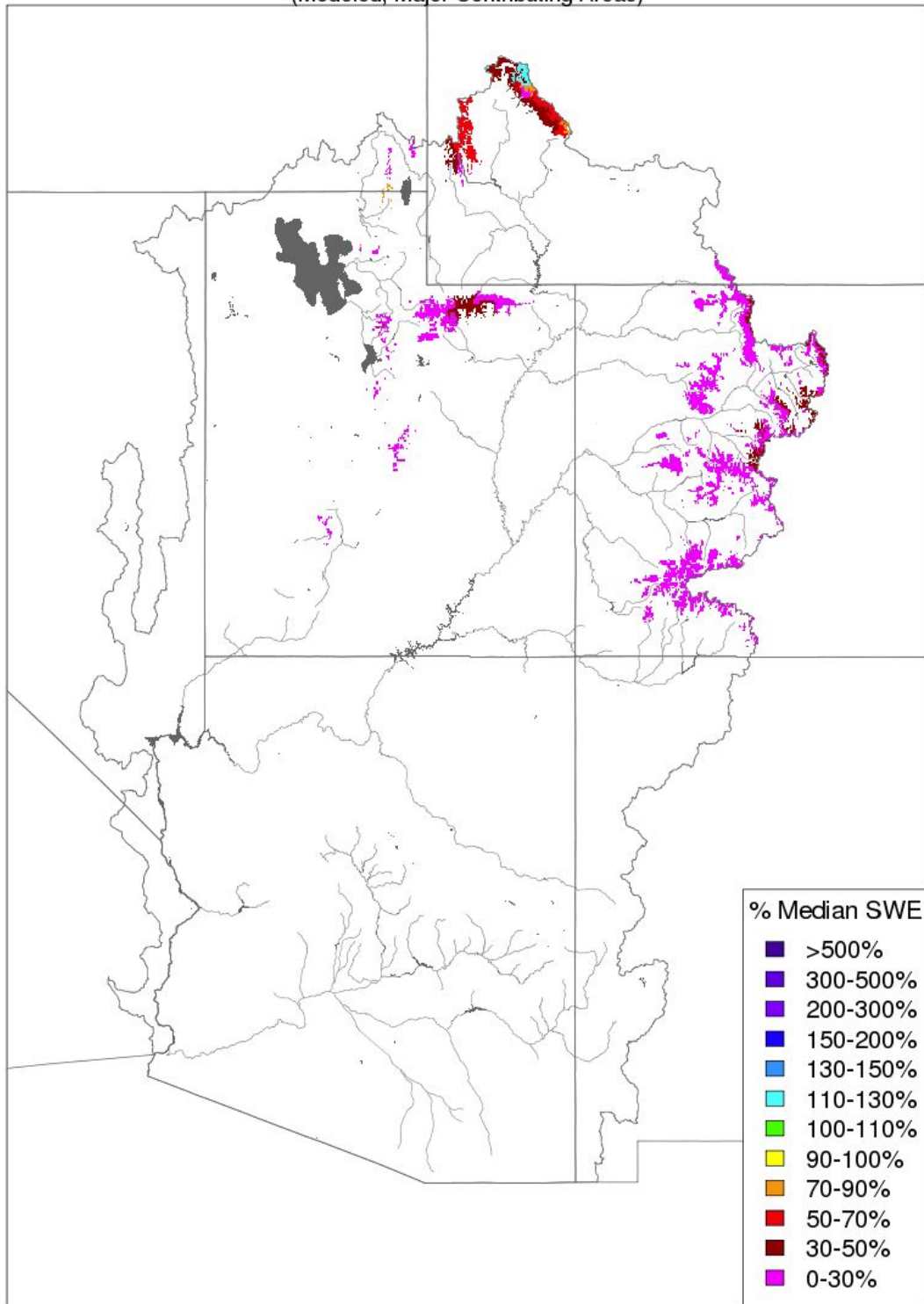
Image: Monthly maximum and minimum temperature departure from average for May 2018.  
(Averaged by basins defined in the CBRFC hydrologic model)

### Snowpack:

In the spring once the normal time of peak snowpack has passed, percent median snow water equivalent can be misleading and vary significantly day to day, as well as site to site, depending on the rate of snowmelt, new snow, and the magnitude of the median value. This is especially true in June when median values are generally pretty small and it is normal for many areas to have little or no snow left. That being said some useful information can be learned from the map below showing the percent median snow represented in the CBRFC hydrologic model as of June 5th. The basin with the best remaining snowpack is the upper Green River basin in Wyoming where upper elevations in the headwaters still have near to above average snow left to melt. Little to no snow remains in southwest Colorado (Gunnison, Dolores, and San Juan basins) even in areas where in a normal year there could still be snow through most of June. While snowpack in northwest Colorado (Yampa and Upper Colorado River mainstem) is not great, conditions are not as bad as the southwest part of the state. In Utah river basins (Duchesne, Great Basin, Sevier) the remaining snow is sparse and not expected to contribute much more to the spring snowmelt runoff volumes.

# Snow Conditions - June 05 2018

(Modeled, Major Contributing Areas)



Prepared by NOAA, Colorado Basin River Forecast Center  
Salt Lake City, Utah, [www.cbrfc.noaa.gov](http://www.cbrfc.noaa.gov)

Modeled Snow: Snow representation from the CBRFC hydrologic model June 5th, 2018

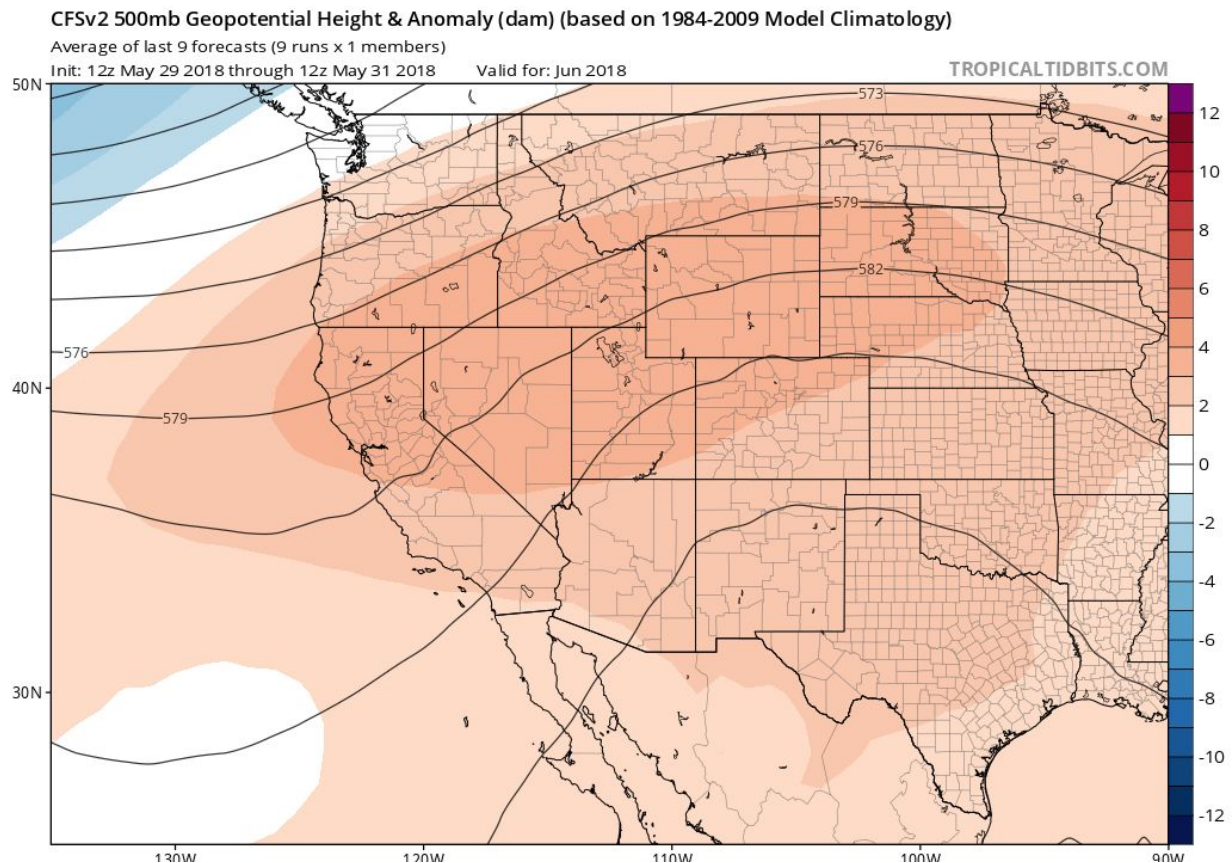


For updated SNOTEL information, click [here](#).

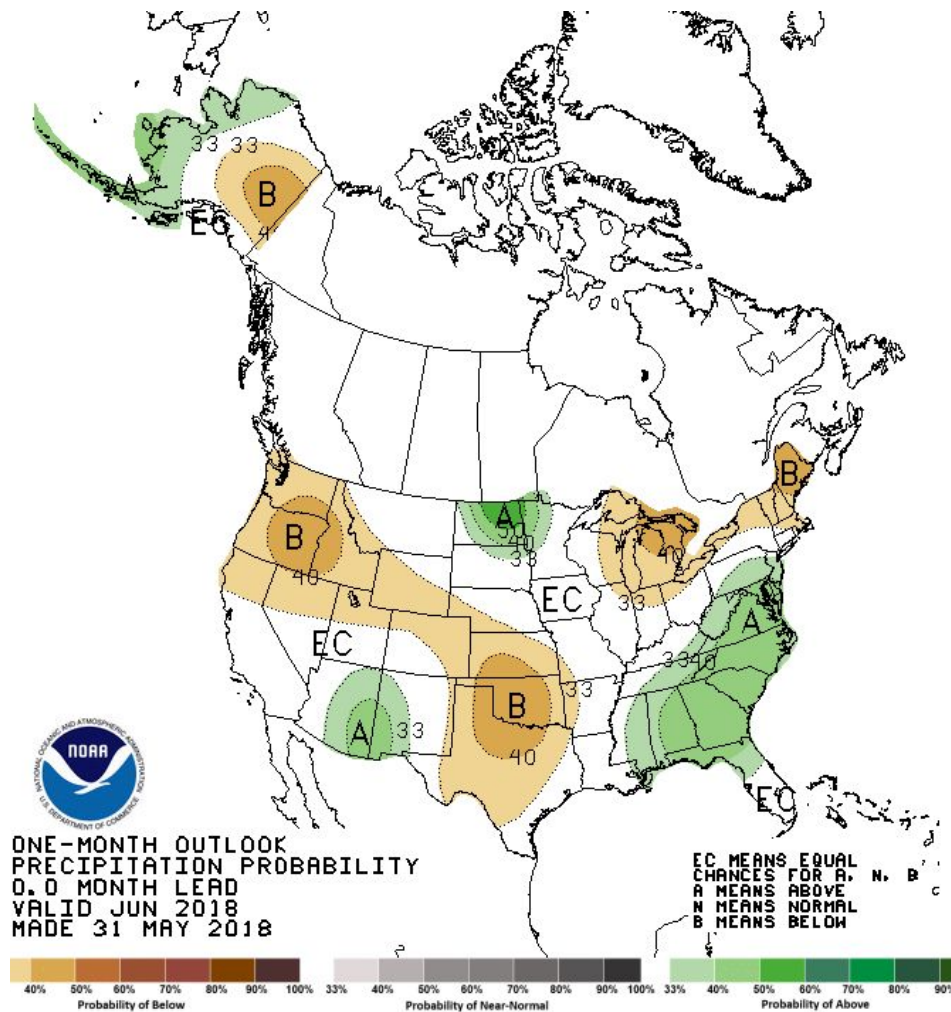
For CBRFC hydrologic model snow conditions, click [here](#)

### Upcoming Weather:

June is a month where large storm systems become less numerous across the Upper Colorado Basin as the storm track shifts northward and the subtropical ridge expands northward into the Southwestern U.S. The models forecast that this ridge of high pressure will be stronger than usual during the upcoming month, promoting warmer than normal temperatures and below normal precipitation. Very little precipitation is forecasted over the Basin during the next week. Although forecast uncertainty is greater during the last two weeks of June, there is some potential for an early start to the Monsoon over southeast Arizona (see precip graphic below).



Models show a stronger than normal ridge of high pressure across the Western United States for the month of June. This would result in above normal temperatures and below normal precipitation.



NWS Climate Prediction Center Precipitation Outlook for June

**End Of Month Reservoir Content Tables**

- [Green River Basin](#)
- [Upper Colorado River Basin](#)
- [San Juan River Basin](#)
- [Great Salt Lake Basin](#)
- [Sevier Basin](#)

**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](#)