

## May 1, 2017 Water Supply Forecast Discussion

The [Colorado Basin River Forecast Center \(CBRFC\)](#) geographical forecast area includes the Upper Colorado River Basin, Lower Colorado River Basin, and Eastern Great Basin.

### Water Supply Forecast Summary:

April weather ended up being a mixed bag. Some areas received abundant precipitation while other areas had quite limited precipitation. In addition, the temperature pattern in April included both stretches of several degrees above average and several degrees below average. Overall monthly mean temperatures were cooler than average over the northwestern half of the CBRFC forecast area, and near average over much of the Colorado River Basin. Significant snowmelt occurred in many areas where precipitation was limited, with less melt in parts of the northern Great Basin and Green River Basin of Wyoming where cooler wetter conditions existed.

Streamflows were much above average heading into April after many sites throughout the area experienced record unregulated monthly volumes during March. With so much water in the river systems for this time of year many sites observed above average volumes for April and they were further enhanced by any additional rainfall or snowmelt that occurred. Some sites in the Green River Basin of Wyoming, Duchesne River Basin, Gunnison River Basin, and Great Basin set records in April while many of these also set records in March.

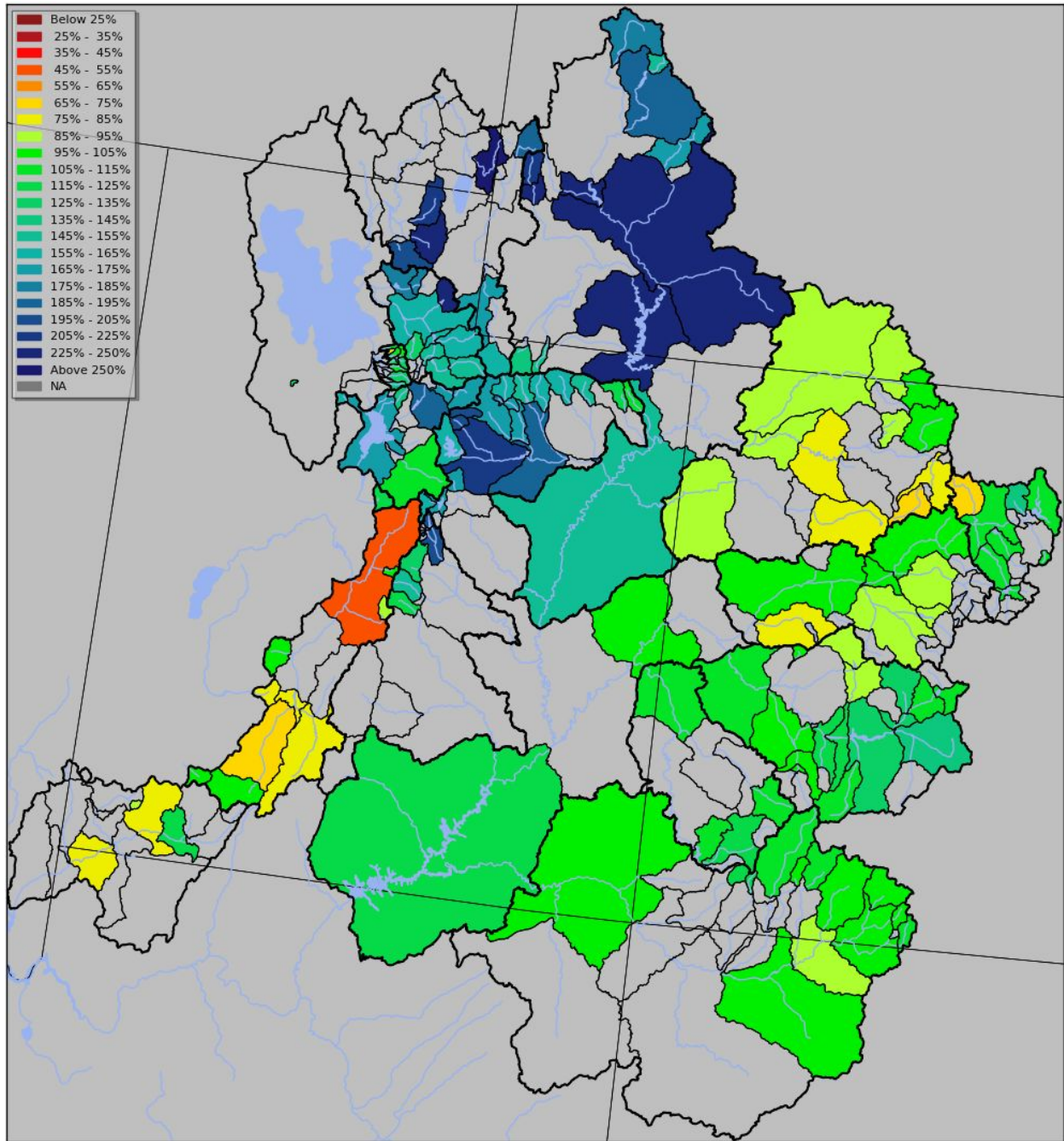
Upper elevation snowpack conditions remain quite significant in the Green River Basin headwaters, Bear River Basin, Weber River Basin, and Duchesne River Basin. Snowpack is also still above average in the Gunnison River Basin headwaters.

Water supply volume forecasts for the April-July period generally decreased across the CBRFC area from those issued in early April. However, most points in the Green River Basin in Wyoming, Bear River Basin, and Weber River Basin had little change from last month. Volume forecasts increased slightly in the Yampa River Basin, Virgin River Basin, and the Six Creeks drainages.

Current April-July forecast volumes are much above average in the Green River Basin of Wyoming, Bear River Basin, Weber River Basin, Provo River Basin, and Duchesne River Basin. Runoff volume forecasts are also still above average in the Gunnison and Dolores River basins. The headwaters of the Colorado River mainstem and the San Juan Basin are currently forecast to receive near average runoff volumes, while the Yampa and White River basins now have forecasts for below average April-July runoff volumes.

April-July unregulated inflow forecasts for some of the major reservoirs in the Upper Colorado River Basin include Fontenelle Reservoir 1.68 MAF (232% of average), Flaming Gorge 2.26 MAF (231% of average), Blue Mesa Reservoir 850 KAF (126% of average), McPhee Reservoir 335 KAF (114% of average), and Navajo Reservoir 695 KAF (95% of average). Lake Powell inflow is forecast at 8.80 MAF (123% of average).

Seasonal Water Supply Forecasts:



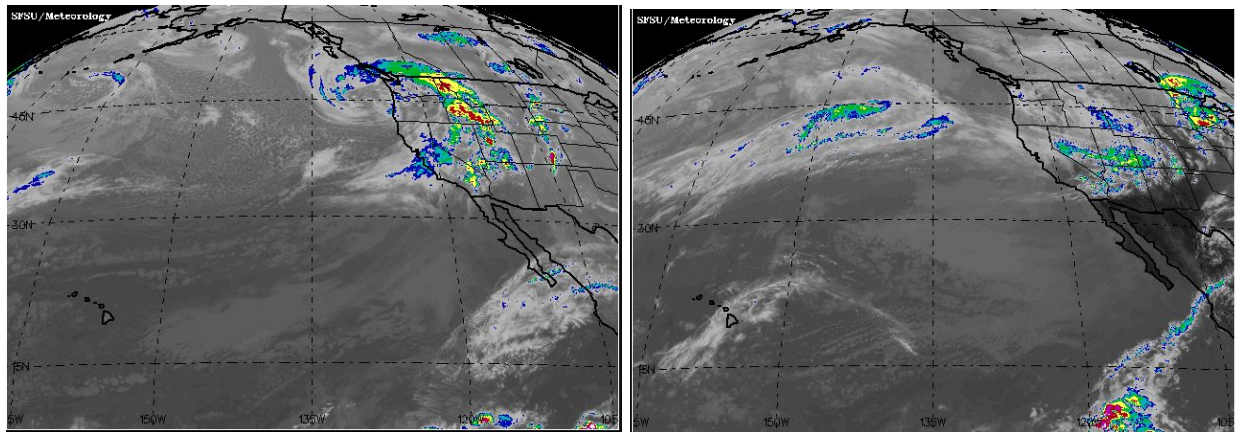
Upper Colorado, Great, Virgin River Basins: 2017 April-July forecast volumes as a percent of 1981-2010 average (50% exceedance probability forecast)

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

## Water Supply Discussion

### Weather Synopsis:

Although April was a rather active weather month, the impacts of storm systems varied greatly across the Colorado River and Eastern Great Basins. A greater frequency of storm systems impacted the Green River Basin of Wyoming and northern Great Basin in Utah, Idaho, and Wyoming resulting in above average precipitation. Much of the Colorado River Basin was impacted by storm systems at the beginning and end of the month. The result was generally near to much below average precipitation in the water supply producing areas for much of the Colorado River Basin. In between storm systems temperatures reached levels of 10-15 degrees above average that resulted in fairly rapid snowmelt in some locations.

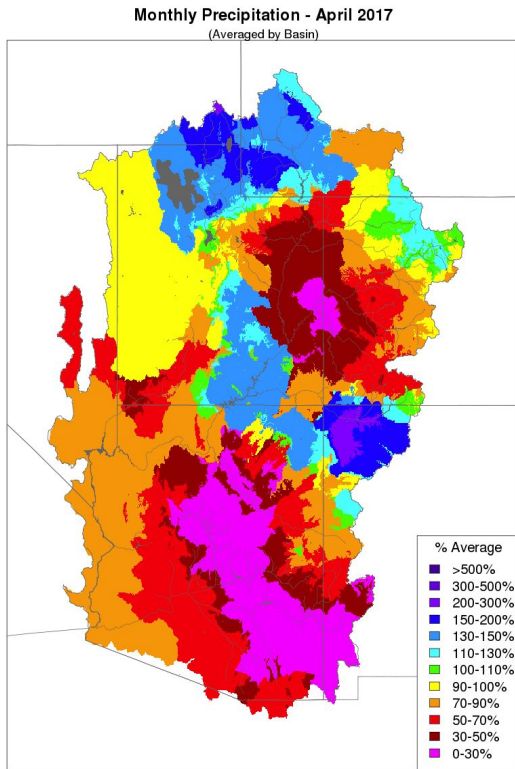


Left Image: A storm system moving into the CBRFC Forecast area on April 7th. Greatest impacts were in the northern Great Basin and upper Green River Basin. Right Image: A storm system that impacted much of the area at the end of the month (Satellite image from 4/28/17).

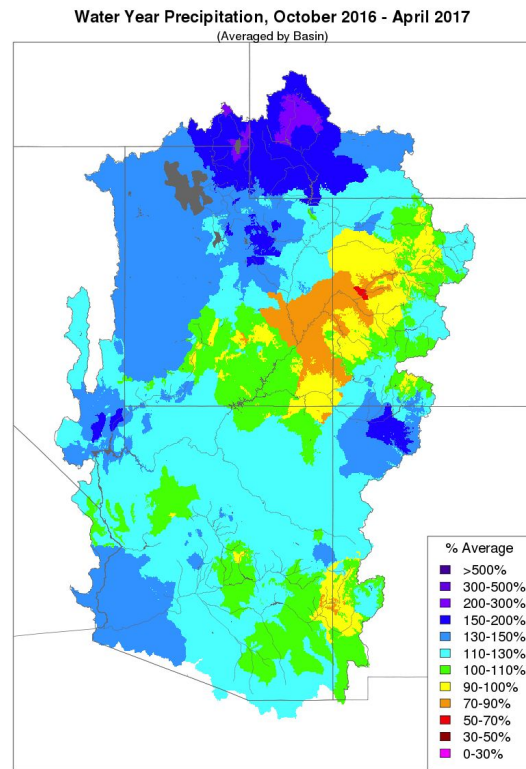
### Precipitation and Temperature:

The April monthly precipitation image below indicates wet conditions once again over the Green River Basin in Wyoming and the Bear River Basin as well as the Weber River and Six Creeks basins of northern Utah. The Yampa River Basin headwaters, portions of the Colorado River mainstem headwaters, and portions of the San Juan River headwaters received near to above average precipitation for April thanks to storms during the last week of the month. However, the rest of the CBRFC forecast area had its second straight month of below average precipitation.

The water year precipitation totals are still near to above average across most of the CBRFC forecast area. The Green River Basin in Wyoming and the Bear River Basin lead the way with seasonal precipitation of over 160 percent of average. The rest of the northern Utah basins, including the Weber, Six Creeks, Provo and Duchesne basins, have seasonal precipitation totals between 130 percent and 150 percent of average. The western Colorado basins, including the Yampa, Colorado mainstem, Gunnison, Dolores, and San Juan basins, now have seasonal precipitation totals between 105 percent and 115 percent of average.



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



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Images: April 2017 and water year (Oct 2016-Apr 2017) precipitation graphics  
(Averaged by basins defined in the CBRFC hydrologic model)

Temperatures during April swung between periods of much above average and periods of much below average, as is typical in the spring. For the month as a whole much of the Upper Colorado River Basin ended up near normal. The Upper Green River Basin in Wyoming and the Great Basin in northern Utah had slightly below normal mean monthly temperatures as clouds and storminess were more prevalent in those areas.

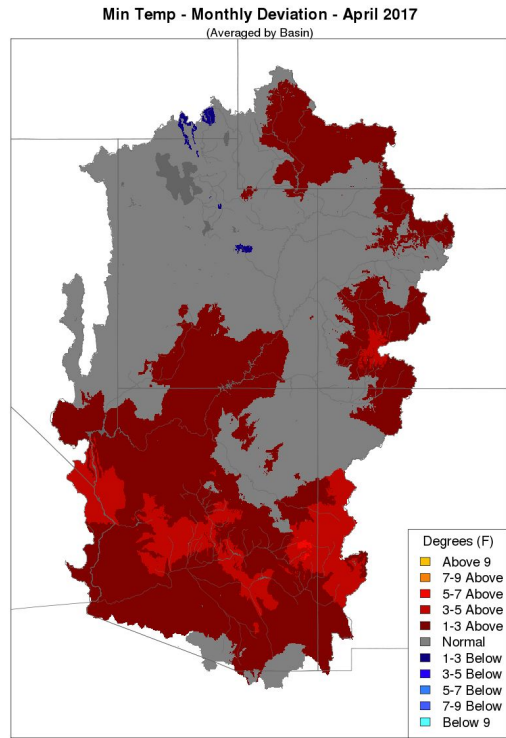
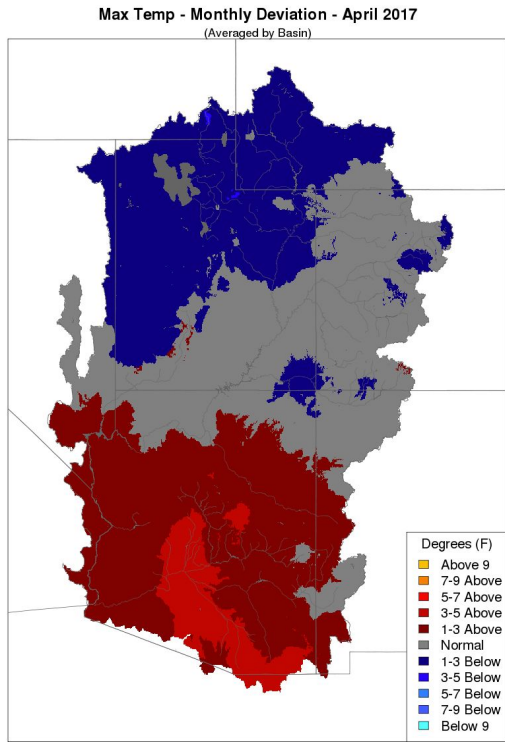
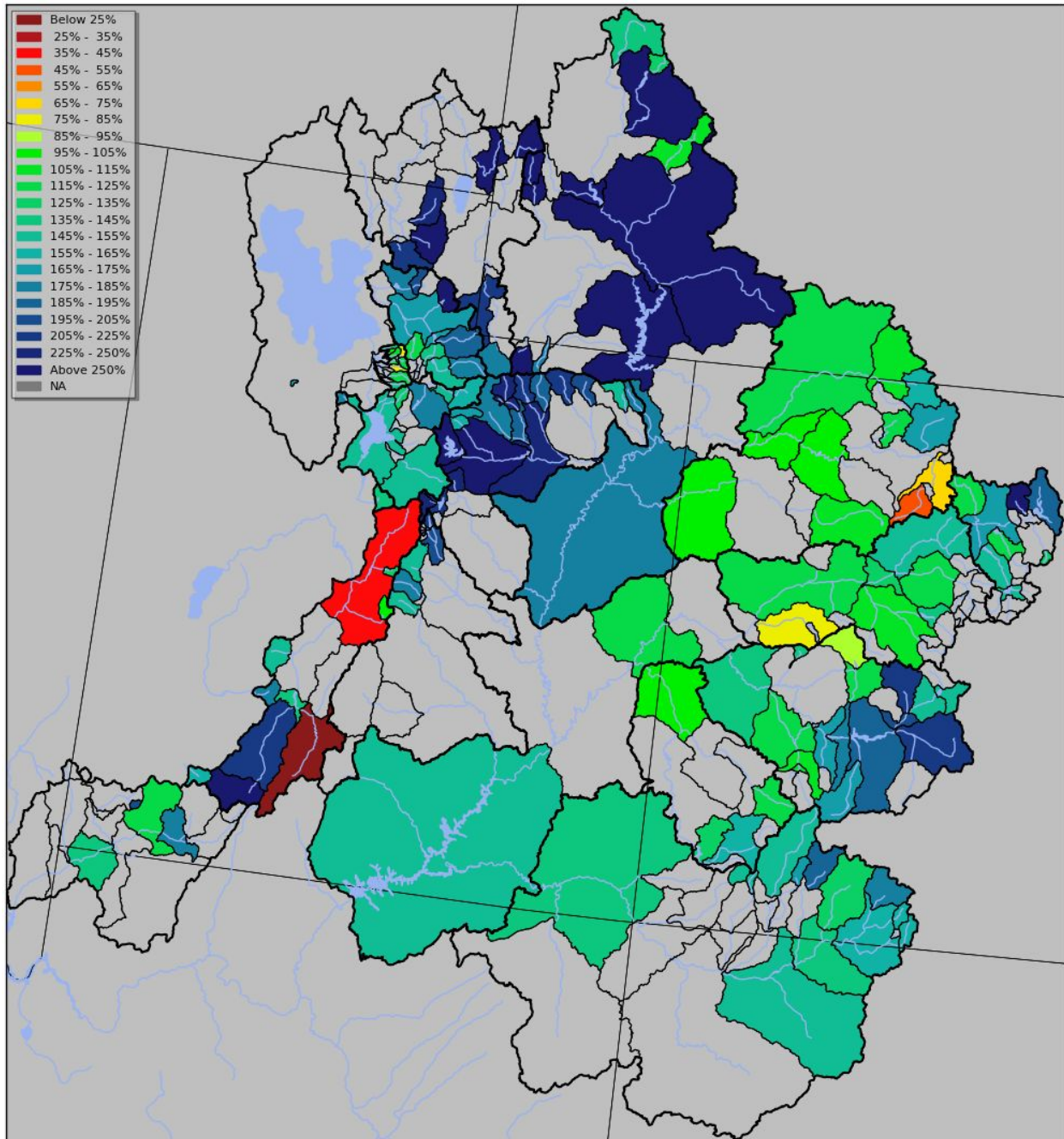


Image: Monthly maximum and minimum temperature departure from average for April 2017.  
(Averaged by basins defined in the CBRFC hydrologic model)

### Observed Flow:

Warm temperatures during March caused significant snowmelt at lower to mid elevations and significantly above average streamflows. With these pre-existing conditions and the additional snowmelt during April many sites had unregulated streamflow volumes in the top five on record for the month. Many sites in the Green River Basin in Wyoming had record streamflow volumes for the second month in a row. The map below shows the April unregulated streamflow volumes as a percent of average. Most of the Upper Colorado River Basin and Eastern Great Basin had April volumes that exceeded 150 percent of average with volumes over 200 percent of average in some areas.



Upper Colorado, Great, Virgin River Basins: 2017 April unregulated volumes as a percent of 1981-2010 average

**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 and the magnitude of the median value. This is evident in the map below which shows the percent median snow at SNOTEL sites as of May 4th.

That being said, this map does correctly indicate that significant snowpack still exists in the Green River Basin headwaters, Bear River Basin, Weber River Basin, and Duchesne River Basin.

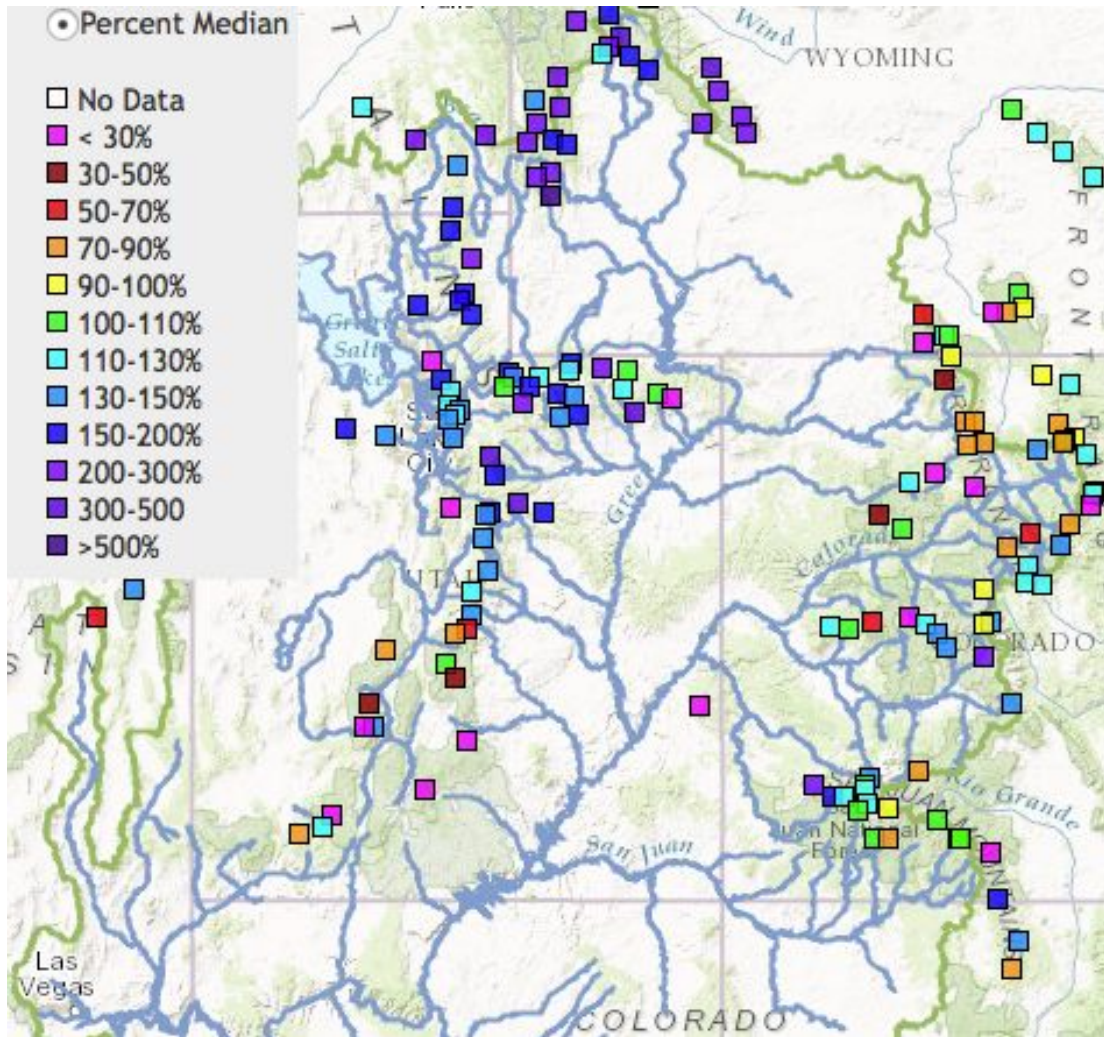
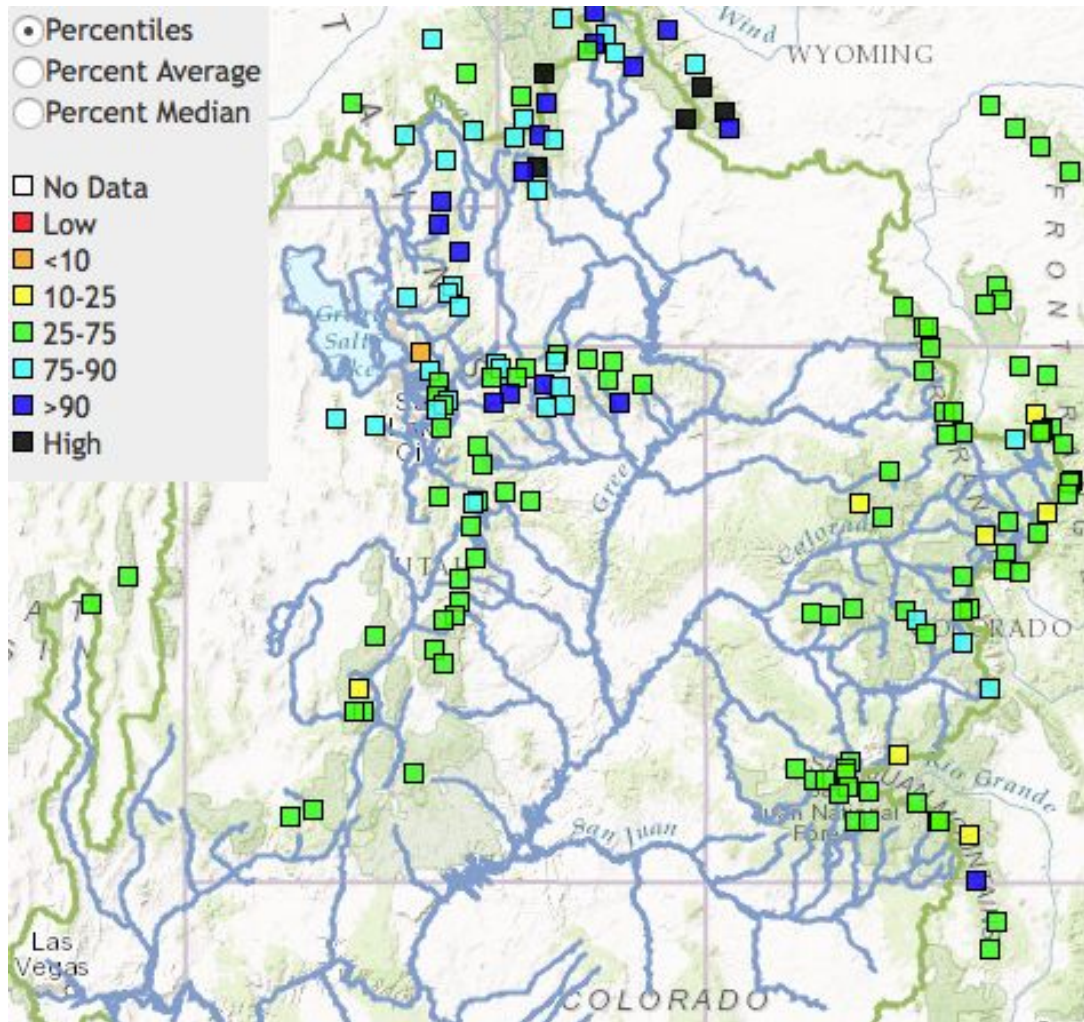


Image: Percent Median Snow Conditions as of May 4th 2017

The snow percentile image displayed below indicates where the current snow measurement ranks in the historical record for each site and can be a better representation of the current snow conditions in the spring. Black boxes indicate sites with record values for this time of year; there are a couple of these in the Green River headwaters. Sites in the dark blue are in the top 10 of record (typically 34-39 years) with most ranking as either the 2nd or 3rd highest for this time of year.



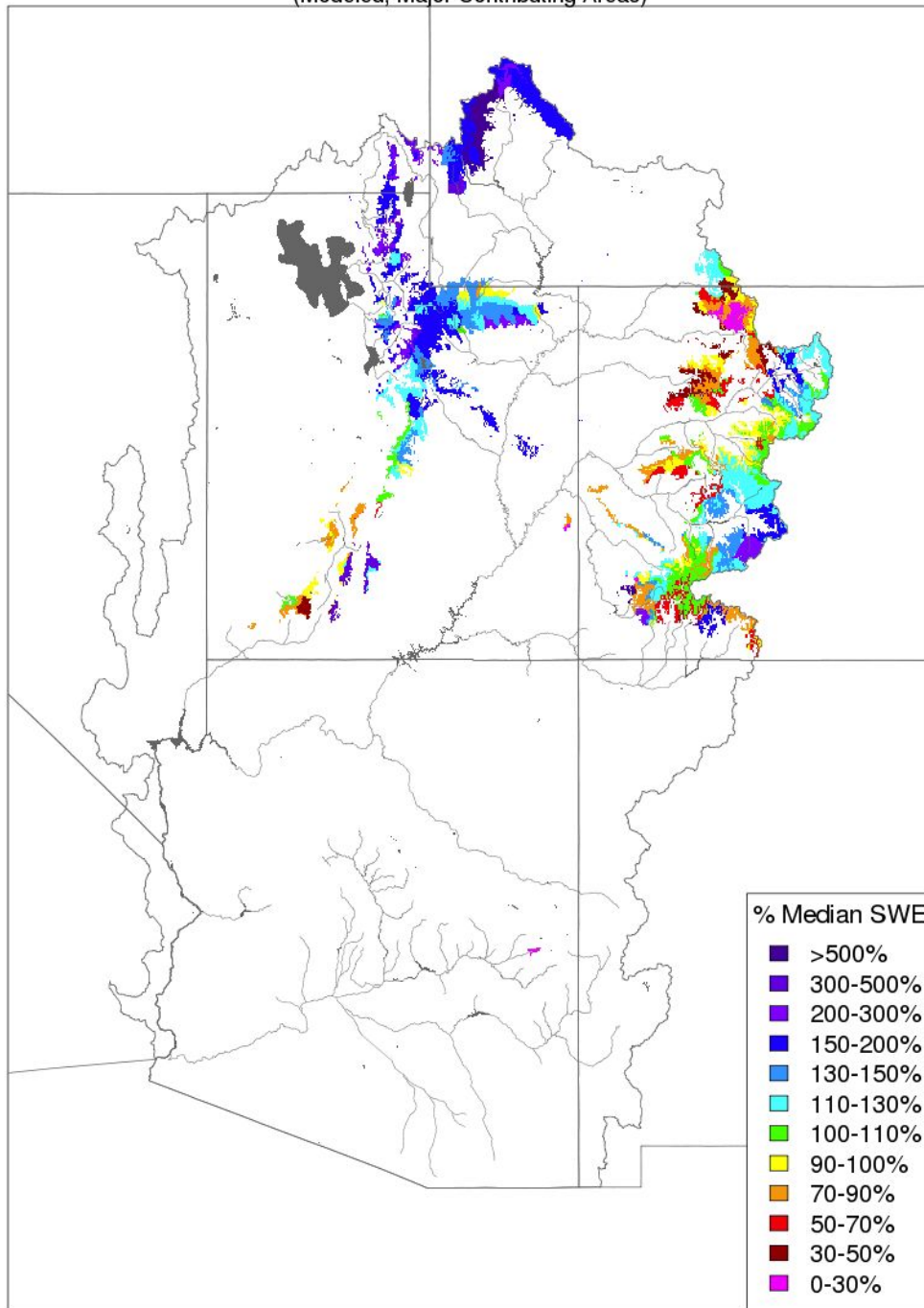
Snow Percentile Image: Historical SNOTEL ranking as of May 4th 2017

The image below is the representation of snow in the CBRFC hydrologic model. Only those areas that provide the greatest contribution to the April-July runoff volumes are displayed. It reinforces that the largest snowpack areas compared to the historical median extend from central Utah through northern Utah into Wyoming and include primarily the Duchesne Basin, northern Great Basin, and the Green River Basin of Wyoming. Snowpack is also above average in the Gunnison River headwaters.



## Snow Conditions - May 03 2017

(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 May 3rd 2017

For updated SNOTEL information refer to click [here](#)

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

## Upcoming Weather:

An active weather pattern is likely for the first half of May. Initially temperatures are expected to reach 10-15 degrees above average with some record highs possible. This will result in rapid snowmelt and rising streams in most locations. As a large low pressure moves through the southern and eastern half of the forecast area during the second week of the month cooler temperatures and increased precipitation chances are anticipated.

Streamflow levels, while generally increasing through May, will also fluctuate with the warmer and cooler temperatures.

This type of weather pattern is typical of May and is not expected to have a large impact to existing water supply volume forecasts in the near term. Greatest impacts would result from an extended period with precipitation and temperature on one side or the other of climatological normals.

The map below, from NOAA's Weather Prediction Center, illustrates 7-Day forecasted precipitation totals from May 4th through May 11th.

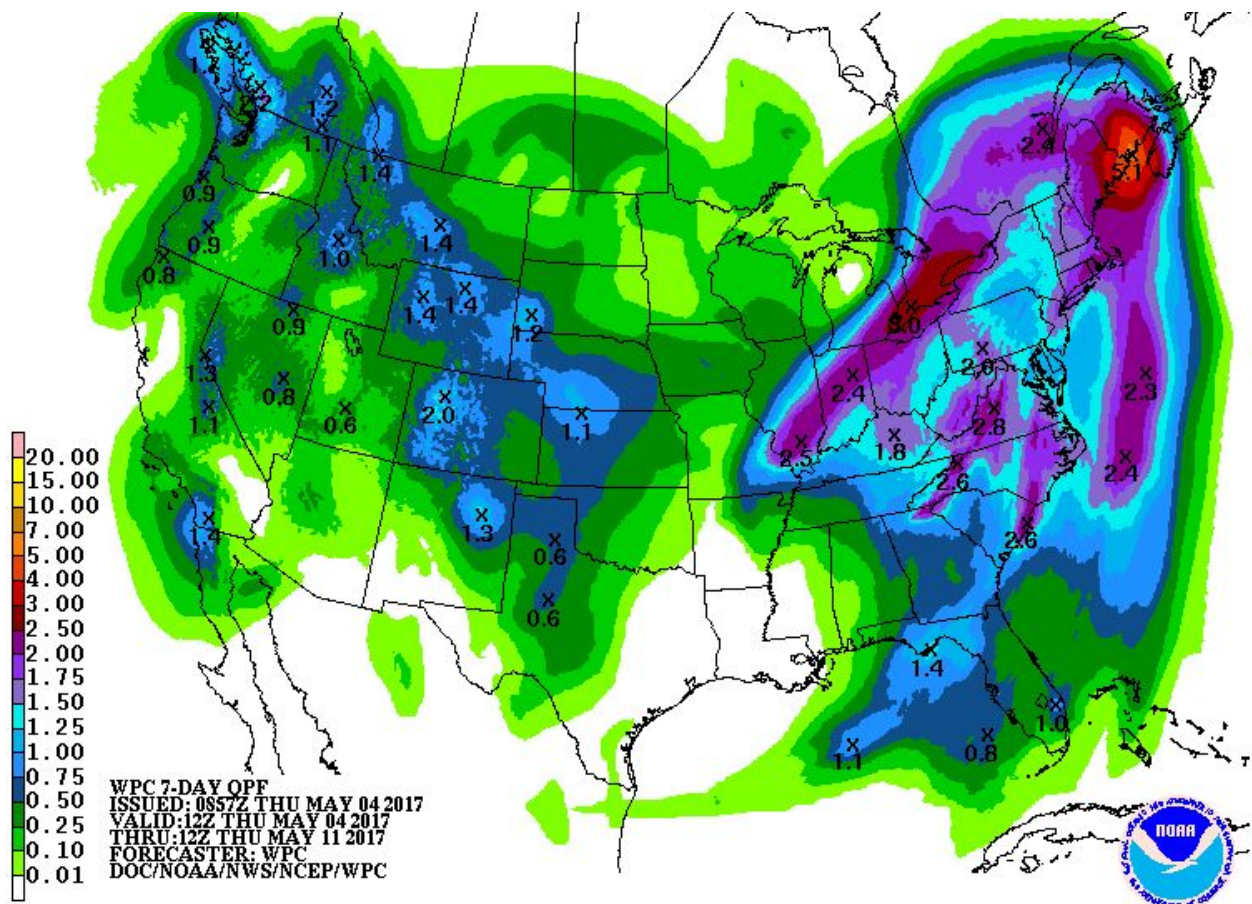


Image: NWS Weather Prediction Center precipitation forecast for April 5th - April 12th 2017

## 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](#)