April 20, 2016 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.

Seasonal Water Supply Forecasts:

Water Supply Forecast Summary (Mid April Update):

April started out on the dry side over the entire CBRFC forecast area. Storms eventually brought precipitation to the area starting around the 10th of the month, however impacts were primarily south of Lake Powell. A larger storm system brought widespread precipitation to the entire area during the middle of the month. The result was a mixed bag of above and below average precipitation for the first half of the month.

April-July model forecast runoff guidance trended higher in areas with above average precipitation. This included parts of the Yampa River Basin, some Colorado River headwaters, Bear River Basin, and Virgin River Basin. In the San Juan, Dolores, and Gunnison River Basins model forecast guidance had been trending lower during the month due to loss of snow, however the trend reversed at most locations with the recent storm system and the April-July runoff outlook remained similar to forecasts from the first of the month.

Little change also occurred in the model guidance for part of the Great Basin including the Weber and Provo River Basins extending into the Duchesne River Basin.

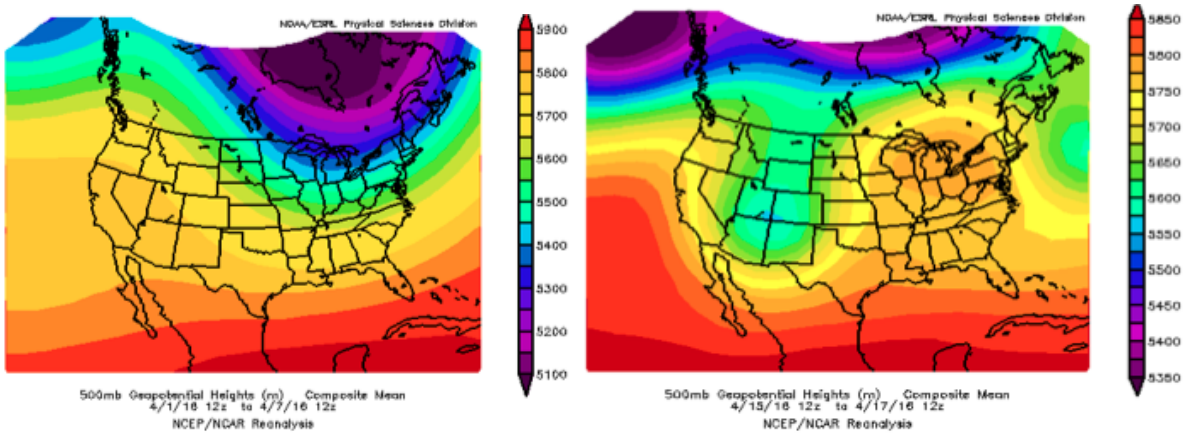
Mid April forecasts for some of the major upper Colorado River Basin reservoirs include Fontenelle remaining steady at 78 percent of average, Flaming Gorge no change at 76 percent average, Blue Mesa no change at 76% of average, McPhee decreased from 85 percent to 78 percent of average, and Navajo decreased from 72 percent to 70 percent of average. The Lake Powell inflow remained at 74 percent of average or 5.3 million acre-feet.

Click here for the latest water supply model guidance

Water Supply Discussion

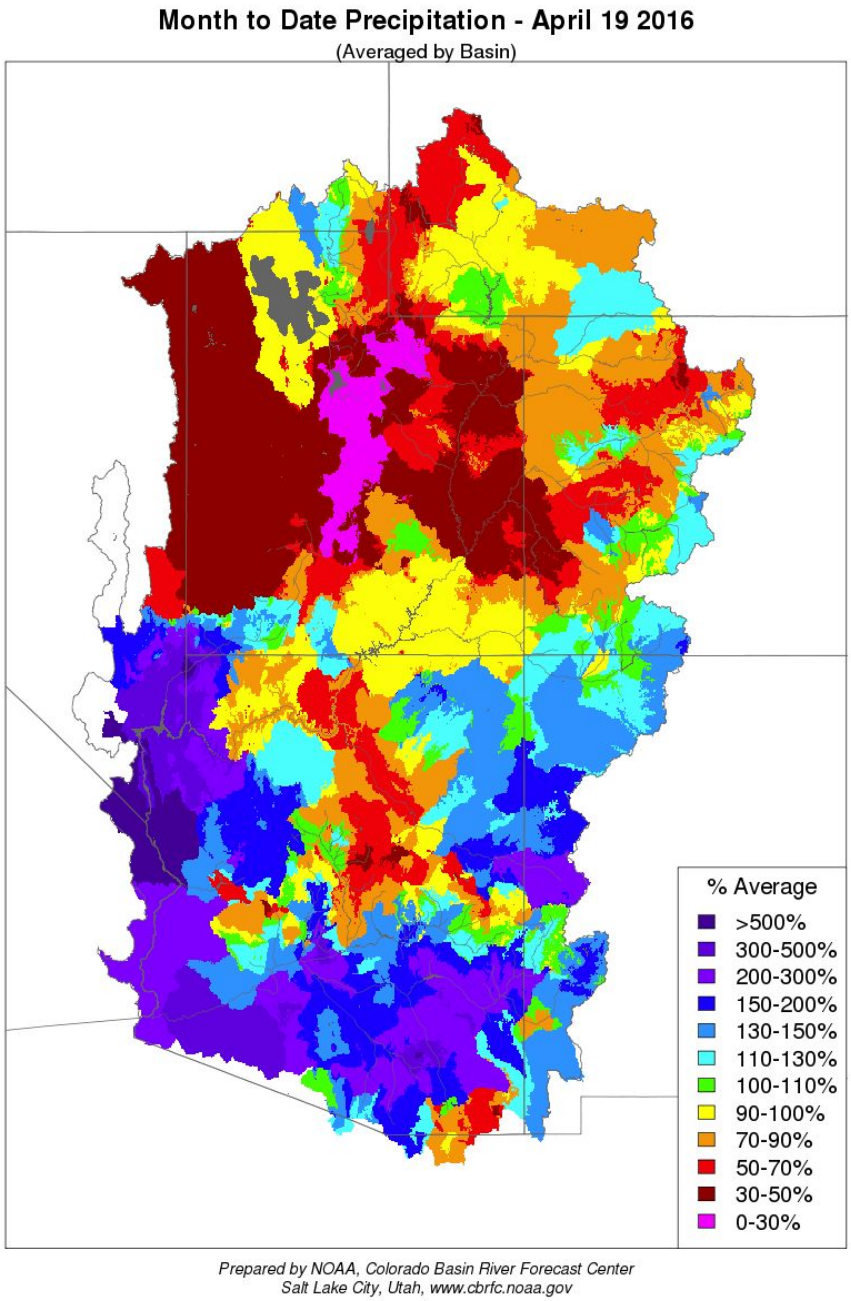
Weather Synopsis:

A ridge of high pressure dominated the first week of April but gave way to increasing storminess by the middle of the month. A very large low pressure system moved through the CBRFC forecast area around the 15th of the month bringing widespread precipitation. Not all areas were impacted the same however the storm system prevented the April-July runoff outlook from worsening compared to the first of the month forecasts.



Mean atmospheric pattern for the first week of the April 2016 (Left) and for the April 15-17 2016 weekend (right). The image roughly represents the wind pattern at approximately 18,000 feet in the atmosphere. A ridge of high pressure early in the month gave way to a large low pressure system that moved through the area mid-month.

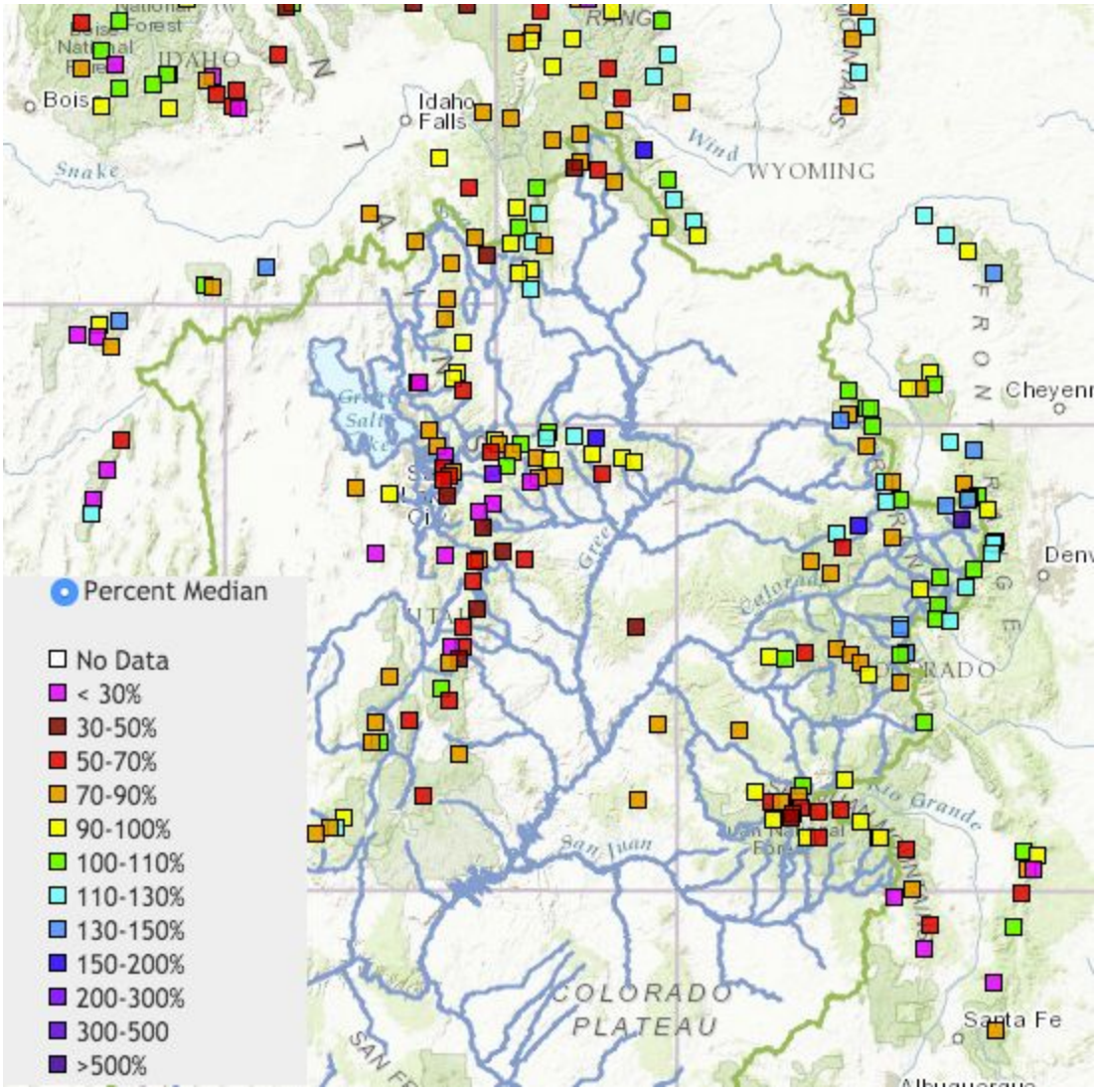
Precipitation and Temperatures:
The image below shows the mixed bag of precipitation as compared to average for the first 19 days of April. The Bear River Basin, parts of the Yampa, San Juan, and higher elevations along the eastern boundary of the upper Colorado River Basin faired best with the large storm system that moved through the area during the middle of the month.



April 1st - 19th percent of average precipitation

Snowpack:

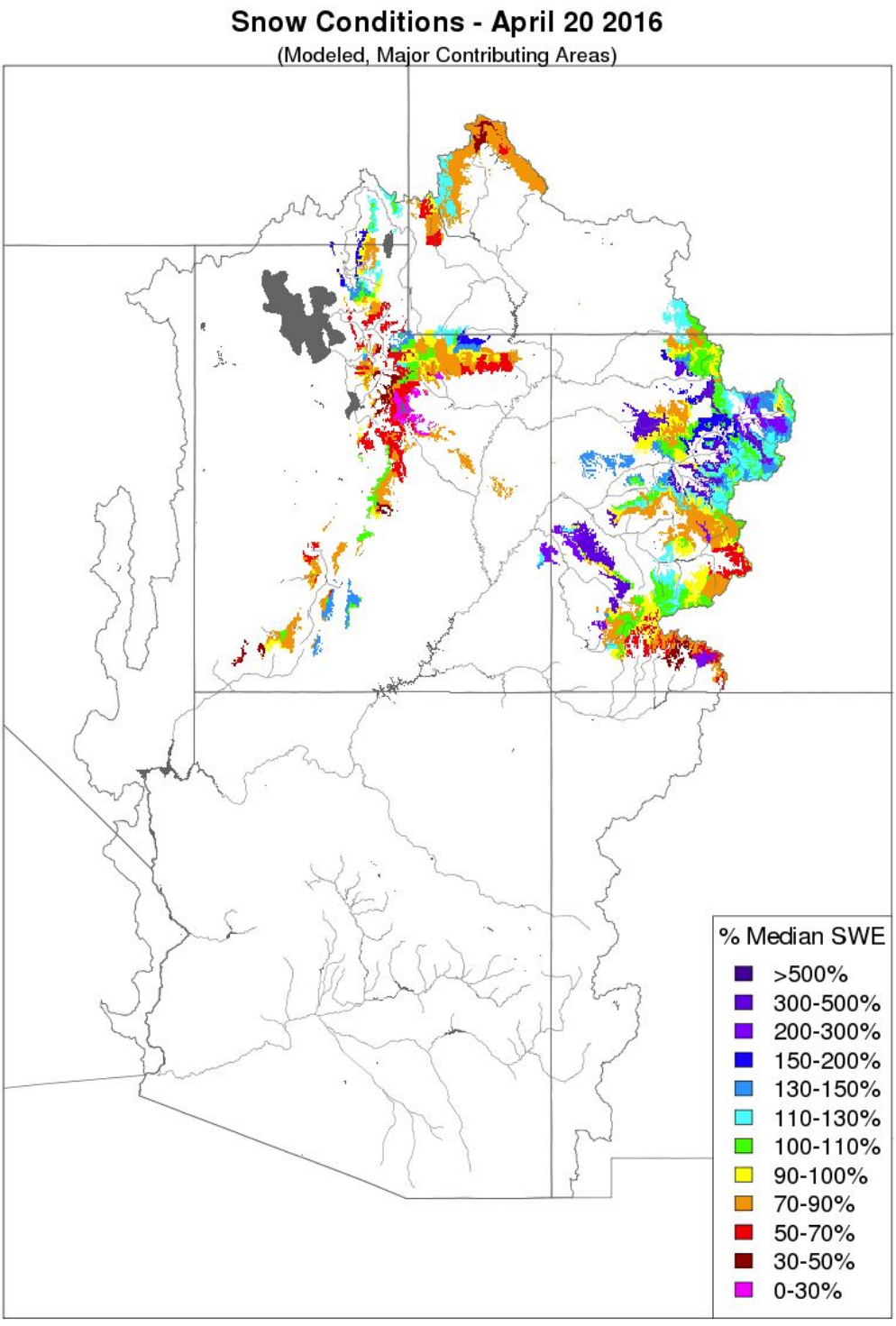
We are now in the snowmelt part of the season and the daily normal (median) value becomes smaller. As snow melts faster or slower than normal the snowpack as represented on the map can vary considerably from day to day and care must be used when interpreting the information. Best snow conditions with respect to the historical median for April 20th are indicated in the image below and exist in the Colorado River headwaters, higher elevations in the Yampa, White, and north slope of the Uinta Mountain range that drain into Flaming Gorge. Some of the lowest snow conditions with respect to median for April 20th exist in the San Juan Basin, Six Creeks drainage, and are scattered throughout Central Utah tributaries of the Green and Colorado Rivers.



SNOTEL Sites - Percent Median Snow condition as of April 20, 2016

For the latest snow conditions click here

The snow as represented by the CBRFC hydrologic model is indicated below.



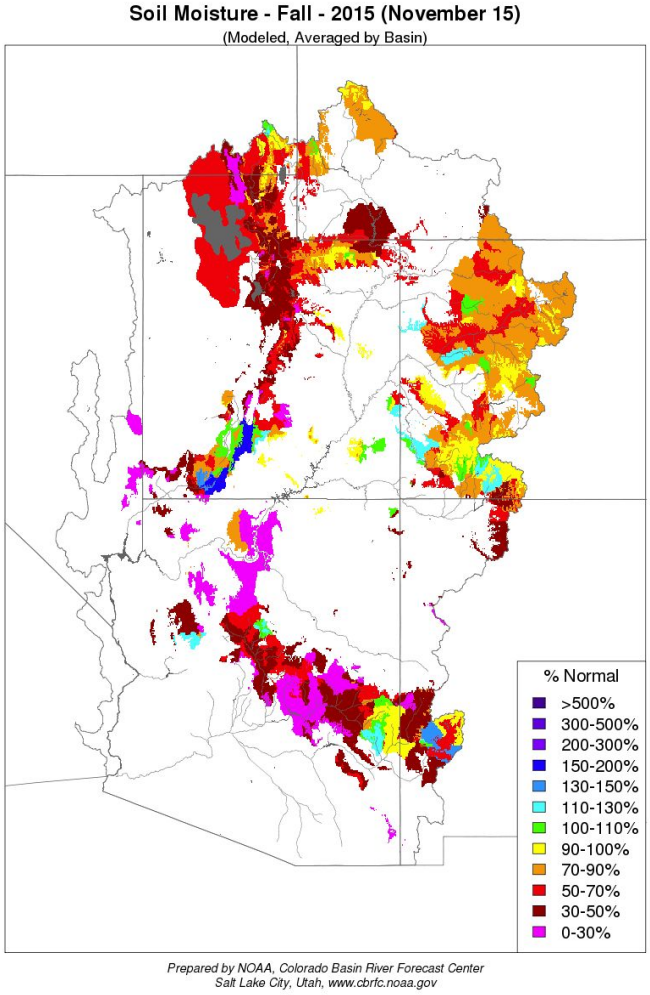
Snow conditions as seen by the hydrologic model on April 20, 2016
Trimmed to show those areas with the greatest contribution to seasonal runoff volumes.

Soil Moisture:

Soil moisture conditions in the higher elevation headwater areas are important entering the winter, prior to snowfall, as it influences the efficiency of the snowmelt runoff the following spring. Modeled soil moisture conditions as of November 15th were generally below or much below average. Soil moisture was exceptionally low in much of the Great Basin of central and northern Utah. Soil moisture conditions were more favorable in parts of the San Juan and Dolores River Basin as well as parts of the Sevier and Virgin River Basins in southwest Utah. There were also a few isolated basins near or above average in the Bear, Duchesne, Gunnison, and White River Basins but generally conditions were not as favorable.

Soil moisture conditions tend to fluctuate more in the Lower Colorado River Basin in the winter due to the frequency of rain events and possibility of melting snow. Fall soil moisture conditions in the lower basin are less informative than they are in the northern basins that remain under snowpack throughout the winter season.

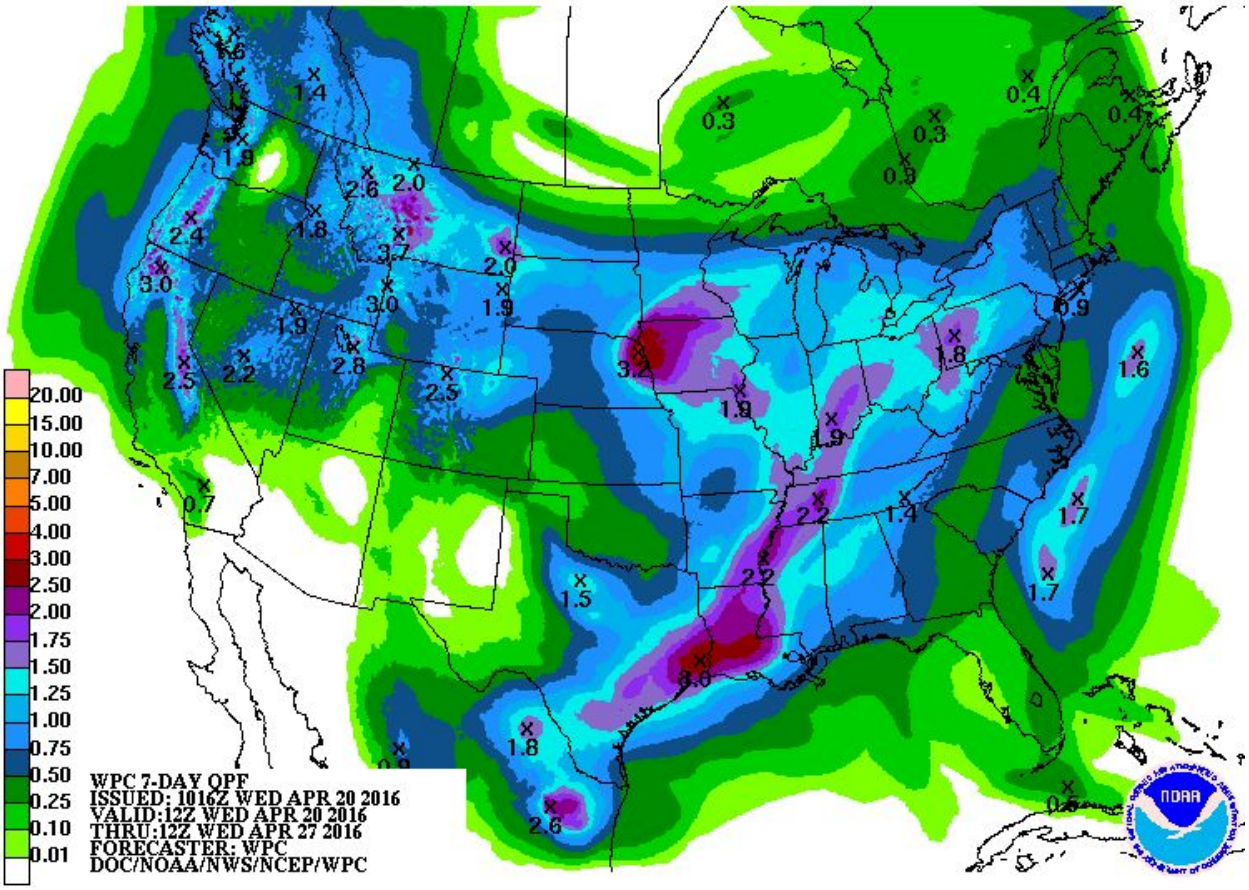
In the map below, areas in the blue are above the historical model soil moisture average while those in the yellow, orange, and red are below average. Only the higher elevation areas that have greatest impact to runoff volumes are displayed. The areas in white are not included.



Modeled soil moisture entering the winter season (as of November 15 2015)

Weather Outlook:

An active weather pattern with a series of storm systems is expected to impact the Colorado River Basin and Great Basin through the end of April. The track of the storm systems is less certain, therefore the magnitude and location of greatest precipitation impacts are likely to vary from storm system to storm system. The 7-day precipitation outlook from NOAA's Weather Prediction Center indicates widespread precipitation with amounts over 2 inches in the higher elevations.



Precipitation outlook for March 16-March 23 from the Weather Prediction Center.

Conclusion:

April has been a bit of a mixed bag regarding precipitation through the middle of the month. A dry first week gave way to a more active storm pattern beginning around the 10th of the month. The active pattern is expected to continue with a series of storm systems moving through the CBRFC forecast area the remainder of the month. April-July runoff forecast guidance didn't change a great deal from the first of the month. If the active pattern continues through the month as advertised by meteorological models then the April-July outlooks should not trend lower and a few areas may experience some increases.