

## February 16, 2017 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 February Update):

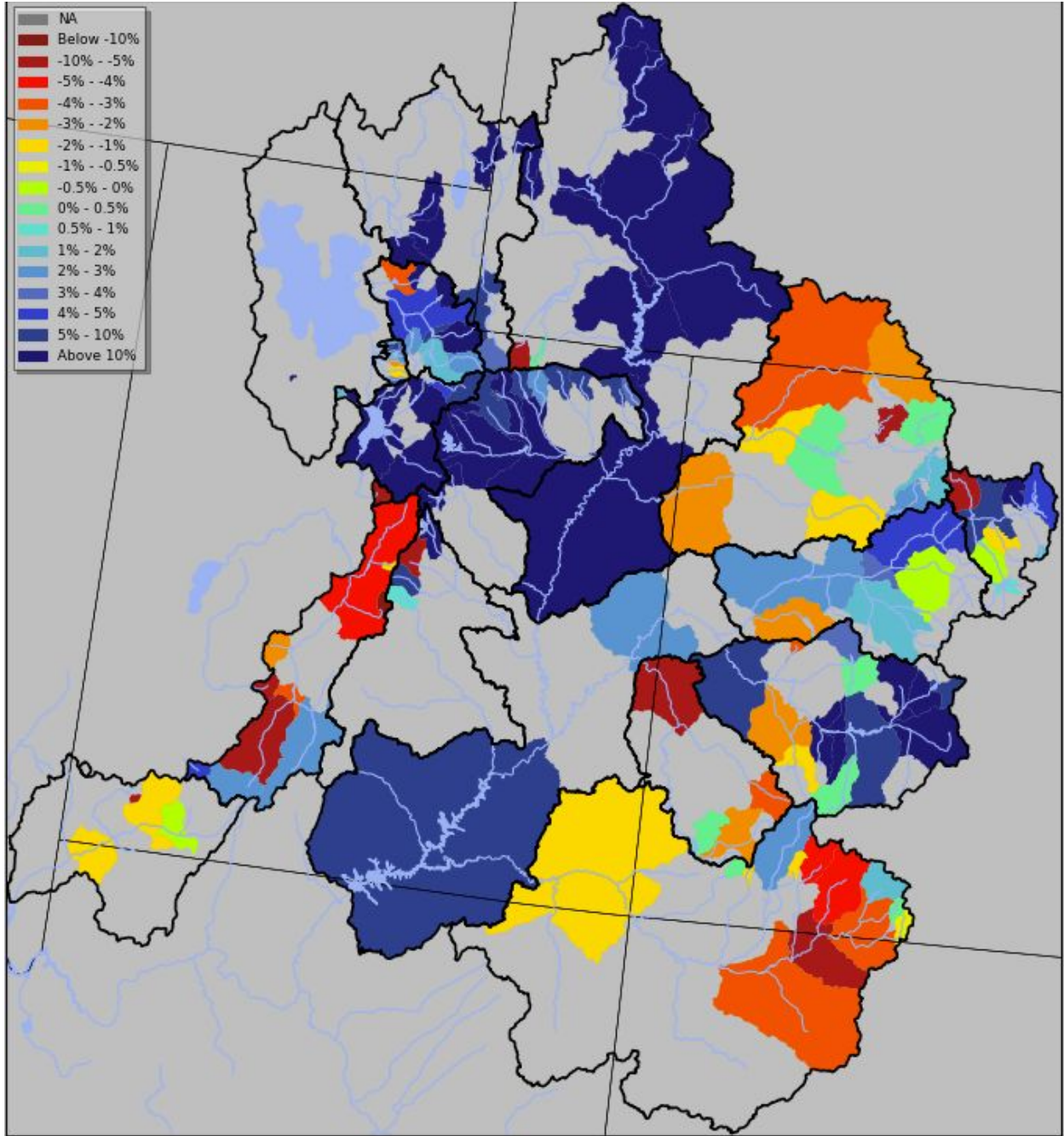
While most of the CBRFC forecast area has been on the dry side for the first half of February, that was not the case for northern parts of the Great Basin and the Green River Basin in Wyoming. A very moist and mild weather pattern brought significant rain and snow to these two areas during the first part of the month. Precipitation amounts ranged between 150 to over 300 percent of average with additional increases to an already significant snowpack.

A system toward the middle of the month also brought heavy precipitation to the Gila River Basin headwaters. With saturated soils present the river response to rainfall was very efficient and significant river flows resulted. Precipitation amounts elsewhere were generally below average for the first half of the month. Only a small part of the Colorado mainstem headwater areas and upper Gunnison River Basin were near or above average. Changes in model guidance since early February have not altered the overall April-July runoff picture with widespread above average volumes anticipated.

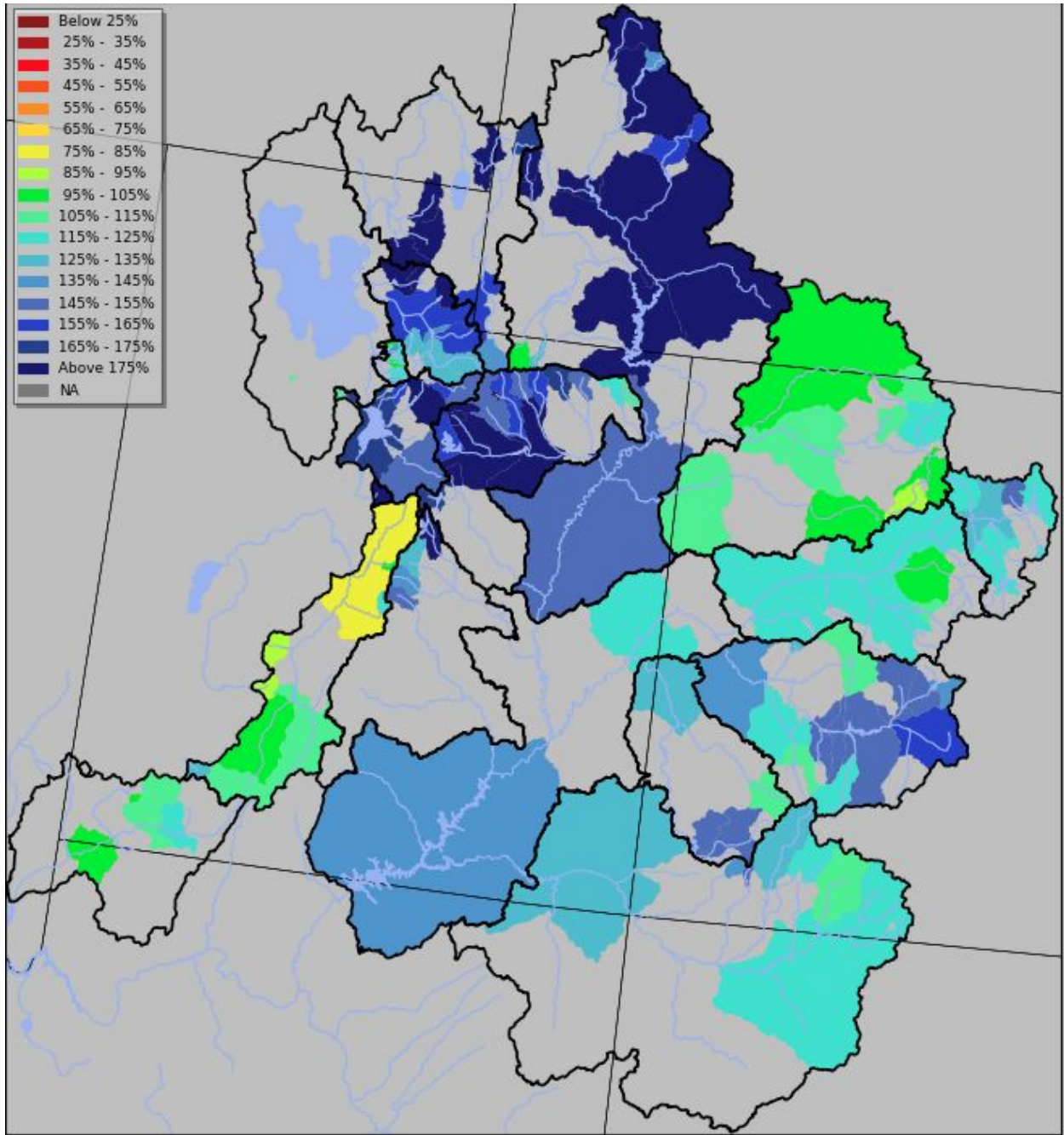
Water supply guidance increased April-July runoff volumes the greatest in the Green River Basin of Wyoming and parts of the Bear River Basin. Increases in these areas exceeded 30% of average. The Duchesne River Basin along with other parts of the Great Basin including the Weber and Provo River Basin also noted increases in model guidance from just a few percent up to near 20 percent of average. Elsewhere changes were less dramatic with increases or decreases of just a few percent of average from forecasts issued February 1st.

Mid February forecast updates for some of the major Upper Colorado River Basin reservoirs include Fontenelle with an increase from 166 to 207 percent of average, Flaming Gorge with an increase from 168 to 199 percent of average, Taylor Park no change at 129 percent of average, Blue Mesa increasing from 137 to 144 percent of average, McPhee no change at 149 percent of average, and Navajo Reservoir decreasing from 120 to 116 percent of average. Lake Powell increased from 134 to 137 percent of average and is now at 9.8 million acre-feet for the April-July forecasted inflow. The inflow forecast for Fontenelle Reservoir is the 2nd highest on record while Flaming Gorge inflow is the 4th highest on record.

Warm temperatures during February has resulted in snow melt in the Lower Colorado River Basin in Arizona and New Mexico. Efficient runoff has resulted due to favorable soil moisture conditions from winter rainfall. This area will continue to see favorable conditions for efficient runoff due to any additional rainfall that occurs over the next few weeks.



Trend in the April-July runoff volume forecast guidance since February 1st 2017  
 Significant increases occurred in the Green River Basin of Wyoming and northern Great Basin (Bear River)  
 (Change in April-July percent of average)



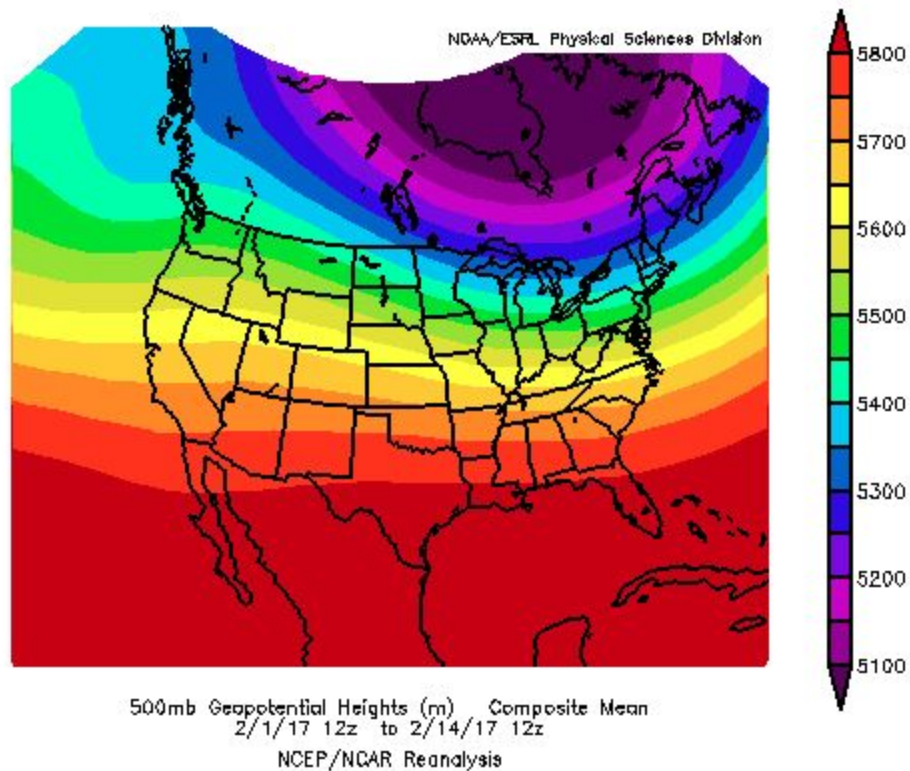
April-July runoff volume guidance as of February 15 2017  
 (percent of 1981-2010 average)

[Click here for the latest water supply model guidance](#)

## Water Supply Discussion

### Weather Synopsis:

Very mild temperatures and very wet conditions in some areas describes the first half of February. Moist warm air impacted northern parts of the CBRFC forecast area in a weather pattern similar to what has been experienced several times this winter. Primary precipitation impacts were to northern parts of the Great Basin (Bear River Basin) and the Green River Basin of Wyoming. Mild temperatures were experienced over most areas with several maximum as well as high minimum temperature records established the first part of the month. Some areas experienced daily temperatures maximums of 25 degrees above average. Snow melt occurred throughout the lower Colorado River Basin of Arizona and New Mexico and in many lower elevations areas of the Great Basin and Colorado River Basin. However, where inversions were present a fairly significant lower elevation snowpack persisted into the middle of the month.



Mean atmospheric pattern during the first half of February 2017.  
A strong onshore flow delivered significant moisture to the western U.S.

### Precipitation and Temperatures:

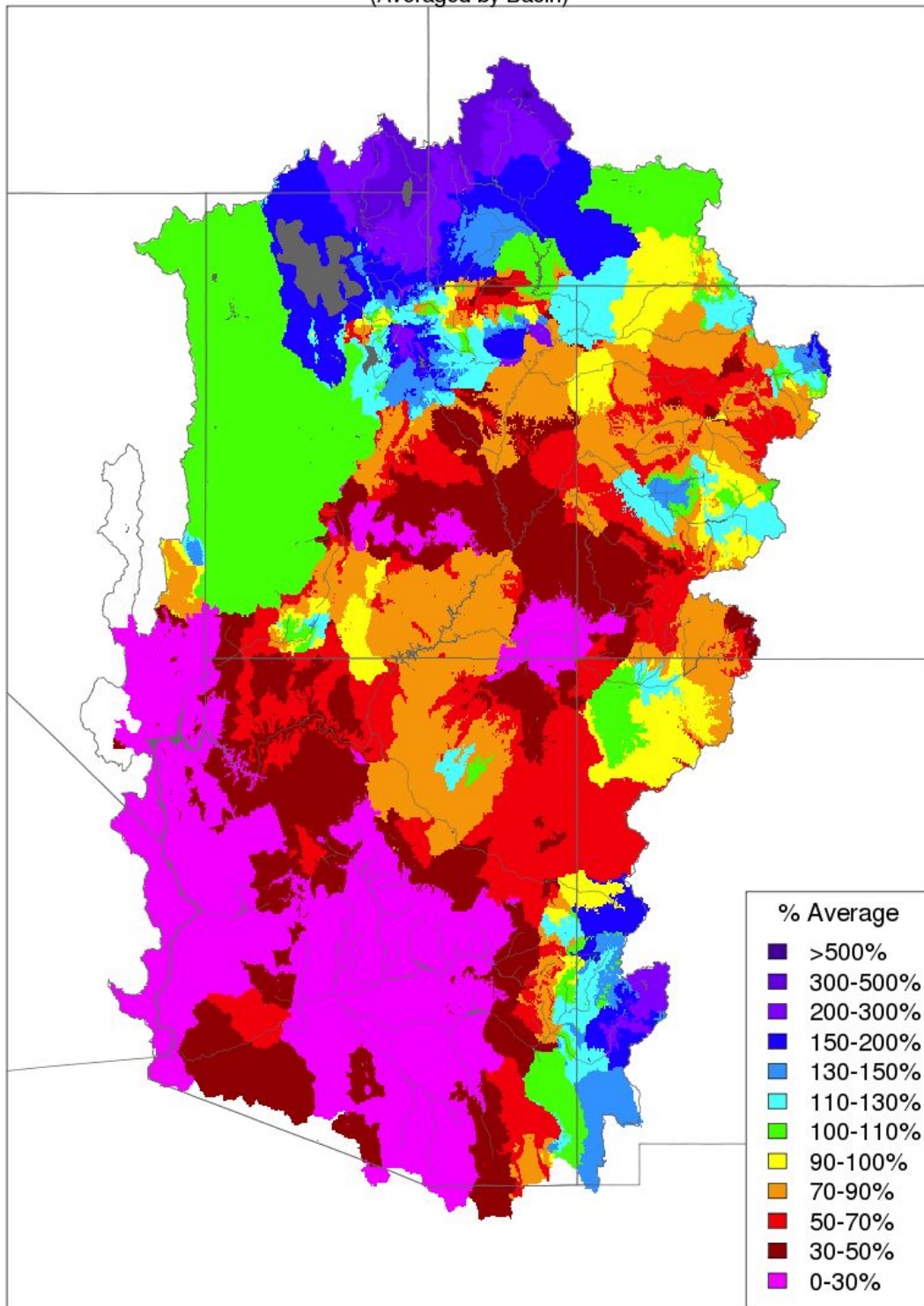
Precipitation ranged from 150 to more than 300 percent of average over parts of the Green River Basin of Wyoming, and parts of the Great Basin including the Bear, Weber, and Provo River Basins. Above average precipitation also occurred in the headwaters of the Gila River Basin due to a storm system that occurred near the middle of the month. Headwater locations of the Colorado River mainstem and parts of the upper Gunnison River also experienced near to above average precipitation. Most other areas were on the dry side with below average precipitation the first half of February.

Temperatures were much above average over most areas during the month of February with several daily maximum

temperature records established.

# Month to Date Precipitation - February 15 2017

(Averaged by Basin)



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

February 1-15 percent of average precipitation

**Snowpack:**

A very significant snowpack exists across much of the Upper Colorado River Basin and Great Basin. With the exception of the Yampa River Basin, most individual snotels in these areas are above 150 percent of median with quite a few above 200 percent of median. Values at many of these sites have exceeded the annual peak snowpack levels that typically occur in April or May.

The highest snowpack conditions with respect to the historical median exist in the headwaters of the Green River, headwaters of the Gunnison River, Duchesne River Basin, Bear River Basin, and Provo River Basin. Some snotel sites in these areas have their highest snowpack on record (typically 34-39 years) for this time of year.

The SNOTEL map image below indicates a widespread heavy snowpack across much of the CBRFC forecast area. Those sites depicted by a dark blue or purple marker have a snowpack ranging from 150 to 300 percent of median for mid February.

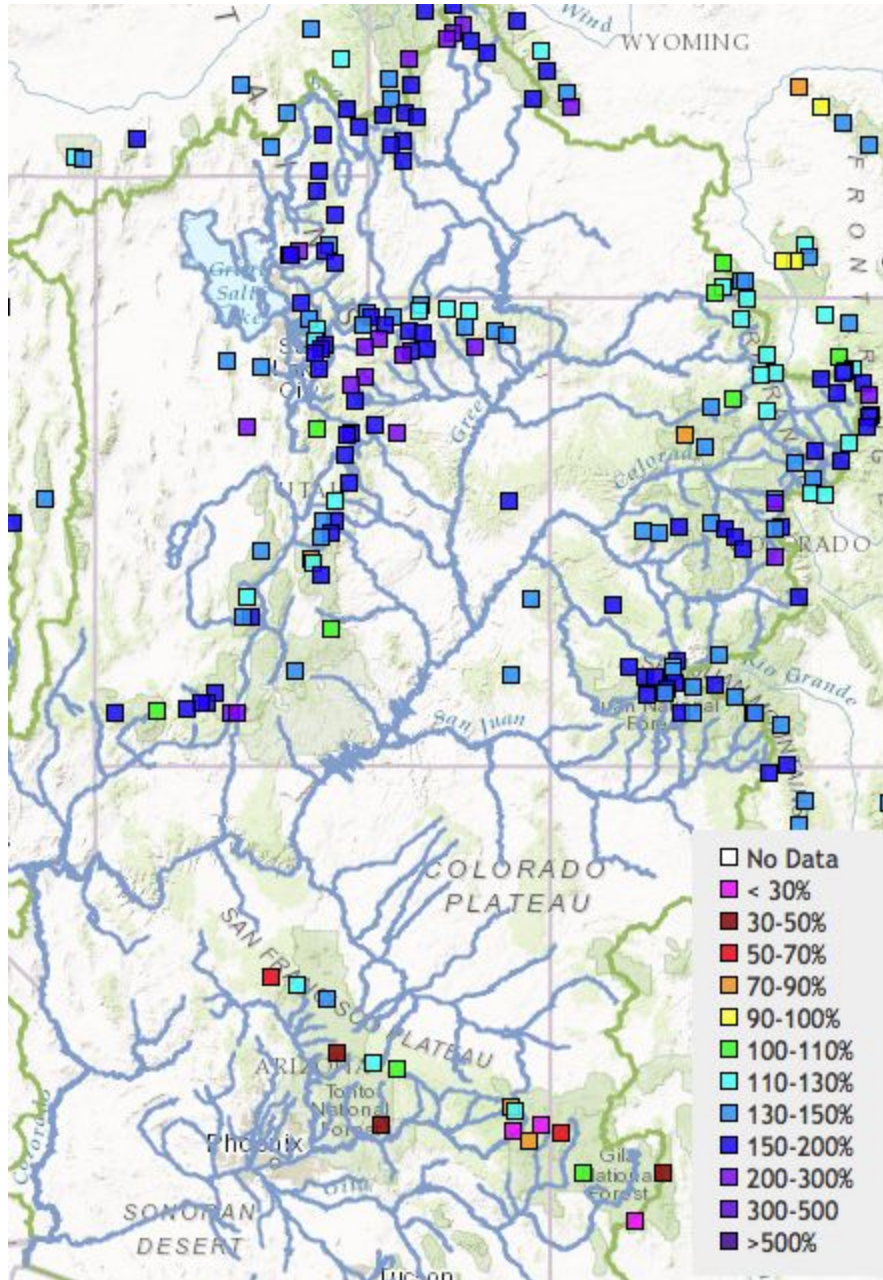
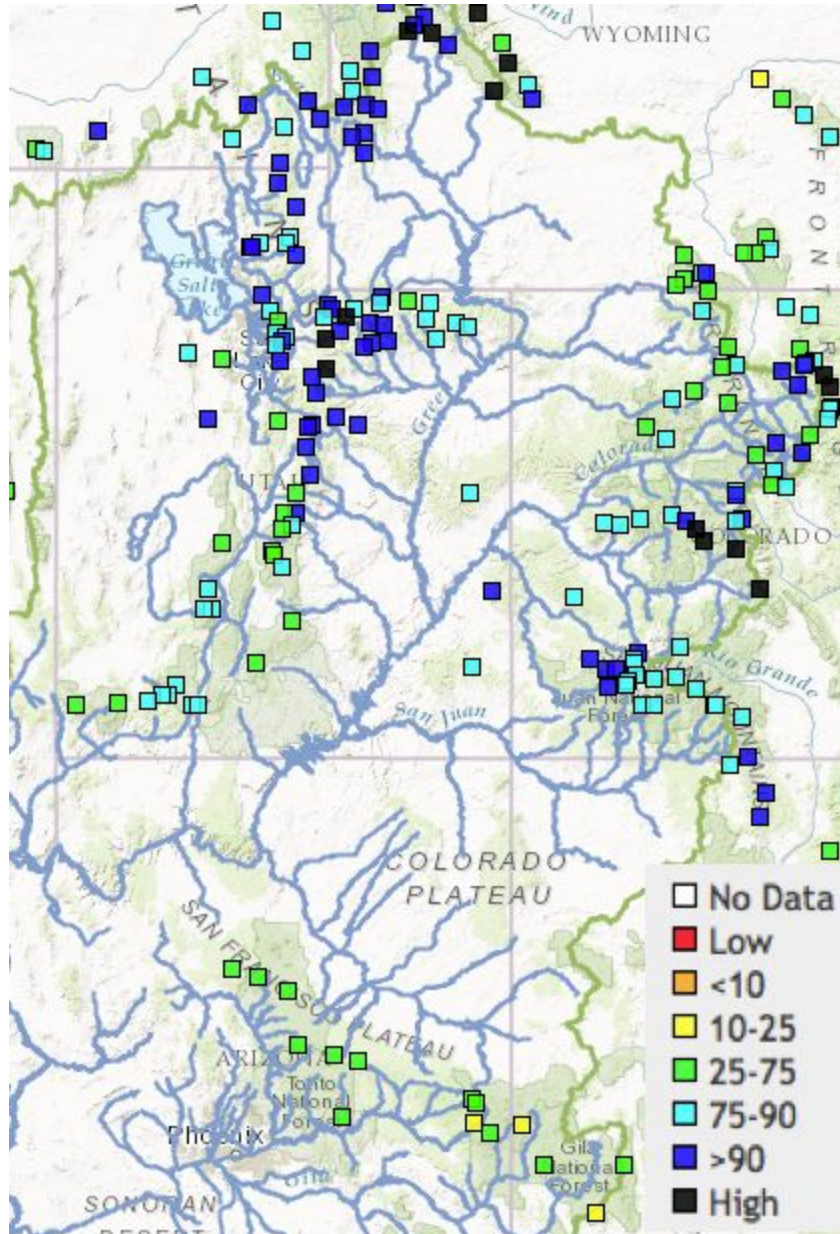


Image: Percent Median Snow Conditions as of February 16, 2017

The snow percentile image displayed below indicates where the current snow measurement ranks in the historical record for each site. Many sites are in the 10 percentile of record (typically 34-39 years). Most of these sites are at the 2nd or 3rd highest for this time of year. A few sites, in the Gunnison Basin, Green River headwaters, and Duchesne River Basin are at their highest on record for this time of year.



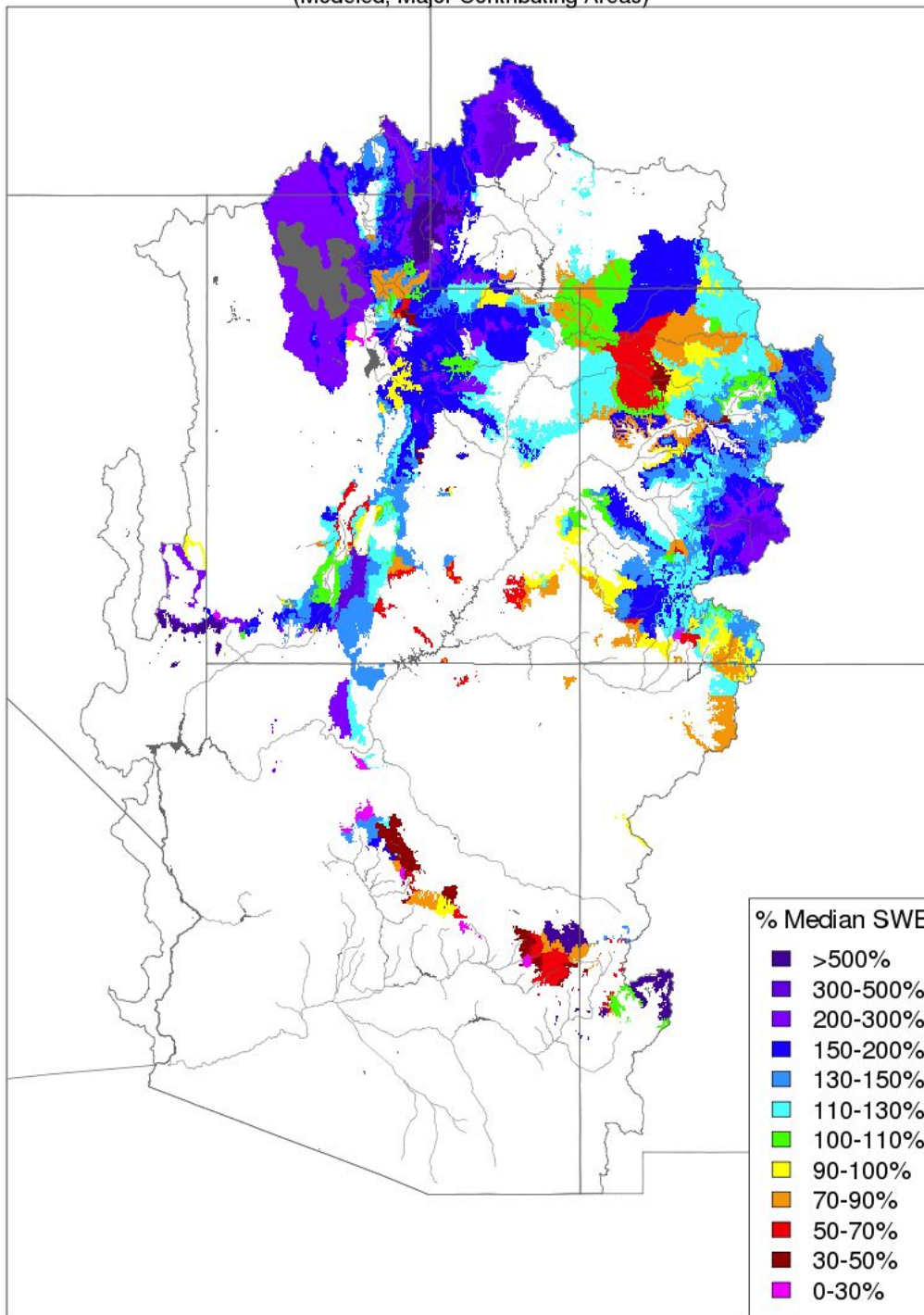


Snow Percentile Image: Historical SNOTEL ranking as of February 16, 2017

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. The snow represented in the model closely mirrors the SNOTEL image. Significant snowpack is widespread with snowpack conditions exceeding 200 percent of median over parts of the northern Great Basin, Upper Green River Basin, Duchesne River Basin, Gunnison River Basin. Although future weather conditions will ultimately determine the runoff scenario, current snowpack conditions suggest significant spring runoff is likely in these areas.

## Snow Conditions - February 16 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)

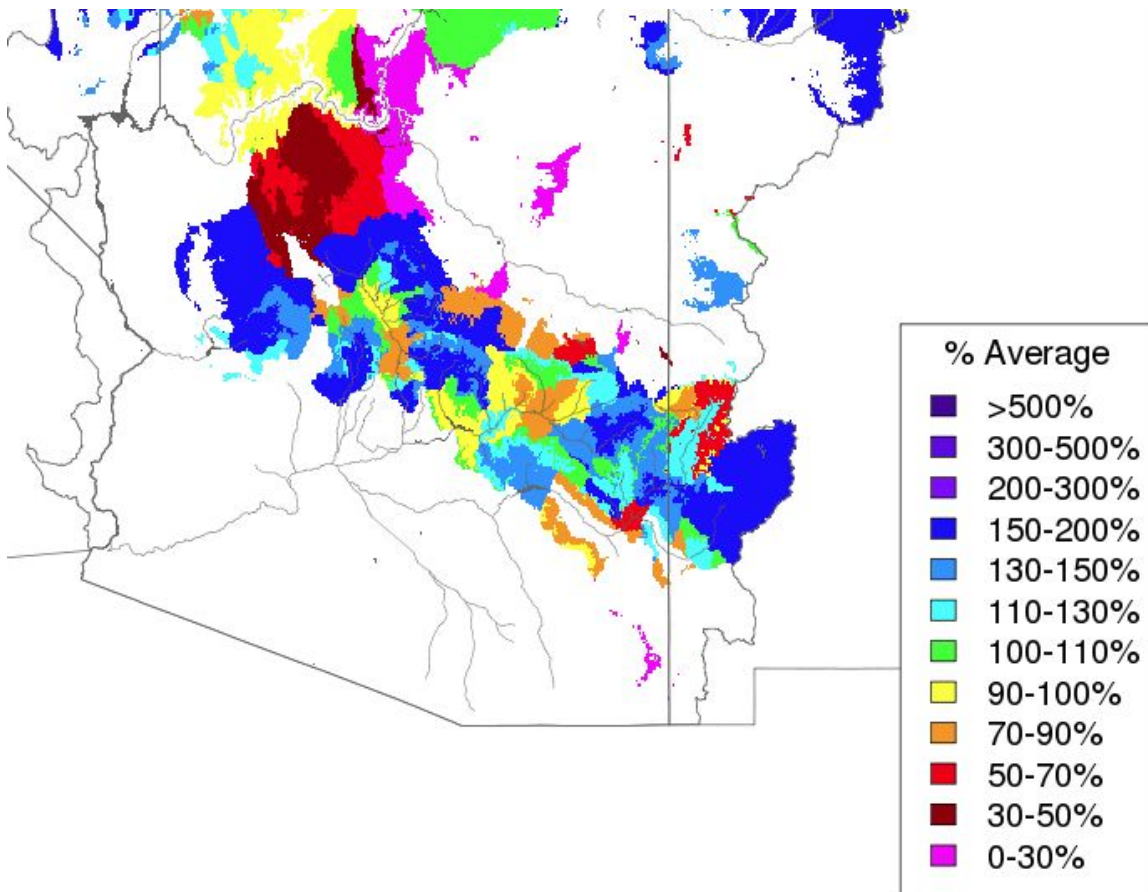
Modeled Snow: Snow representation from the CBRFC hydrologic model February 16, 2017

For the latest snow conditions click [here](#)

**Soil Moisture:**

Modeled soil moisture conditions as of November 16th were above average over much of the Upper Green River Basin, Bear River Basin, and Duchesne River basins. Elsewhere in both the Great Basin and Upper Colorado River Basin the modeled soil moisture conditions were below average. Give the significant snowpack over the area the impact of drier soils may be lessened this year than compared to years with a normal or below normal snowpack. Those areas with above average soil moisture combined with a significant snowpack may experience enhanced runoff conditions this spring.

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. Soil conditions in the fall are less informative than they are in the northern basins that remain under snowpack throughout the winter season. As seen in the image below model soil moisture conditions are near or above average in most of the Salt, Verde, and Gila River Basins with drier conditions in the Little Colorado River Basin. Additional rainfall over the next few weeks will likely result in efficient runoff and higher streamflows due to the fairly wet soils in these areas.

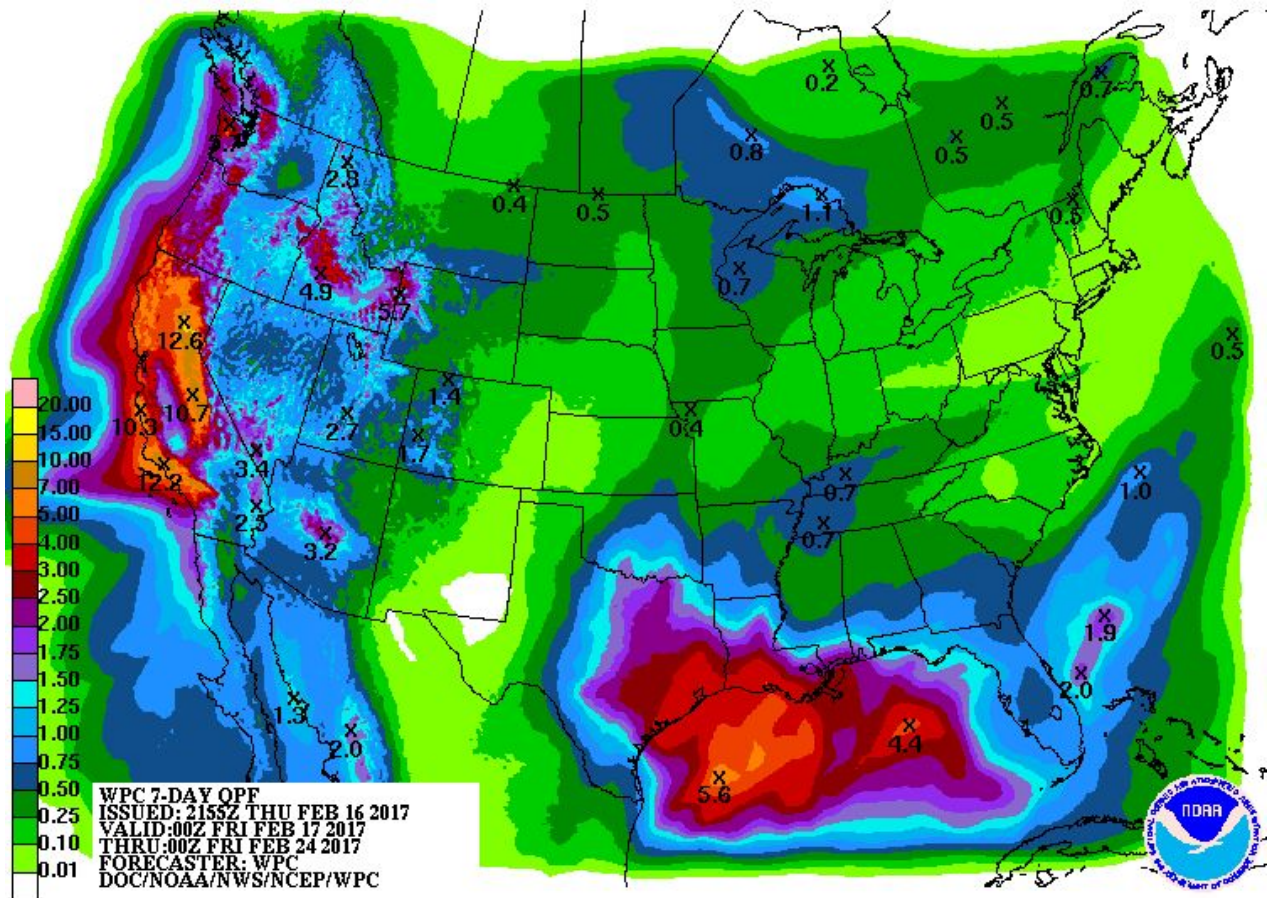


Lower Colorado River Basin modeled soil moisture as of February 15 2017

**Weather Outlook:**

The short term weather outlook indicates an increasingly active pattern for the second half of February. The first storm system will impact primarily the Lower Colorado River Basin in Arizona with improving chances for precipitation in northern areas as the month progresses. Cooler air is also expected toward the last weekend of the month along with lowering snow levels.

An increase in streamflow is anticipated in Lower Colorado River streams due to rainfall on moist soils. Impacts to water supply forecasts are again possible in parts of the Great Basin and Green River Basin of Wyoming where meteorological models suggest the largest precipitation amounts are likely to occur.



Precipitation outlook for February 17 - February 24 2017 from the Weather Prediction Center.