January 18, 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 January Update):

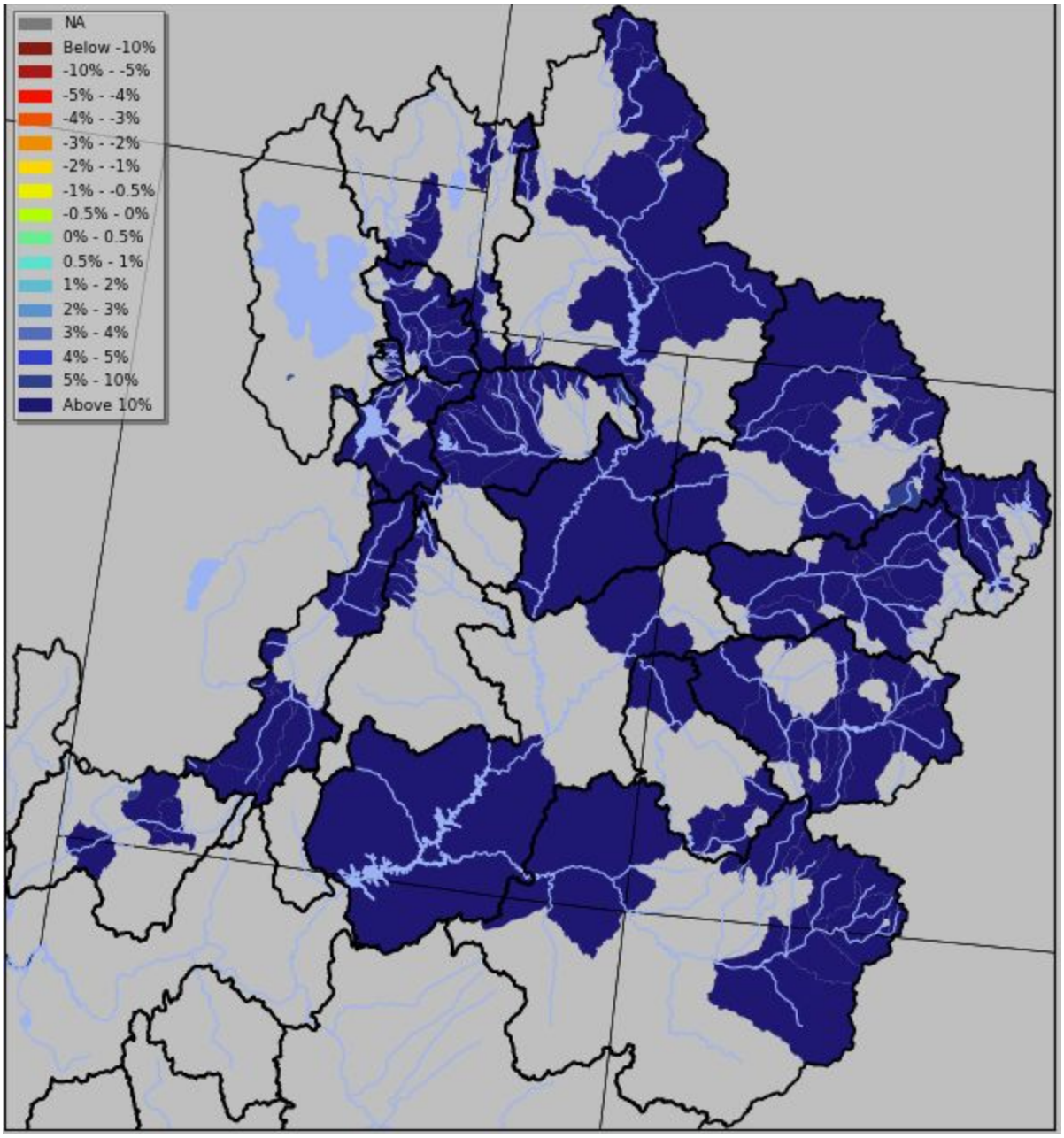
A significant amount of precipitation was received over much of the Upper Colorado River Basin and northern Great Basin during the first half of January. The result was a dramatic increase in both snowpack conditions and water supply forecast guidance in many areas from those of early January.

While most areas experienced at minimum a 10 to 20 percent of average increase in water supply forecast guidance some areas experienced a greater than 50 percent increase. Most notable were parts of the Duchesne River Basin, Gunnison River Basin, Provo River Basin, and Bear River Basins where some of the largest increases (as a percent of average) occurred. The latest water supply forecast guidance indicates above to much above average April-July runoff over the Upper Colorado River Basin and northern Great Basin. Highest volumes with respect to average are anticipated in the Green River Basin of Wyoming, Duchesne River Basin, and Bear River Basin with several locations exceeding 150 percent of average for the April-July runoff period.

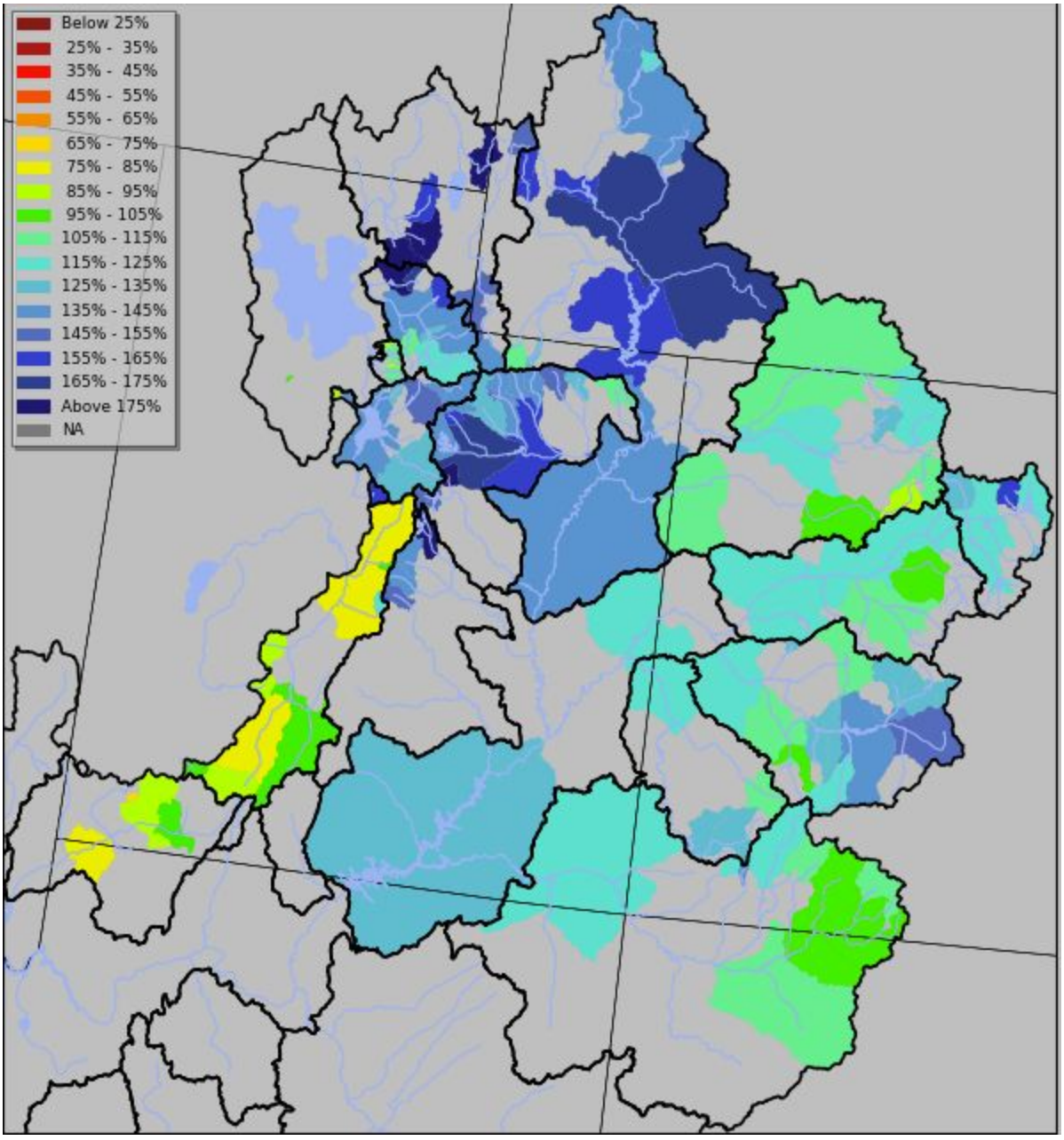
Mid January forecast updates for some of the major Upper Colorado River Basin reservoirs include Fontenelle with an increase from 128 to 156 percent of average, Flaming Gorge with an increase from 126 to 156 percent of average, Taylor Park increasing from 82 percent to 124 percent of average, Blue Mesa increasing from 85 to 136 percent of average, McPhee increasing from 97 to 129 percent of average, and Navajo Reservoir with an increase from 79 to 102 percent of average. Lake Powell had a significant forecast increase of 2.5 million acre-feet, from 91 to 126 percent of average, and is now at 9.0 million acre-feet for the April-July forecasted inflow.

Above average precipitation in southwest Utah also resulted in some increases in forecast guidance for the Sevier River Basin and Virgin River Basin, however increases were more variable ranging from just a few percent of average to around 15 percent of average.

Recent rainfall, improved soil moisture conditions, and anticipated future precipitation has resulted in an increase in the Jan-May volume outlook in much of the Salt, Verde, and Gila River Basins in Lower Colorado River Basin.



Trend in the April-July runoff volume forecast guidance since January 1st 2017
All areas increased significantly
(Change in April-July percent of average)



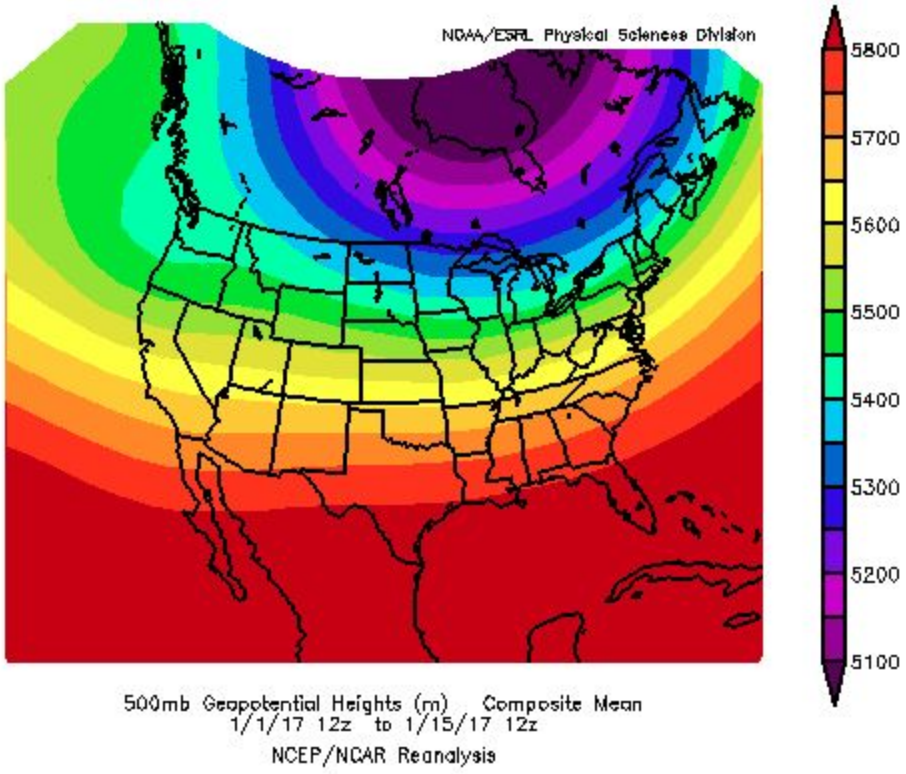
April-July runoff volume guidance as of January 17 2017
(percent of 1981-2010 average)

[Click here for the latest water supply model guidance]

Water Supply Discussion

Weather Synopsis:
A very active weather pattern that started in early December continued into mid January. This pattern had the characteristics of an “atmospheric river” where significant moisture is transported from sub-tropical regions into the western U.S. These patterns can result in copious amounts of precipitation and in some cases this moisture

penetrates farther inland into parts of the Great and Colorado River Basins as it did the first half of January.



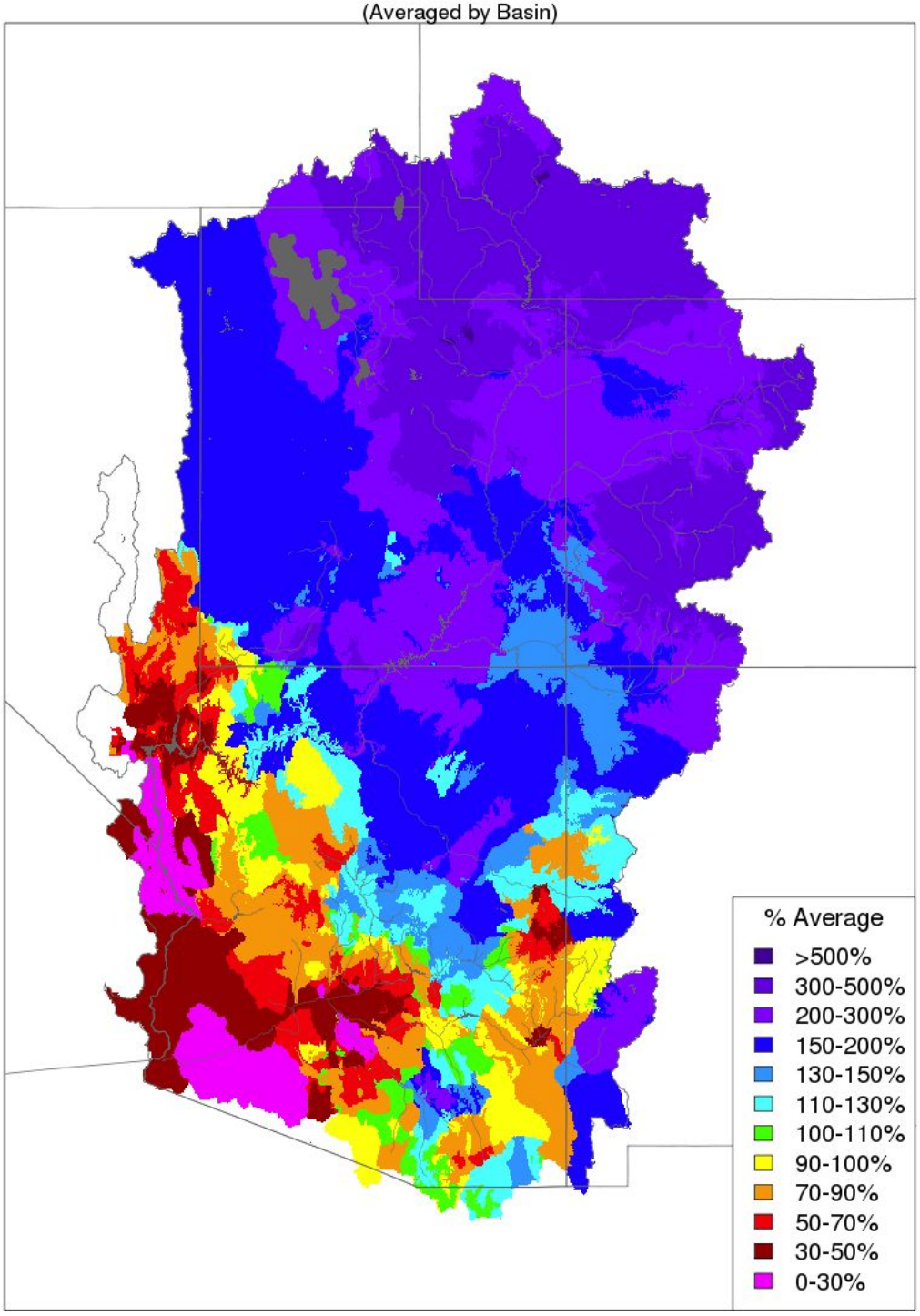
Mean atmospheric pattern during the first 15 days of January 2017.
A strong onshore flow delivered significant moisture to the western U.S.

Precipitation and Temperatures:
Precipitation exceeded 300 percent of average over parts of the Green River Basin of Wyoming, Duchesne River Basin, Bear River Basin, Provo River Basin and Gunnison River Basin for the first half of January. Precipitation was generally well above average through the remaining Great and Upper Colorado River Basins. Precipitation amounts exceeding 5 inches were common with upward to nearly 11 inches recorded in some areas. Many areas have also already exceeded the January precipitation average with numerous locations already over 200 percent of the average for the entire month.

Precipitation was a bit more variable in the Lower Colorado River Basin of Arizona and New Mexico however above average precipitation was noted in several headwater areas of the Gila, Salt, and Verde River Basins through the first part of January with additional precipitation increasingly likely.

Month to Date Precipitation - January 17 2017

(Averaged by Basin)



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

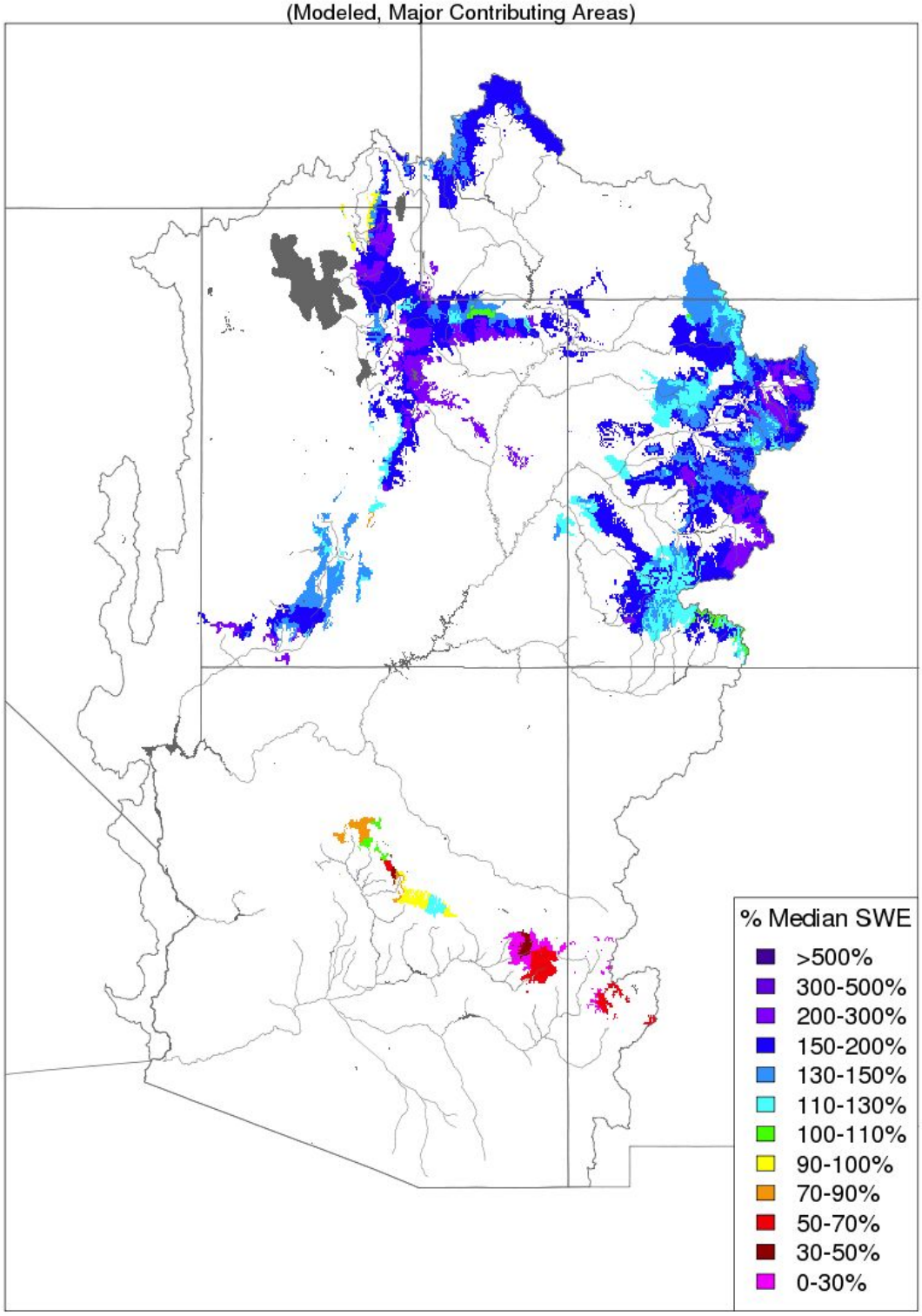
January 1-17 percent of average precipitation

Snowpack:
Snow conditions are generally much above median over the Upper Colorado River and Great Basins for mid January. Significant increases to the snowpack have occurred in most of these areas since earlier in the month. Snow as represented by the CBRFC hydrologic model is in the image below. The highest snow with respect to the historical median exceeds 200 percent in parts of the Gunnison River Basin, Colorado River headwaters, Duchesne River Basin, Bear River Basin, and Provo River Basin.

In the Lower Colorado River Basin, snow conditions are above median in the Virgin River Basin of southwest Utah but become more mixed with some areas of below and above median in the Little Colorado, Gila, Salt, and Verde River Basins of Arizona and New Mexico.

Snow Conditions - January 18 2017

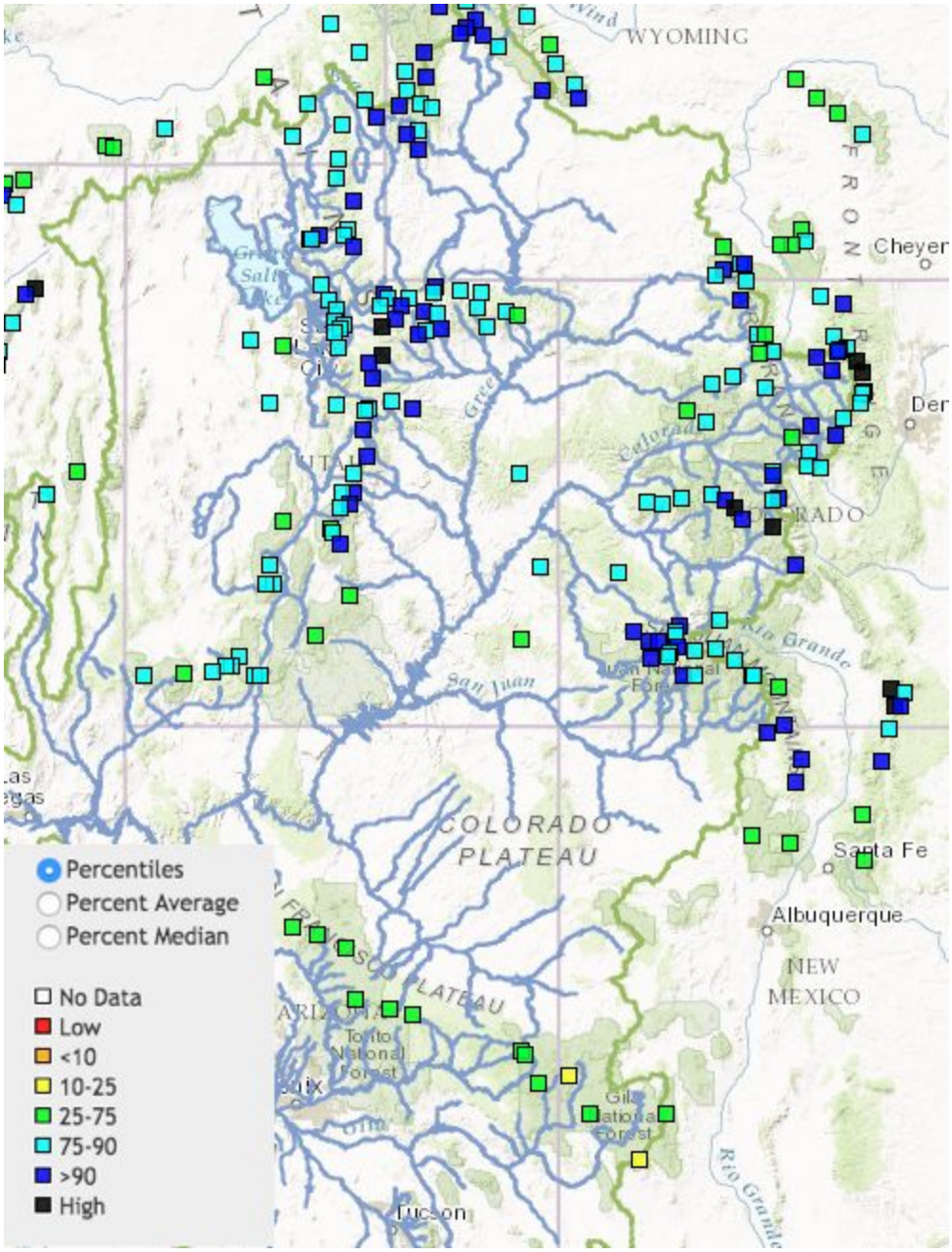
(Modeled, Major Contributing Areas)



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Snow conditions as seen by the hydrologic model on January 18, 2017
Trimmed to show those areas with the greatest contribution to seasonal runoff volumes.

In the image below SNOTEL sites are represented as a ranking of snowpack conditions at a particular site as of January 18th 2017. Those in black are at the highest level on record for this time of year. Those in the dark blue are in the top 10% for this time of year. Many of those fall into the 2nd or 3rd highest on record for this time of year given that most SNOTELs have a record between 35 to 39 years.



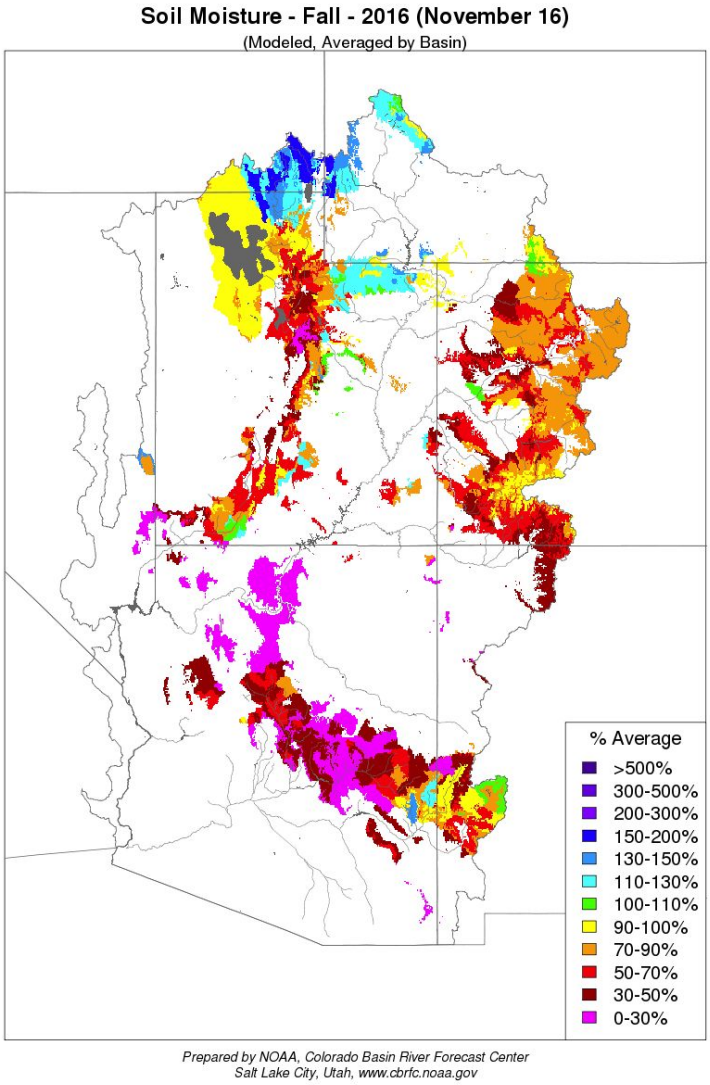
For the latest snow conditions click here

Soil Moisture:

Modeled fall soil moisture conditions impact early season water supply forecasts and potentially the efficiency of spring runoff. Above average modeled fall soil moisture conditions will have a positive effect on early season water supply forecasts while below average conditions will have a negative impact.

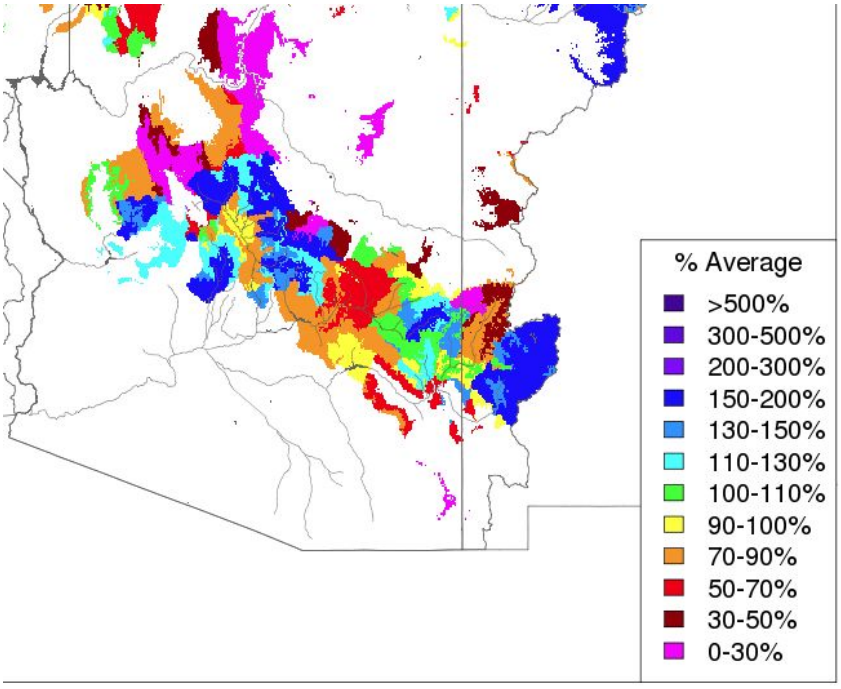
Modeled soil moisture conditions as of November 16th were above average over much of the Upper Green River Basin, Bear River Basin, and Duchesne River basins. Elsewhere in both the Great Basin and Upper Colorado River basin the modeled soil moisture conditions were below average.

In the map below areas in cool colors (e.g blue and purple) are above the historical model soil moisture average while those in the warm colors (e.g red and orange) indicate below average conditions. Only the higher elevations are displayed and the areas in white are not included.



Model Soil Moisture entering the winter season (November 16 2016)

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 soil moisture conditions have improved in several areas of the Gila, Salt and Verde River Basins. Anticipated rainfall through the rest of January is expected to runoff more efficiently and is responsible for an increase in Jan-May volume forecasts in these areas.

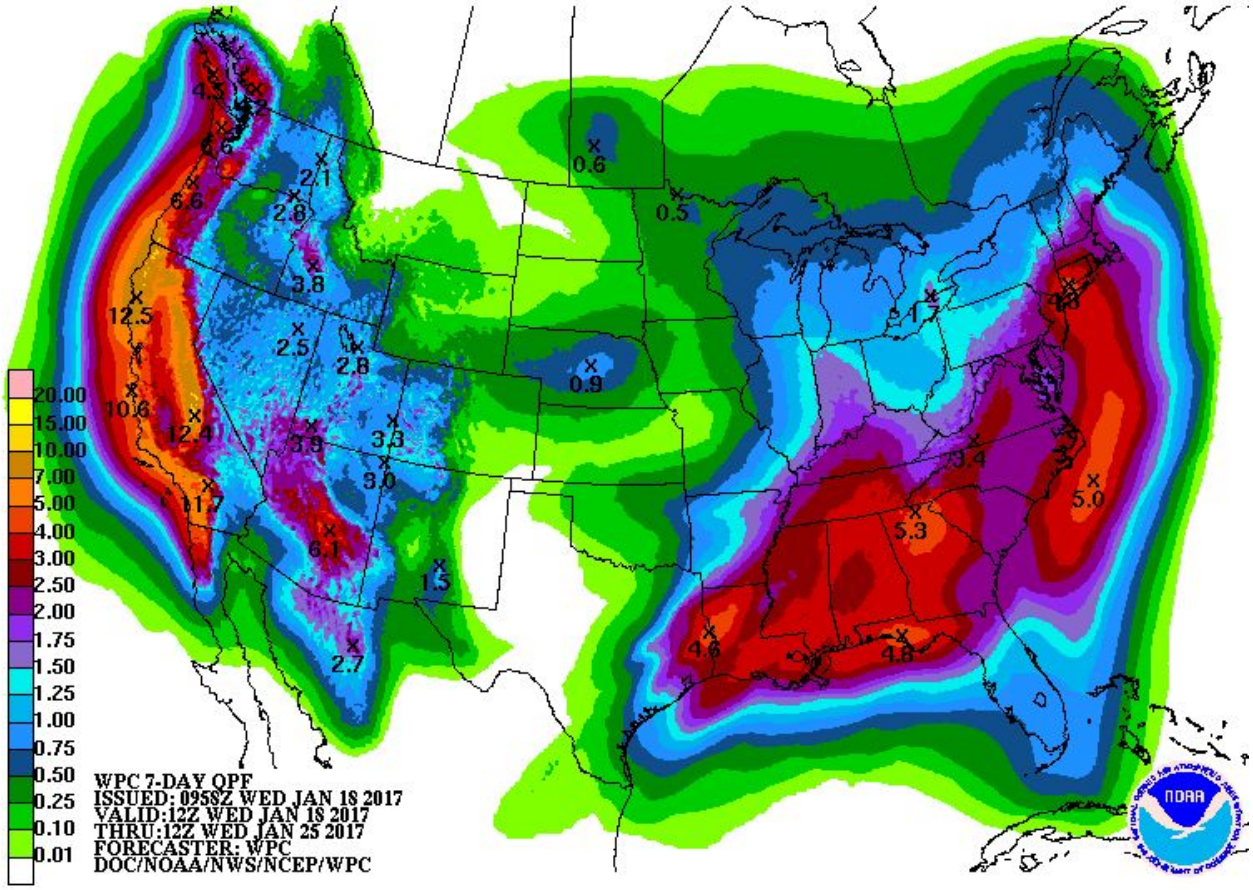


Lower Colorado River Basin soil moisture as of January 18 2017

Weather Outlook:

The short term weather outlook indicates additional storms moving into the CBRFC forecast area during the final weeks of January. Although widespread precipitation is expected, the focus of heaviest precipitation is anticipated over the southern half of the CBRFC forecast area.

The greatest impact to water supply forecasts are likely to be over this area as well with possible increases in model guidance in the Lower Colorado River (Virgin, Gila, Salt, Verde, and Little Colorado River Basins), with increases also possible in the San Juan and Dolores River Basin.



Precipitation outlook for January 18 - January 25 2017 from the Weather Prediction Center.

The next water supply discussion update will be issued in early February 2017