

## February 17, 2015 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:

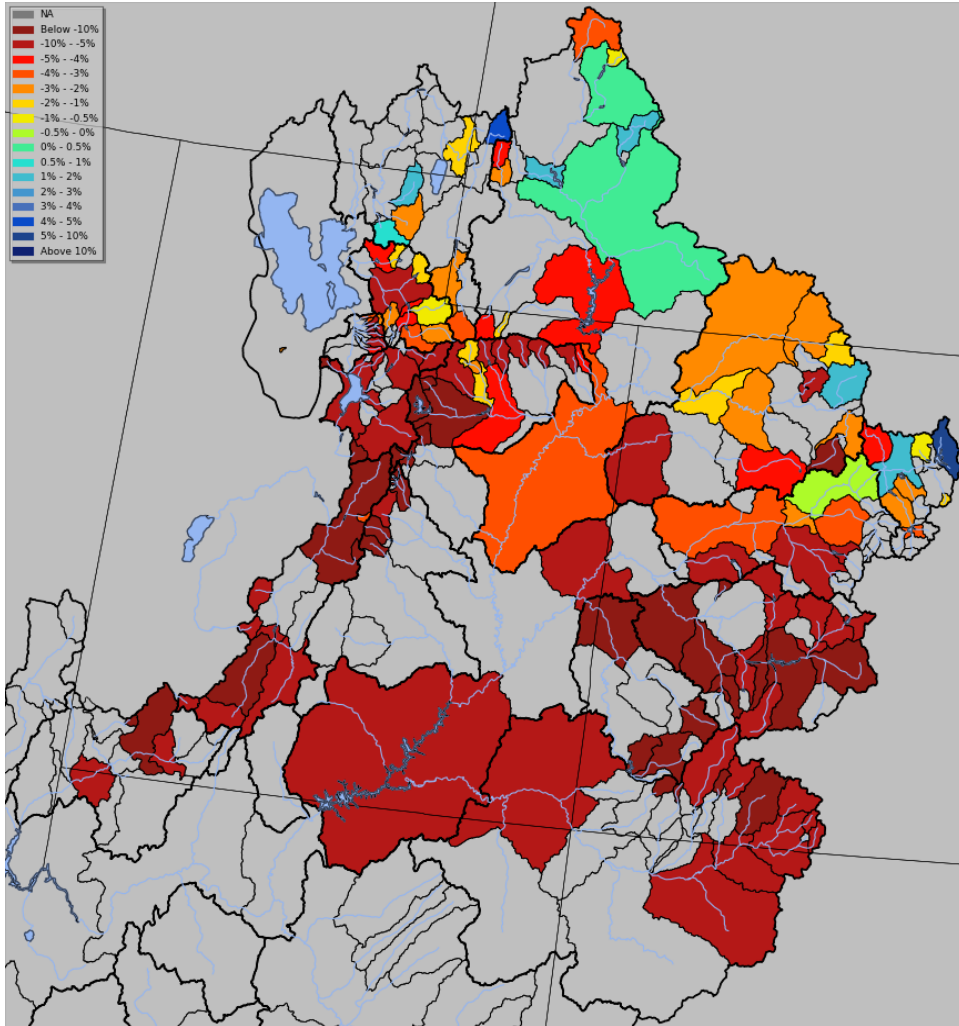
#### Quick Summary:

CBRFC raw model guidance has trended water supply forecasts downward over nearly all of the CBRFC forecast area since February 1st. The only exceptions were in the Upper Green River Basin and Colorado River Headwaters where the model indicated no change or a slight increase. These areas received some precipitation from storms moving around a persistent ridge of high pressure that has kept the vast majority of the CBRFC forecast area on the warm and dry side the first half of February.

Near average April-July runoff volumes are expected in the Green River Basin above Flaming Gorge, Colorado River Basin above Cameo, headwaters of the Yampa River Basin and the northernmost portion of the Bear River Basin in Idaho. Below average runoff volumes are anticipated everywhere else with less than 50% of average runoff expected in parts of the San Juan, Virgin River Basin, Sevier River Basin, and Great Basin of northern Utah.

Mid February forecasts for some of the major upper Colorado River Basin reservoirs included no change from February 1st at Fontenelle with 100% of average forecast. Decreases were noted elsewhere including Flaming Gorge dropping from 89 to 87 percent of average, Blue Mesa Reservoir from 92 percent to 83 percent of average, and Navajo Reservoir from 54 percent to 45 percent of average. The Lake Powell inflow forecast decreased by 300 KAF, from 73 percent to 68 percent of average, and is now at 4.9 million acre-feet.

In the Lower Colorado River Basin, February-May volumes are forecast to be below median.



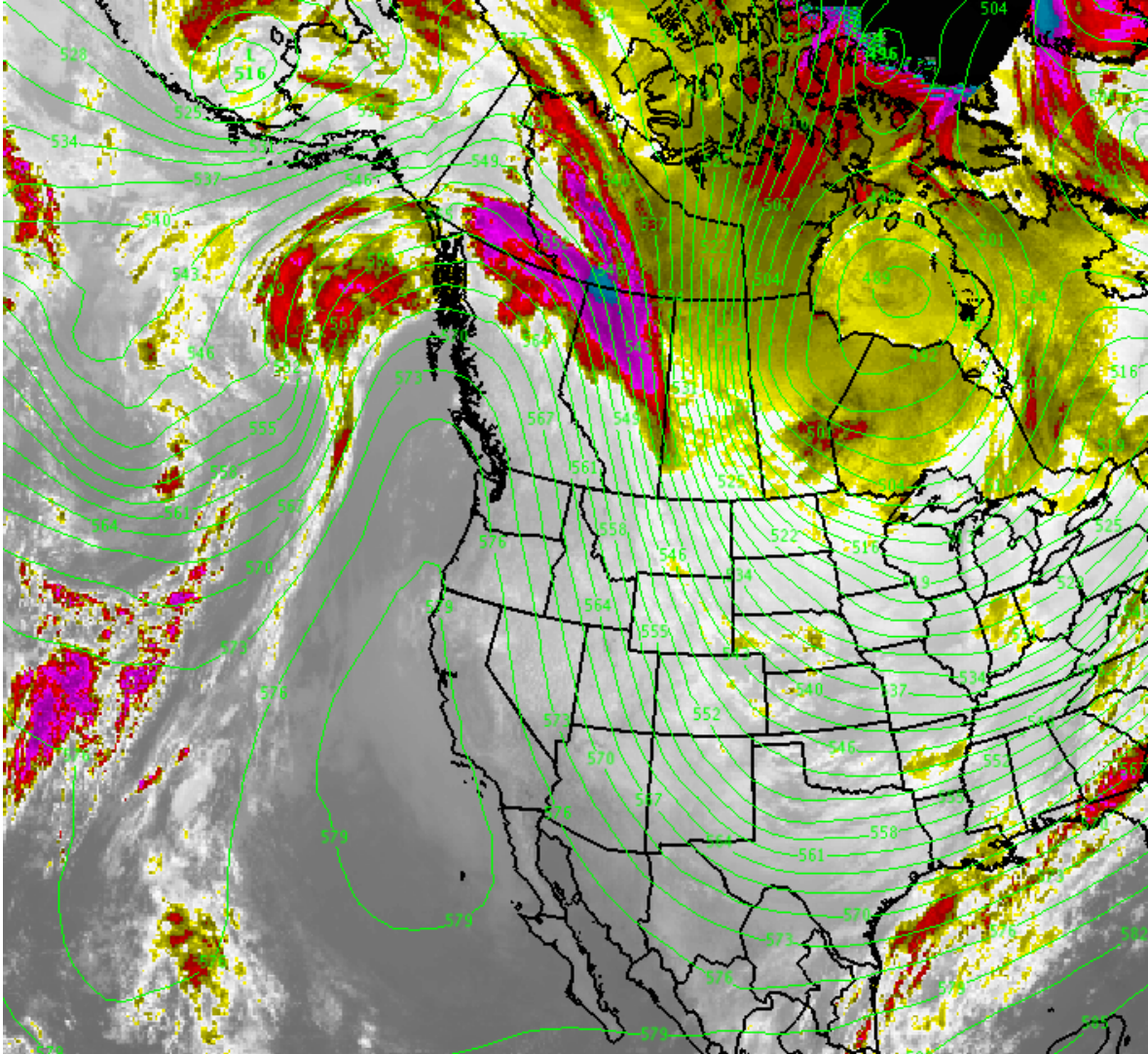
Trend in the April-July runoff volume forecasts since February 1st.  
(Change in April-July percent of average)

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

## Water Supply Discussion

### Weather Synopsis:

Much like January, high pressure has been the dominant feature over the CBRFC forecast area during the first half of February. Storm systems moving around the ridge have brought some precipitation to the northern and northeast fringes of the CBRFC forecast area with dry conditions elsewhere. Temperatures have been very warm during the first half of the month with several daily temperature records established.

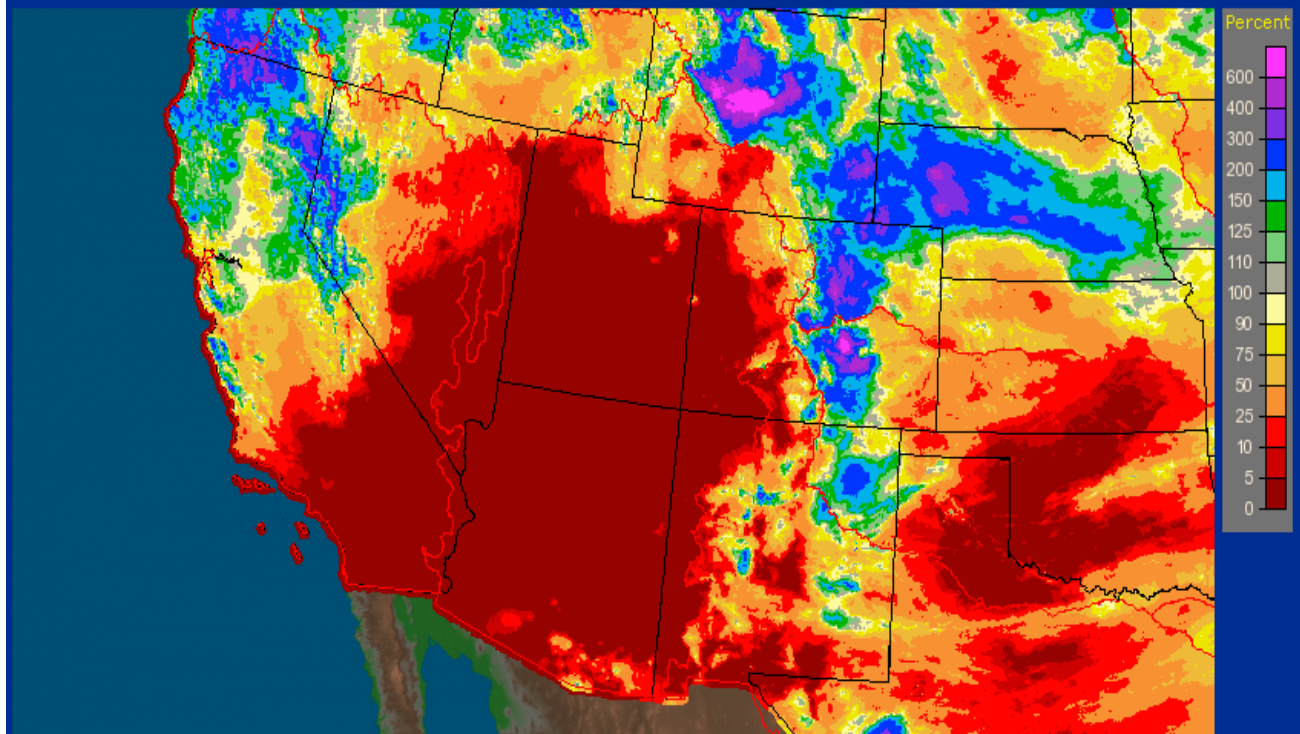


Satellite image for February 17th 2015 clearly shows the strong high pressure ridge that has dominated the first half of the month.

**Precipitation and Temperatures:**

February has been very dry with much below average precipitation observed over the CBRFC forecast area during the first half of the month. Only a few headwater areas in the upper Green River Basin of Wyoming, and Colorado River Headwaters received near average precipitation. The image below shows the impact of the strong ridge of high pressure that has dominated February and much of the winter. Very dry conditions have been observed under the ridge with an increase in precipitation outside the perimeter along the storm track.

Colorado Basin RFC Salt Lake City, UT: Current Month to Date Percent of Normal Precipitation  
Valid at 2/18/2015 1200 UTC - Created 2/18/15 17:58 UTC

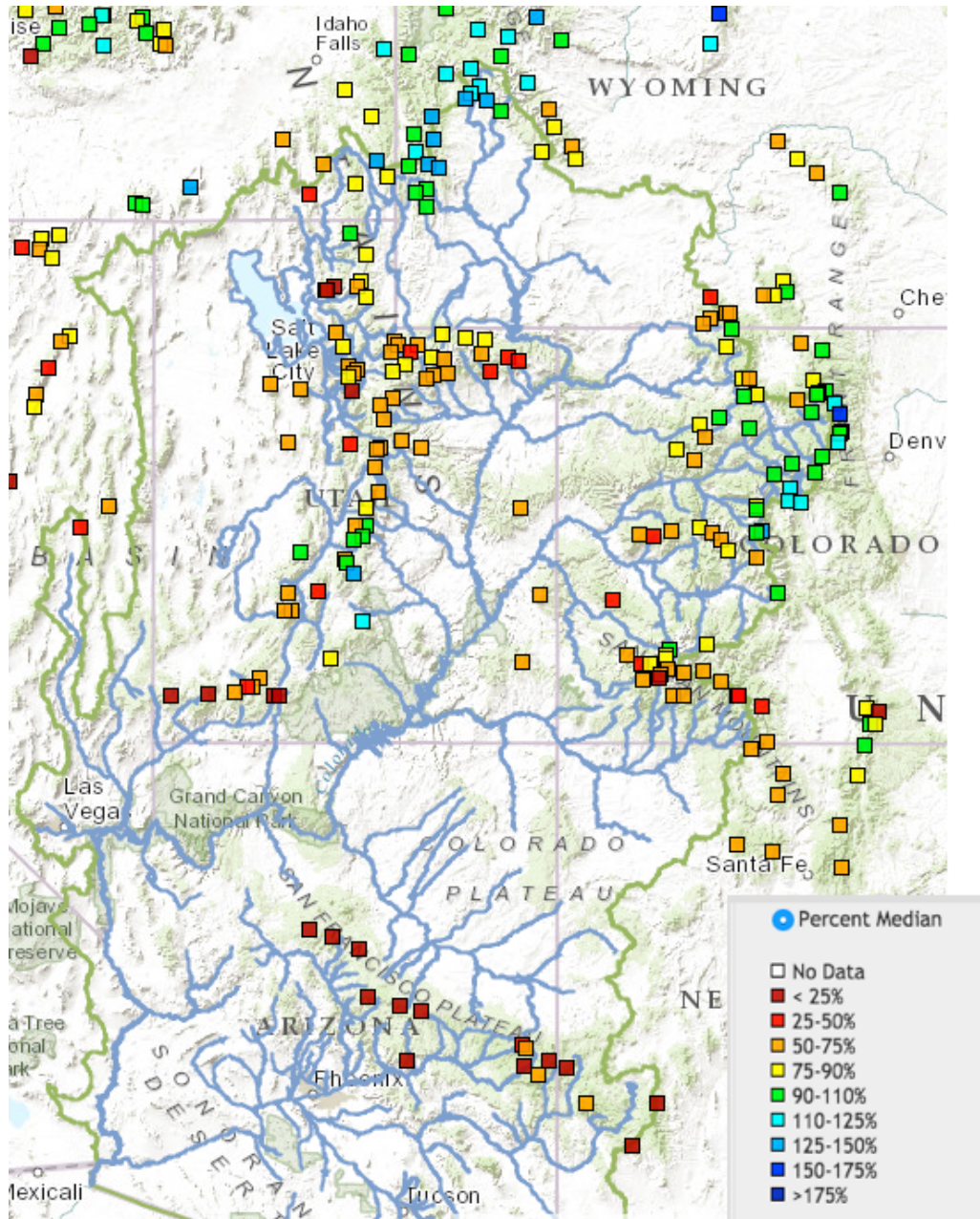


February 1-17 percent of average precipitation for the Colorado River Basin.

#### **Snowpack:**

The vast majority of the CBRFC forecast area has snow conditions below or much below median for this time of year. In some areas snow melt has been occurring, even at elevations up to 9000 feet, due to record warm temperatures. Those areas where snow conditions have remained near or above average are limited to parts of the upper Green River Basin, Colorado River Headwaters, and tributaries of the Colorado River in south central Utah.

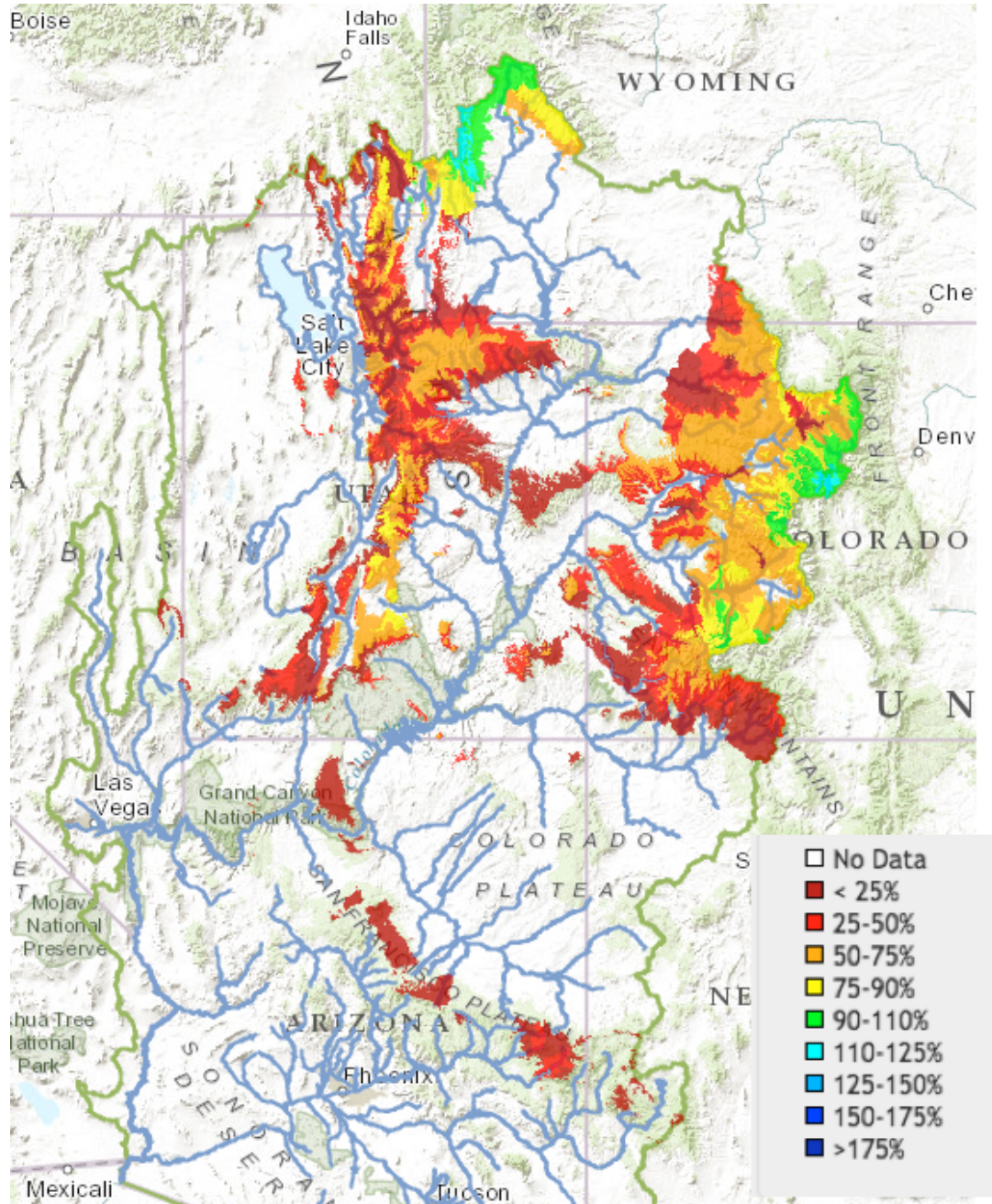
Several SNOTEL sites, especially in the San Juan River Basin, Gunnison River Basin, and Great Basin of Utah are indicating snow conditions among the 5 lowest on record. Records for these areas go back 30-35 years.



SNOTEL Sites - Percent Median Snow condition as of February 17, 2015

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

The snow condition as seen by the hydrology model is depicted in the following image. The representation is very similar to that of the SNOTEL sites with low snow conditions predominant across the CBRFC forecast area.



Snow conditions as seen by the hydrologic model on February 17, 2015  
(represented as a percent of average)

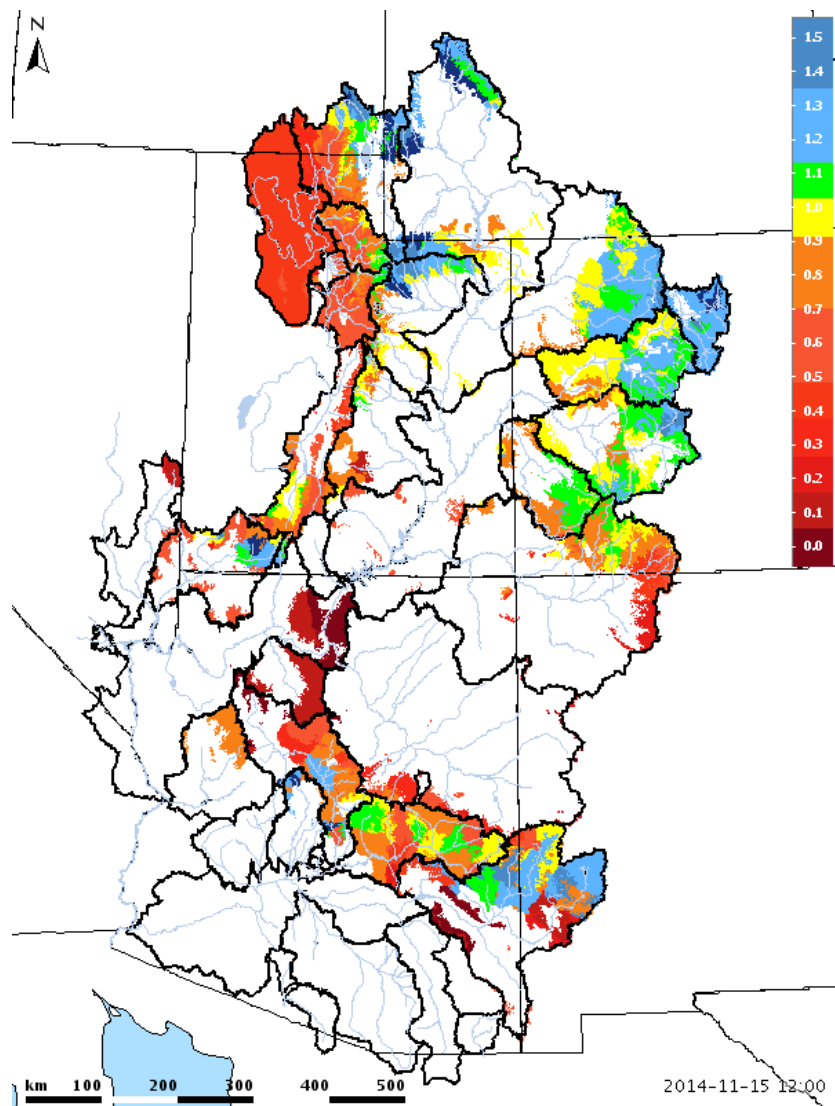
**Soil Moisture:**

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 above average over much of the Green River Basin above Fontenelle, headwaters of the Yampa and White River Basins, and the Colorado River headwaters above Kremmling. Above average soil moisture also existed over much of the Uinta Mountain range that drains into the Bear River, Duchesne River, and Green River above Flaming Gorge.

Soil moisture conditions were below average over the lower Bear River Basin, Weber River Basin, Provo River Basin, and Six Creeks Basins. The Sevier, San Juan, and most of the Virgin River Basins had below average soil moisture conditions entering the winter. In the Lower Colorado River Basins of Arizona conditions vary with most areas below average. However in this area, the January-May runoff volumes are primarily influenced by the frequency and magnitude of winter rain events.

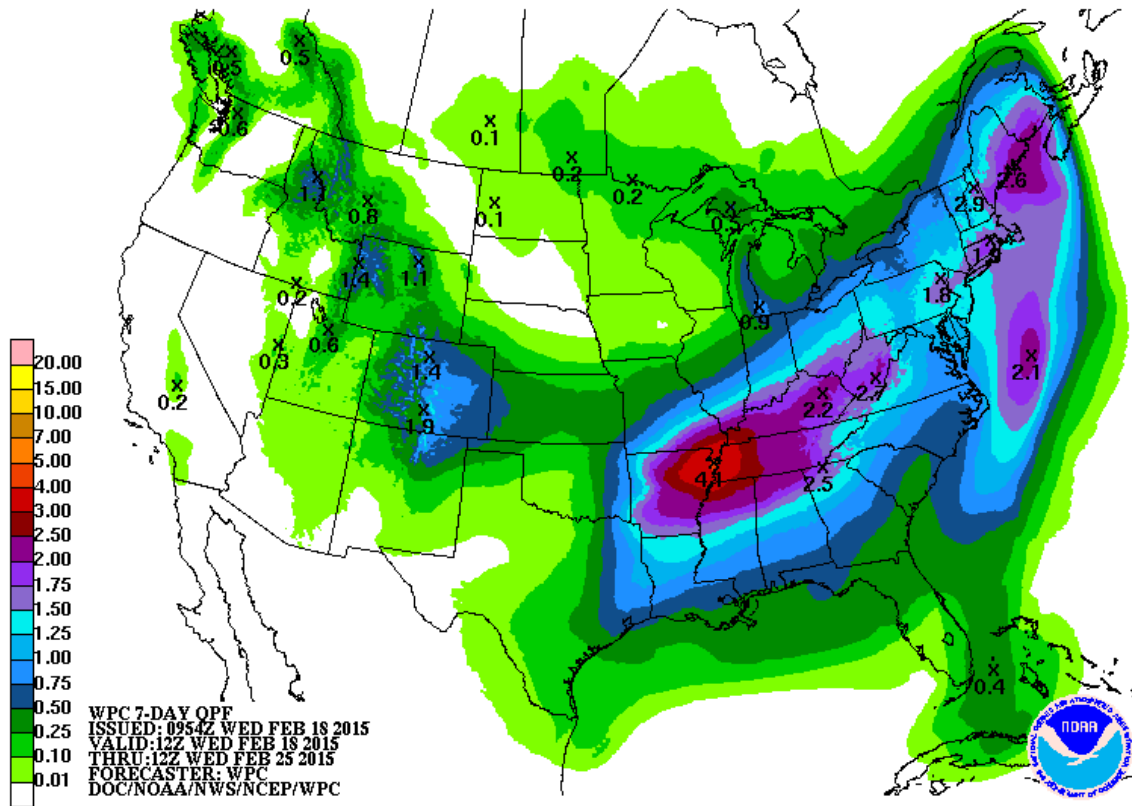
In the map below, areas in blue are above the historical model soil moisture average while those in the red and orange are below average. Only the higher elevation areas are displayed. The areas in white are not included.



Modeled soil moisture entering the winter season (as of November 15 2014)

**Weather Outlook:**

The high pressure ridge currently over the CBRFC forecast area is expected to move to the west then eventually give way to a more active westerly flow by the end of the month. Initially this may allow storms to drop into the western U.S. from the north but they are likely to be limited in precipitation. There is more promise for wetter weather in early March however this is toward the lower confidence period of the meteorological forecast models.

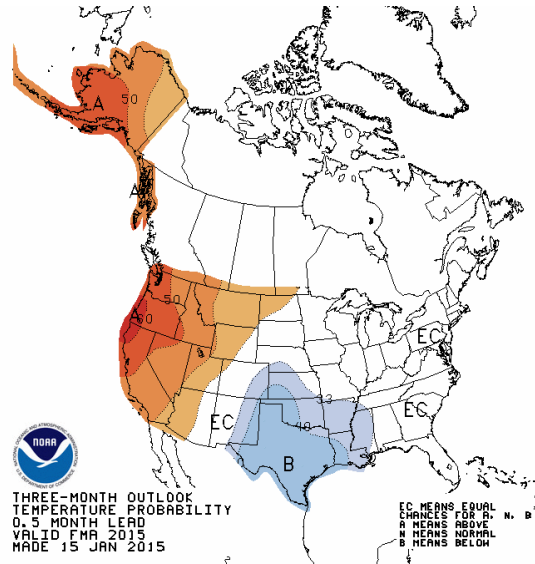
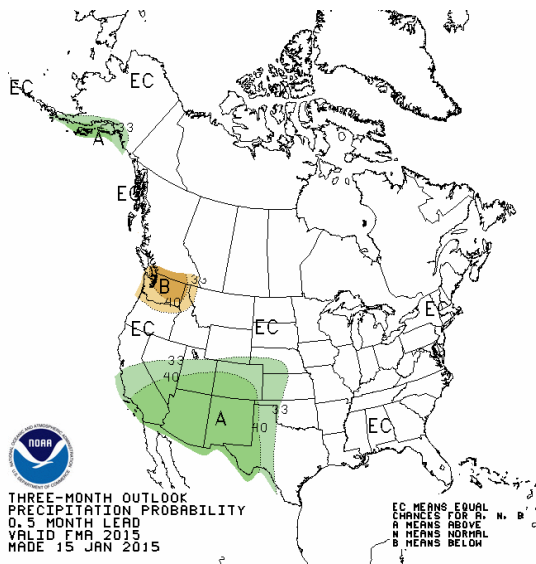


Precipitation outlook for February 18 - February 25 from the Weather Prediction Center.

**Climate Outlook:**

The El Niño Southern Oscillation (ENSO) condition continues to be neutral. However, positive sea surface temperatures anomalies exist across the east-central equatorial Pacific Ocean. Climate models indicate a 50%-60% chance that weak El Niño conditions will be present during the next couple of months with neutral conditions likely as we enter summer. The Climate Prediction Center indicates enhanced chances of above normal precipitation during the February-March 2015 period over much of the Colorado River and eastern Great Basin. These chances decrease from south to north with equal chances of above or below normal precipitation in the Green River Basin of Wyoming. There are enhanced chances of above normal temperatures over the eastern Great Basin and Green River Basin of Wyoming during the same period with equal chances for above or below normal temperatures elsewhere.





**Conclusion:**

Above average soil moisture conditions along with near to above median snow conditions have resulted in near or slightly above average spring runoff volume forecasts for the Green River Basin above Fontenelle and the Colorado River above Kremmling. Deteriorating snow conditions due to warm and dry weather the first part of February has resulted in a general decrease in model guidance runoff volumes throughout the rest of the CBRFC forecast area since February 1st.

Much below average April-July runoff volumes are expected in areas where below average soil moisture and below median snow conditions exist. These include the San Juan Basin, Virgin River Basin, Sevier River Basin, parts of the Duchesne River Basin, and areas downstream from headwater locations in the Provo, Weber, Bear, and Six Creeks Basins. Some forecasts in these areas are now indicating April-July runoff volumes below 50 percent of the 1981-2010 average

In the Lower Colorado River Basin below to much below median February-May volumes are anticipated.