

April 1, 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.

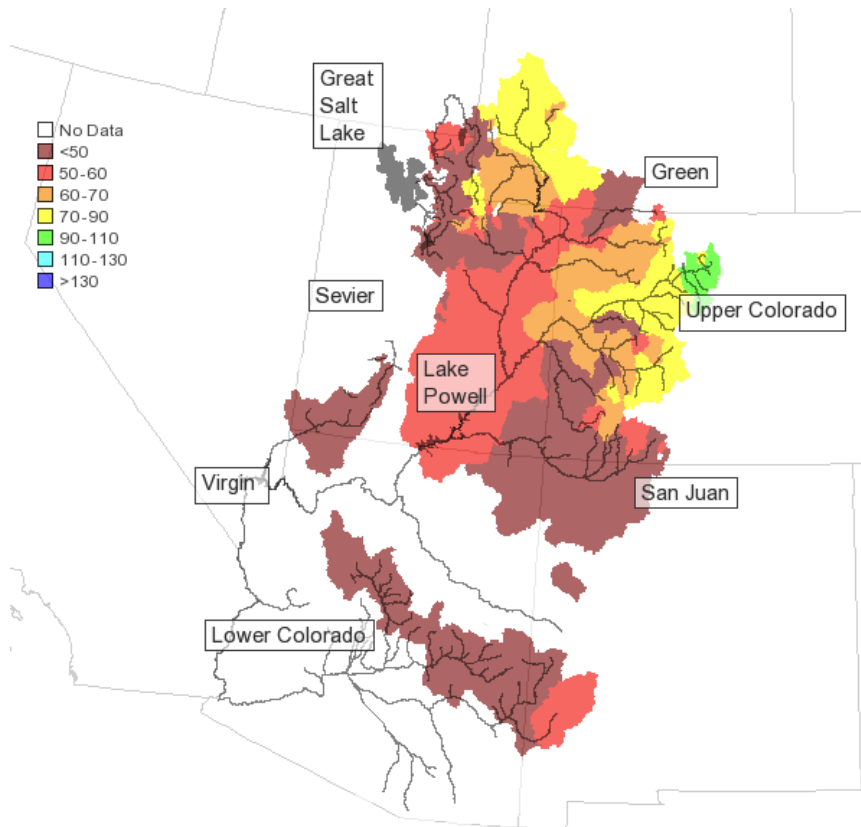
Seasonal Water Supply Forecasts:

Quick Summary:

Significant decreases to April-July runoff forecasts were widespread between March 1st and April 1st. Dry conditions during what is generally one of the wetter months combined with record heat and premature snow melt are responsible for the decreases. The early snow melt resulted in high runoff volumes for March with several areas recording runoff volumes that were among the highest on record.

Only a few river basins in the Colorado River headwaters are forecast near average, with below to much below average conditions likely throughout the remaining eastern Great Basin and Colorado River Basin. Many areas are expecting less than 50% of their average April-July runoff. These areas include parts of the Yampa, Duchesne, Dolores, and San Juan River Basins. Forecasts drop below 25% of average for parts of the Weber, Provo, Six Creeks, Sevier, and Virgin River Basins in Utah.

In the Lower Colorado River Basin, April-May volumes are forecast much below median. However runoff volumes are generally somewhat low as this is typically a drier time of year in the Lower Colorado River Basin.



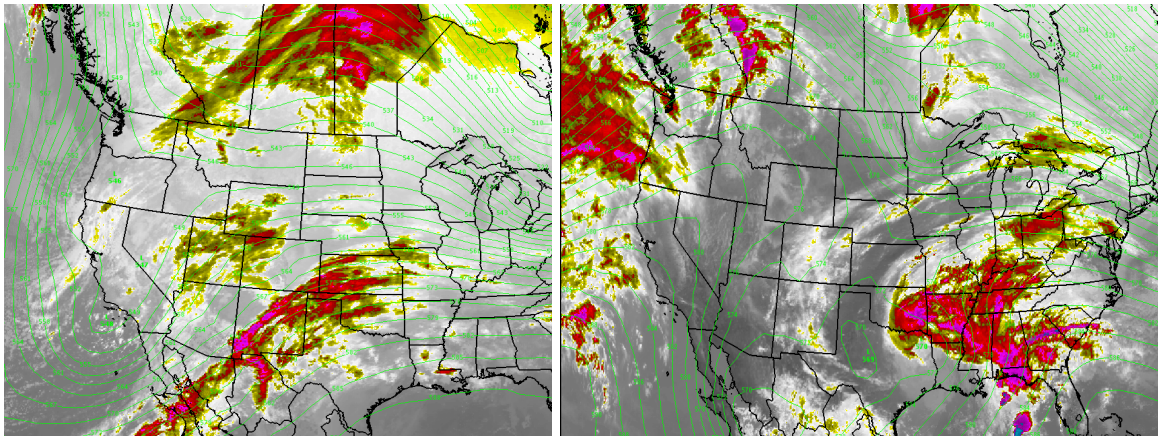
Upper Colorado Basin: April-July runoff volumes as a percent of 1981-2010 average
Lower Colorado Basin (Arizona): April-May volumes as a percent of 1981-2010 median

[Click here for specific site water supply forecasts](#)

Water Supply Discussion

Weather Synopsis:

A storm system in early March brought widespread precipitation to the area, particularly in a band from Arizona, across southwest Colorado, and into southwest Wyoming. Storms that occurred after the first week of March were generally weak and somewhat disorganized. Periods of high pressure brought dry conditions and record heat on several occasions during the month.



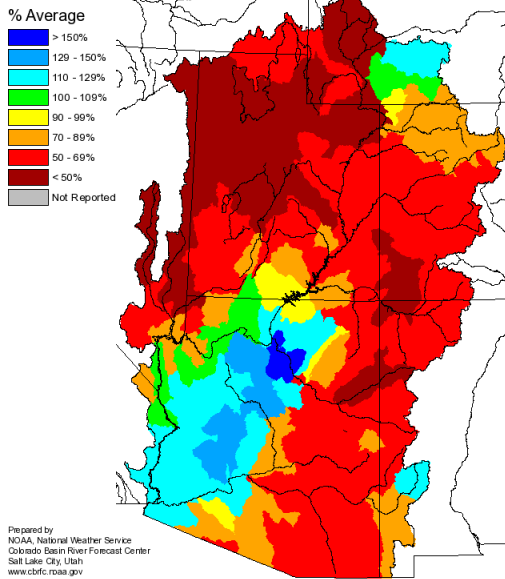
Left Image: A satellite image from March 2nd shows a storm system moving from the southwest to northeast across the CBRFC forecast area. **Right Image:** A satellite image from March 13th shows a ridge of high pressure building into the area. The result would be dry weather with above average temperatures.

Precipitation and Temperatures:

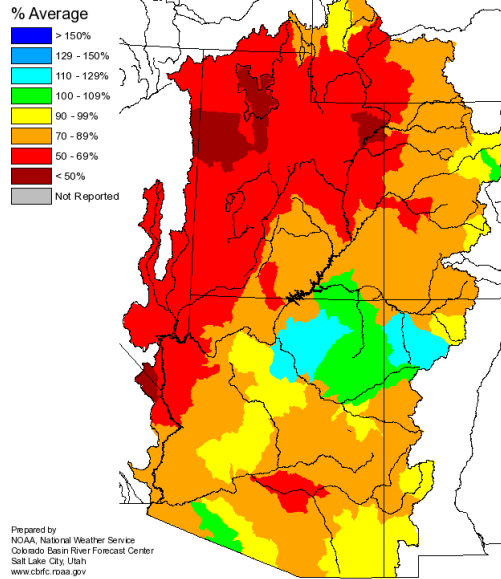
Precipitation was again much below average over most of the Colorado River Basin and eastern Great Basin in March. Many areas received less than 60 percent of their average March precipitation. Those areas that received precipitation that was near or above average do not typically contribute to the April-July runoff volumes. Following a wet December this has been the 3rd consecutive month of below average precipitation; most notably in the eastern Great and Green River Basins.

October - March seasonal precipitation is below to much below average over most of the CBRFC forecast area. Only the Little Colorado River Basin and Colorado River headwaters have received near or above average precipitation. Parts of the Green River Basin, eastern Great Basin and Virgin River Basin have received the lowest precipitation with respect to average.

Monthly Precipitation for March 2015
(Averaged by Hydrologic Unit)



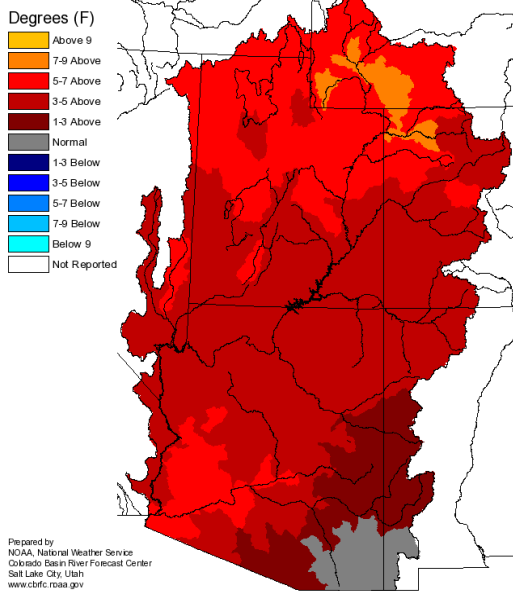
Seasonal Precipitation, October 2014 - March 2015
(Averaged by Hydrologic Unit)



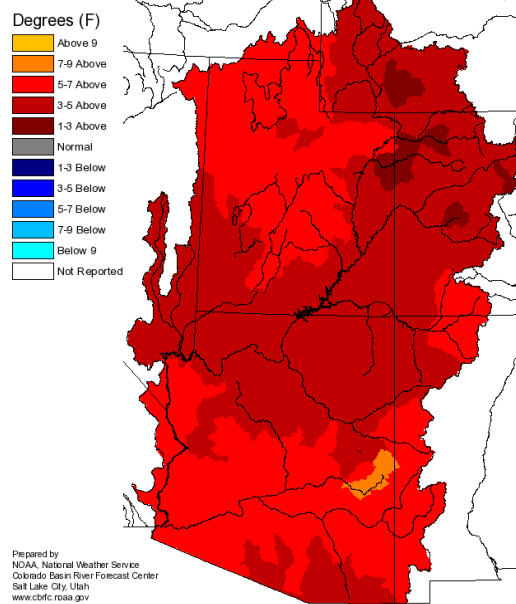
Monthly and seasonal precipitation graphics

Maximum and minimum temperatures were much above average for March. This was the warmest March on record in some locations following the warmest February on record. Some sites had observed maximum temperatures that were above average for 25 of the 31 days in March. Snow melt that started in February at some locations continued in earnest during March. Some SNOTEL sites in the Great Basin melted out the earliest on record. Snow melt occurred at all elevation levels during March.

Monthly Max Temp Deviation for March 2015
(Averaged by Hydrologic Unit)



Monthly Min Temp Deviation for March 2015
(Averaged by Hydrologic Unit)

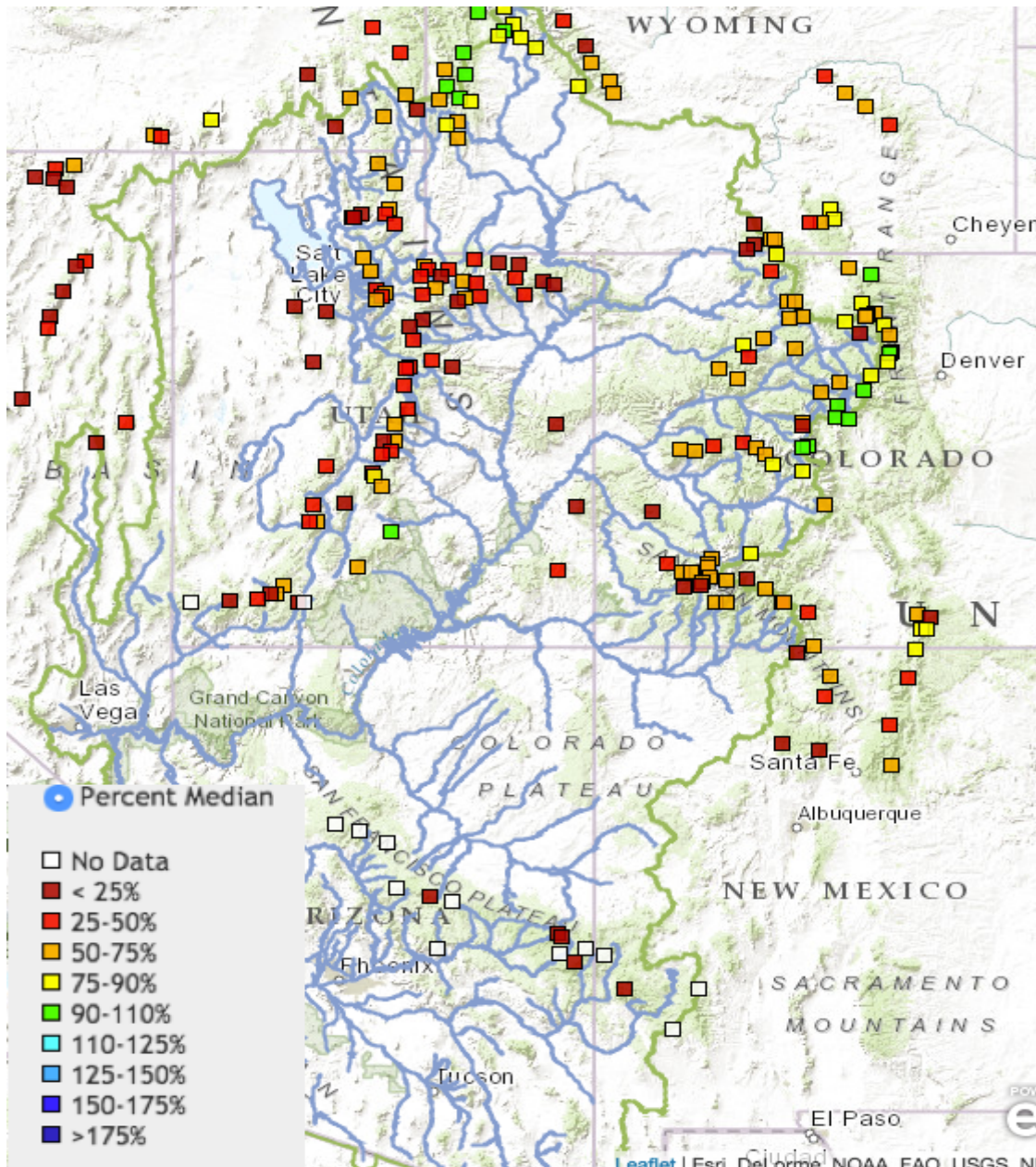


Monthly maximum and minimum temperature departure from average.

Snowpack:

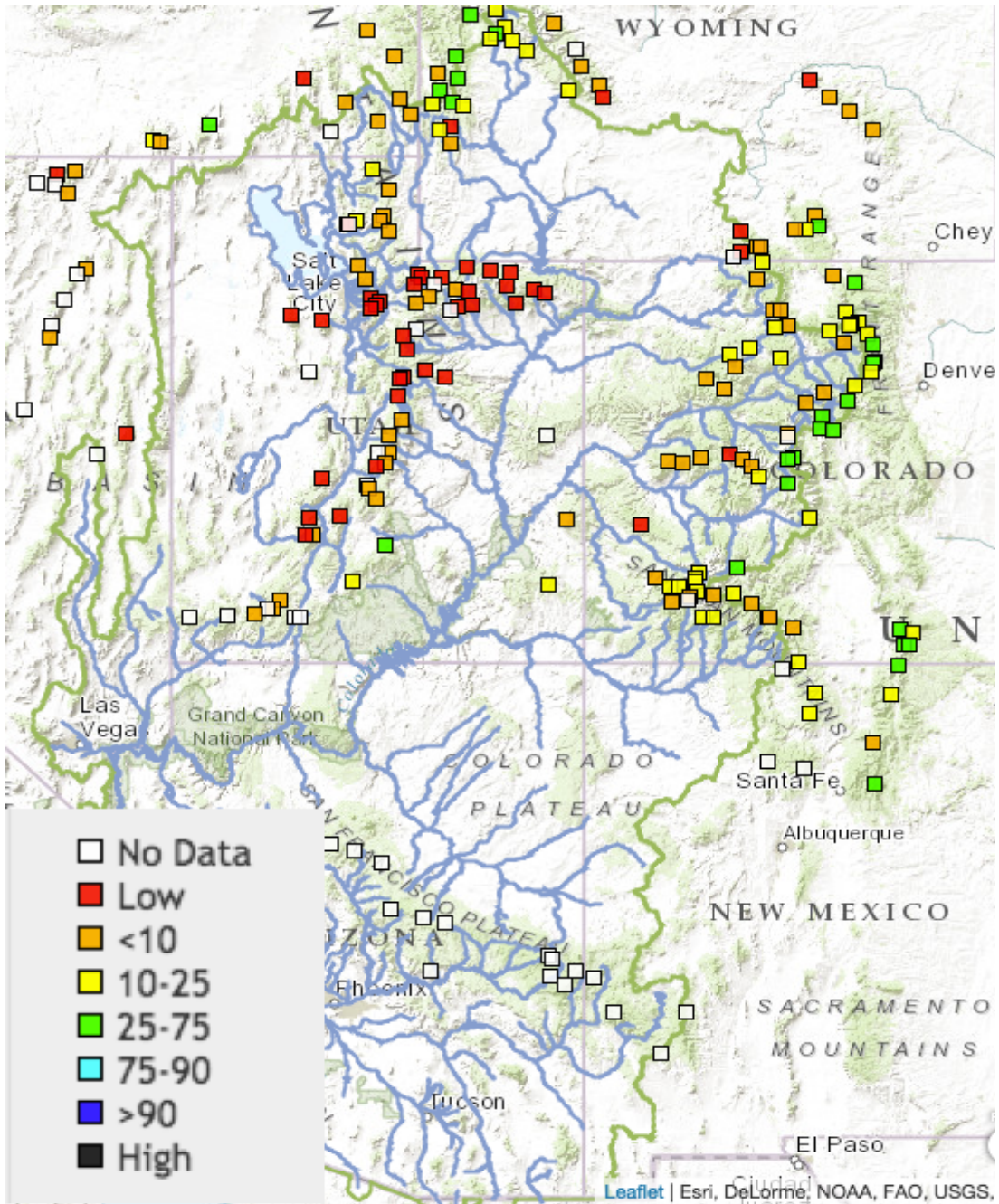
Snowpack conditions near average exist only at a few sites in the Colorado River headwaters and Green River Basin above Fontenelle. Elsewhere snow conditions are dismal at best with many sites at record lows and some having already melted out. Snow conditions even within individual river basins have been highly variable throughout the winter due to record warm temperatures, rain falling instead of snow, and extended periods of below average precipitation. As of early April much of the lower elevation snow has been depleted with minimal snowpack in many middle and high elevations, particularly in the Great Basin, Duchesne River Basin, Virgin River Basin and parts of the Yampa and San Juan River Basins

The map below shows conditions of SNOTEL sites across the CBRFC area as of April 3, 2015. For more details and daily updates, please refer [here](#).



Percent median snow conditions as of April 3, 2015

The snow percentile map displayed below indicates where the current snow measurement ranks in the historical record for each site. Sites in red are at their lowest in over 30 years of record as of April 3, 2015. Those sites indicated with orange rank between the 2nd and 4th lowest on record (typically between 30-37 years).



Snow Percentile Map: Historical ranking as of April 3, 2015

Streamflow:

An increase in streamflow was observed in February due to record warm conditions and early snow melt. This carried into March as record heat continued and snow melt accelerated. This resulted in much above average runoff for many streams in March. Numerous streams throughout the Great Basin and Colorado River Basin recorded runoff volumes in the top 5 for March and several recorded their highest March volumes on record. Some areas where snow conditions were quite low to begin with experienced an increase in runoff but still recorded below average runoff in March, including the Dolores River Basin and Virgin River Basin.

The early melt has shifted some of the runoff volumes out of the April-July period and into March. Although the dry conditions are primarily responsible for the reduction in April-July runoff volumes, some reduction can likely be attributed to runoff occurring early than normal.

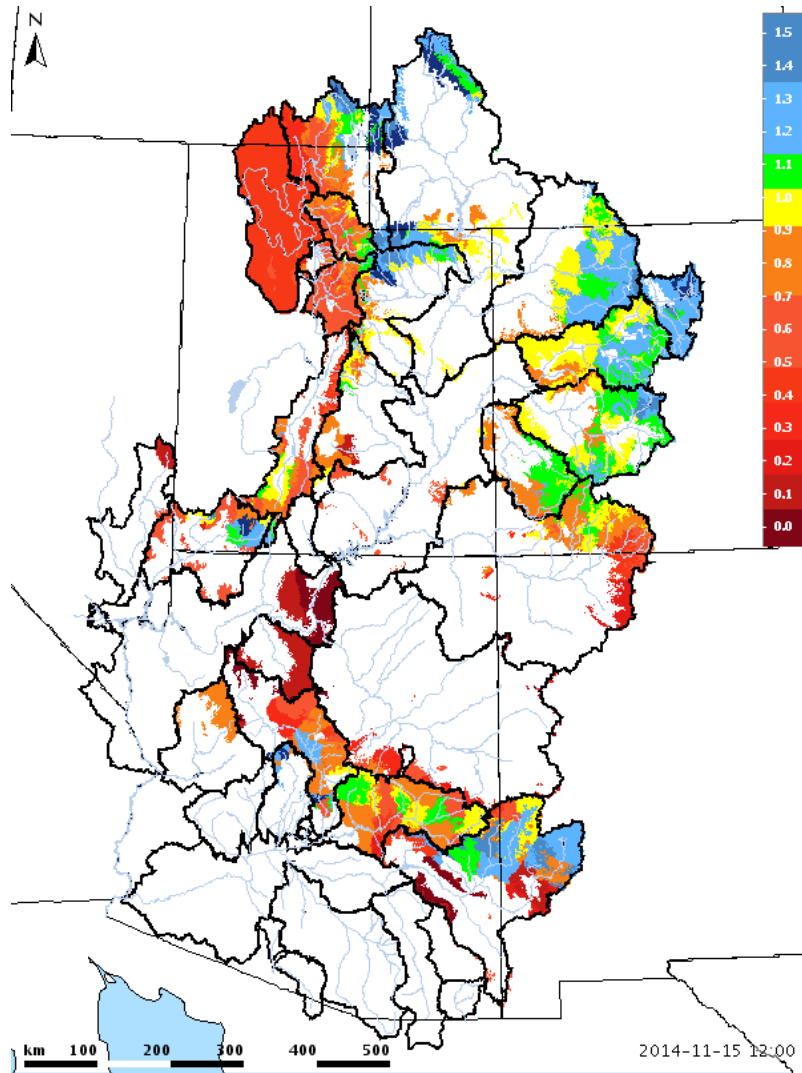
Soil Moisture:

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, Weber River, Provo River, and Six Creeks Basins. The Sevier River, San Juan River, and most of the Virgin River also had below average soil moisture conditions entering the winter. In Arizona, conditions varied but most areas were below average.

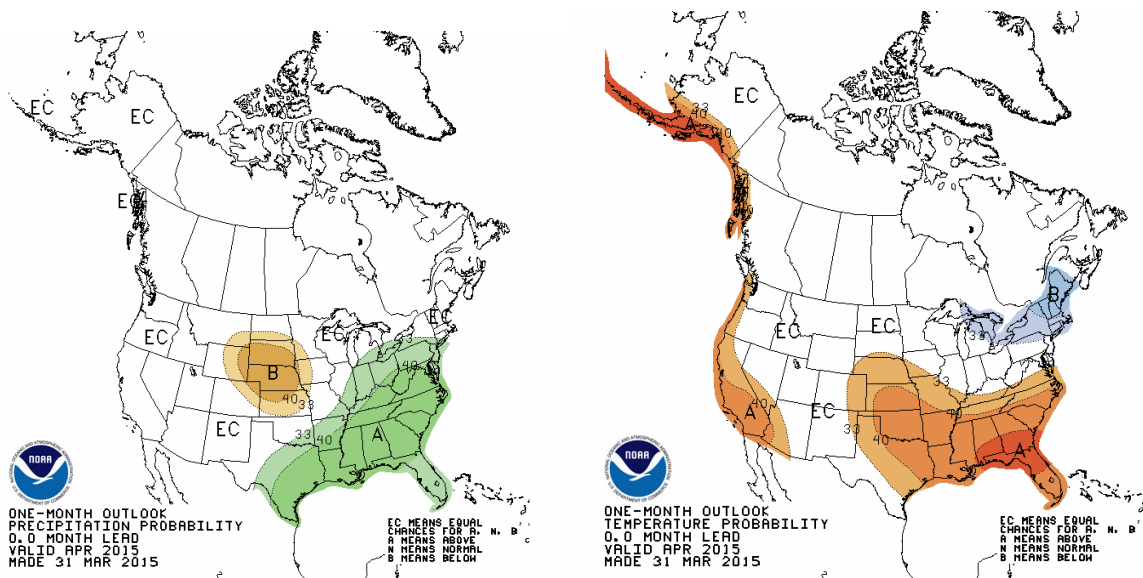
In the map below areas in blue are above the historical model soil moisture average while those in the red and orange are below average. Only the higher elevation areas are displayed. The areas in white are not included because they contribute very little to the runoff volumes.

Any positive impact of above average soil moisture has been reduced in areas where snowpack conditions are much below average such as in the Duchesne River Basin.



Climate Outlook:

A weak El Nino Southern Oscillation (ENSO) condition currently exists. Climate models indicate a 50%-60% chance that weak El Nino conditions will now persist throughout 2015. However due to the expected weak strength of this event widespread impacts to precipitation and temperatures are not anticipated. Impacts over the CBRFC forecast area not expected to affect water supply forecasts at this point in the season.



Conclusion:

Dry conditions and record warm temperatures were the dominant weather pattern the past 2 months. Snow melt that began in February picked up in March with low elevation sites melting out and many areas either at record low snow for early April or in the bottom 2-4 of record. Only a few Colorado River headwater areas and a couple of sites in the Green River Basin above Fontenelle have snowpack conditions near average. The early snow melt resulted in much above average March runoff for many streams, with several recording the highest March runoff on record while many more were in the top 5.

April-July runoff volumes were decreased everywhere with only a few river basins in the Colorado River headwaters expected to be near average. Below to much below average runoff is expected everywhere else. Continued dry conditions may result in some record low April-July runoff volumes being observed.

Highest runoff volumes as a percent of average are forecast in the Green River Basin above Fontenelle, Colorado River headwaters above Kremmling, and southeast Gunnison River Basin. Lowest runoff volumes as a percent of average are expected in the eastern Great Basin, Virgin River Basin, and Duchesne River Basin.

In the Lower Colorado River Basin much below median April-May volumes are expected.

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](#)