

NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

August 3, 2010

Precipitation and Snowpack

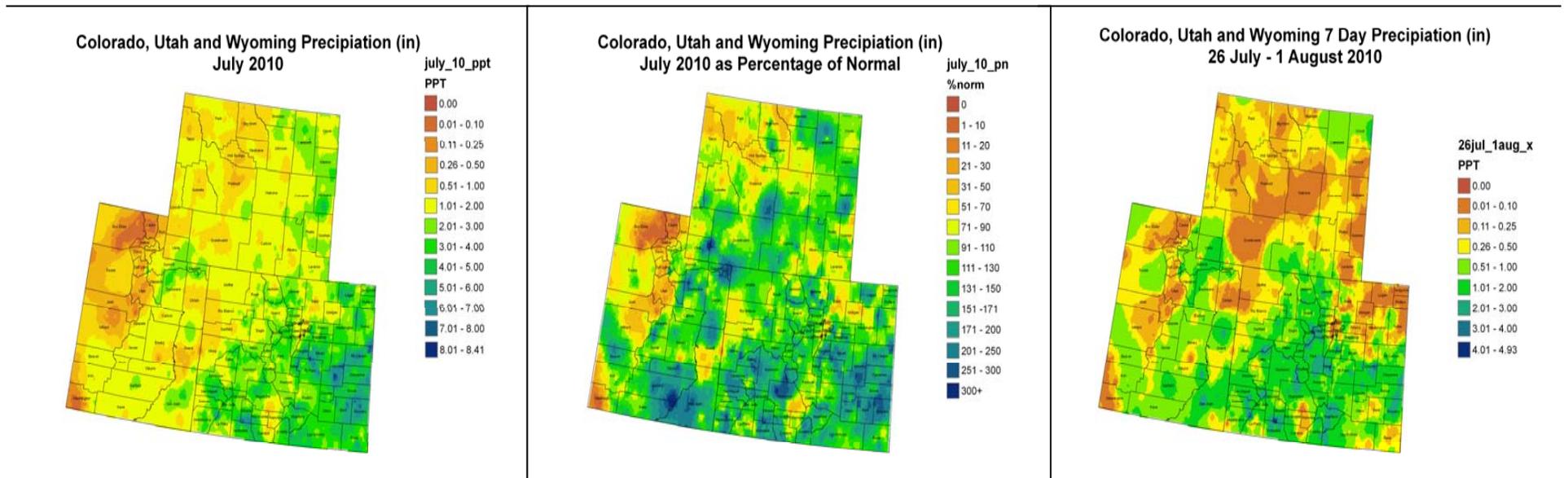


Fig. 1: July precipitation in inches

Fig. 2: July precip as percent of average

Fig. 3: Jul 26 – Aug 1 precip in inches

For the month of July 2010, the heaviest amounts of precipitation were concentrated east of the Upper Colorado River Basin (UCRB) along the plains (Fig. 1). The majority of the UCRB received near normal amounts of precipitation, with higher percents of average in southeastern Utah and in the Upper Green River basin (Fig. 2). The driest region was along the Colorado-Utah border, particularly in Garfield and Rio Blanco counties in CO and Grand County, UT with percents of average ranging from 31-70 percent of average. The southern portion of the UCRB received most of its monthly moisture over the last two weeks with the arrival of monsoonal moisture.

During the past week (Fig. 3), most of the area continued to see monsoonal rains, with unusually dry spots limited to areas around Sweetwater County, WY and along the northern portion of the Colorado-Utah border.

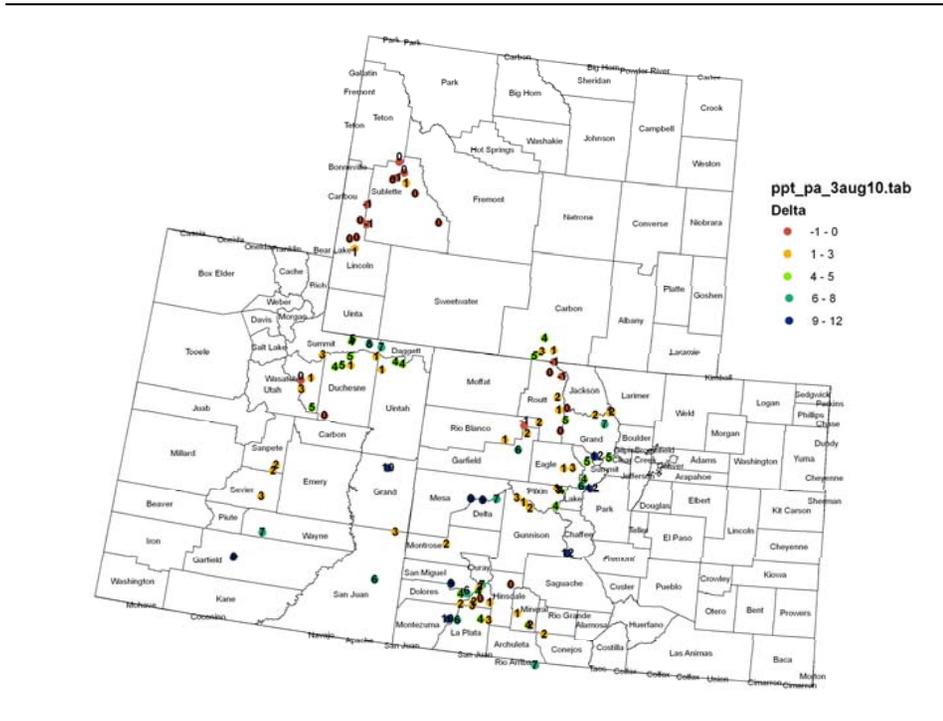


Fig. 4: Snotel WYTD precipitation percent of average change from last week

Large increases in Snotel water-year-to-date (WYTD) precipitation percent average from last week were seen around Duchesne County, UT (Fig. 4) where over an inch of precipitation fell. The majority of the eastern portion of the UCRB saw slight increases from last week's percents of average, and virtually no changes in Wyoming. Only 6 stations in the UCRB (out of nearly 100) saw a decrease in percent of average from last week.

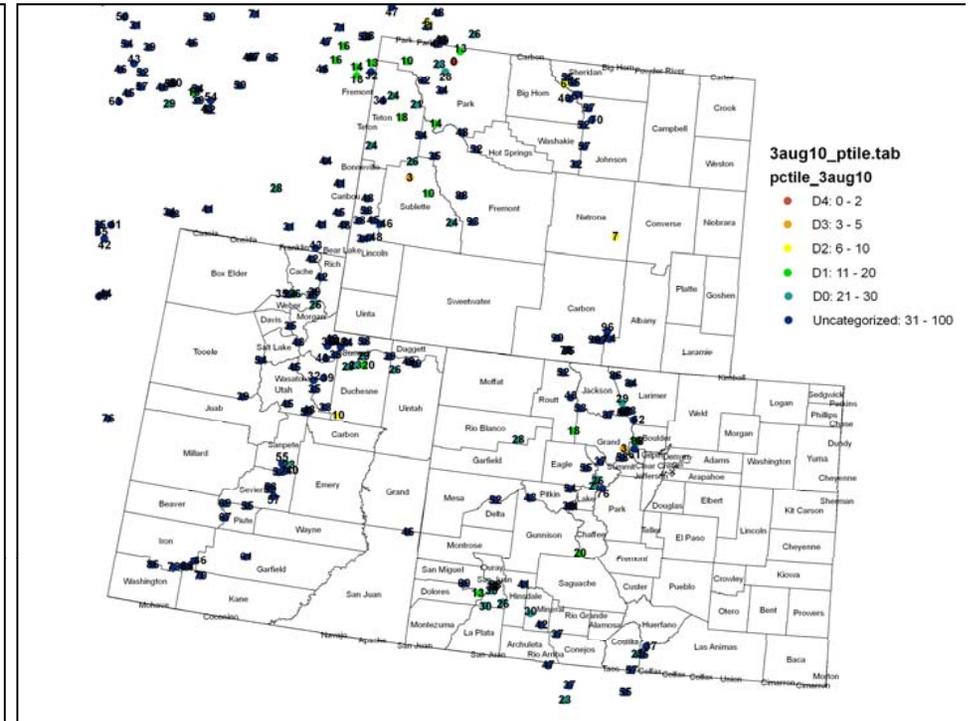


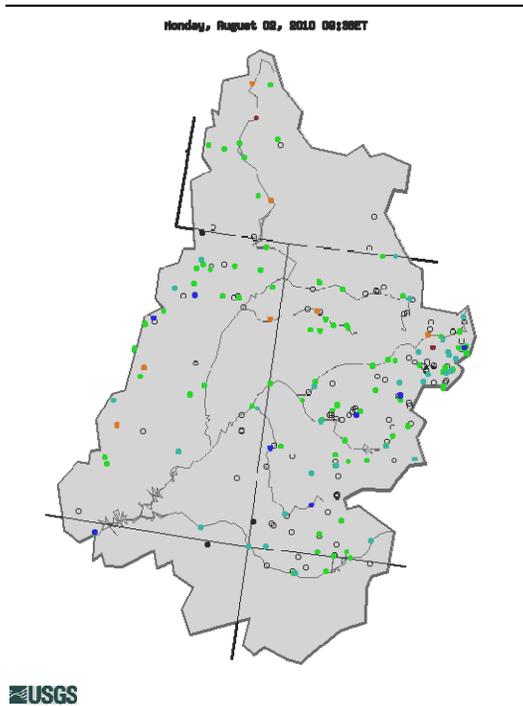
Fig. 5: Snotel WYTD precipitation percentiles (50% is median, 21-30% is Drought Monitor's D0 category).

As a result of monsoonal precipitation and the large increases in percents of average, most of the stations in the UCRB no longer show percentiles below 30% (Fig. 5). The only areas with stations remaining in the D0 category or higher are found in southwest Colorado, near the Colorado River Headwaters in Grand County, CO, Duchesne County, UT, and Sublette County, WY.

Streamflow

Nearly 85% of the USGS streamgages in the UCRB recorded near normal (in the 25-75th percentile range) or above normal 7-day average streamflows as of August 2nd (Fig. 5). This is about a 10% increase from the number of stations reporting near normal to above normal flows last week, with improvements lining up where monsoonal moisture has been concentrated—in southwestern Colorado. A few stream gages in the Green River, White River and Upper Colorado River show streamflow percentiles in the D0 category.

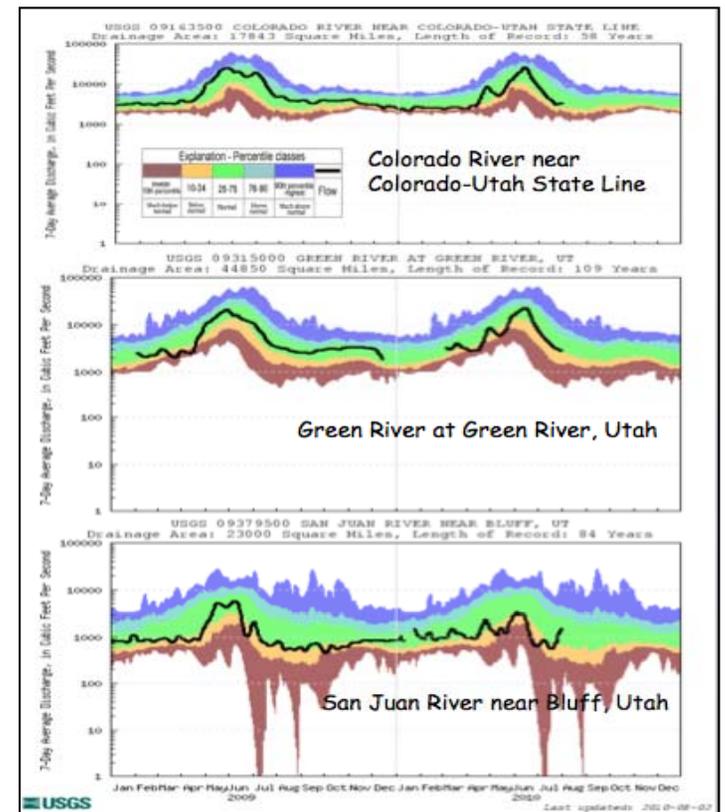
A closer look at three hydrographs from gages in the UCRB (Fig. 6) shows the recent heavier rains are affecting flows, particularly in the southwest. Gages along the Colorado and Green Rivers are returning to seasonal baseflow conditions, both gages on the low end of the normal range. Along the San Juan River, streamflows have increased and returned to a normal range.



Explanation - Percentile classes							
Low	Much below normal	Below normal	Normal	Above normal	Much above normal	High	Not ranked
	<10	10-24	25-75	76-90	>90		

Fig. 6: USGS 7-day average streamflow compared to historical streamflow for August 2nd in the UCRB.

Fig. 7: USGS 7-day average discharge over time at the CO-UT state line (top), Green River, UT (middle), and Bluff, UT (bottom).



Water Supply and Demand

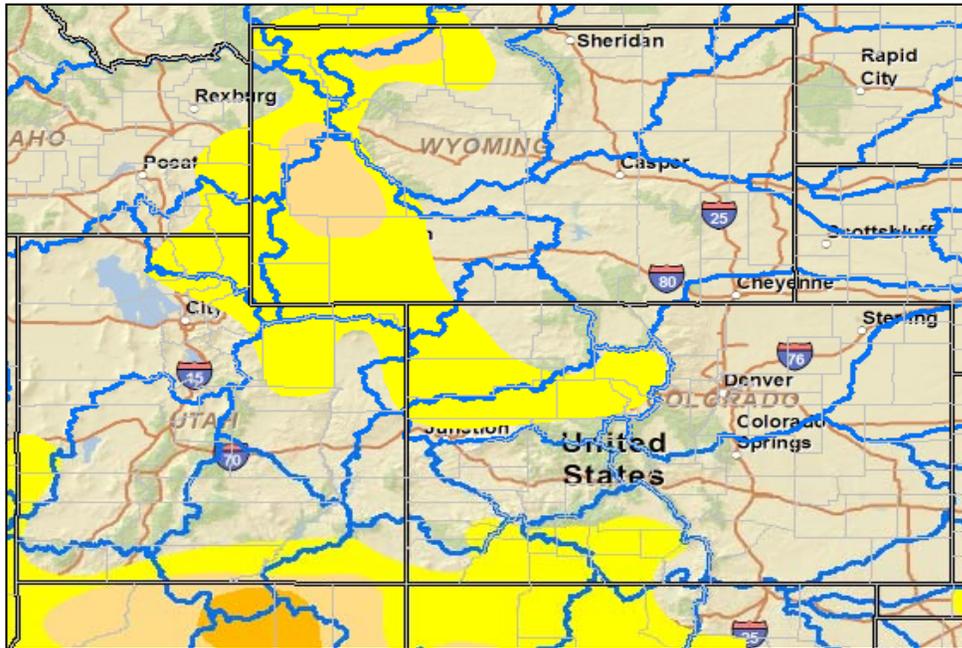
Warmer than average temperatures were seen across most of the UCRB last week with the exception of slightly cooler than average temperatures in southeastern UT. Even so, evapotranspiration rates have likely slowed a bit with the increased humidity and afternoon cloudiness. Soil moisture remains in normal conditions over the plains, though soil conditions have deteriorated over the northern CO mountains.

Most of the reservoirs in the UCRB have seen declining levels over the past week, typical for this time of year. Lake Dillon (still near capacity) and Green Mountain Reservoir have stayed nearly level this past week, while Lake Granby experienced a slight increase. Though levels have continued to decrease in Lake Powell, those decreases have slowed. As of July 21, Lake Powell was at 64.7% of total capacity, which is below the desired historic levels and very similar to levels at this time last year.

Precipitation Forecast

Healthy monsoonal flow should persist through the end of this week. The deep moisture will interact with diurnal heating and assorted shortwaves to fire off scattered afternoon thunderstorms, with some activity persisting through the evening. Convection will be more isolated over northern and western portions of the UCRB where moisture will be the most limited. Current 1-3 day QPF fields show an area of 1.5+ inch rainfall over south central Colorado with amounts tapering to 0 inches in northern Utah. As usual, precipitation amounts will be highly variable depending on where the slow moving cells set up. Medium range models indicate a change toward drier and warmer conditions this weekend into early next week with a loss of strong monsoonal flow. The exception to this could be areas of southern Colorado and extreme southeastern Utah that will be closer to sub-tropical moisture. Still not sure how much drying will be realized due to lingering moisture, and most areas will still have a chance of seeing isolated storms through next week.

Drought and Water Discussion



Drought – Exceptional	0 to 2 (D4)
Drought – Extreme	2 to 5 (D3)
Drought – Severe	5 to 10 (D2)
Drought – Moderate	10 to 20 (D1)
Abnormally Dry	20 to 30 (D0)

Drought categories and their associated percentiles

Fig. 8: July 27 release of U.S. Drought Monitor for the UCRB

Currently, no local experts have given any suggestions for changes to this week’s map in the UCRB (Fig. 8). The US Drought Monitor author has again made slight changes in Draft 1 in southwestern Colorado, where D0 was completely removed from Hinsdale, Mineral, San Juan, San Miguel, and Dolores Counties. However, Snotel water year to date percentiles in San Juan County are still worthy of D0 and 3 month SPI values are at least D0 worthy. It is the recommendation of this group for status quo, if not for the entire SW CO region, at least in San Juan County, CO.

No other changes have been made or suggested to the UCRB on the USDM’s weekly map.