NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

August 17, 2010

Precipitation and Snowpack

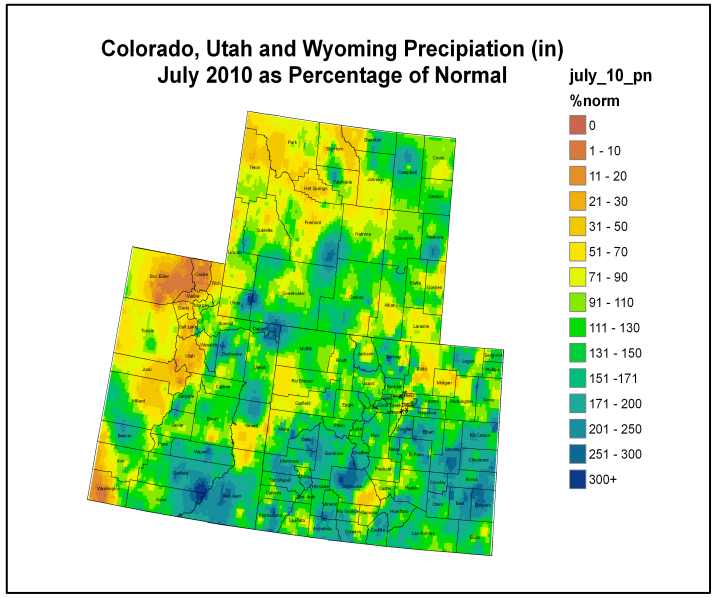


Fig. 1: July precipitation as percent of average

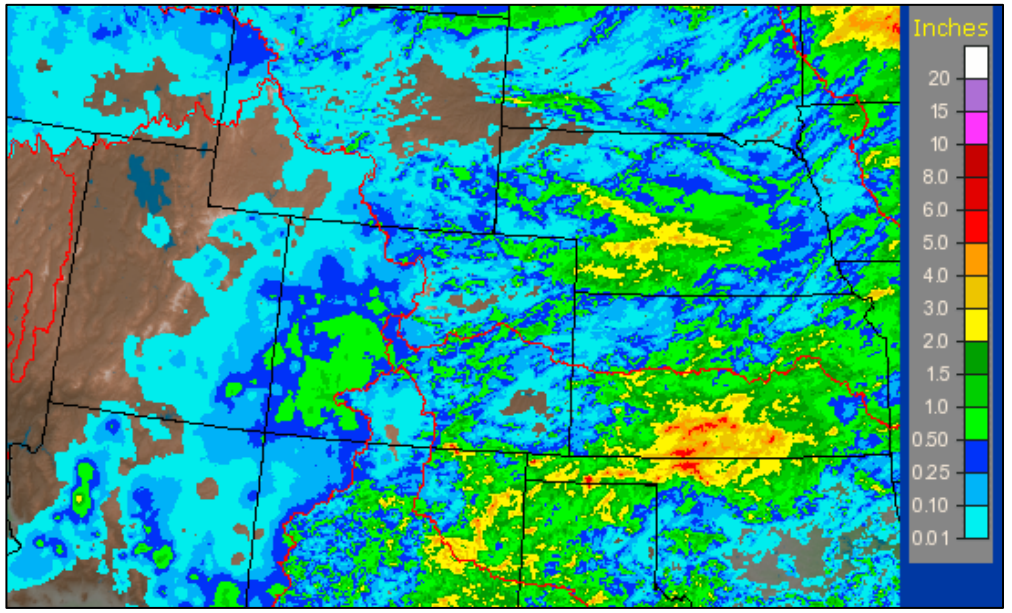


Fig. 2: August 10 – 16 precipitation in inches

For the month of July, the majority of the Upper Colorado River Basin (UCRB) received near average amounts of precipitation, with higher percents of average in southeastern Utah and in the Upper Green River basin (Fig. 1). The driest region with respect to average was along the Colorado-Utah border, particularly in Garfield and Rio Blanco counties in CO and Grand County, UT. The southern portion of the UCRB received most of its monthly moisture near the end of the month with the arrival of monsoon moisture.

During the past week, monsoonal moisture decreased somewhat, and most of the precipitation in the UCRB was concentrated in southwestern Colorado in the Gunnison and San Juan-Dolores basins (Fig. 2). The Upper Green River basin in Wyoming was the driest with some areas of that basin receiving no moisture in the last seven days. The Lower Green River basin in Utah also received very little moisture for the past week.

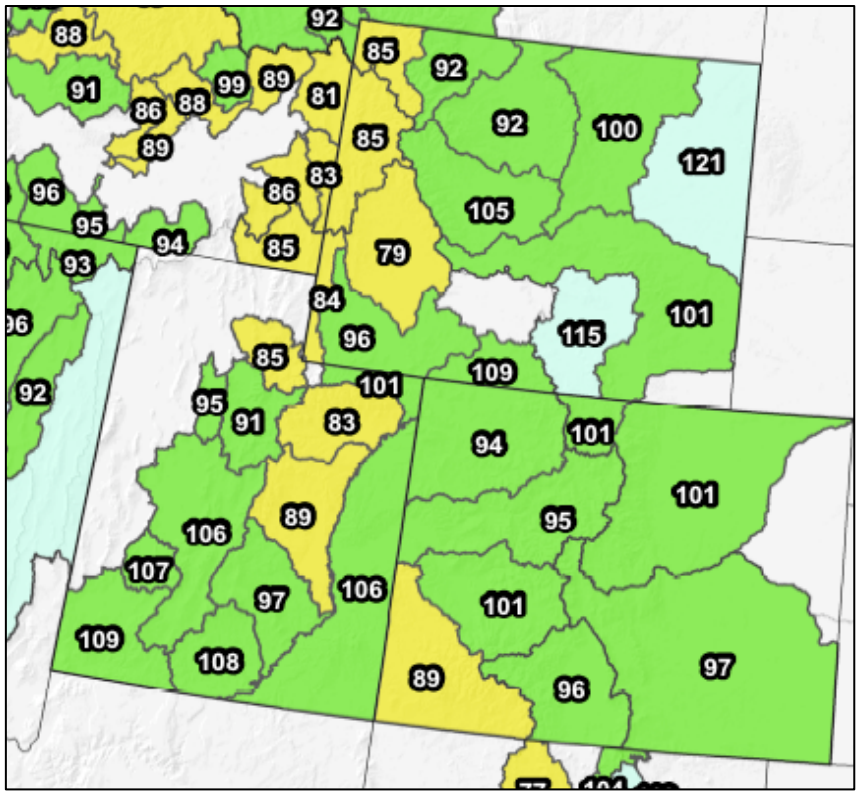


Fig. 3: Snotel basin-wide average of WYTD precipitation percent of normal.

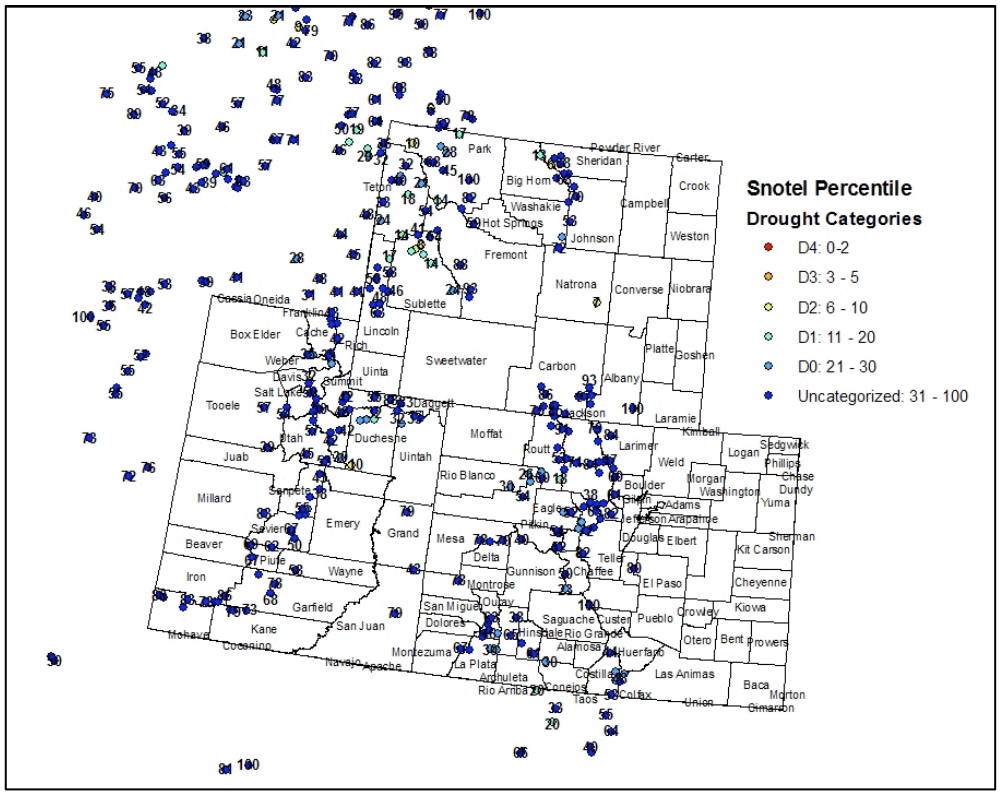


Fig. 4: Snotel WYTD precipitation percentiles (50% is median, 21-30% is Drought Monitor's D0 category).

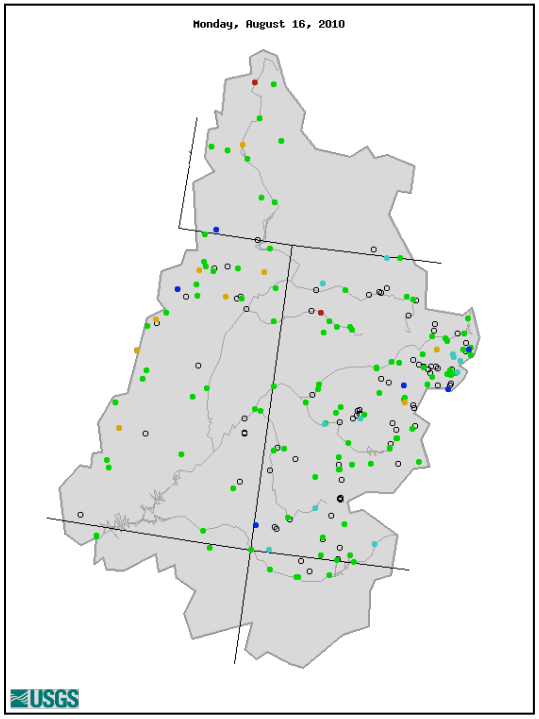
Most of the basins in the UCRB are showing water-year-to-date (WYTD) precipitation percents of average above 90%, with the exception of the San Juan-Dolores basin in CO, portions of the Lower Green basin in UT, and portions of the Upper Green basin in WY (Fig. 3). The majority of the basins in the UCRB saw very little change in WYTD precipitation percents of average from last week, with eastern UT seeing the largest change with a 3% drop from last week (109% to 106% of average).

The precipitation percentiles continue to show fairly good conditions over most of the UCRB. Percentiles are low enough (<30%) to justify a drought category of D0 over southwestern CO, around Rio Blanco and Routt counties, CO, Duchesne County, UT and Sublette County, WY (Fig. 4). This is consistent with the current D0 designations for the region on the U.S. Drought Monitor map.

Streamflow

Over 90% of the USGS streamgages in the UCRB are reporting normal (in the 25 – 75th percentile range) or above 7-day average flows as of August 16 (Fig. 5). As a result of monsoonal moisture over the past few weeks, streamflow has responded, and most of the southern portions of the UCRB and near the Colorado River headwaters are now seeing above normal streamflows.

The recent surge in rainfall has helped many stations in the UCRB attain near normal or above normal 7-day average streamflows for this time of year, as can been seen when looking at hydrographs from several different sites (Fig. 6). The gage at Green River at Green River, UT is now 90% of normal (a 10% increase from last week). Still, some streamgages in the Upper Green and Lower Green River basins are reporting below normal flows.



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

Fig. 5: USGS 7-day average streamflow compared to historical streamflow for August 16th in the UCRB.

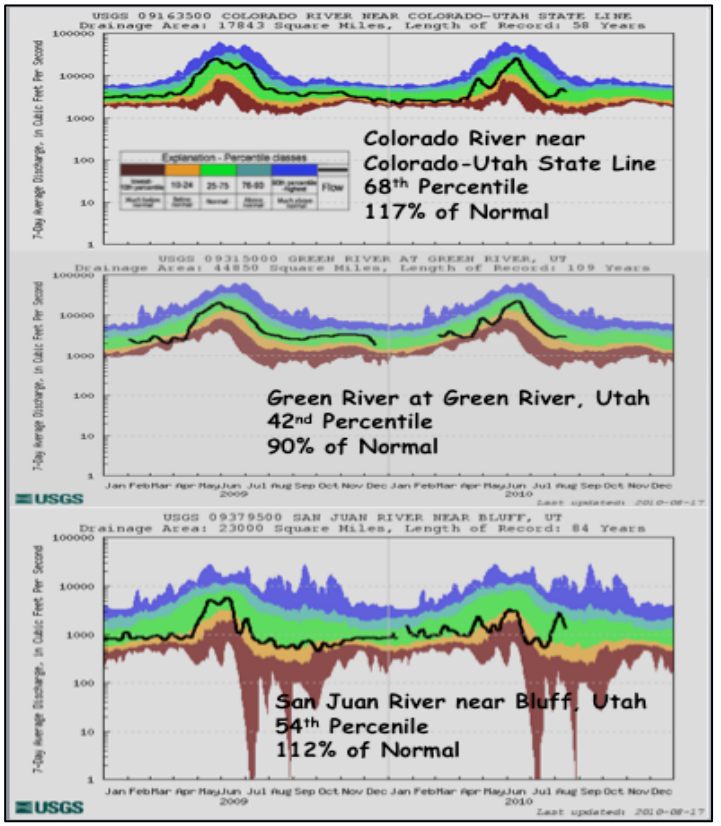


Fig. 6: USGS 7-day average discharge over time at the CO-UT state line (top), Green River, UT (middle), and Bluff, UT (bottom).

Water Supply and Demand

Near normal temperatures were seen across much of the UCRB basin with below normal temperatures in the northwestern portion of the basin. Showers became more scattered and less wide-spread over the basin and eastern plains this past week. Though demand is usually still very high in August, the recent higher humidities and the absence of unseasonably hot and dry conditions over the past few weeks could have helped alleviate some of this demand.

Lake Powell continues to show below average levels for this time of year (around 75% of average) and is at about 64% of capacity. Releases from Lake Powell are currently being used for power generation and are fairly balanced with inflows as the percent of capacity has not changed much over the past month. Most of the other reservoirs in the basin have seen decreases in storage over the past week, with the exception of Green Mountain Reservoir, which experienced only minor fluctuations.

Precipitation Forecast

A persistent high will dominate the region over the next week, with predominantly northwesterly flow moving across the UCRB, shutting off the flow of subtropical moisture into the area. The GFS model shows the passage of a shortwave trough to the north early Thursday that could increase the chances for light to moderate precipitation throughout the basin. The 1 – 3 day QPF indicates that some areas could receive over half an inch of precipitation from this system, particularly over northeastern Utah and around the Colorado River headwaters region, with Wyoming only seeing limited chances for moisture. Dry conditions return to the UCRB with a slight chance of scattered showers possible on Sunday and Monday.

Drought and Water Discussion

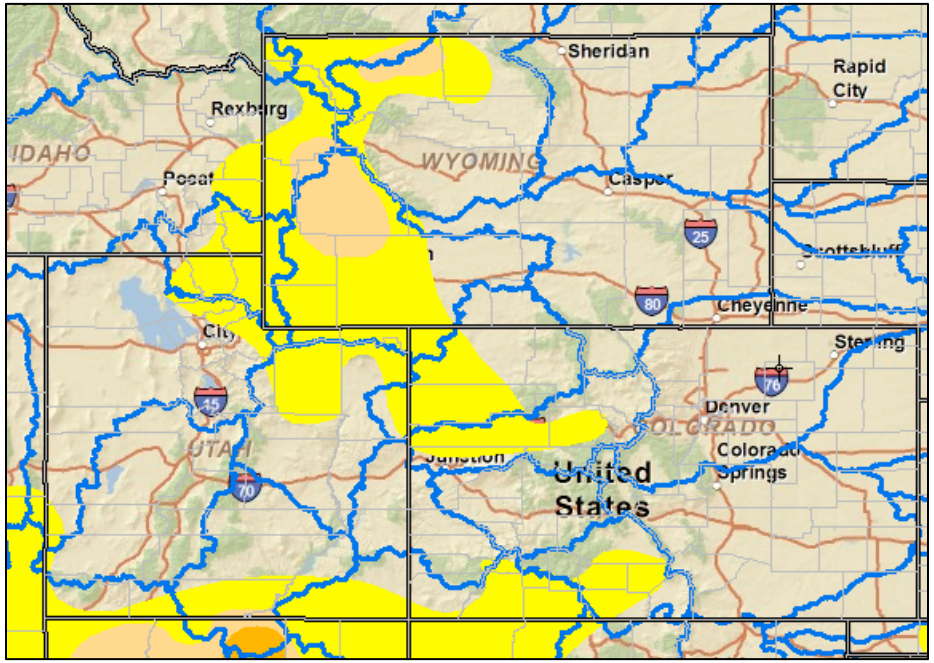
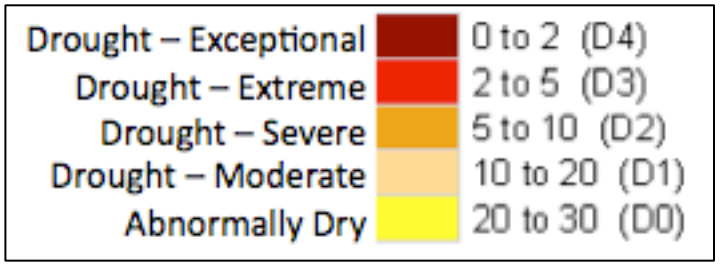


Fig. 7: August 10 release of U.S. Drought Monitor for the UCRB



Drought categories and
their associated percentiles

No local experts have given any suggestions for changes to the current U.S. Drought Monitor map (Fig. 7). The D0 currently seen in the UCRB is correlated with the locations of the Snotel sites with the lowest WYTD precipitation percentiles. None of the UCRB shows any short-term indicators of dryness according to the SPI, though most of the areas in D0 do show lower SPI values when evaluating longer-term (e.g. 12 – 24 month).

One area that should be re-evaluated is the San Juan River basin in southwestern Colorado. Though the Rio Grande basin to the east still appears to be abnormally dry, the San Juan basin has recovered nicely as a result of a month of generous summer rainfall. Short and long term SPIs are good, streamflow conditions are near normal, soils appear to be in good condition, and water year precipitation amounts are only slightly below normal.