NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

July 20, 2010

Precipitation and Snowpack

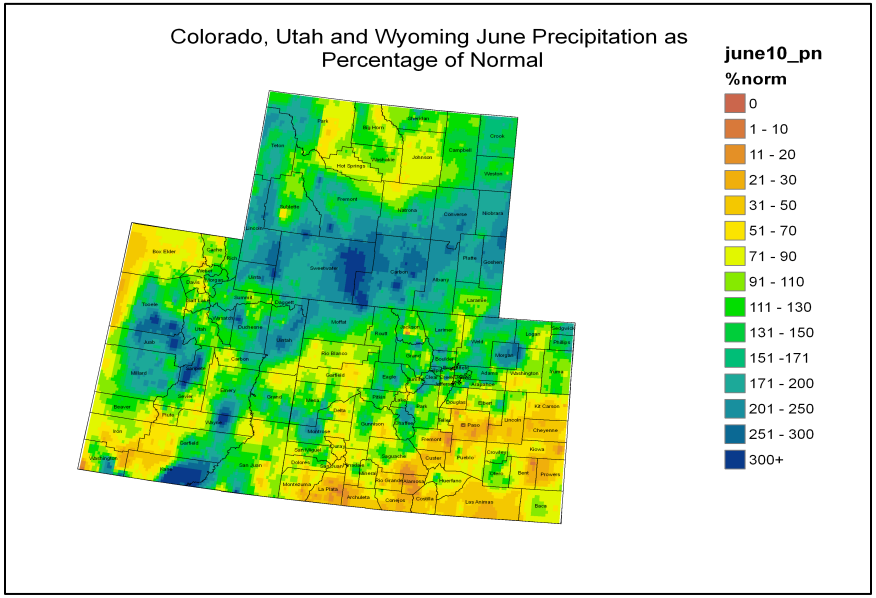


Fig. 1: June precipitation percent of average

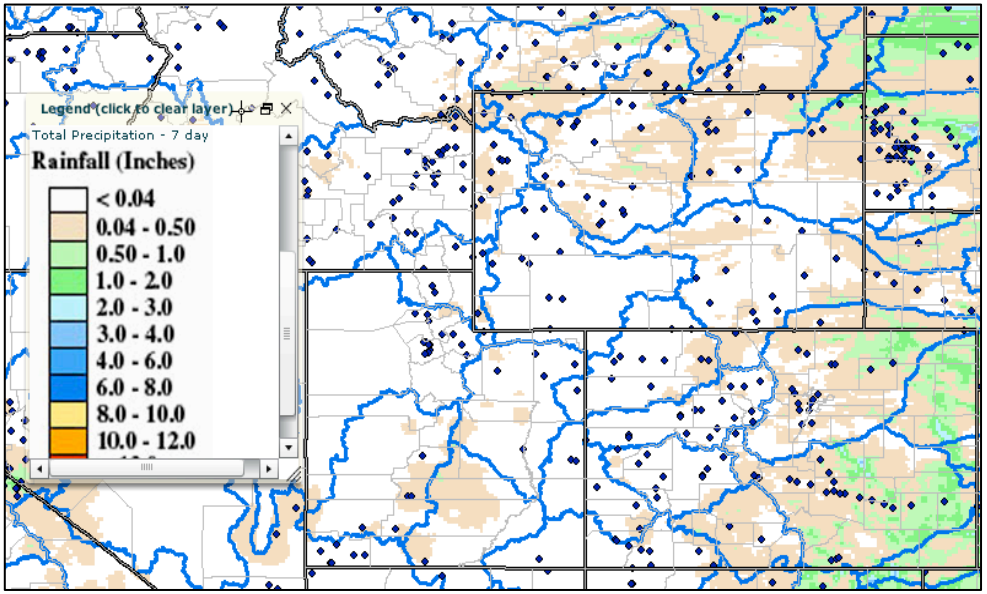


Fig. 2: July 14 – 20 precipitation in inches

Most of the northern portion of the Upper Colorado River Basin (UCRB) continued its May pattern with ample moisture in June (Fig. 1). The wettest areas were in southern Wyoming, Uintah County, UT, and Moffat County, CO. Drying persisted in southwestern Colorado for the month.

Aside from northwestern Colorado and much of Sweetwater County, WY, the majority of the UCRB has seen a precipitation deficit for the first half of the month of July. This past week, small amounts of precipitation fell in the Rio Grande basin in southern CO, the North Platte basin in northern CO, and the Dirty Devil basin in southern UT, with very little precipitation recorded elsewhere (Fig. 2).

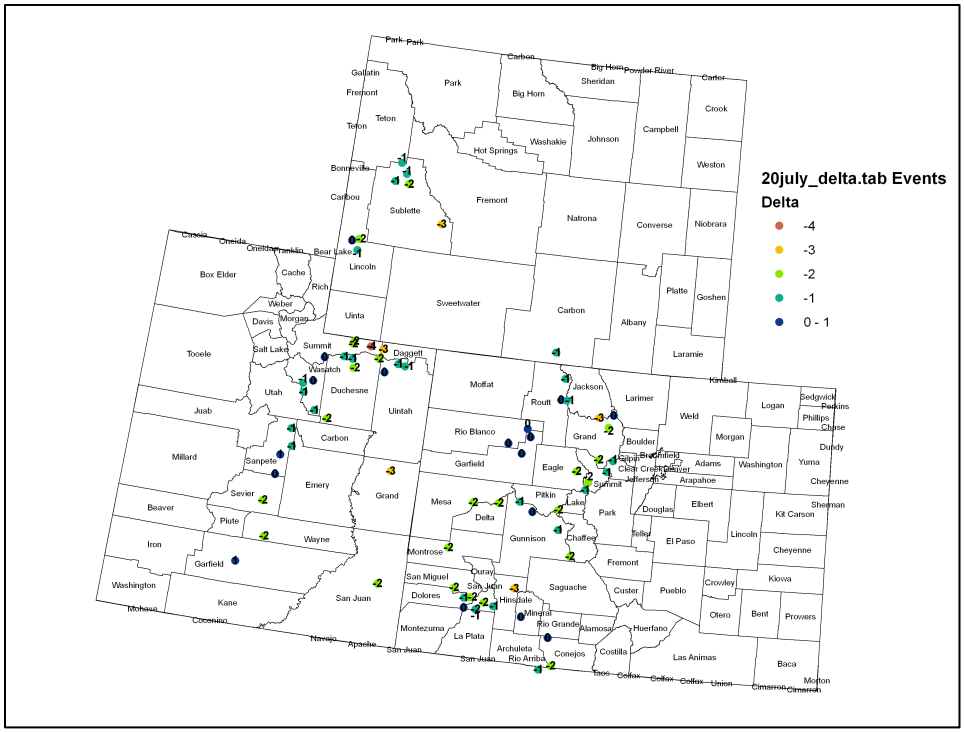


Fig. 3:Snotel WYTD precipitation percent of average change from last week

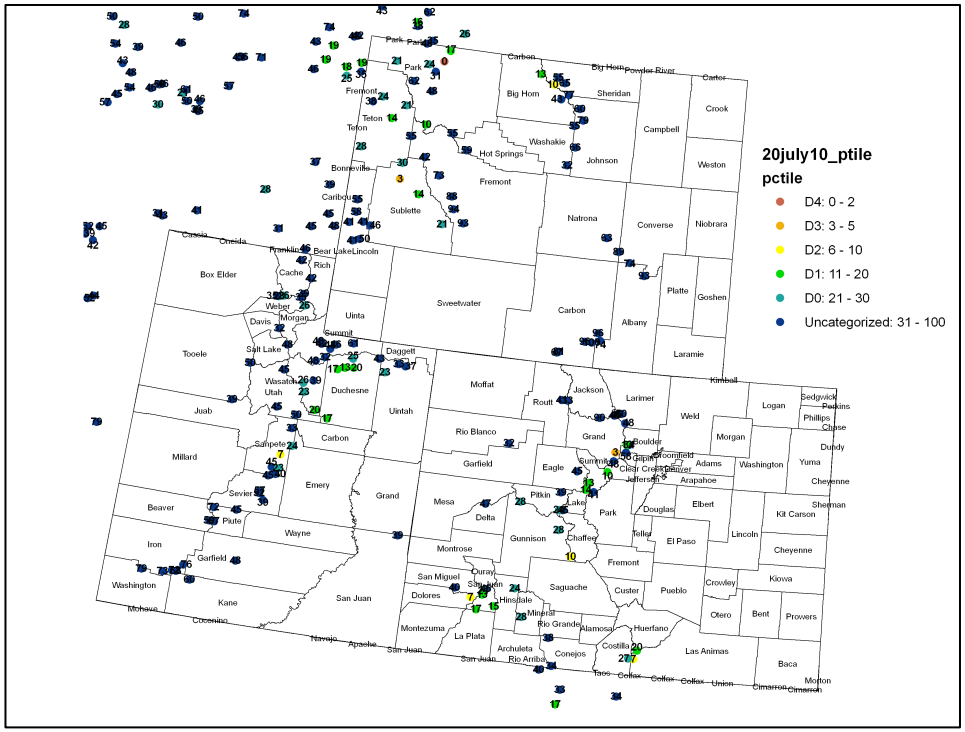


Fig. 4: Snotel WYTD precipitation percentiles (50% is median, 21-30% is Drought Monitor's D0 category).

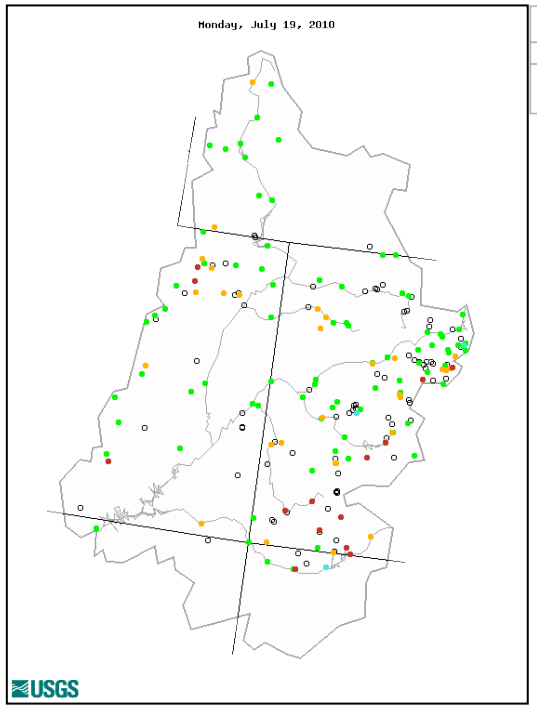
Another dry July week has led to further decreases in Snotel water-year-to-date (WYTD) precipitation percent of averages from last week (Fig. 3). No stations experienced an increase over the past week, and many stations saw as much as a 3 – 4% decrease from last week (very large numbers considering how late it is in the Water Year).

The majority of precipitation percentiles across the UCRB show that most of the region is in fairly good condition and with no need for any drought categories (Fig. 4). Exceptions to this are in the San Juan basin in CO, around Duchesne County, UT, in Sublette County, WY and in Summit County, CO. All these areas justify the current presence of D0 and could even possibly point to introduction of D1.

Streamflow

The majority of streamgages in the UCRB are recording near normal (25 – 75% range) 7-day average flows, with only around 3% recording above normal, and around 35% recording below normal flows (Fig. 5). The below normal streamflows are primarily found in the southern part of the UCRB surrounding the 4-corners region, the lower Green River basin in Utah, and in the Colorado River basin in Colorado, where many of the stations that had recorded good streamflows during the spring snow melt off in June have rapidly declined.

Following the high snowmelt peak flows in June, the station on the Colorado River at the Colorado-Utah state line has experienced a rapid decline over the past few weeks (Fig. 6). Though still in the normal discharge range, the decline is at a steeper slope than normal, trending toward flows at the 25th percentile. At this time in the water year, it will be difficult for any of the below normal stations to make up for these deficits in accumulated runoff.



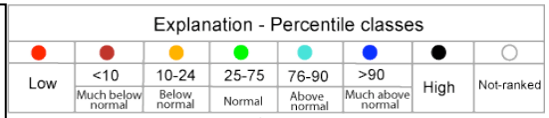


Fig. 5: USGS 7-day average streamflow compared to historical streamflow for July 19th in the UCRB.

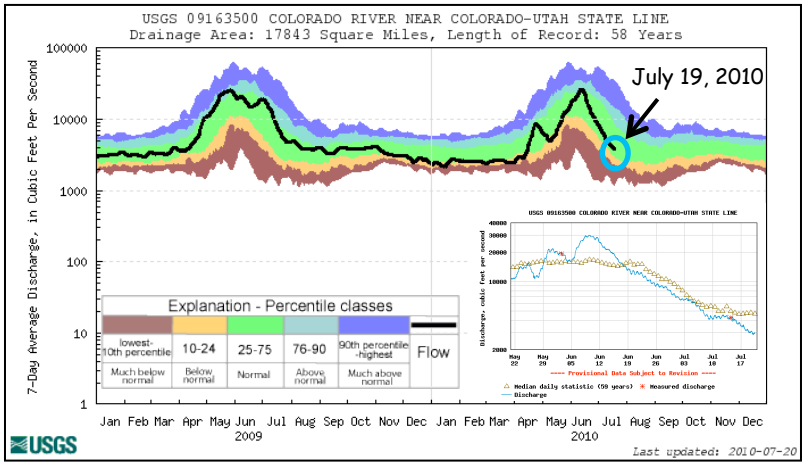


Fig. 6: USGS 7-day average discharge over time at the CO-UT state line with daily median discharge and actual discharge values (inset).

Water Supply and Demand

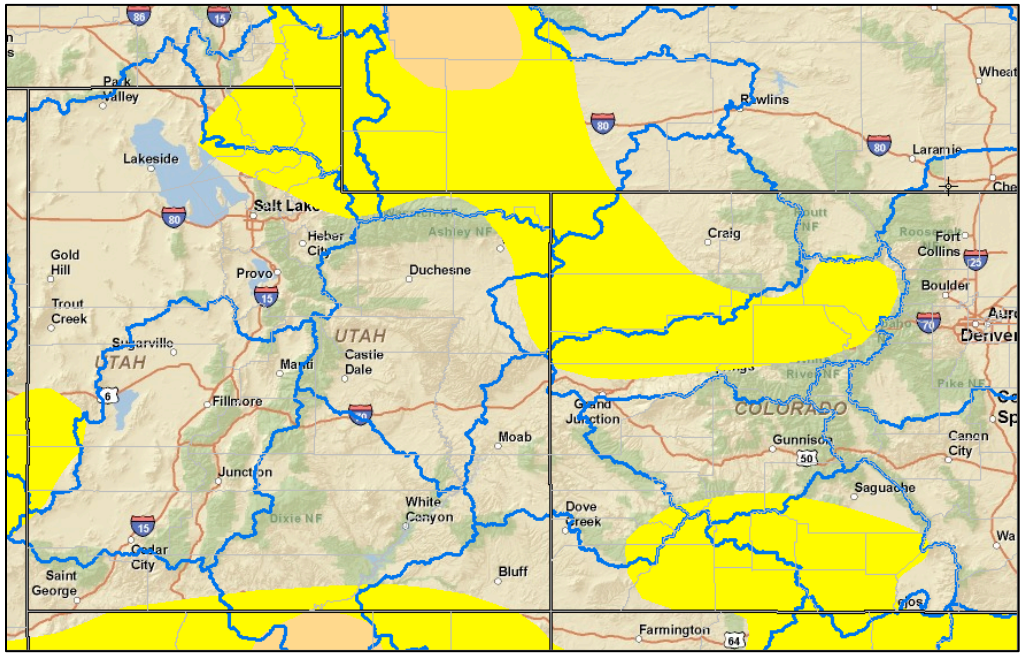
Drier than average conditions and recent warm temperatures along the eastern plains have likely increased demand for water, and most reservoir levels in western Colorado have seen a decline. Lakes Dillon and Granby have experienced only minor decreases since the beginning of July and are both still near capacity. Blue Mesa, Vallecito, and McPhee Reservoirs have all seen larger decreases (about 15 – 20 thousand acre feet for each one) since the beginning of the month. Releases from Blue Mesa Reservoir have also steadily increased since July 1.

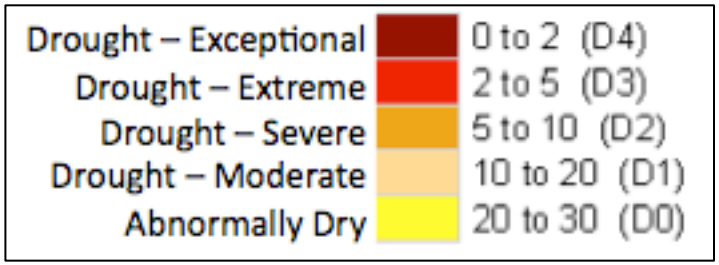
Flaming Gorge Reservoir, on the border of Wyoming and Utah, has increased its levels throughout most of this month, with levels beginning to level off this past week. Lake Powell, which experienced a good amount of inflow for the month of June, has experienced a leveling off for the first part of July, with slight decreases over the past week. As of the beginning of the month, Lake Powell was at 65% of total capacity, which is below the desired levels and very similar to levels at this time last year.

Precipitation Forecast

Large high pressure area centered over the southeastern US will set the stage for a monsoonal pattern over southern UCRB. A healthy batch of mid- and upper-level moisture is already making its way north over the four corners region, and will provide fuel for scattered convective precipitation from today through late this week. By Friday a Pacific trough will brush the northern portion of the UCRB and temporarily push moisture south. Additional low-level moisture east of the continental divide could result in enhanced precipitation on eastern slopes and adjacent plains, particularly in the southern half of Colorado where the ejecting trough will have the smallest impact. Flow around the high pressure to the southeast of Colorado is then expected to again pump more sub-tropical moisture into the state for this weekend and early next week, keeping slight to moderate chances of precipitation going in the forecast, with chances for lighter precip totals in the western portion of the UCRB.

Drought and Water Discussion





Drought categories and their associated percentiles

Fig. 6: June 29 release of U.S. Drought Monitor for the UCRB

No local experts have given any suggestions for this week's map in the UCRB so far. Slight changes have been made to Draft 1 in southern Colorado, where D0 was expanded to cover the southern portion of the 4-corners region. To maintain smoothness, this resulted in expansion of D0 in La Plata and Montezuma Counties.

One proposed change is to do a southward expansion of the D0 in northeastern Utah, to better portray the abnormally dry conditions that are particularly noticeable in Duchesne County. This region has seen below normal streamflows for quite some time and has seen steady decreases in its Snotel WYTD precipitation percent of averages. The WYTD precipitation percent of average for the entire basin was at 79% last Friday. The most recent VegDRI map also supports D0 (at a minimum) throughout the area.