NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

July 24, 2012

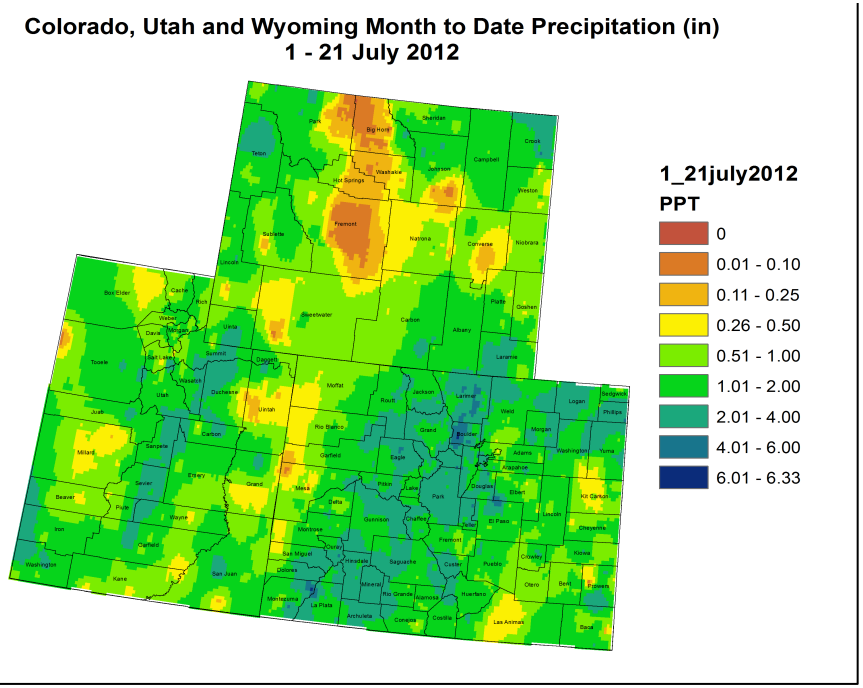


Fig. 1: July month-to-date precipitation in inches.

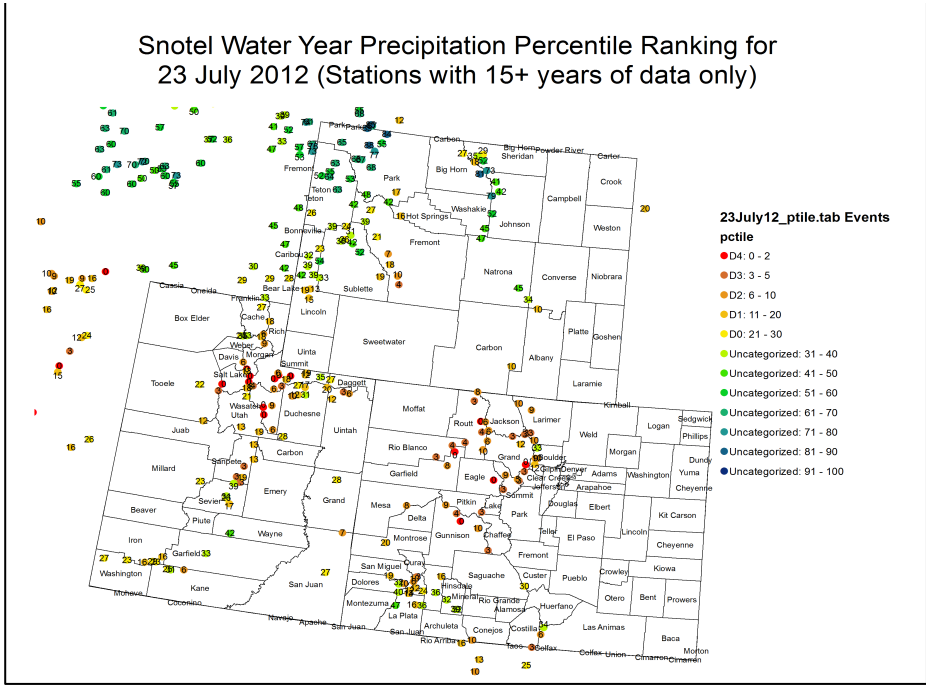


Fig. 2: SNOTEL WYTD precipitation percentiles (50% is median, 21 – 30% is Drought Monitor D0 category).

Precipitation

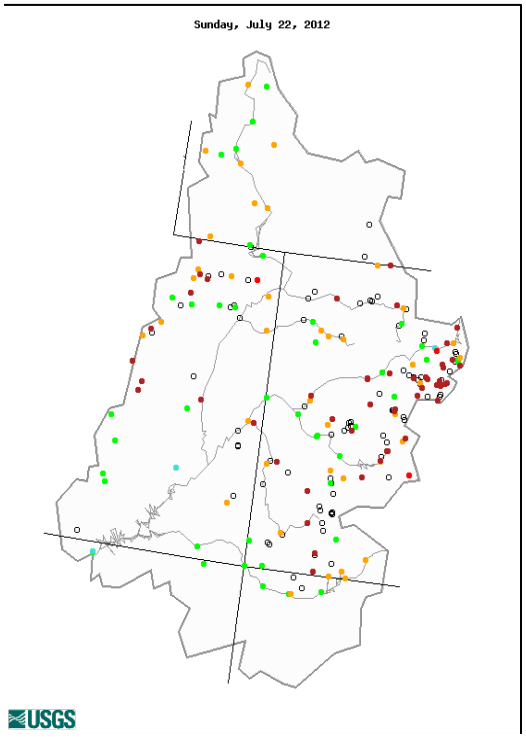
For the month of July so far, widespread precipitation has fallen over most of the Upper Colorado River Basin (UCRB, Fig. 1). Most areas have received between a .5 to 2 inches for the month. Two to 4 inches have fallen in the San Juans and in central Utah. Parts of eastern UT, the western slope of Colorado and southwest Wyoming have been a bit drier, receiving less than half an inch of precipitation, month-to-date. East of the basin, most of CO has received between an inch to over two inches of precipitation. Som isolated areas in southeast CO and far eastern CO have seen less precipitation, receiving less than an inch month-to-date.

Water-year-to-date (WYTD), SNOTEL precipitation percentiles are low for the Yampa and Gunnison basins in CO, and the Wasatch range in UT, with many sites reporting in the lowest 10th percentile or below (Fig. 2). The northern mountains of CO are also dry, with most sites reporting precipitation percentiles in the teens and single digits. SNOTEL percentiles in the Upper Green basin in WY are around the 30th percentile, and percentiles in the San Juan basin are in the teens and 20s.

Streamflow

As of July 22nd, about 32% of the USGS streamgages in the UCRB recorded normal (25th – 75th percentile) or above normal 7-day average streamflows (Fig. 3). There are 3 gages in the UCRB recording above normal flows, while about 38% percent of the gages in the basin are recording much below normal or low (i.e. lowest on record) streamflows (improved from 50% last week). The Yampa, White, and Green river basins have all seen improvement from the much below normal category last week to the below normal category this week. The San Juan, Dolores, and Gunnison basins to the south have degraded slightly since last week.

Flows on two of the three key gages in the basin saw increases last week (Fig. 4). Flows on the Colorado River near the CO-UT state line increased to the near normal range at the 26th percentile. Flows on the Green River at Green River, UT increased to the 10th percentile from the 4th percentile last week. Flows on the San Juan River near Bluff, UT are near normal at the 33rd percentile, down from the 39th percentile last week.



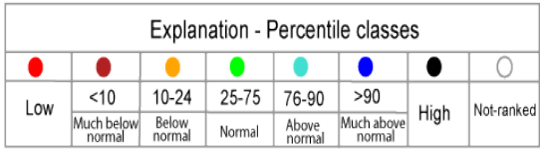


Fig. 3: 7-day average discharge compared to historical discharge for July 22nd.

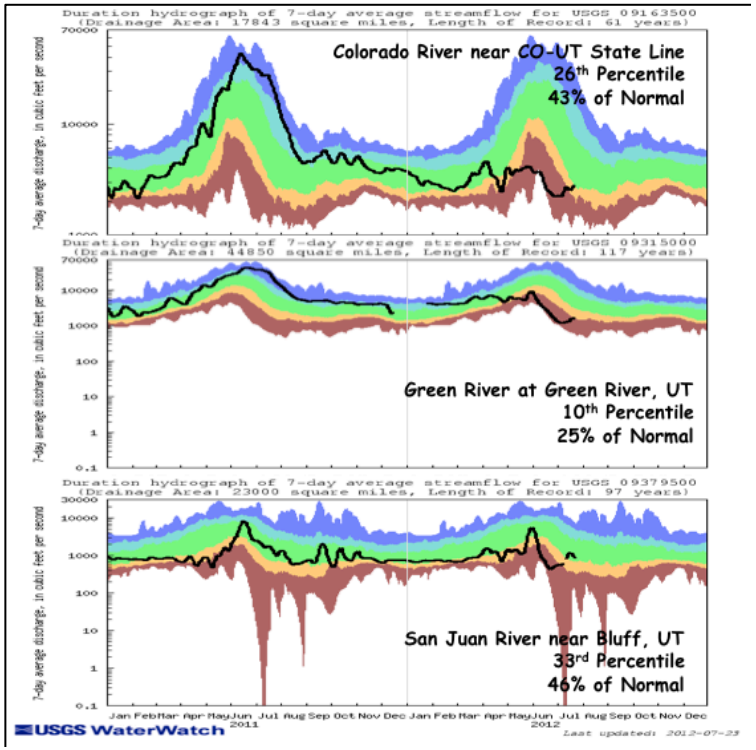


Fig. 4: USGS 7-day average discharge over time at the CO-UT stateline (top), Green River, UT (middle) and Bluff, UT (bottom).

Water Supply and Demand

Last week, temperatures on the west side of the UCRB were slightly cooler than average while temperatures on the east side of the UCRB were slightly warmer than average. The Front Range and eastern CO experienced temperatures 2 to 8 degrees warmer than average for the week. Satellite vegetation conditions show the driest vegetation over northwest CO and northeast UT, with dry conditions extending into southern WY and into the Four Corners region (Fig. 5). Very dry vegetation is also showing up over northeast CO and along the Arkansas valley in southeast CO. Reference ET rates throughout the basin have stabilized over the past couple weeks, with daily rates around .25 inches. East of the basin, reference ET rates are very high (with daily rates as high as .50 inches), with some of the highest seasonal accumulations observed at many sites (Fig. 6).

For the month of July so far, all of the reservoirs have seen volume decreases with McPhee, Blue Mesa and Green Mountain seeing the largest decreases. Volume decreases are normal for this time of year, due to the high demand for irrigation. All of the major reservoirs are below their July storage averages, with Blue Mesa at 63% of average, Green Mountain at 67% of average, and Lake Powell currently at 72% of average.

Precipitation Forecast

The monsoonal moisture plume that has hovered over the Four Corners region will shift to the east over the next couple of days as a Canadian trough moves east. This will shift the pattern to more northwesterly flow over the basin and bring increased chances of precipitation and slightly cooler temperatures to eastern CO, while the UCRB is expected to dry out. As the ridge amplifies over the northern Rockies later this week, there will be an increased chance for precipitation in the central and southern mountains of CO. Another trough settles over the Pacific Northwest into the weekend and a high will settle over the southern plains. This will push the moisture plume back to the west and will improve chances for precipitation over the southern part of the basin, extending into the northern and central Rockies, with only slight chances of isolated showers over eastern CO.

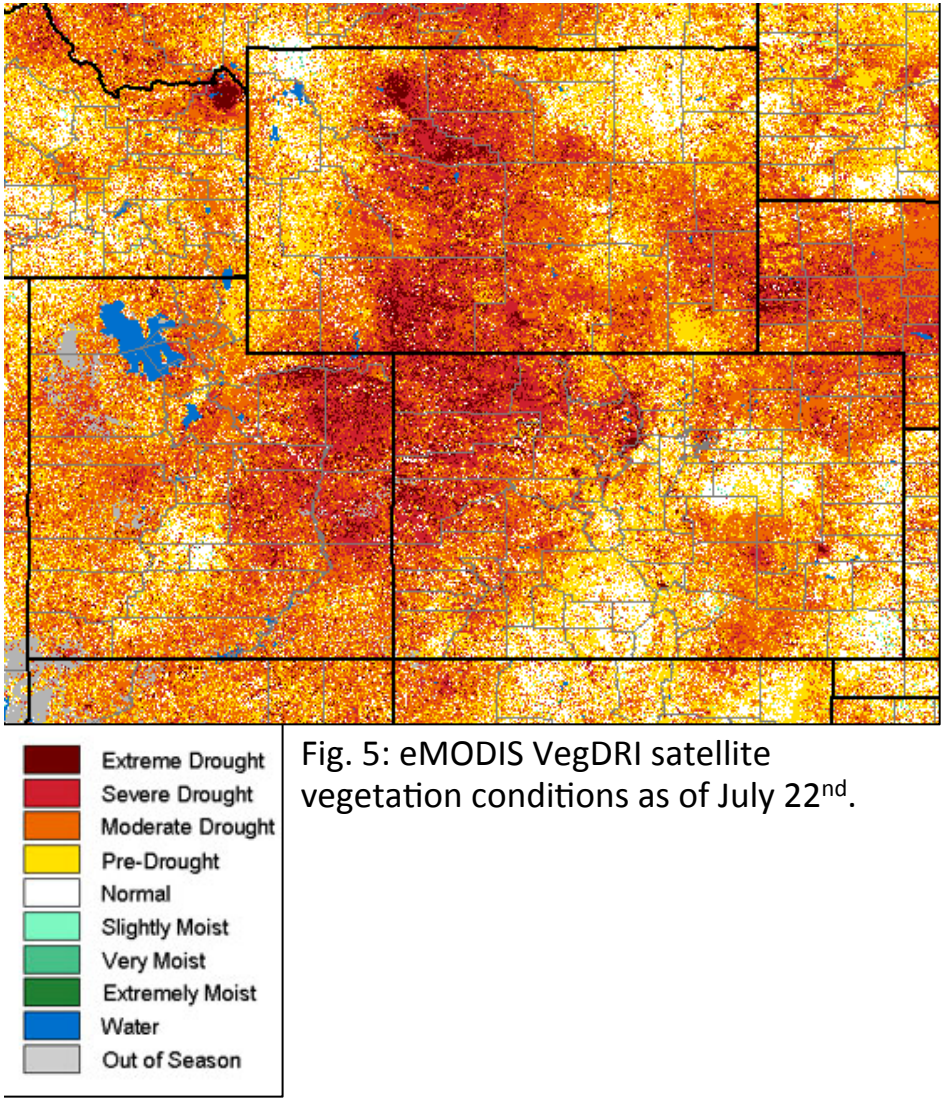


Fig. 5: eMODIS VegDRI satellite vegetation conditions as of July 22nd.

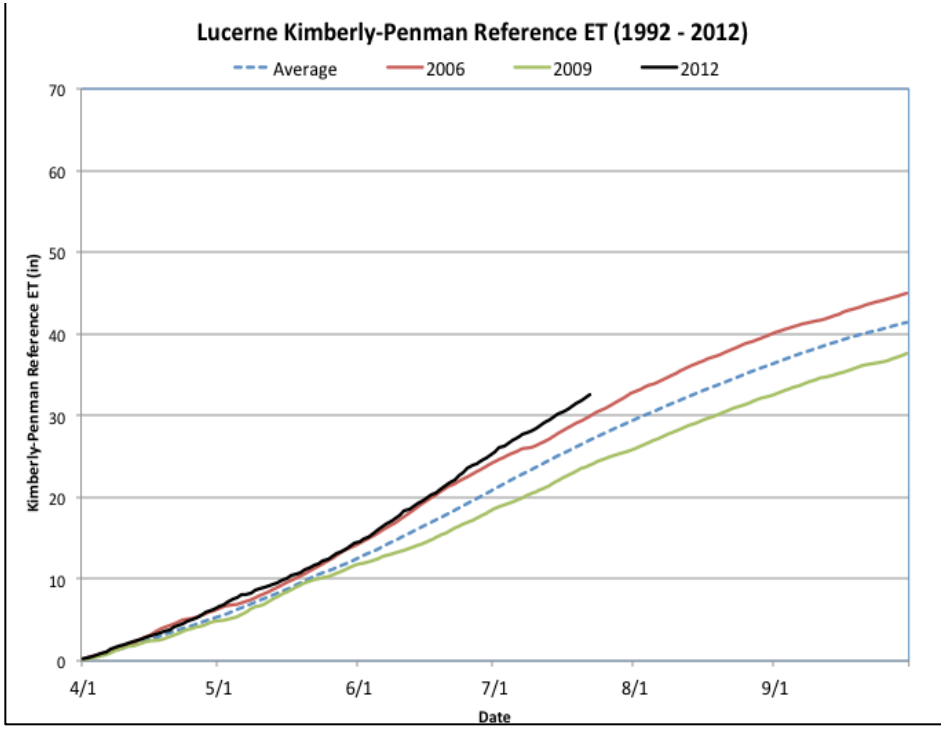
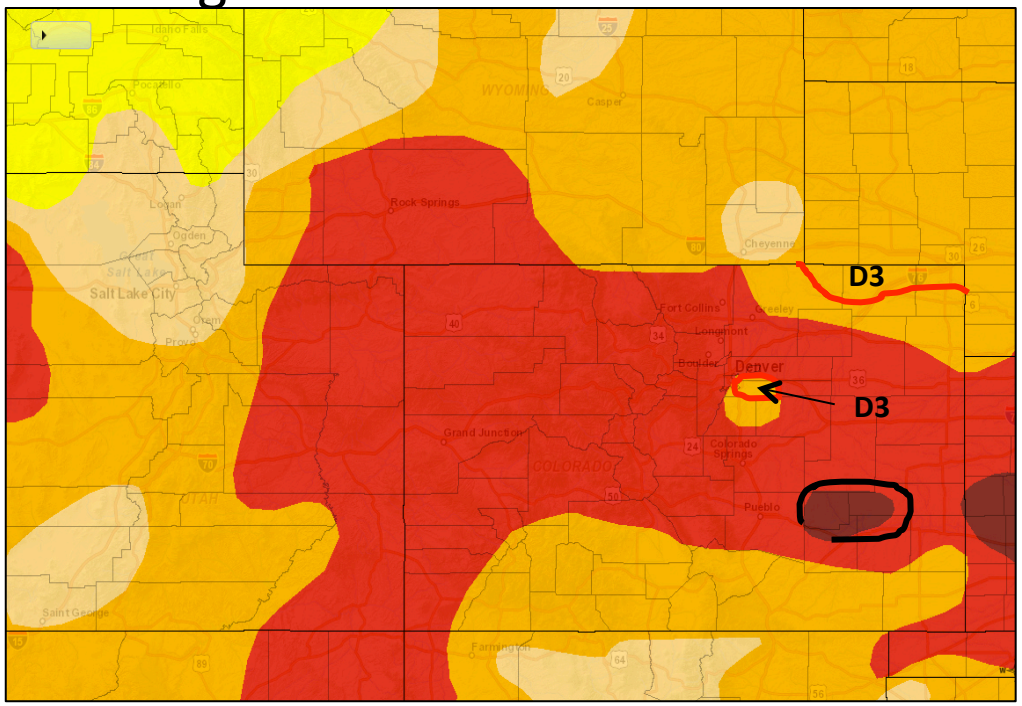
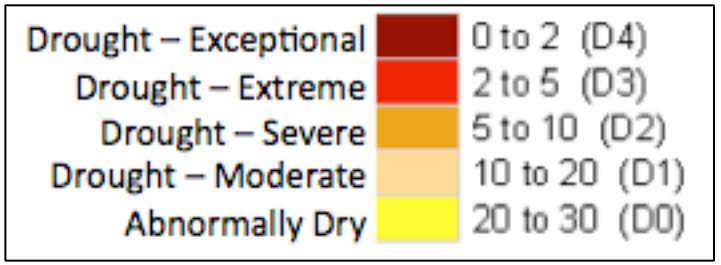


Fig. 6: Accumulated reference ET (black line) at Lucerne, CO in the northeast region, compared to the max year (red), min year (green), and average (dashed line).

Drought and Water Discussion





Drought categories and
their associated percentiles

Fig. 7: July 17th release of U.S. Drought Monitor for the UCRB.

UCRB: Status quo is recommended for the basin in the current depiction of the U.S. Drought Monitor (USDM) map (Fig. 7). Beneficial rains have fallen though heavier amounts have been more localized. Vegetation has still quickly dried out after storms and thunderstorms have ignited wildfires. If the monsoon plume continues to bring rains to the region, some improvements may be possible in the near future.

Eastern CO:

D3: An expansion of D3 is recommended for Sedgwick, Logan and eastern Weld counties to match across state lines with Nebraska (Fig. 7, red line). Reports from these counties are that pastures continue to degrade, dryland corn is extremely stressed, and the South Platte is running very low. High temperatures and winds are being recorded daily, and reference ET rates are extremely high. D3 should also cover the remainder of Arapahoe County, where reports are that conditions on the west side are just as bad as the east side.

D4: A further expansion of D4 is recommended in southeast CO to cover more of the heavily impacted regions (Fig. 7, black line).