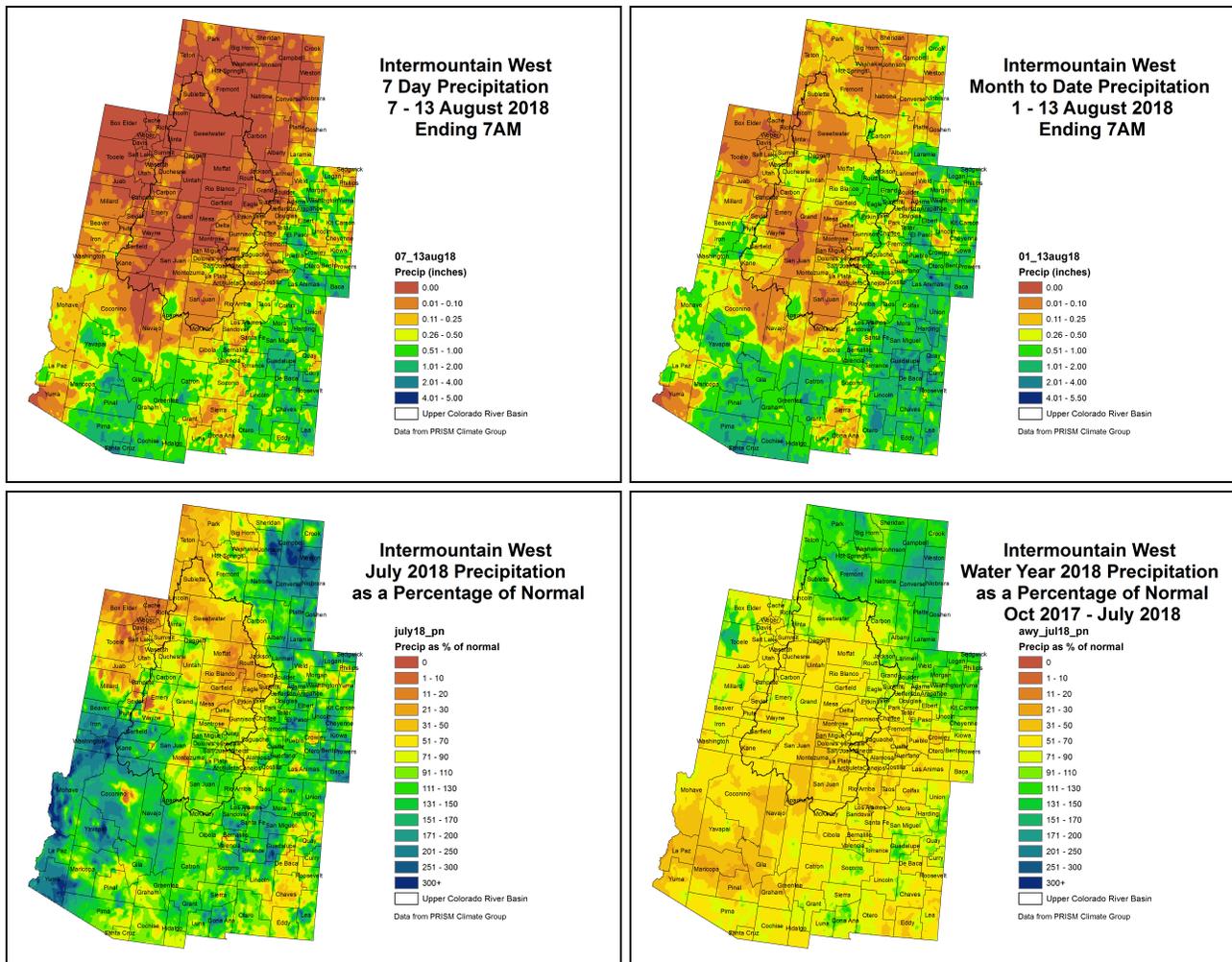


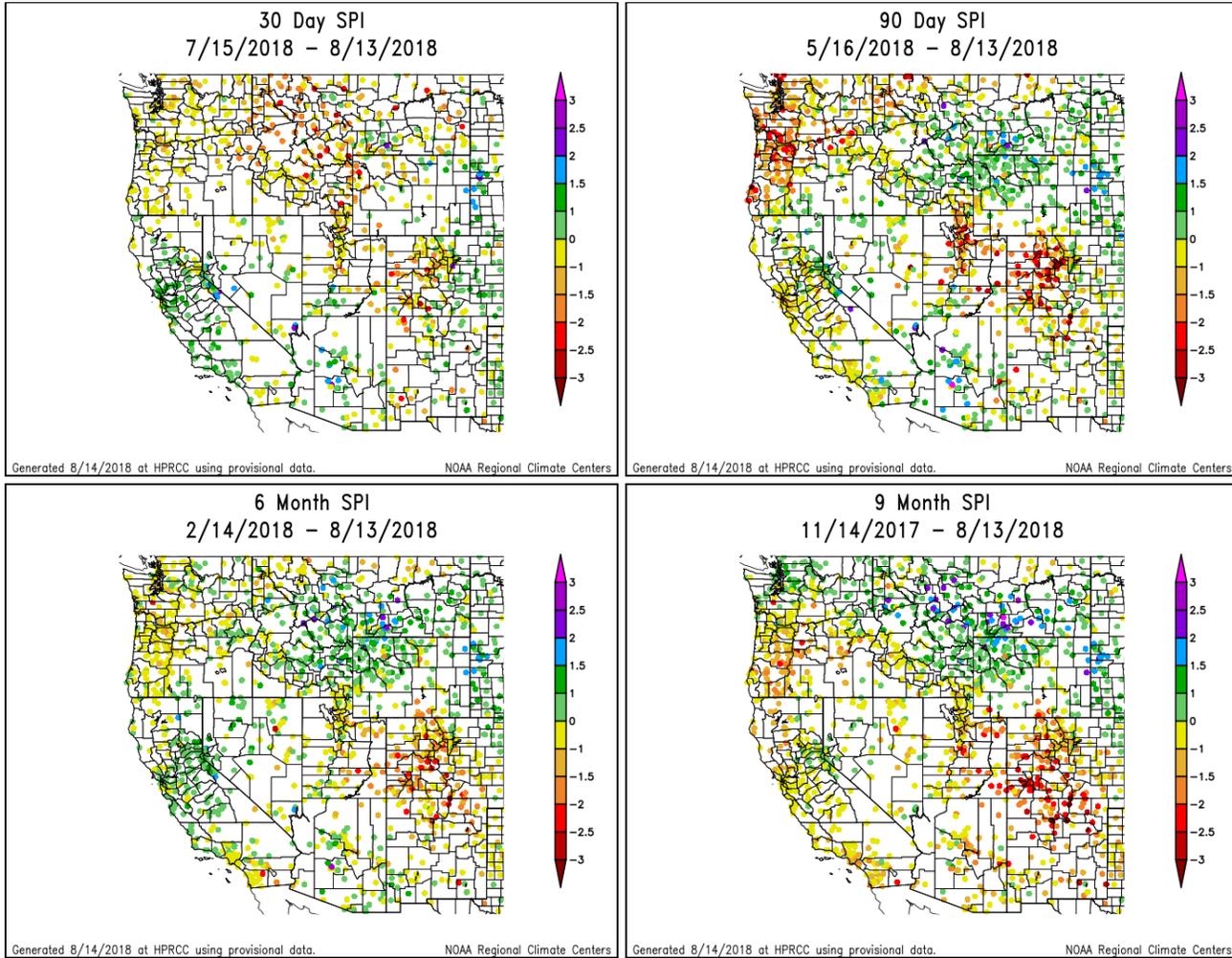
NIDIS Intermountain West Drought Early Warning System August 14, 2018

Precipitation



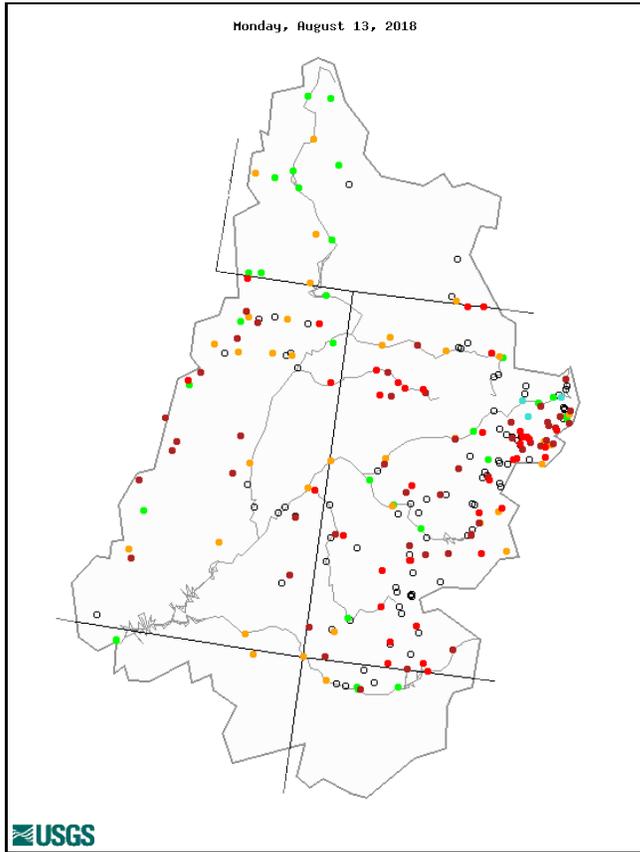
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average; water-year-to-date precipitation as a percent of average.

Standardized Precipitation Index



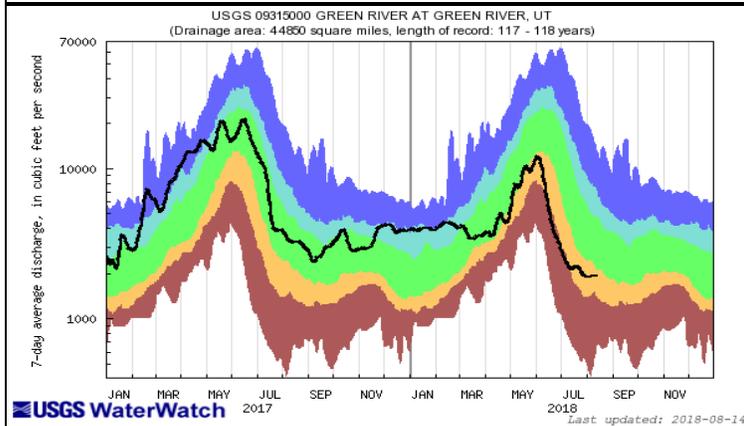
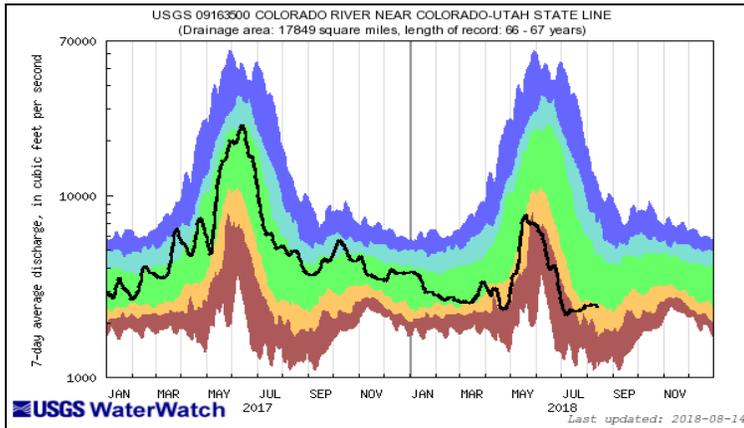
Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions while 6- and 9-month SPIs focus on long-term conditions. SPI data provided by High Plains Regional Climate Center.

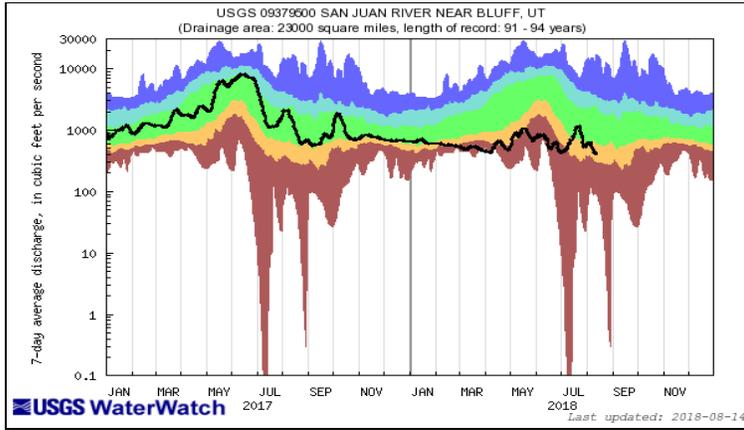
Streamflow



Explanation - Percentile classes

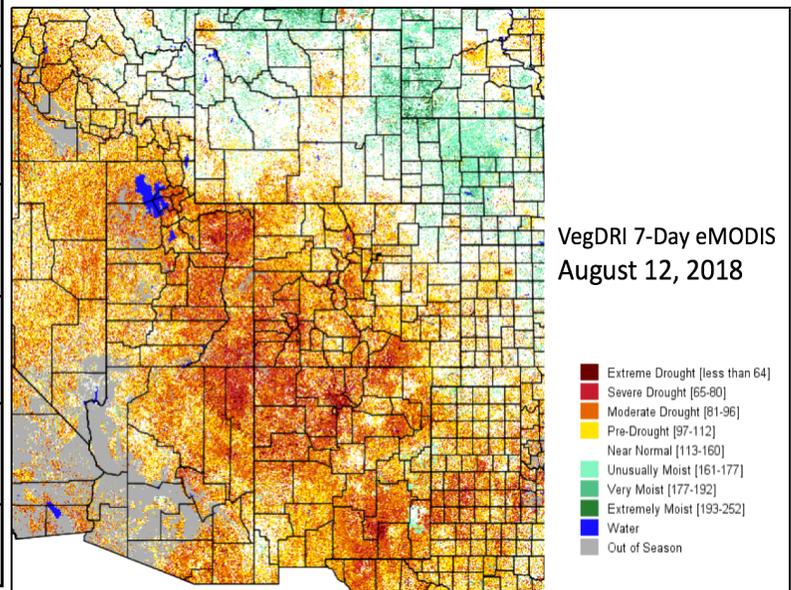
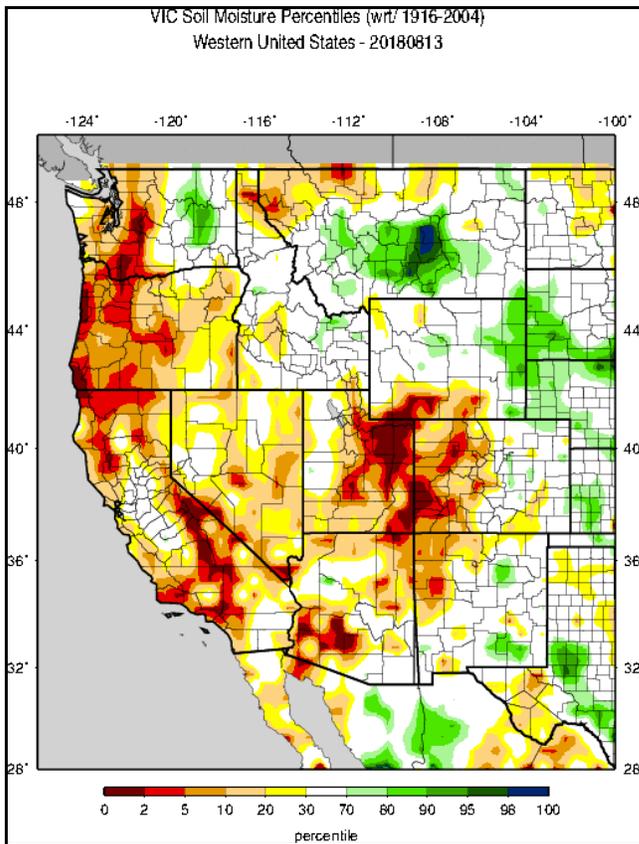
●	●	●	●	●	●	○
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	Not-ranked





The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff, UT. All streamflow data provided by United States Geological Survey.

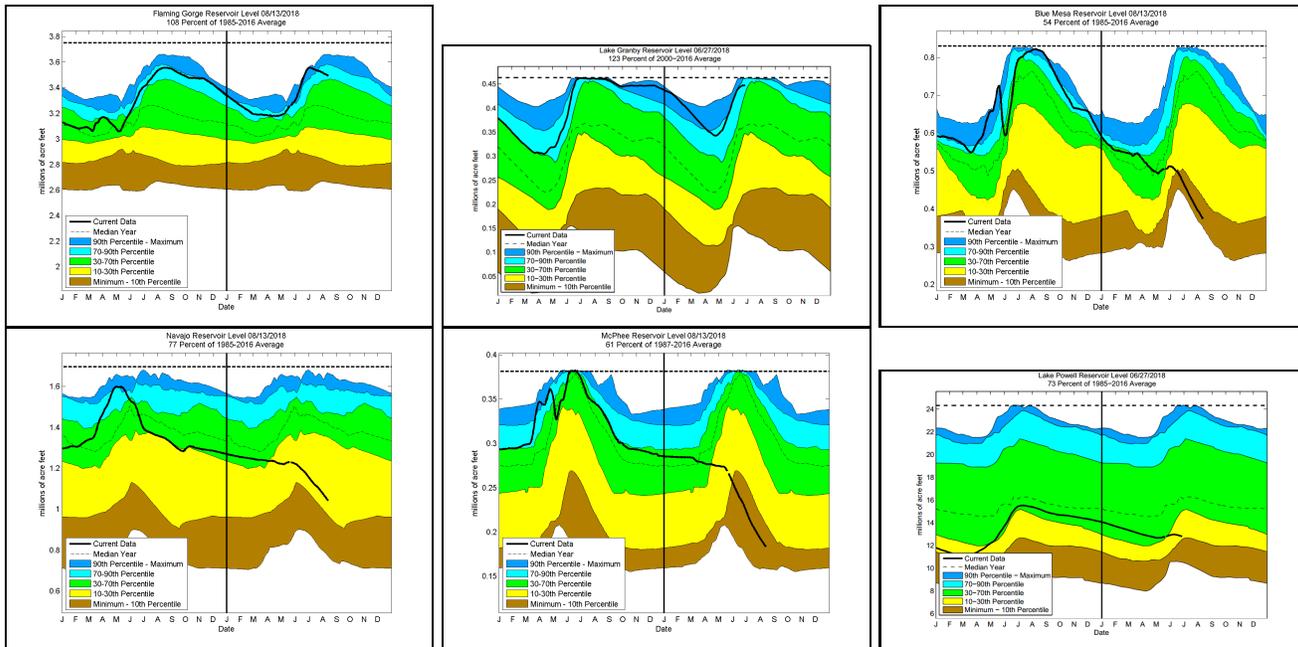
Surface Water



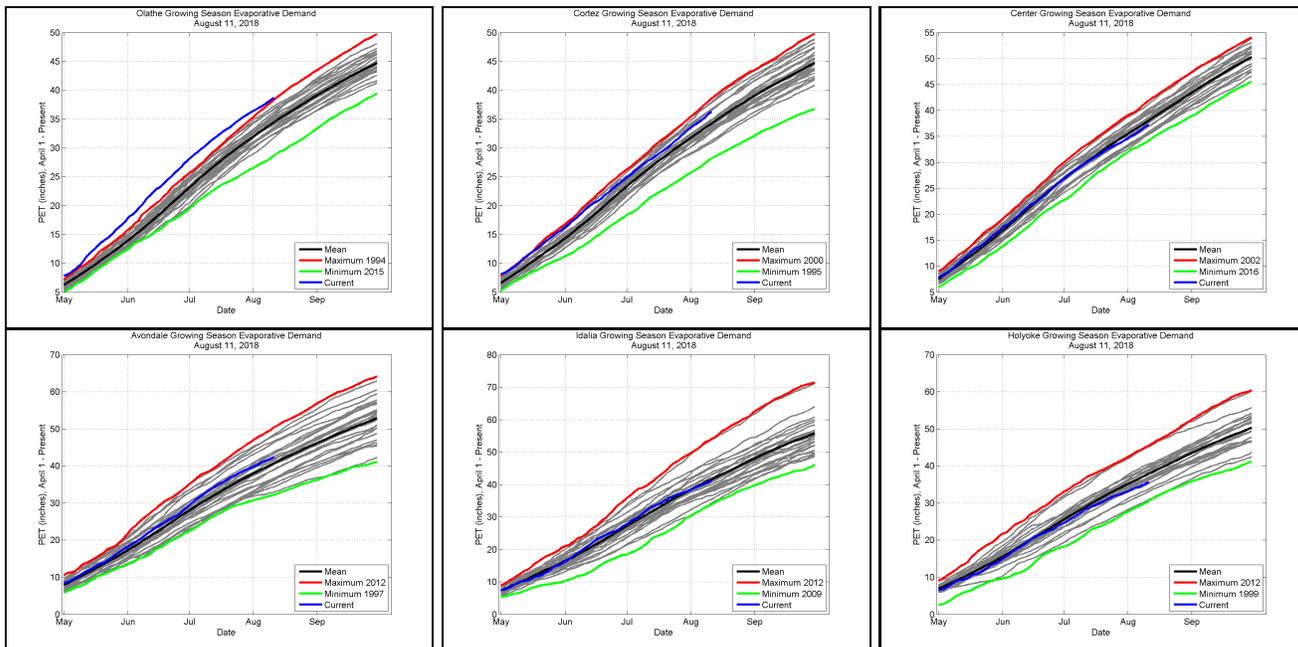
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

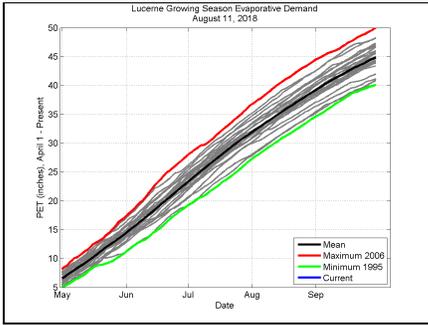
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir

levels observed over the past 30 years. The data are obtained from the Bureau of Reclamation. Some of the reservoir percentiles don't line up at the new year due to differences in reservoir levels at the beginning of 1985 and the end of 2014. Dead storage has been subtracted. Note: Lake Granby data are obtained from the Colorado Division of Water Resources, and only goes back to the year 2000.

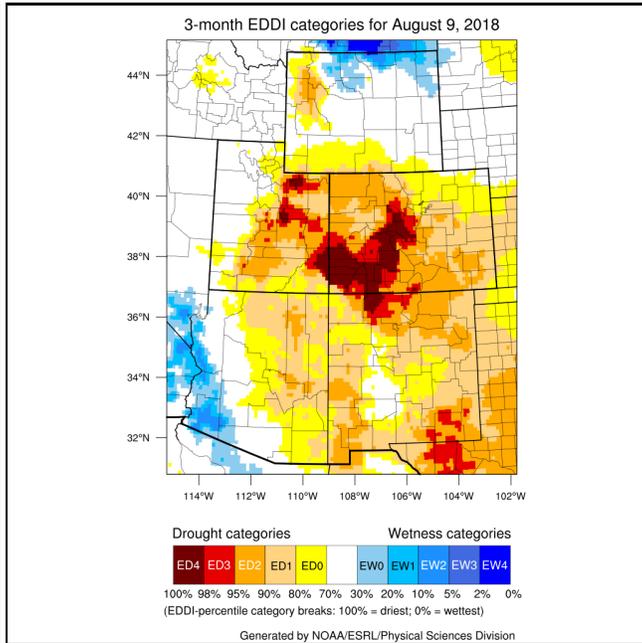
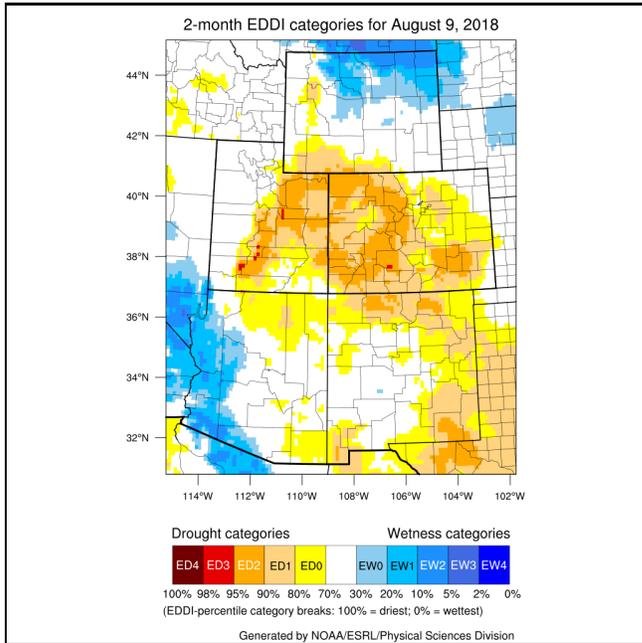
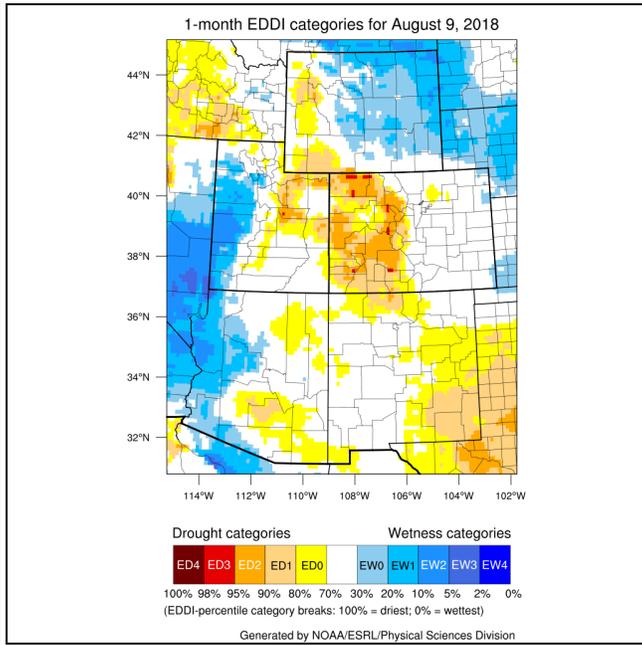
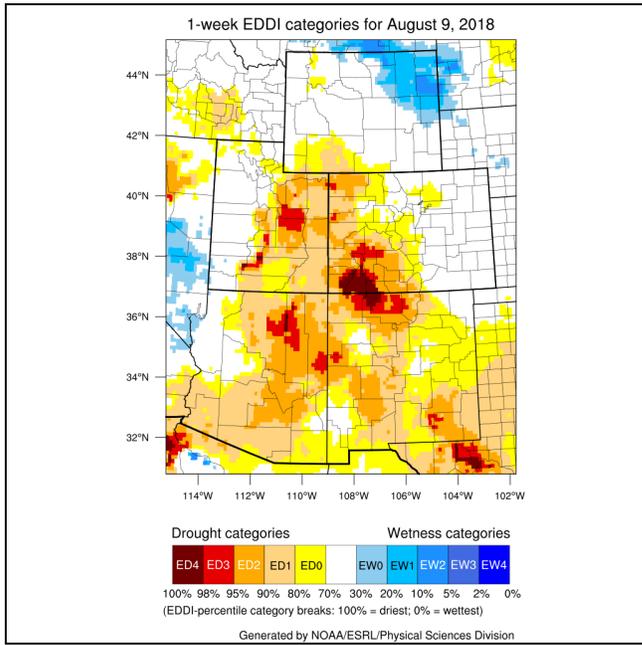


Evaporative Demand





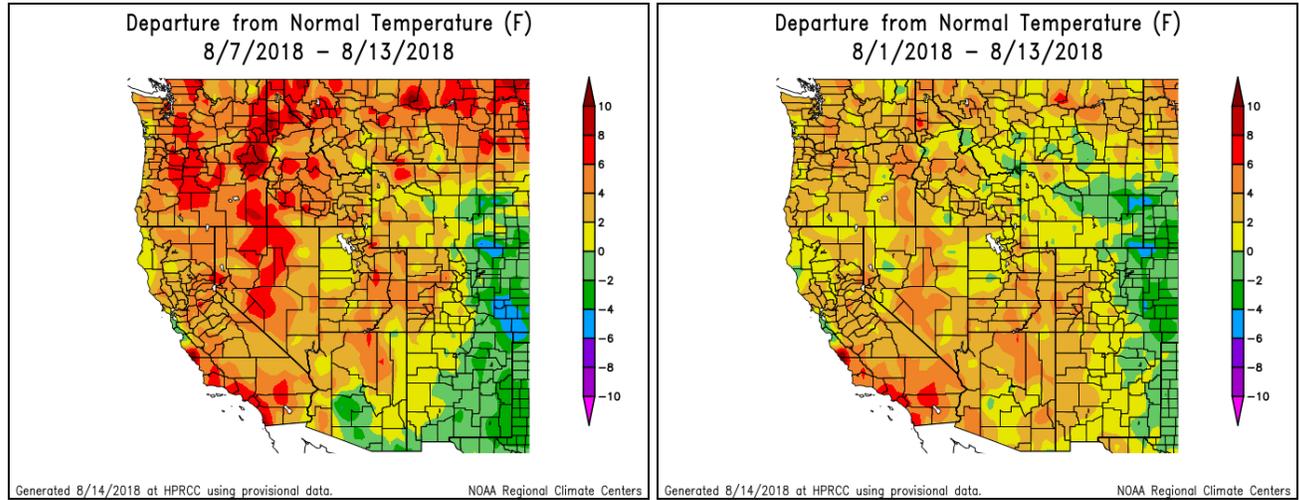
The above images are of reference evapotranspiration (ET) from CoAgMET sites across Colorado. Reference ET assumes the amount of water that will evaporate from a well-irrigated crop. Higher ET rates occur during hot, dry, and windy conditions. Lower ET rates are more desirable for crops. See a [map of locations](#) for the above ET sites.



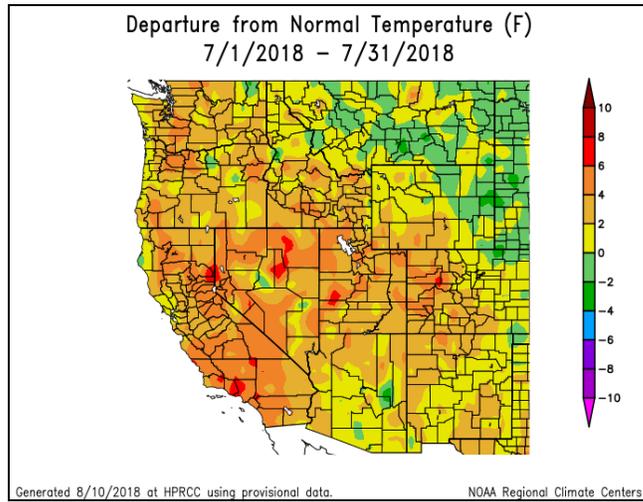
The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are in line with the [US Drought Monitor's Percentile Ranking](#)

[Scheme](#). Data used to generate these maps come from the North American Land Data Assimilation System Phase-2 (NLDAS-2) project, which assimilates observations of temperature, wind speed, radiation, and vapor pressure deficit. The date indicates the last day of the period of record, and the week number indicates the window size for the period of record.

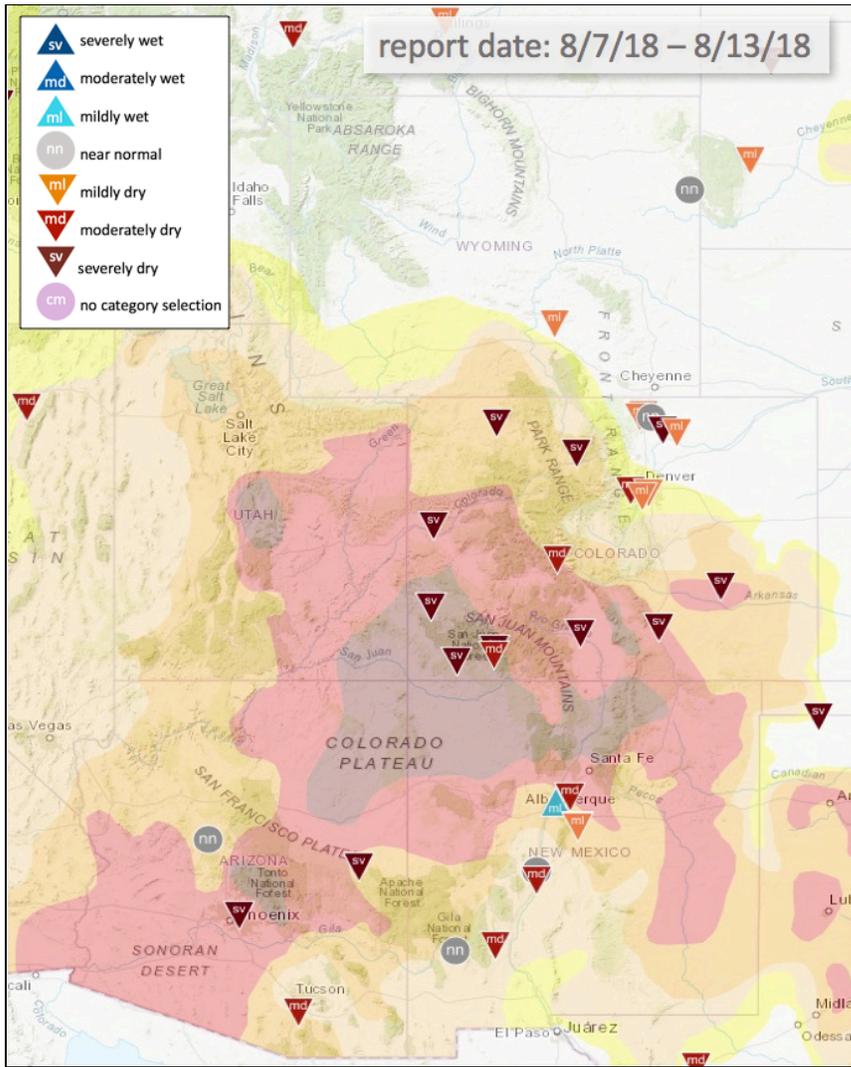
Temperature



All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



Condition Monitoring and Impacts



Map of current condition monitoring reports submitted to CoCoRaHS in the last week overlaid on the current U.S. Drought Monitor depiction. Specific impacts reports from local experts listed below.

Southeast CO

Driving down I-25, I observed fairly green conditions around Colorado Springs. As I headed further south, I began to notice a drying gradient as I passed south of Fountain. Grasses were yellow, dirt was dry and dusty. South of Pueblo it was worse. Very poor conditions driving along the highway around Walsenburg and entering into Las Animas County. Streams were very low, widespread yellow and brown fields. I was also able to head up north along Highway 71 from Rocky Ford to Limon. Vegetation conditions in and around Crowley County were dreadful. What grass there was was dead or brown. Large areas of trees looked like the middle of winter. Widespread patches of dirt where there should be grasses. There was an improving gradient as I drove through Lincoln County. On I-70, I did observe some yellow grasses and slight dryness going through Elbert and Arapahoe counties. - Becky Bolinger

National Weather Service report that streams are pretty low, despite some of the "normal" range percentages on the map.

Western CO

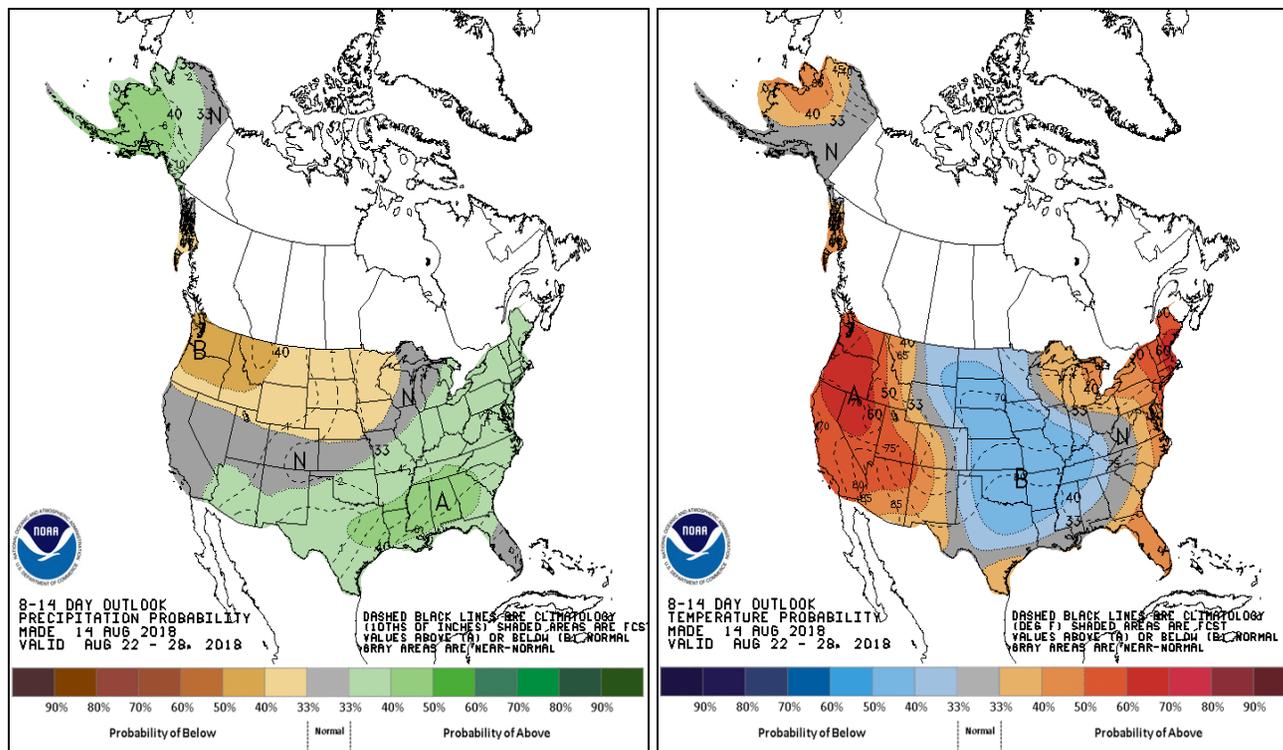
In the Upper Gunnison, a couple of gauges in the Taylor River region are reporting record low flows.

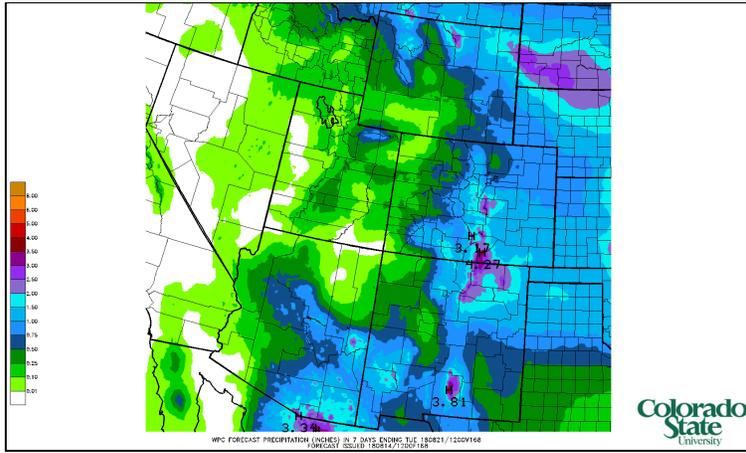
Extremely dry. USGS reports that many of the near normal flows in the UCRB are the result of management and downstream of reservoirs. Colorado Parks and Wildlife have been reporting anomalously warm water temperatures and fish populations have been suffering.

Central UT

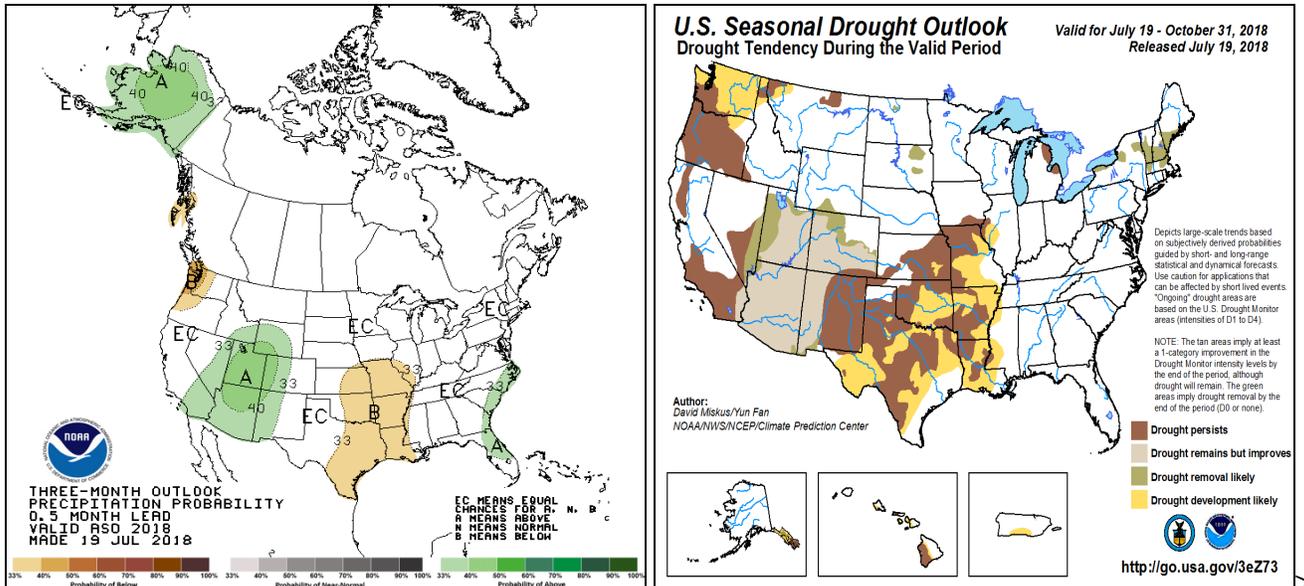
There's been a flip recently where rain storms are finally hitting to the south (decent rains in Garfield County for example) and there is a dry spell to the north in northern Sanpete County. The Cole Hollow Fire is impacting the area and is only 2% contained. There are reports of a lot of liquidation of cattle. Reports from the Salina area are that they normally move 250 head of cattle around this time, but this year the number has been closer to 1600. Ranchers are being warned that they may have to move cattle off the mountains early, which means they'll have to figure out other ways to feed their herds.

Outlook

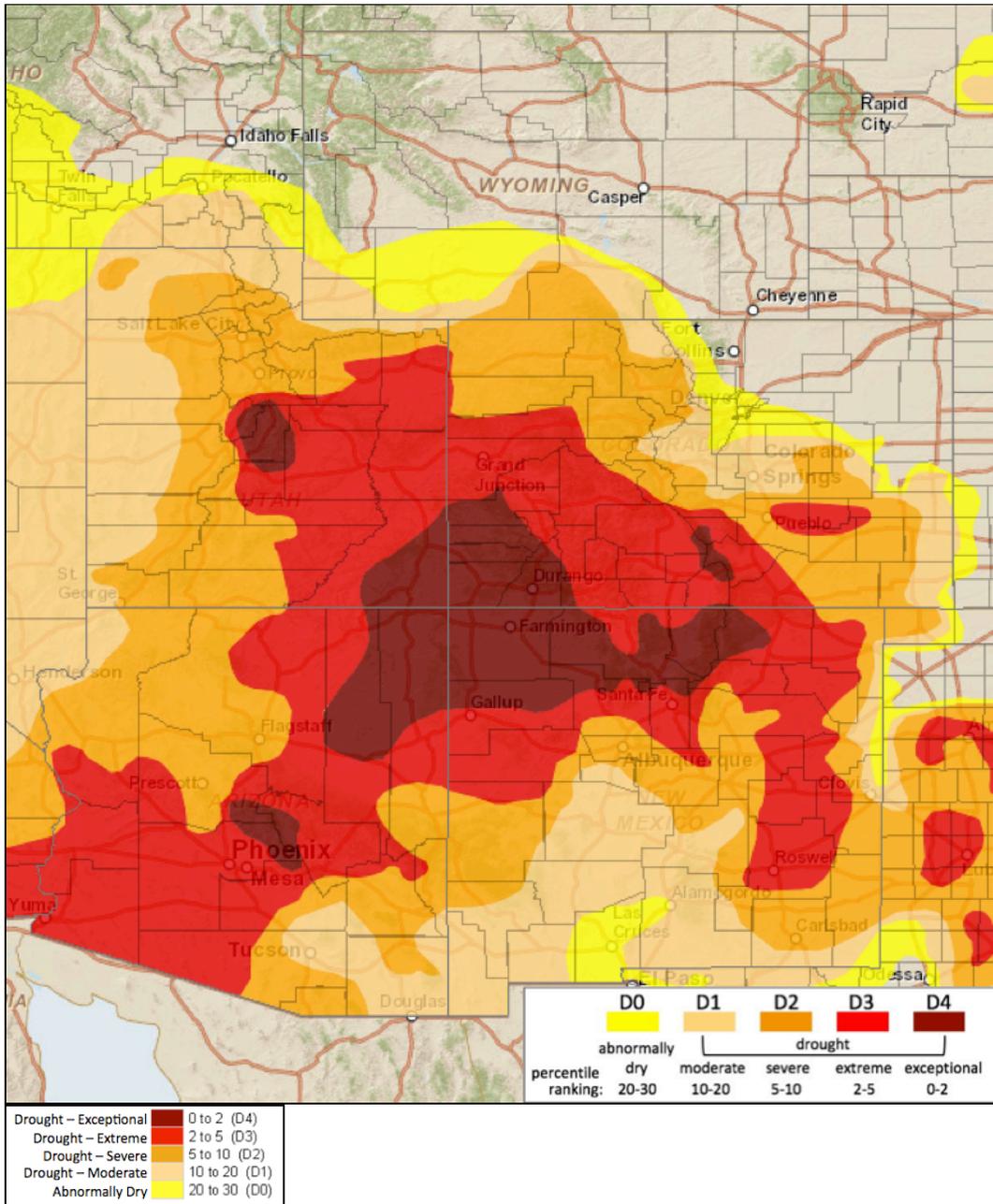




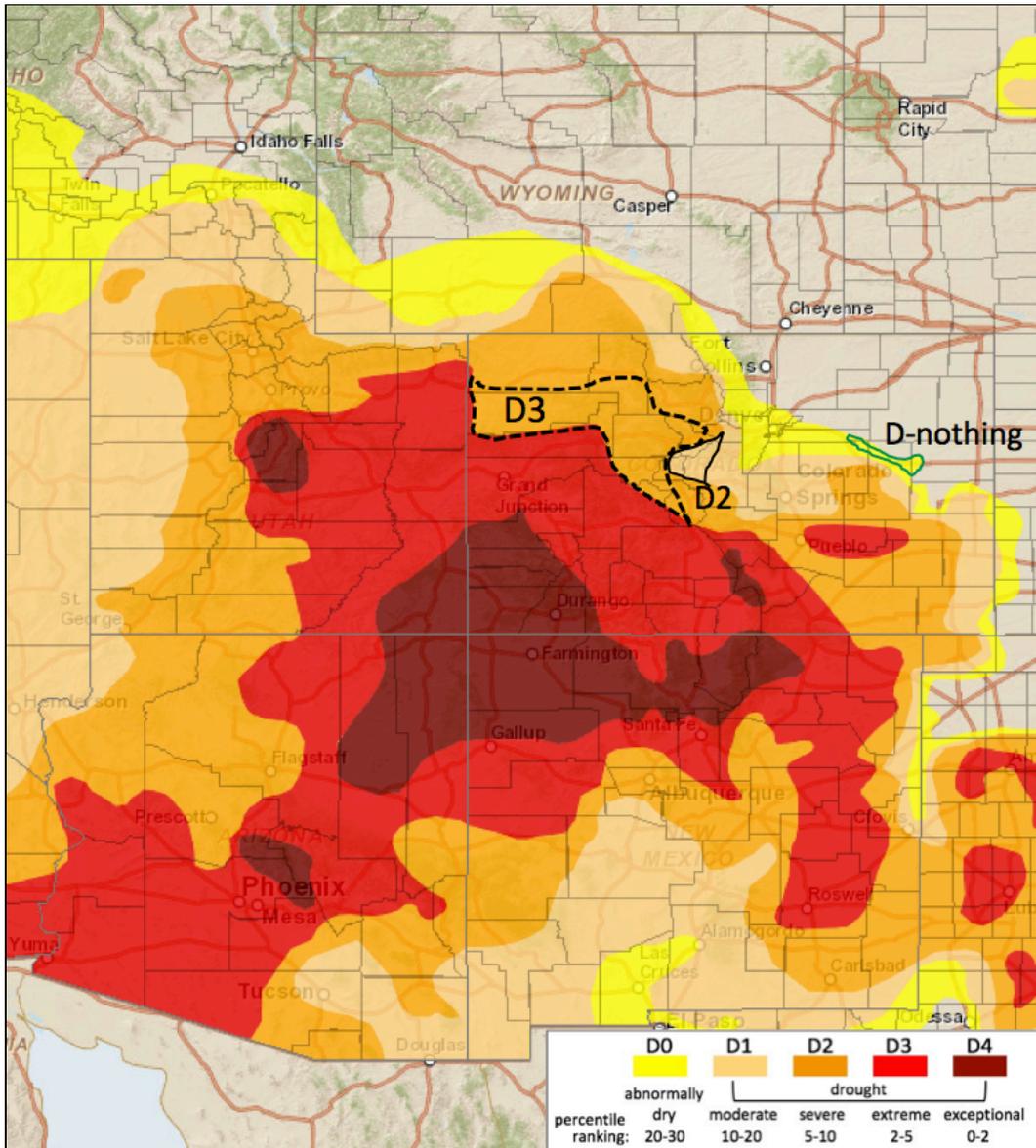
The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate Prediction Center, and the bottom right image shows the Climate Prediction Center's most recent release of the U.S. Seasonal Drought Outlook.



Summary and Recommendations



Above is the most recent release of the U.S. Drought Monitor map for the UCRB region. Below shows the proposed changes for this week, with supporting text.



Summary: August 14, 2018

Over the last week, spotty precipitation amounts (mainly around half to one inch) fell around Arizona, New Mexico, and eastern Colorado. The remainder of the Intermountain West, particularly the Upper Colorado River Basin, was dry for the week.

While we have seen regular monsoon activity since the middle of last month, the pattern hasn't been quite as strong as hoped for and hasn't extended as far north as it sometimes can. The Four Corners region has struggled, with some hit and miss weeks, and further north from there has completely missed out on the monsoon moisture. For northern Utah, this is not unexpected, and this is a typically drier time of year for them. For northwest CO, this has been a bit more of an issue as we still expect those higher elevations areas to get around 2 or 3 inches of moisture each month.

Most other indicators throughout the UCRB indicate extremely dry conditions. Record warmth for the water year has continued as temperatures in the region have been 2 to 6 degrees above average since the beginning of August. Satellite derived vegetation conditions from the VegDRI product show severe drought conditions across eastern UT and the Four Corners. The EDDI product shows record high 1-month evaporative demand over southwest CO and extending toward the Continental Divide. In the UCRB, only 22% of streamgauges are reporting flows above the 25th percentile. Flows in that near normal range tend to be downstream of reservoirs and are more the result of management than hydrologic factors. The percentage of gauges reporting record low 7-day averaged flows is currently at a whopping 23%.

Where the monsoon has provided a bit more relief, expect to see some improvements in drought categories. While it certainly hasn't been a drought buster, the rains have been welcome and have improved areas of AZ and NM slightly. Southeast CO has also seen some improvement from frequent afternoon thunderstorm activity. This rain comes a little too late though to really alleviate the longer term impacts that have been felt in the region.

Recommendations

UCRB: An expansion of D2 just east of the basin (solid black line) and an expansion of D3 (dashed black line) are recommended in western CO. These areas show a dominance of -2 or worse SPIs on the 90-day time scale (with scattered D3- to D4-level SPIs on other time scales as well). A majority of the streamgauges in the area are reporting 5th percentile or lower flows.

Eastern CO: Limited changes are recommended this week since large areas of southeast CO have been improved upon in the last month. However, it's noted that Kit Carson County and northern Lincoln County have seen near-normal precipitation across several different time-scales, so a very slight trimming of the D0 in the area (green line) is recommended.