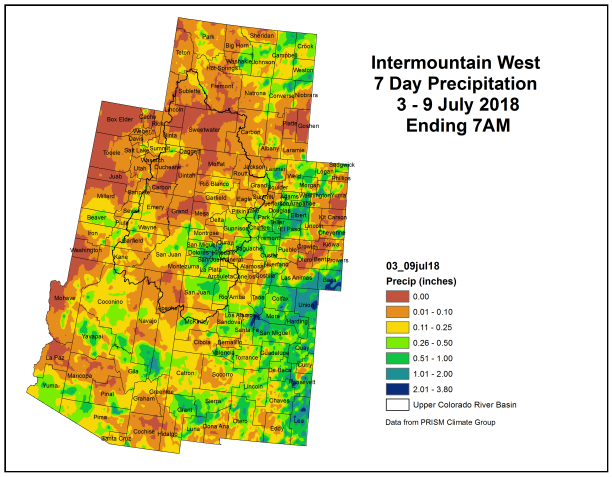
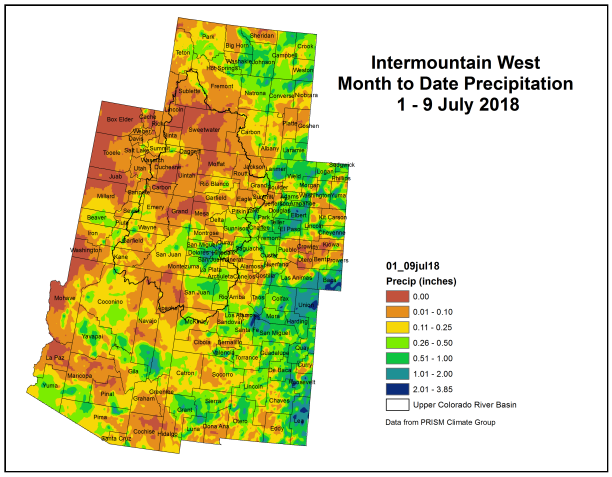
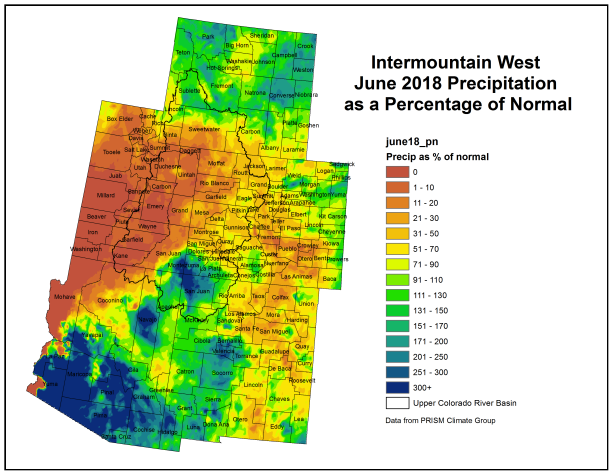
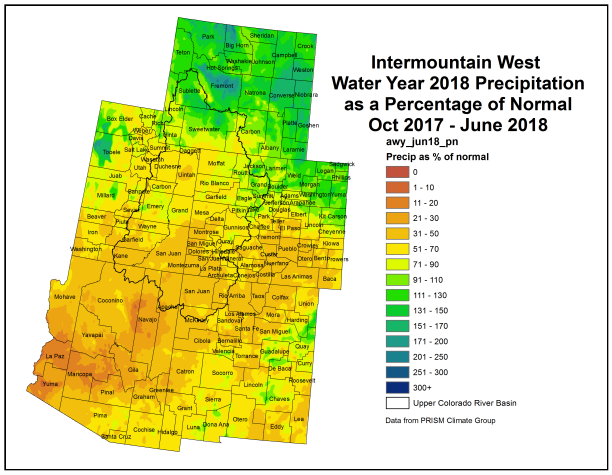
NIDIS Intermountain West
Drought Early Warning System
July 10, 2018

Precipitation



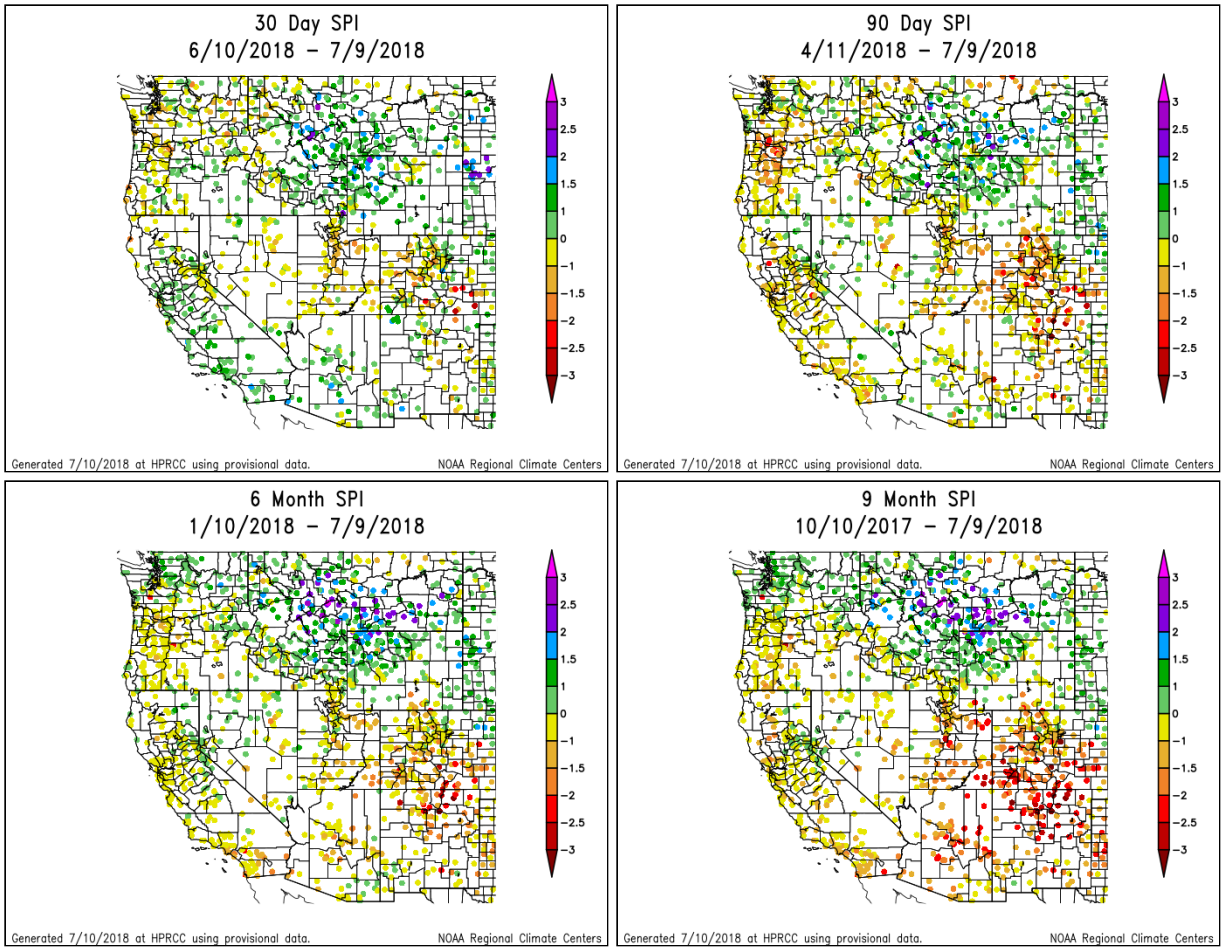






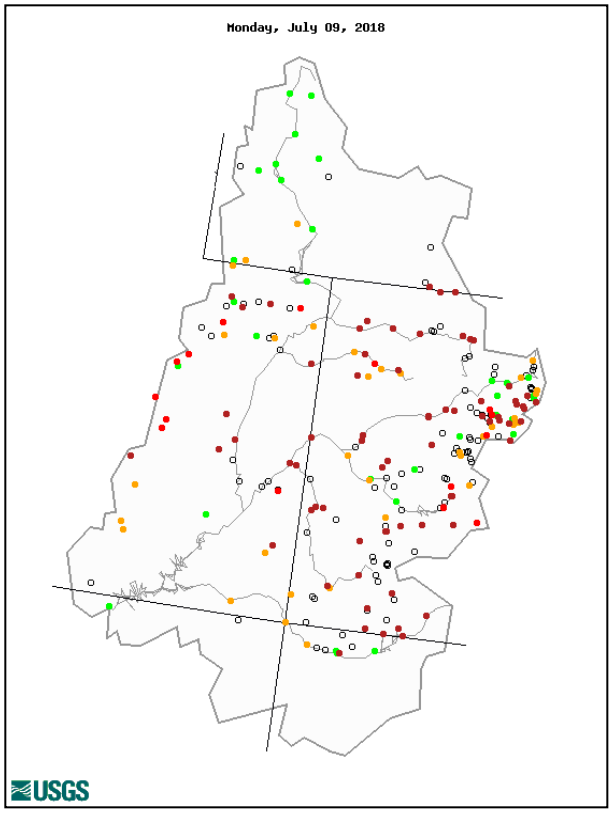
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index

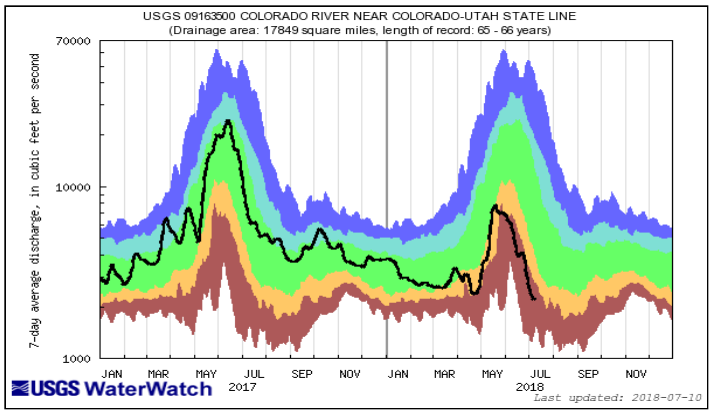


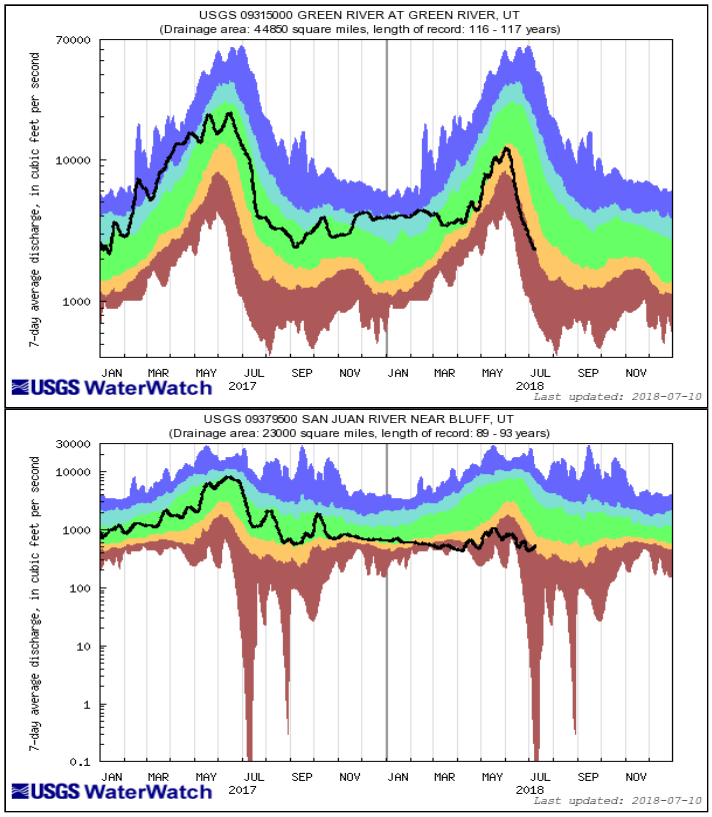
Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions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

Streamflow



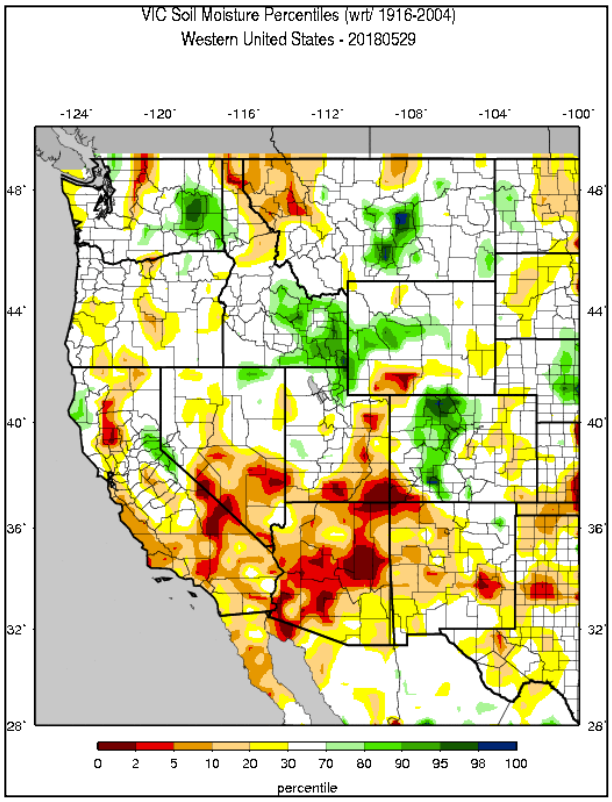
Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

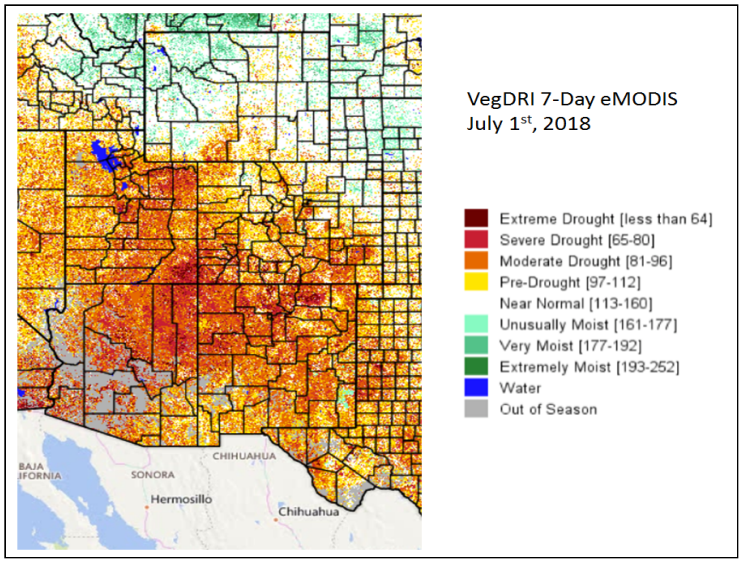




The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff,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

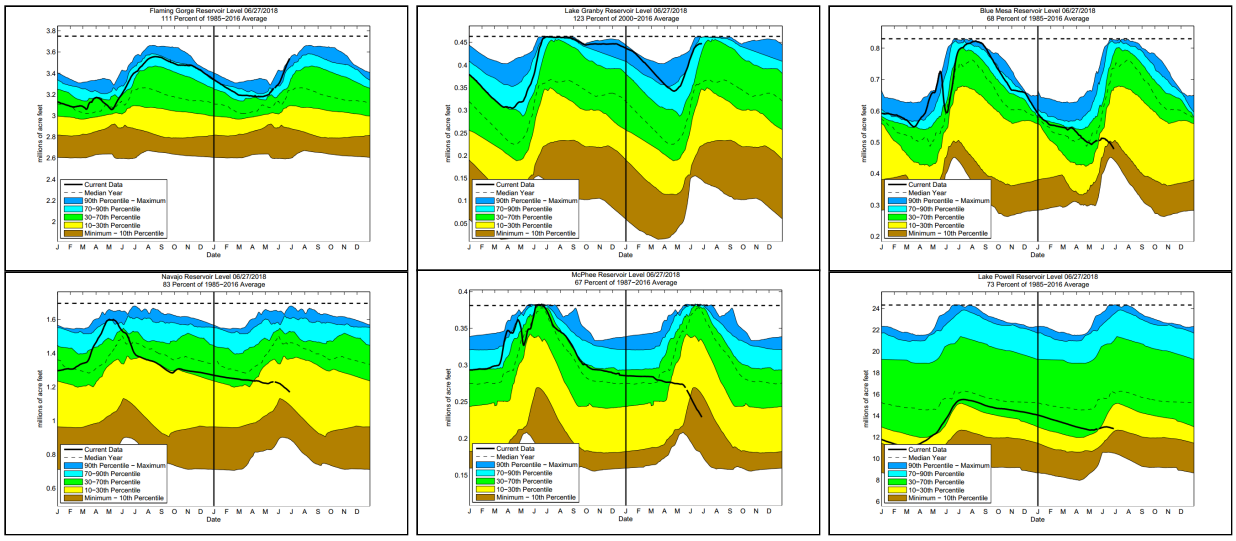
Surface Water



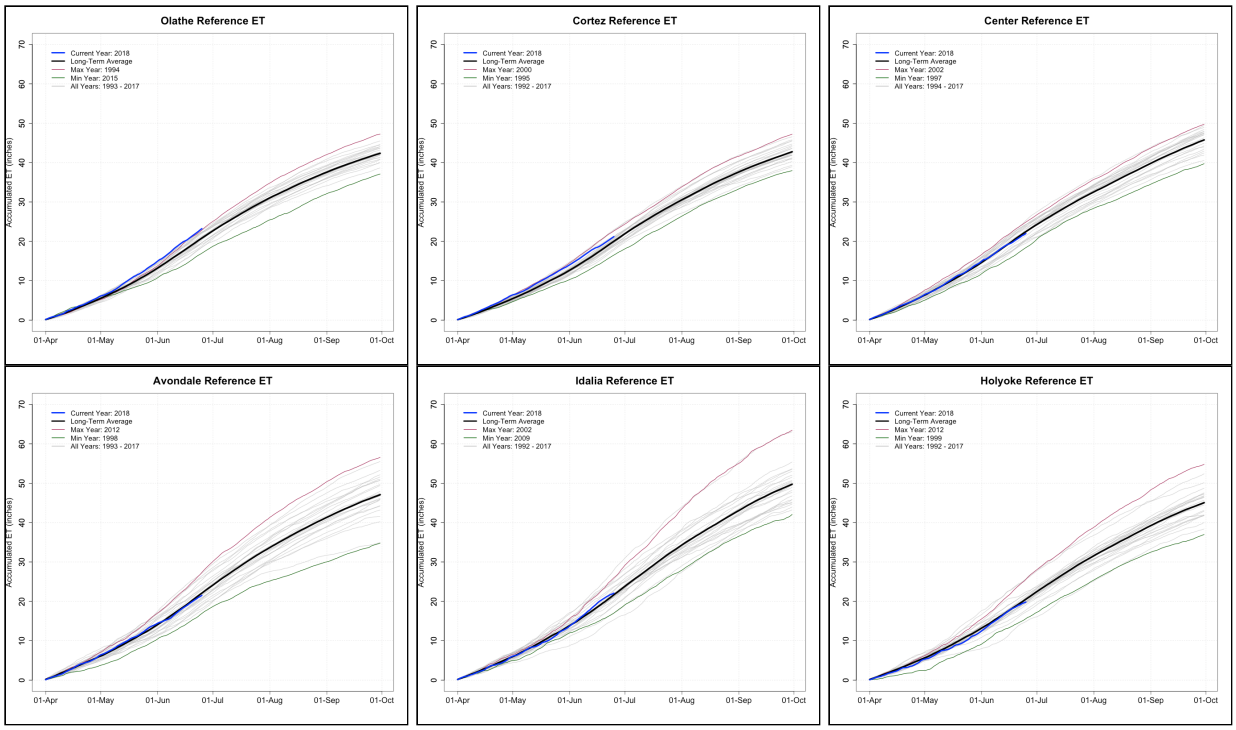


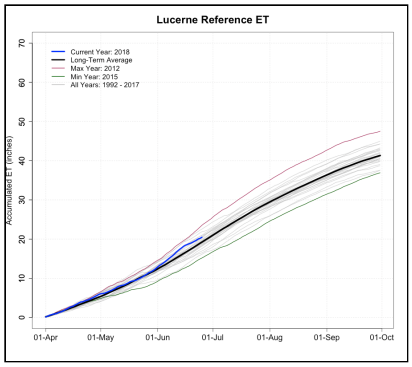
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

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.

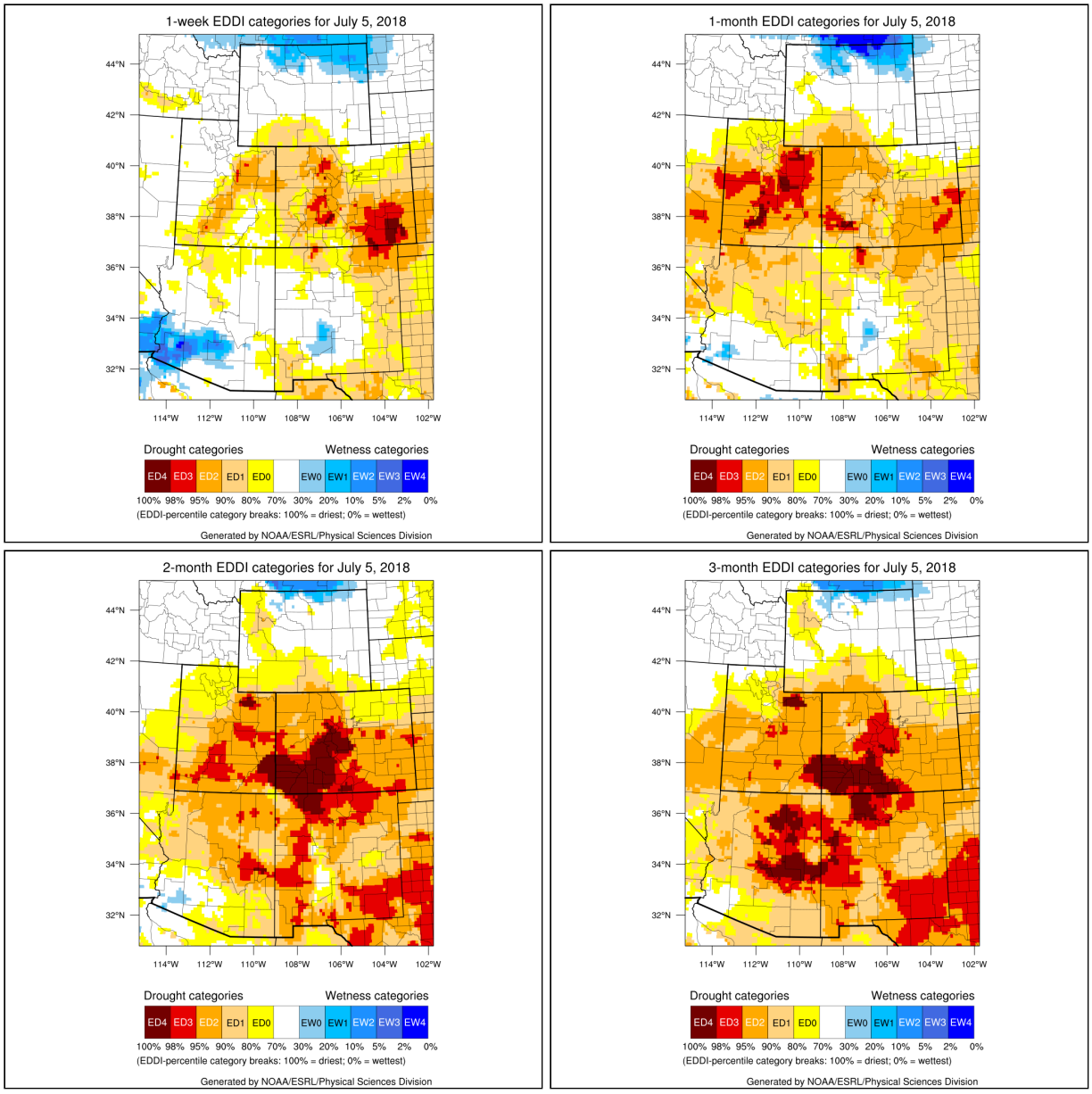


Evaporative Demand



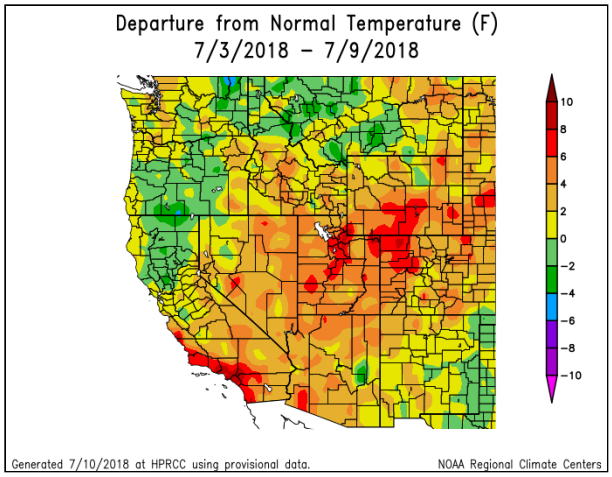


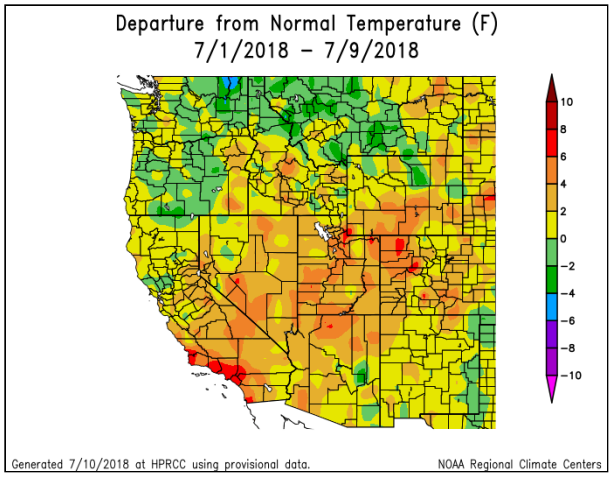
The above images are of reference evapotranspiration (ET) from CoAgMET sites across Colorado. Reference ET assumes the amount of water that will evaporate from a well-irrigated crop. Higher ET rates occur during hot, dry, and windy conditions. Lower ET rates are more desirable for crops. See a map of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



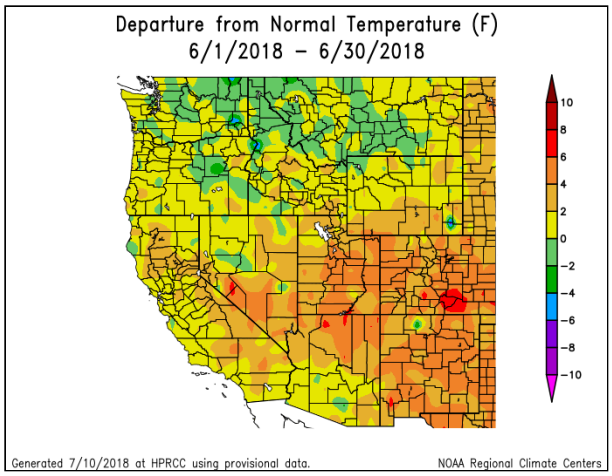
The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

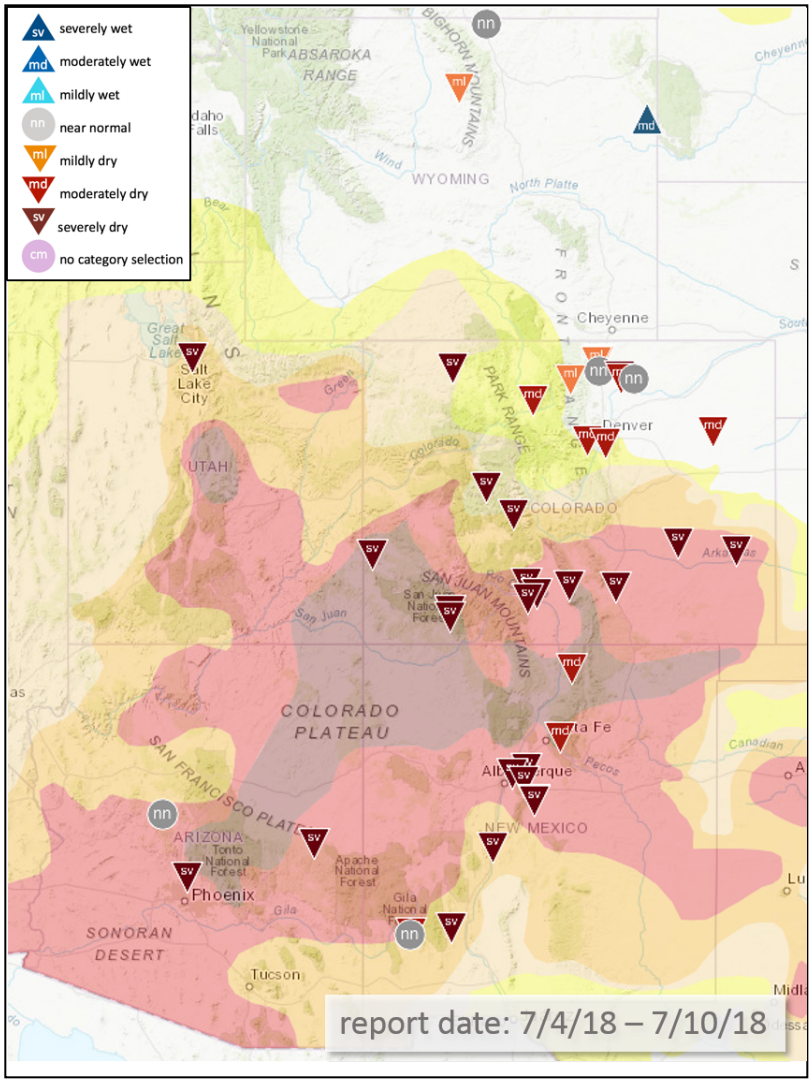




All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



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

No change, still terribly dry conditions.

Notice of losses above average, even though it's normally early to get these.

Nothing to harvest or poor harvests expected. Selling of herds. Postponing planting of feed because no moisture to plant. Precipitation that has fallen is spotty and variable. When it does rain, hail has been an issue.

Hay production was 1/3 of what it normally is. There has been little to no cutting. Grasshoppers are eating what is growing.

Ponds are drying up.

There have been a couple of special drought sales for cattle in La Junta.

South Park

Pasture appears to be a total loss. No new vegetation is growing.

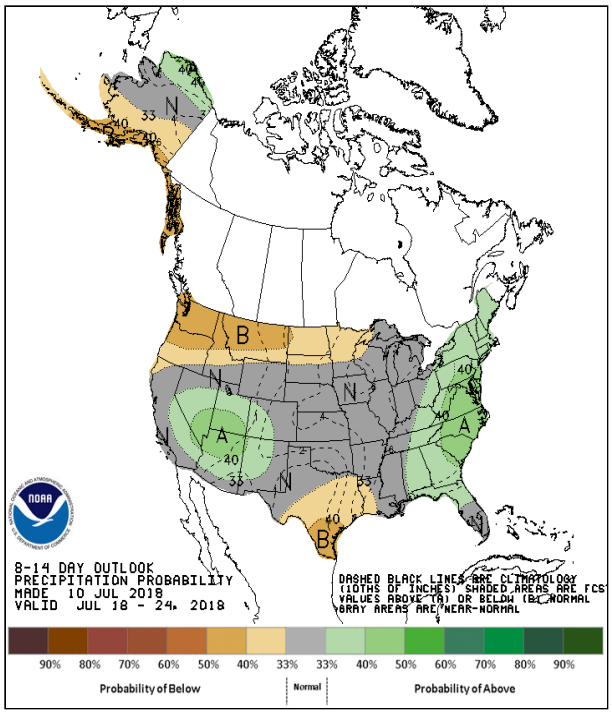
Summit County

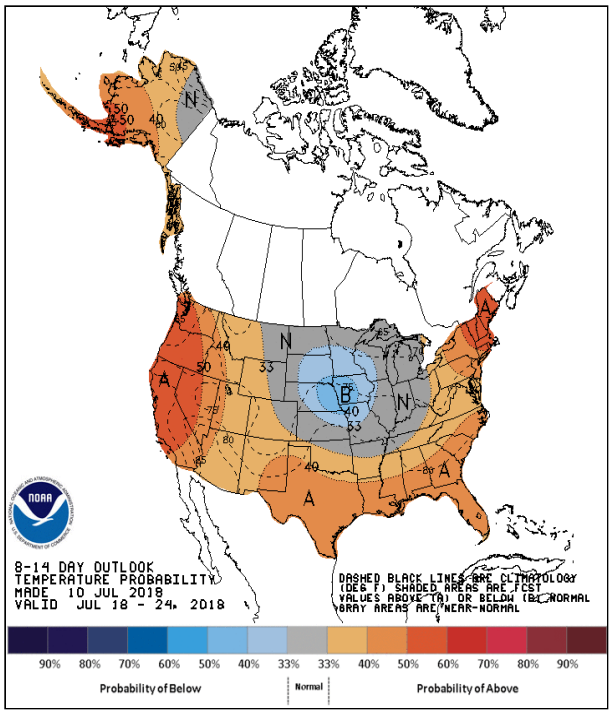
No stream is above the 25th percentile.

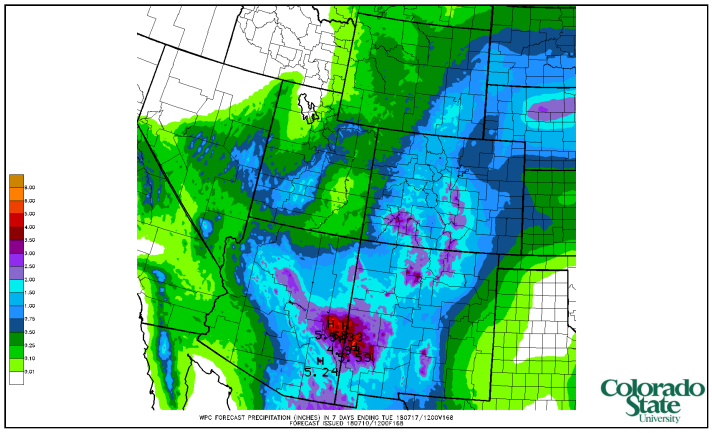
Central UT

Permitees are allowed to graze on mountains early because there is no feed at lower elevations. Typically don't do this until July. US Forest Service is starting to pull cattle off of mountain grazing. Producers are starting to liquidate cattle and hay prices keep going up.

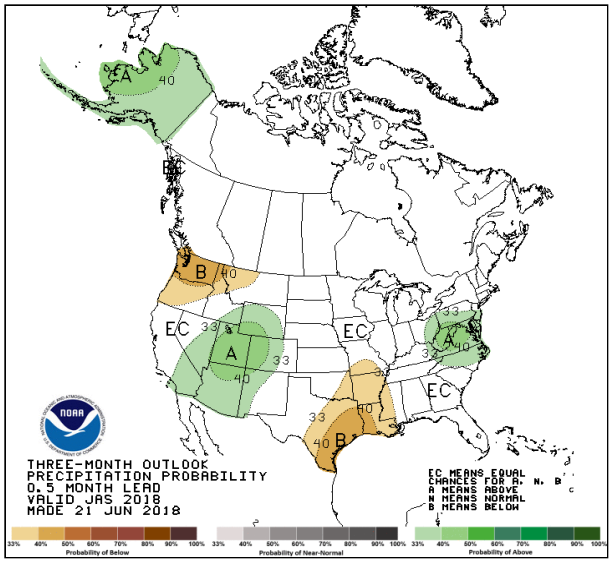
Outlook

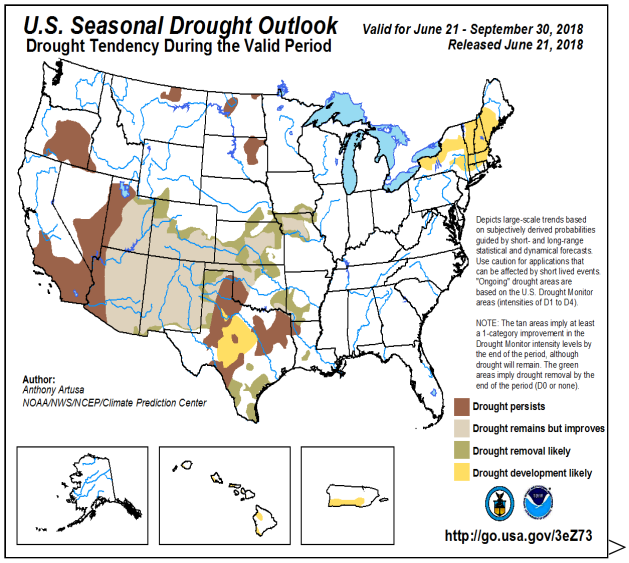




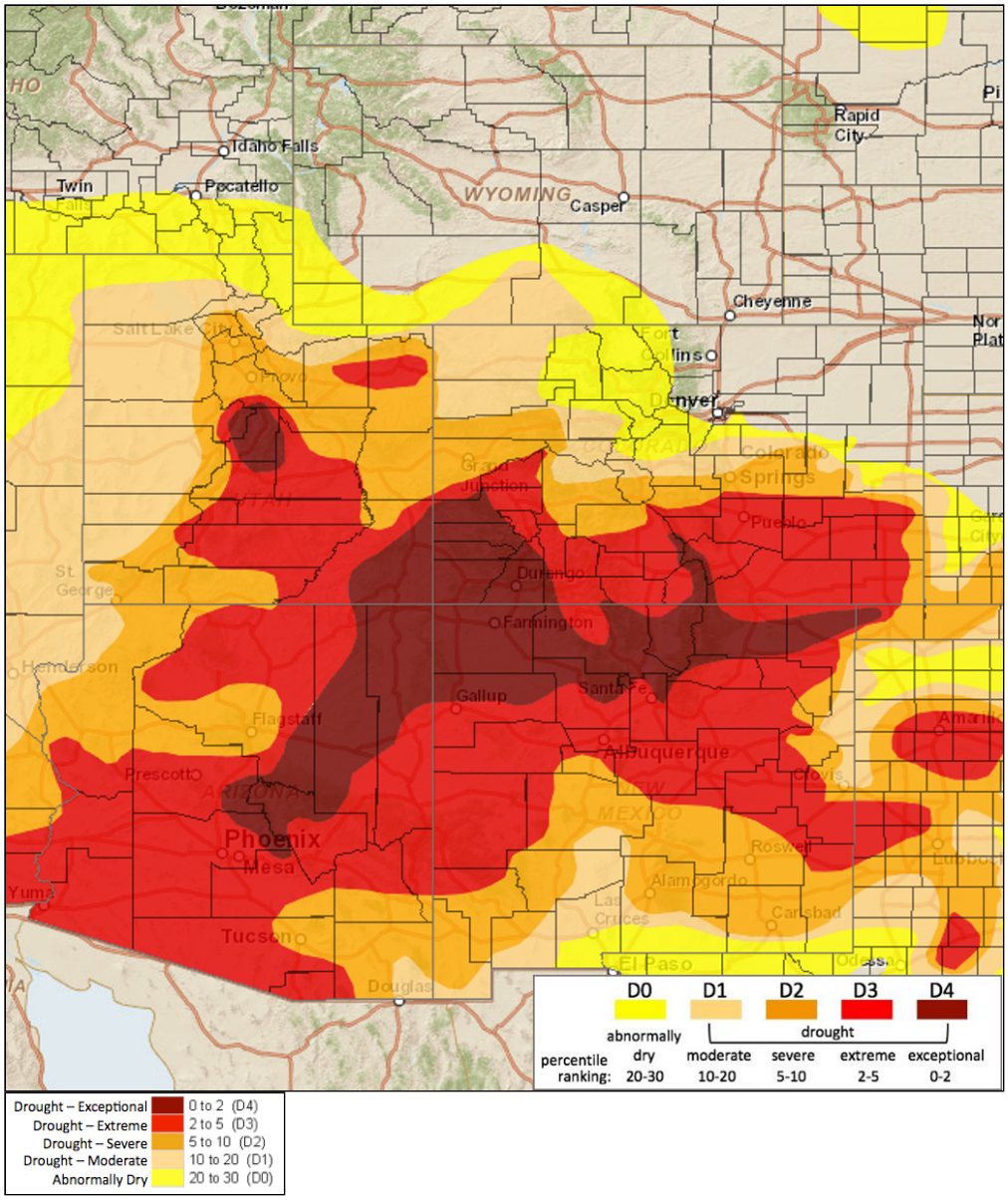


The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate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



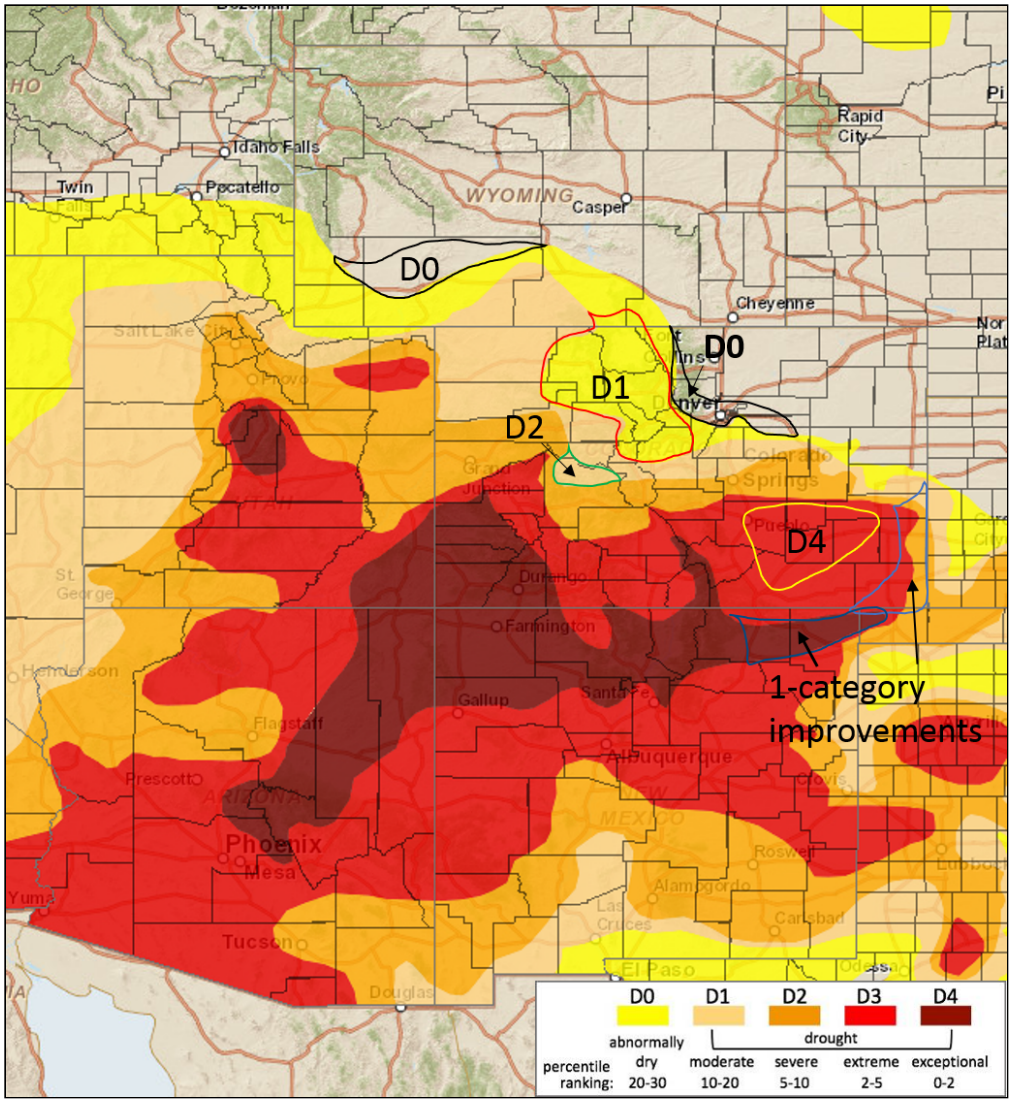


Summary and Recommendations



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: July 10, 2018

The Intermountain West region saw a mixed week of precipitation. Much of the Upper Colorado River Basin saw less than 0.25" of precipitation. The winner was the San Juan Mountains in southwestern Colorado where the 416 Fire has continued to burn for over a month now. The rain helped, but this fire is still only 50% contained. Just west of the 416 Fire on the other side of the ridge the Burro Fire continues with 50% containment. So, while the 0.50-2.00 inches helped, there is still a long way to go to recover from the prolonged dryness. While little precipitation fell on the Spring Creek Fire, now the second largest in Colorado history, higher humidity from the onset of the monsoon is helping to calm the fire down and allow fire crews to get containment.

East of the Divide saw a mix of a week with areas just south of the Denver Metro area receiving 1-2" and Baca County seeing some great precipitation with widespread amounts in the 1-2" range. Aside from a few isolated storms hitting the northern portions of the plains, eastern Colorado saw less than 0.50". The Arkansas River Valley has been dry for quite a while now and the precipitation that fell last September has just about left the soil, leaving this area in rough shape.

Another area that has popped out with dryness recently is central and north central Colorado from Routt and Jackson counties down to Park and Chaffee counties. SPIs have quickly dropped passed the abnormally dry range and into the D1 and D2 range. Look for some widespread degradations for this area.

Streamflows continue to drop, especially in the Colorado River Headwaters. The number of station in below to much below normal flows continues to increase. The low streamflow and increased demand is hurting reservoirs in the IMW.

The precipitation outlook for this week and the next couple of weeks is showing some pretty good chances of precipitation through much of Arizona, New Mexico and southern Colorado. The fear now is too much rain on the burn areas.

Recommendations

Improvements in Baca, Prowers, and eastern Kiowa are being proposed by the USDM Author this week due to the lack of indicators showing D3 after the past few weeks of precip. In NM, D4 is being removed.

Degradations:

Pueblo, Crowley, Otero, western Kiowa, Bent and northern Las Animas: D4 introduction into these counties. Basing this on D4 level SPIs on numerous short and long time scales and impacts in the valley. Grasses aren't growing, livestock are being liquidated. Streamflow at numerous gauges in the Ark are showing very low flows. The gages that are showing better flows are unrepresentative of actual river conditions in the Ark and tributaries.

Gunnison County: D2 expansion to cover the northern portion of the county. Streamflows are extremely low and SPIs on short time scale out to 120-days are showing D2 dryness.

Routt, Jackson, Grand, Gilpin, Park, Summit counties, dropping into Larimer and Carbon (WY): D1 is being filled in for this entire area. While high elevations snowpack was keeping this area from being degraded, mid-level and valley snowpack was very low. With the recent short term dryness (90-days), it appears it's time for D1. Streamflows have come down and most gages are now showing much below to record low flows on the Colorado River and the headwaters tributaries.

Northern Front Range of Colorado: D0 is being expanded in Larimer, Boulder, The Metro area and into Adams and Arapaho counties. While storms

have blown through this area, the Front Range is being missed by beneficial precipitation and abnormally conditions have developed over the short term.

Sweetwater County, WY: D0 expansion is being recommended by Wyoming.

Areas considered, but decided not to touch:

Expansion of D3 in Gunnison County. Streamflows are terrible, D3 level, but precip is still only a D2.

We received some great impact information from Delta, Montrose and Ouray counties that could expand the D4, but precipitation indicators don't justify the D4 so status quo for now. We will keep a close eye on this area.

D2 expansion into Moffat County from Utah. Not many indicators to go by here, but what is there point to the current D1. If this area remains dry, look for degradations.

D3 introduction and D2 expansion in Elbert and Lincoln Counties. While rangeland conditions are reported to be very bad, precipitation indicators, on the ground and radar, are holding at D2. We currently lack the "convergence of evidence" that would give us D3 in this area. We will continue monitoring this area.