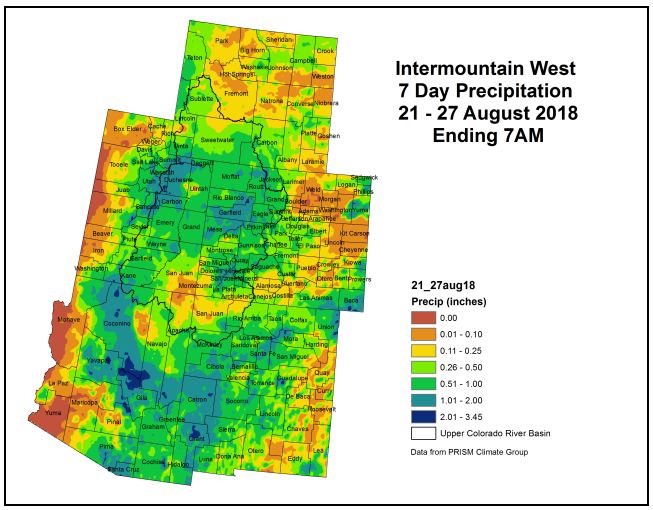
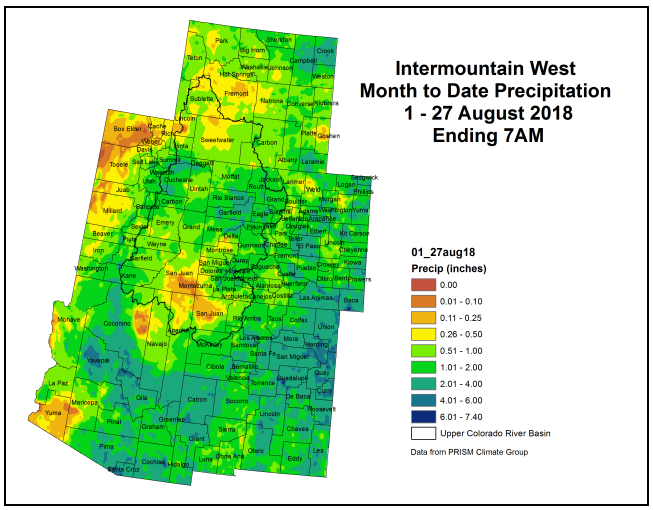
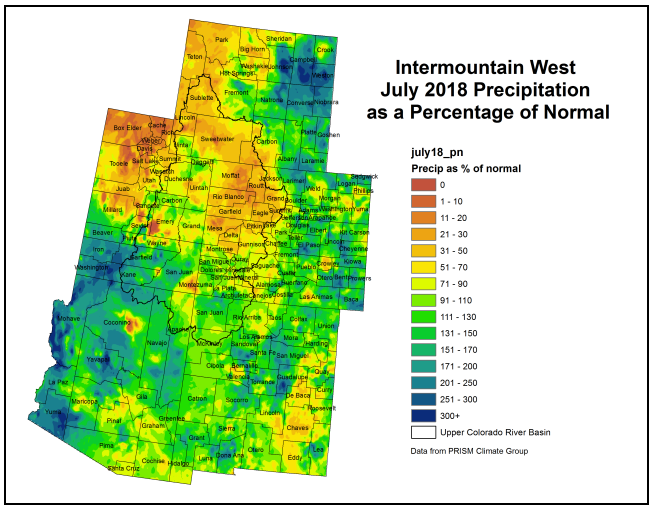
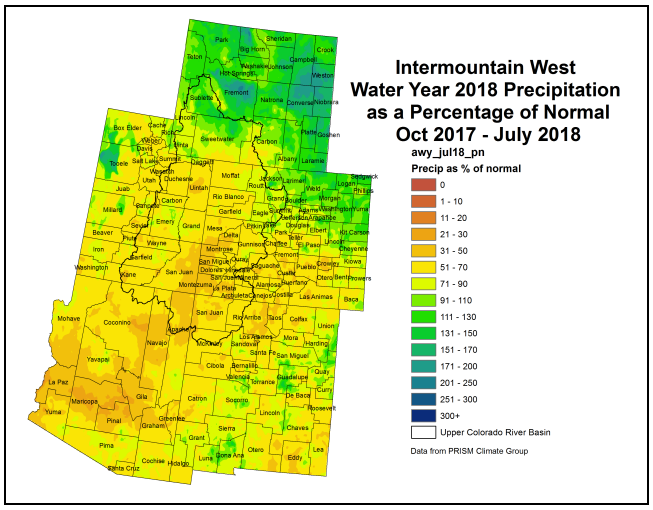
NIDIS Intermountain West
Drought Early Warning System
August 28, 2018

Precipitation



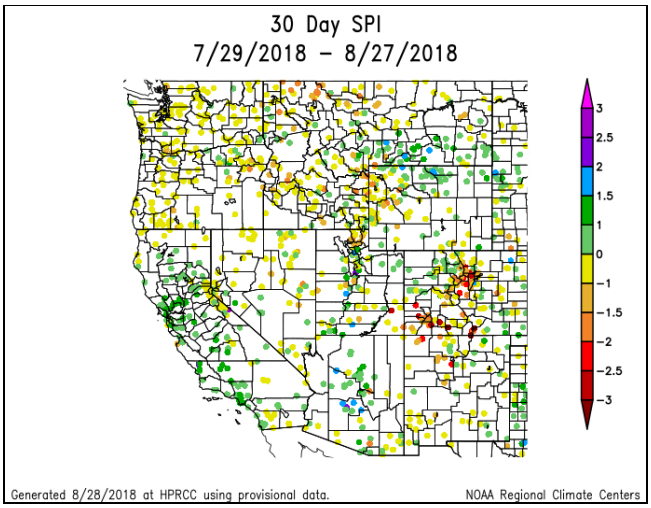


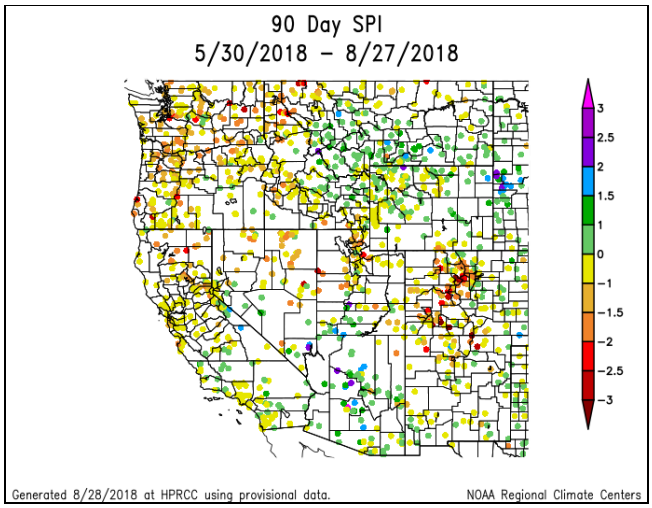


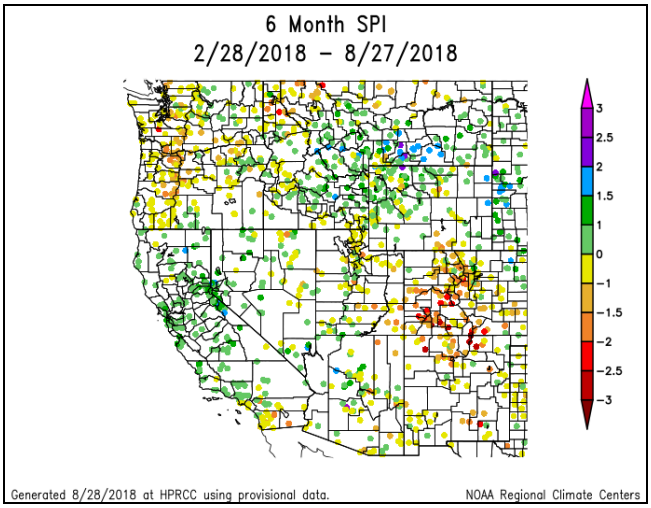


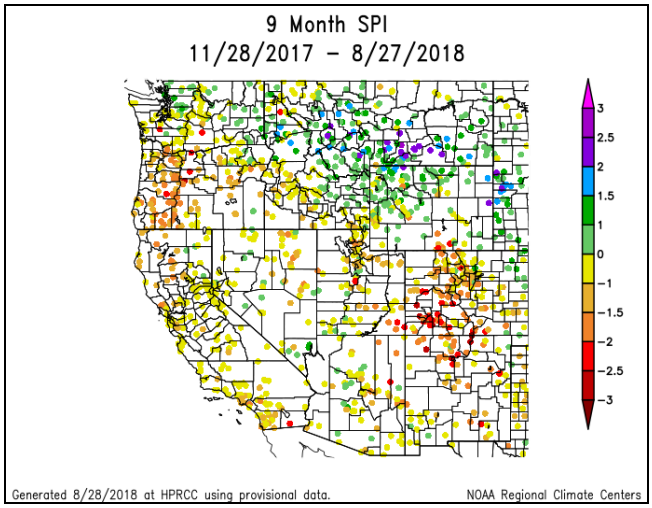
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index



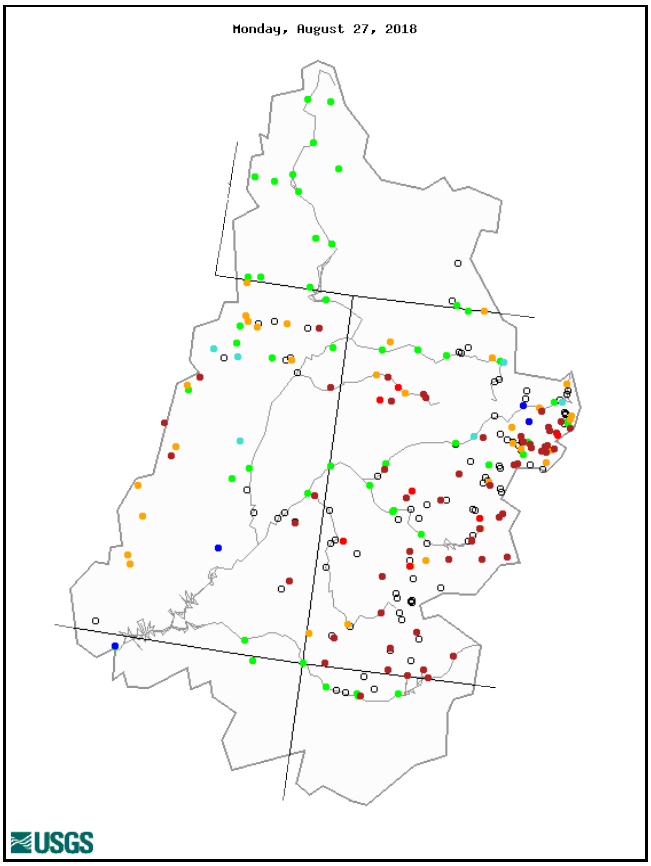


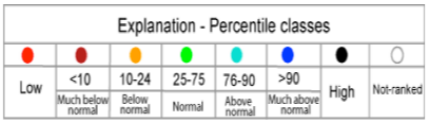


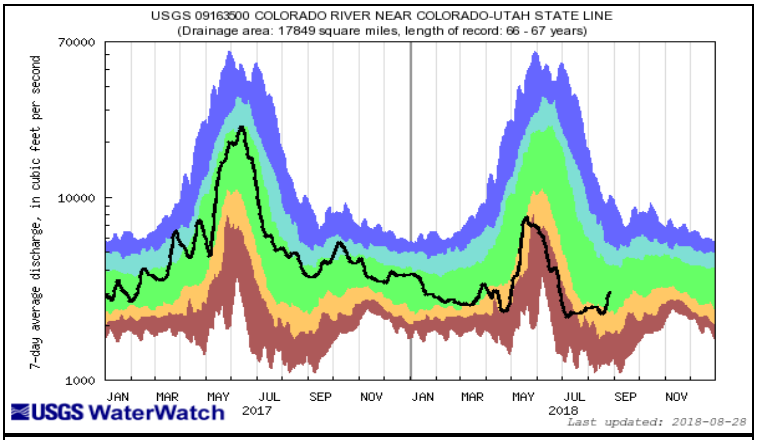


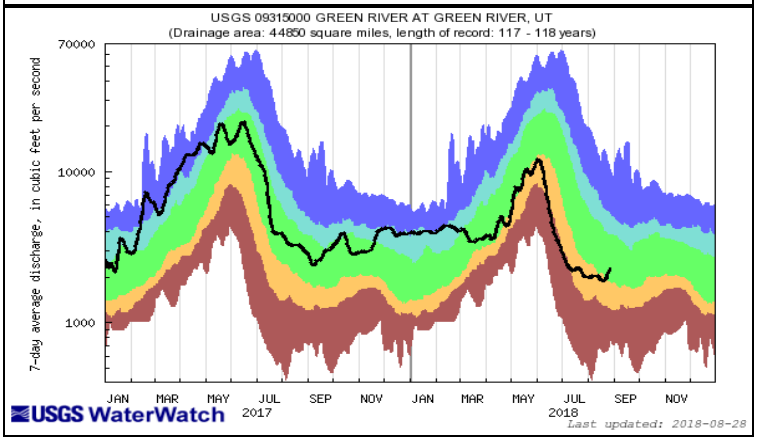
Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions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

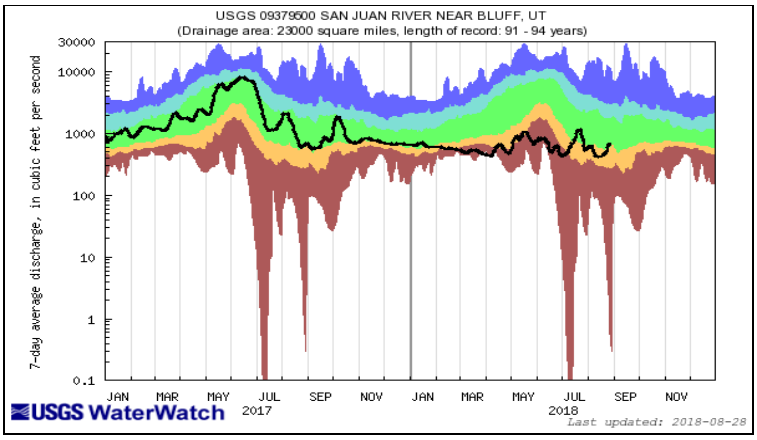
Streamflow


Monday, August 27, 2018
USGS


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

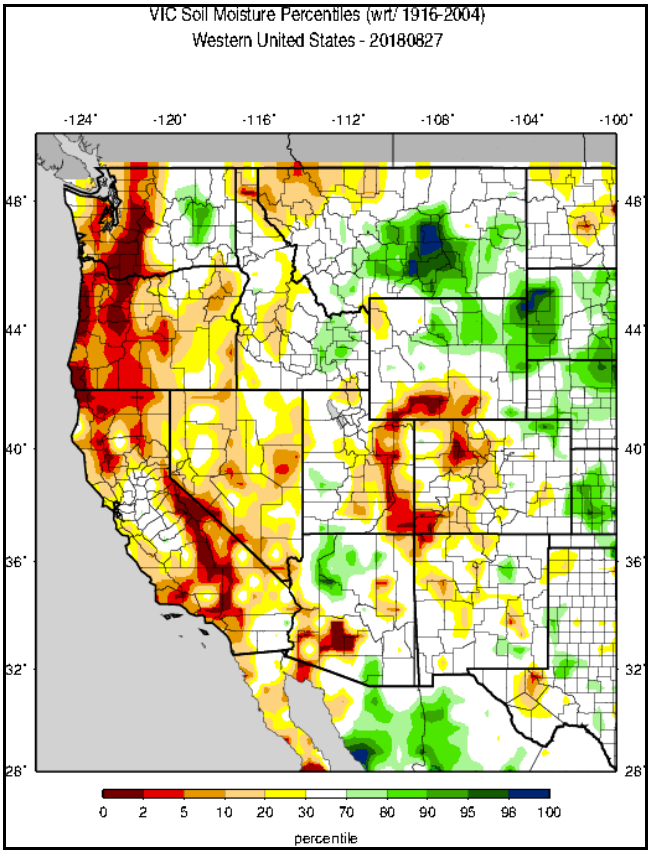

USGS 09163500 COLORADO RIVER NEAR COLORADO-UTAH STATE LINE
(Drainage area: 17849 square miles, length of record: 66 - 67 years)
7-day average discharge, in cubic feet per second
70000
10000
1000
JAN MAR MAY JUL SEP NOV JAN MAR MAY JUL SEP NOV
2017
2018
USGS WaterWatch
Last updated: 2018-08-28

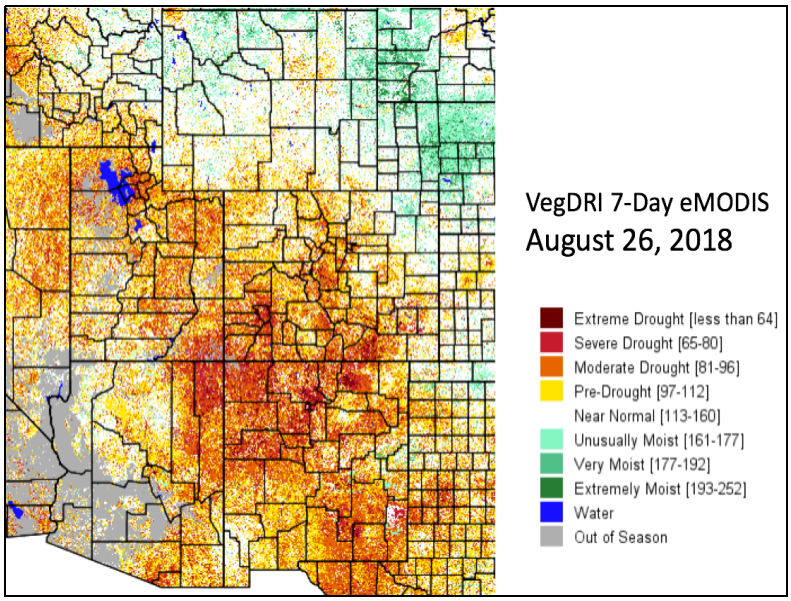

USGS 09315000 GREEN RIVER AT GREEN RIVER, UT
(Drainage area: 44850 square miles, length of record: 117 - 118 years)
7-day average discharge, in cubic feet per second
70000
10000
1000
JAN MAR MAY JUL SEP NOV JAN MAR MAY JUL SEP NOV
2017
2018
USGS WaterWatch
Last updated: 2018-08-28



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

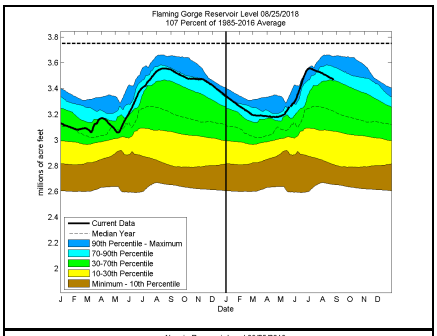


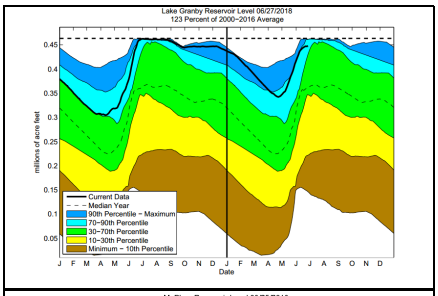


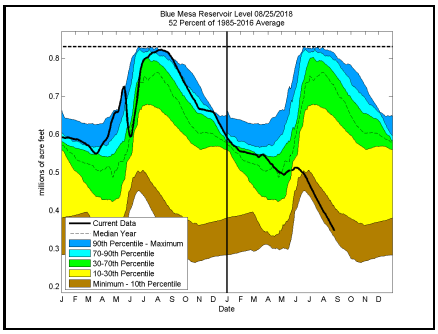
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

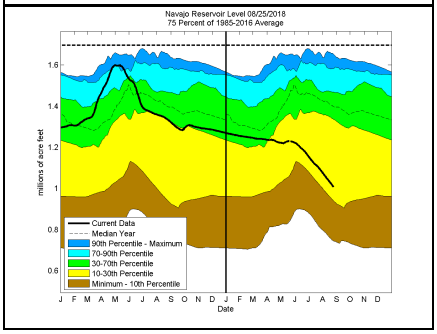
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir

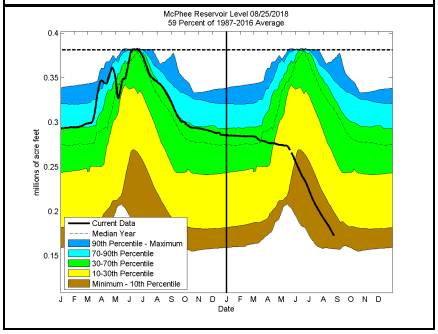
levels observed over the past 30 years. The data are obtained from the Bureau of Reclamation. Some of the reservoir percentiles don't line up at the new year due to differences in reservoir levels at the beginning of 1985 and the end of 2014. Dead storage has been subtracted. Note: Lake Granby data are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

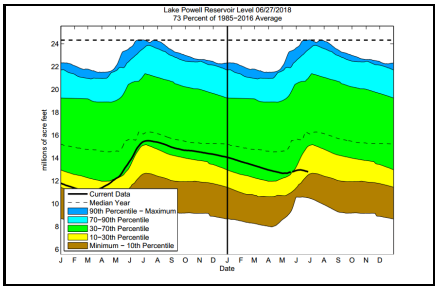




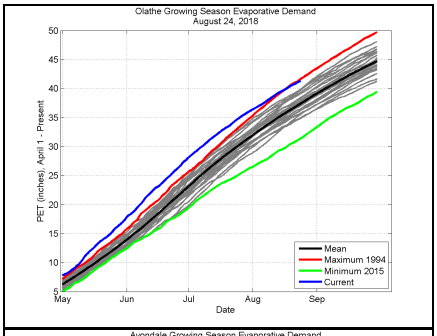


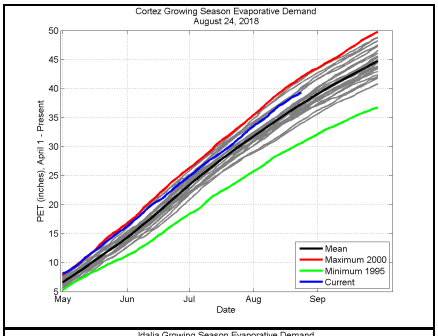


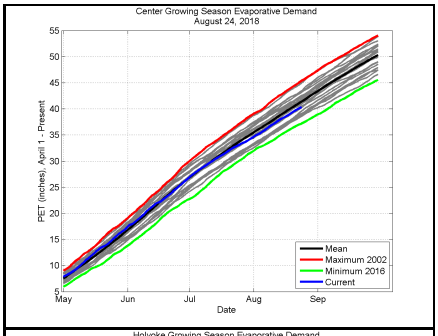


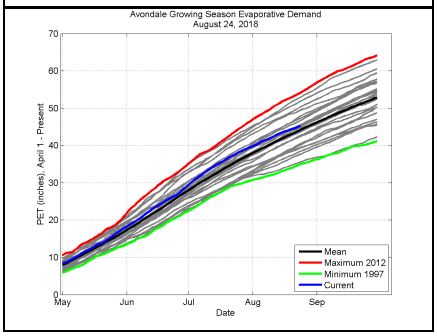


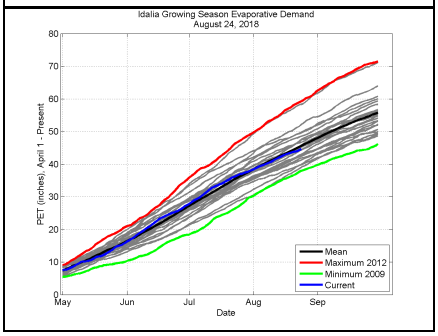
Evaporative Demand

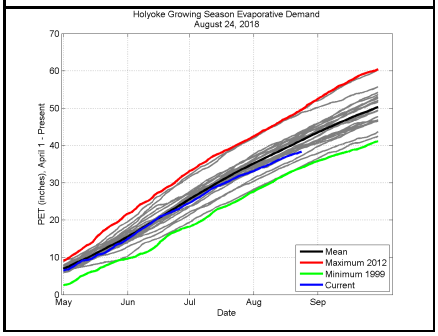


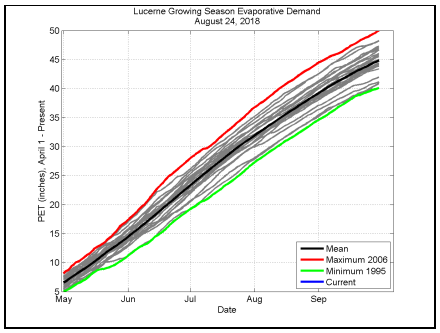




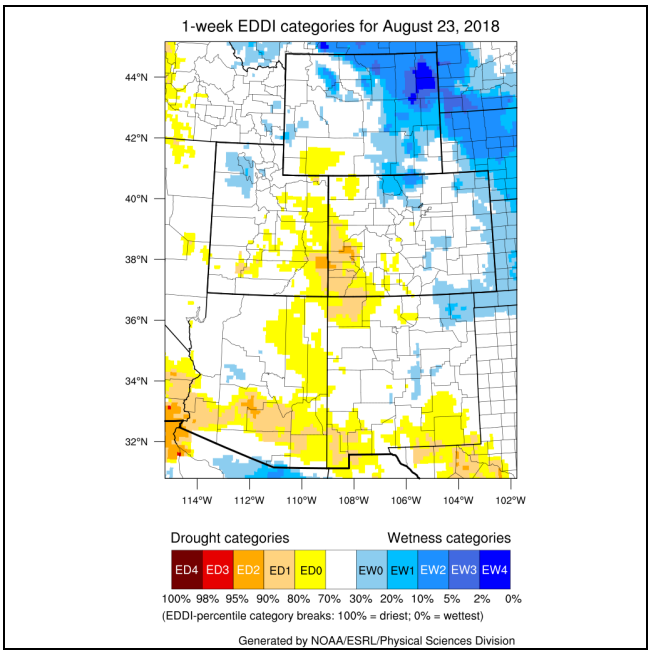


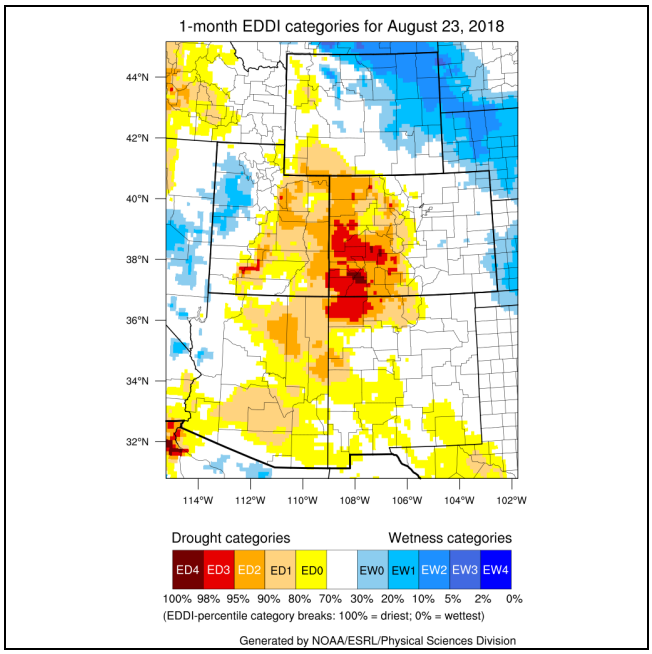


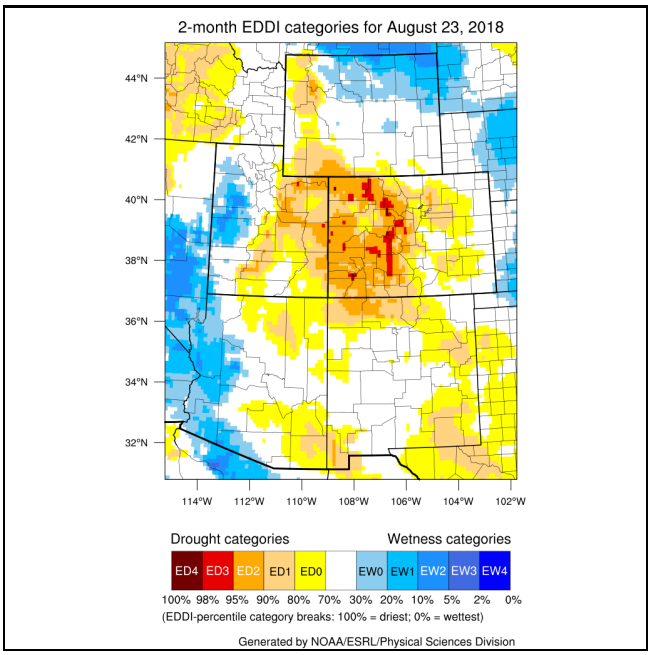


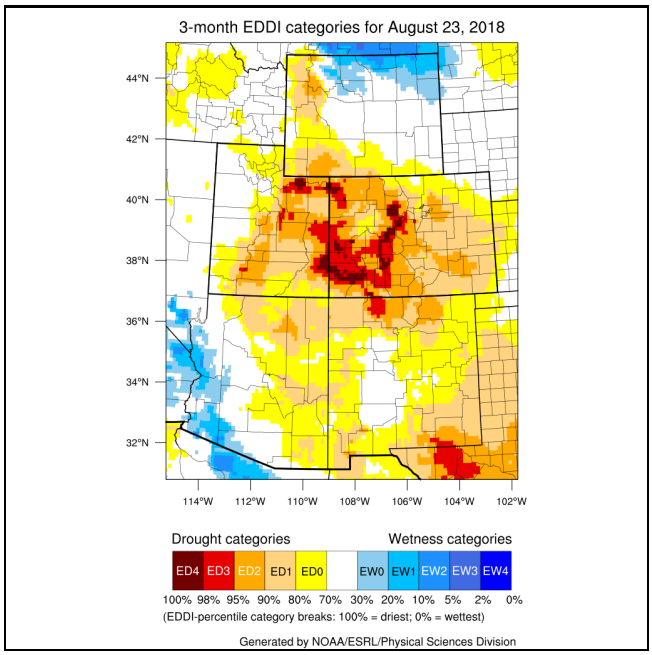


The above images are of reference evapotranspiration (ET) from CoAgMET sites across Colorado. Reference ET assumes the amount of water that will evaporate from a well-irrigated crop. Higher ET rates occur during hot, dry, and windy conditions. Lower ET rates are more desirable for crops. See a map of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





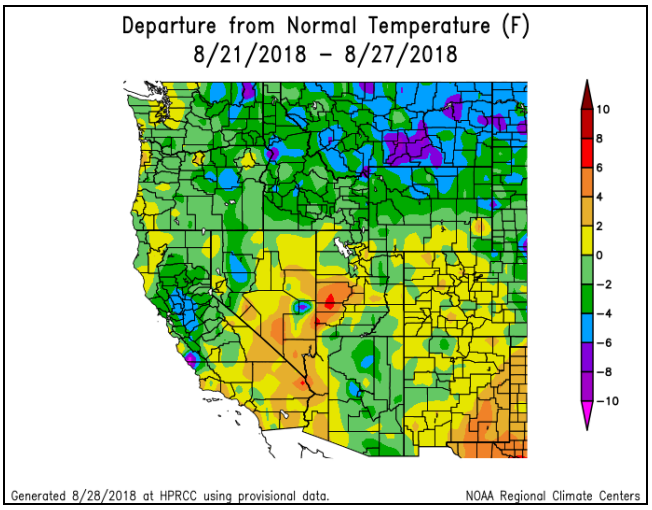


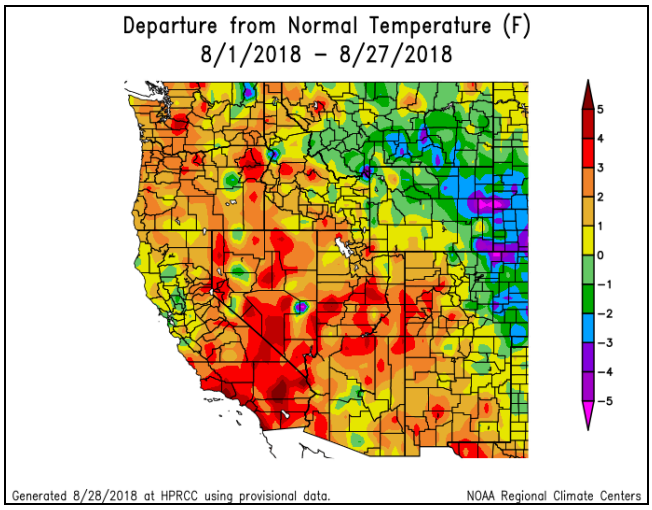


The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

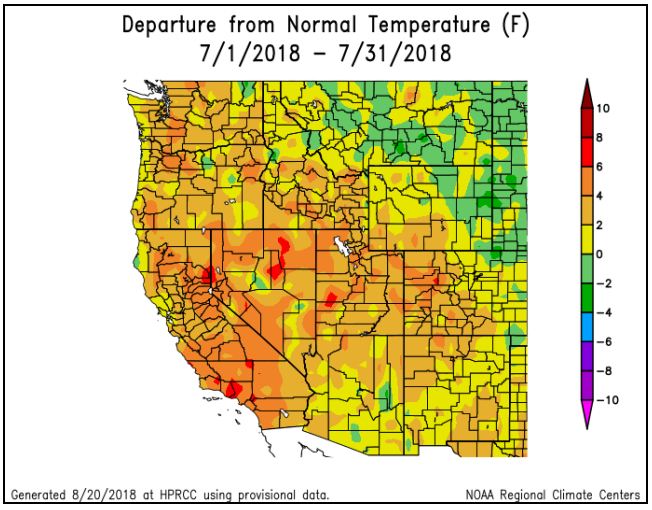
Scheme. Data used to generate these maps come from the North American Land Data Assimilation System Phase-2 (NLDAS-2) project, which assimilates observations of temperature, wind speed, radiation, and vapor pressure deficit. The date indicates the last day of the period of record, and the week number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

Temperature

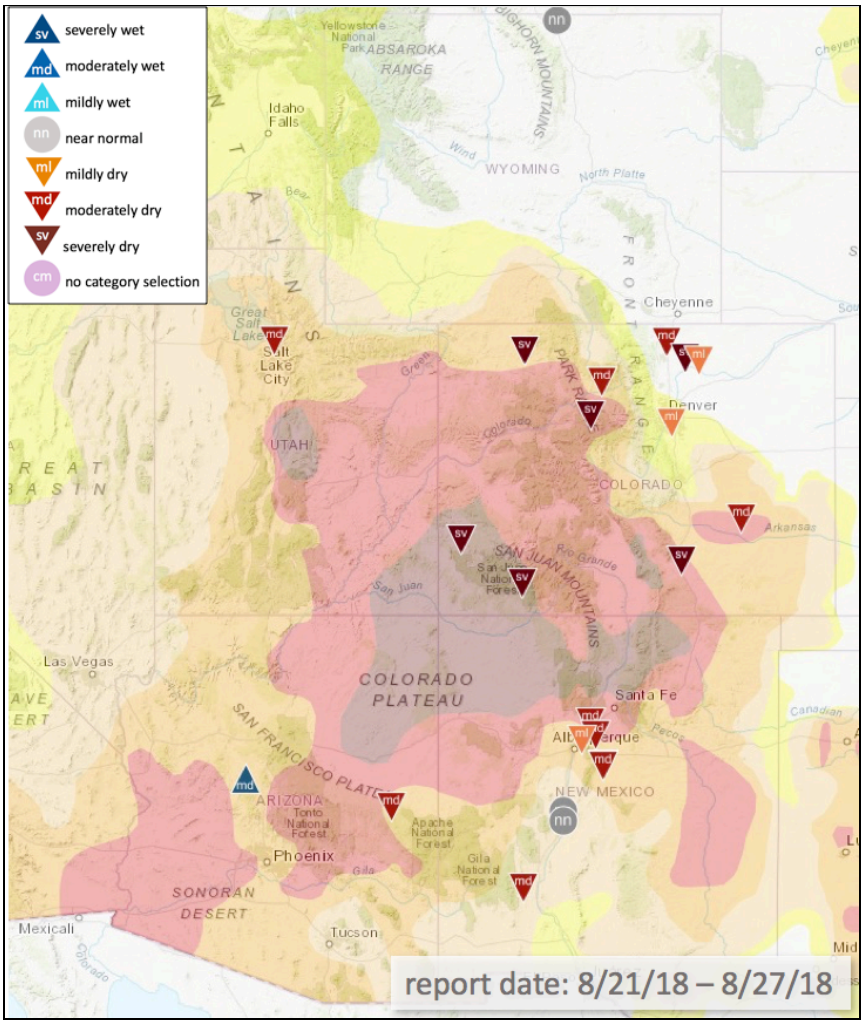




All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



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.

Western CO

Major reservoir operations on the west slope (including the Aspinall unit for example) are operating to meet the requirements for minimum base flows to protect wildlife and the environment. Releases are being made from large reservoirs to maintain these base flows; this is expected to continue, so reservoirs will continue to drop. Smaller projects throughout the west slope, typically most of the irrigation pools, are mostly out of water, so their releases are very minimal at this time. - Burea of Reclamation

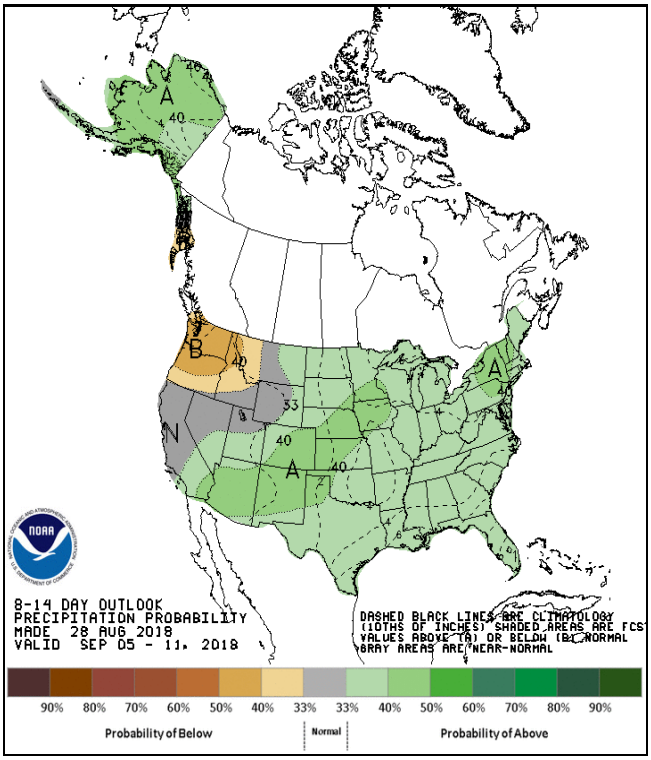
The municipalities throughout the Grand Mesa held a meeting where two of them stated they are in dire need of water for wastewater treatment. They are preparing for the possibility of running out of water this winter. The municipalities stated that current conditions are worse than they were in 2002 and are the worst they've ever seen since the reservoirs have been in operation. - Upper Gunnison Water Conservancy District

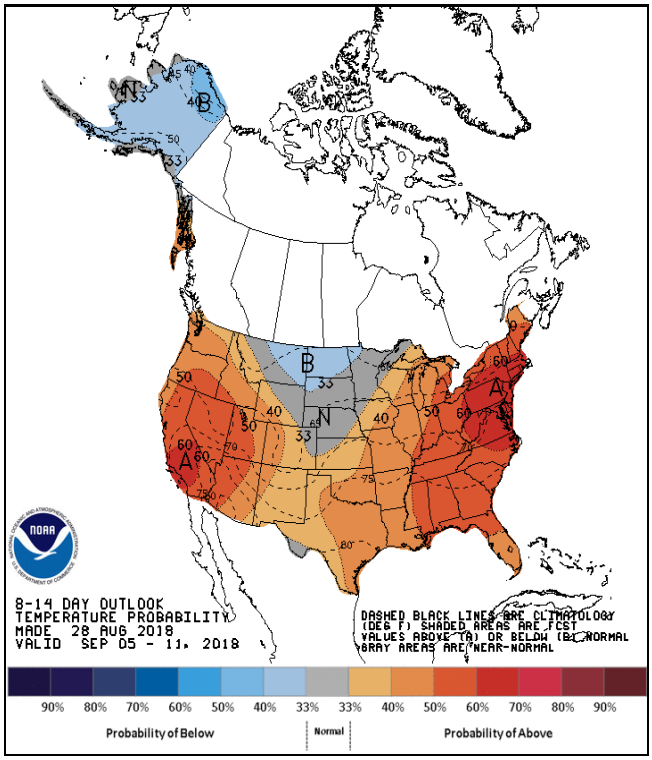
NWS Grand Junction reports than mandatory water restrictions are being imposed for Grand Junction and other nearby municipalities. Restrictions will start by allowing only three days/week of watering, and are expected to advance to only two days some time in September.

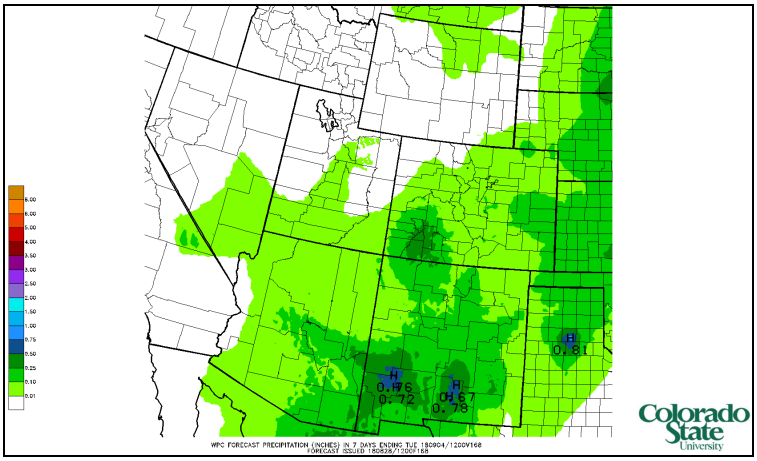
Utah

Due to the activation of the statewide drought response plan, several different task forces will be meeting in early September to gather information and hopefully address needs - UT Division of Water Resources

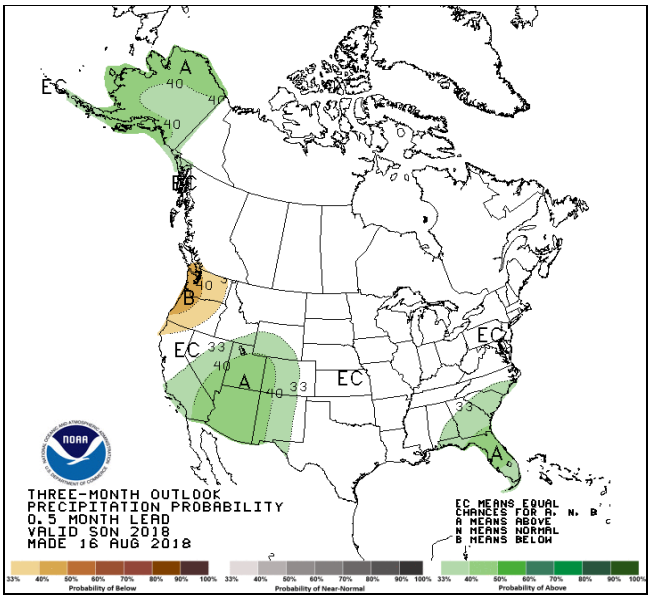
Outlook

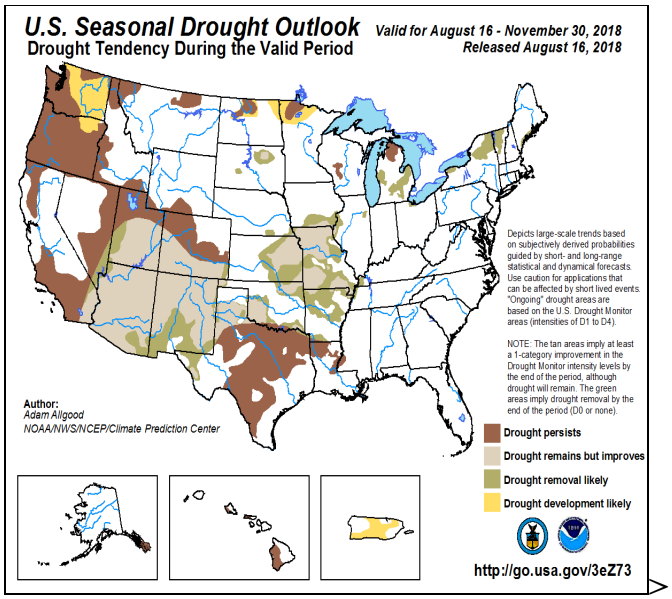




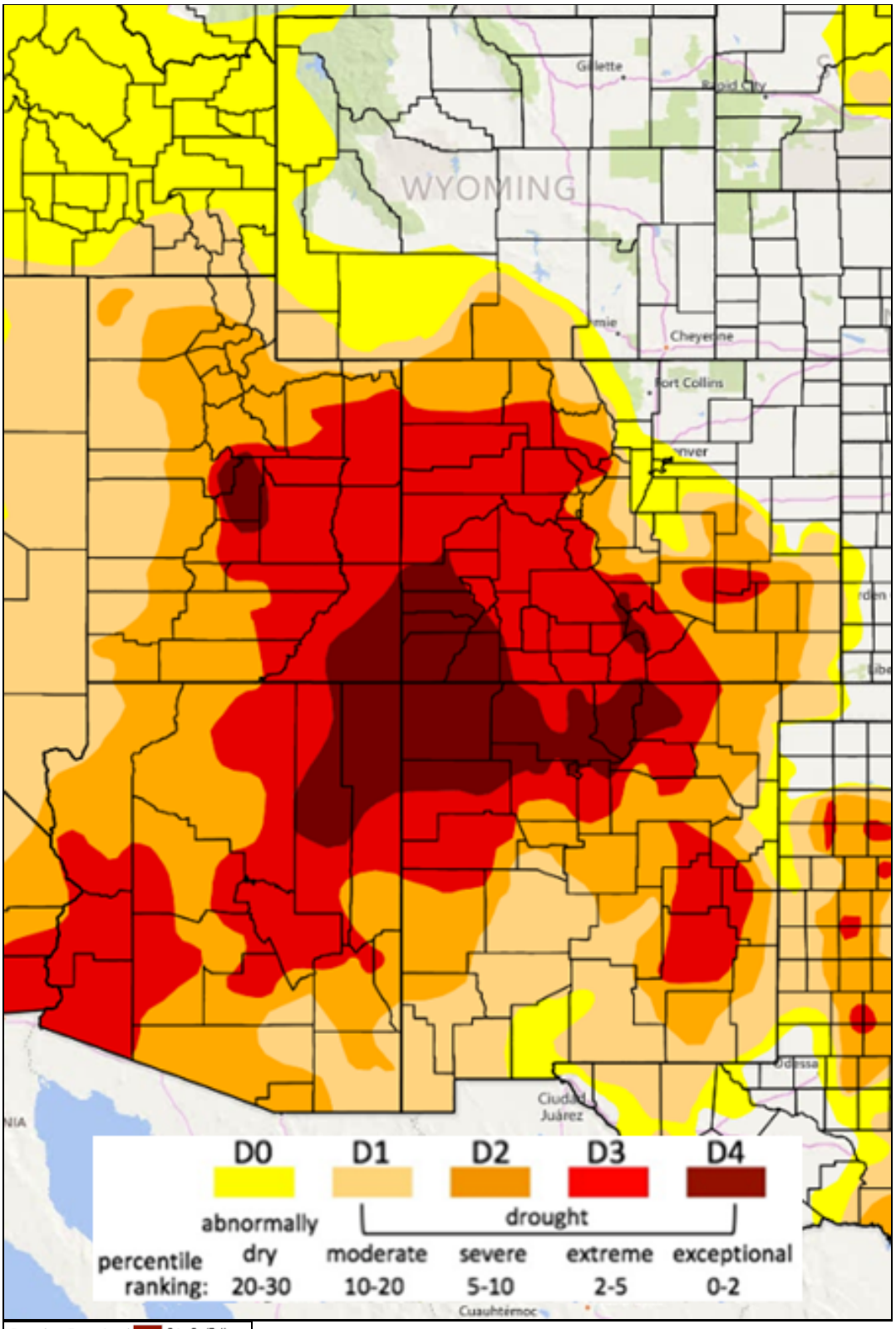


The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate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



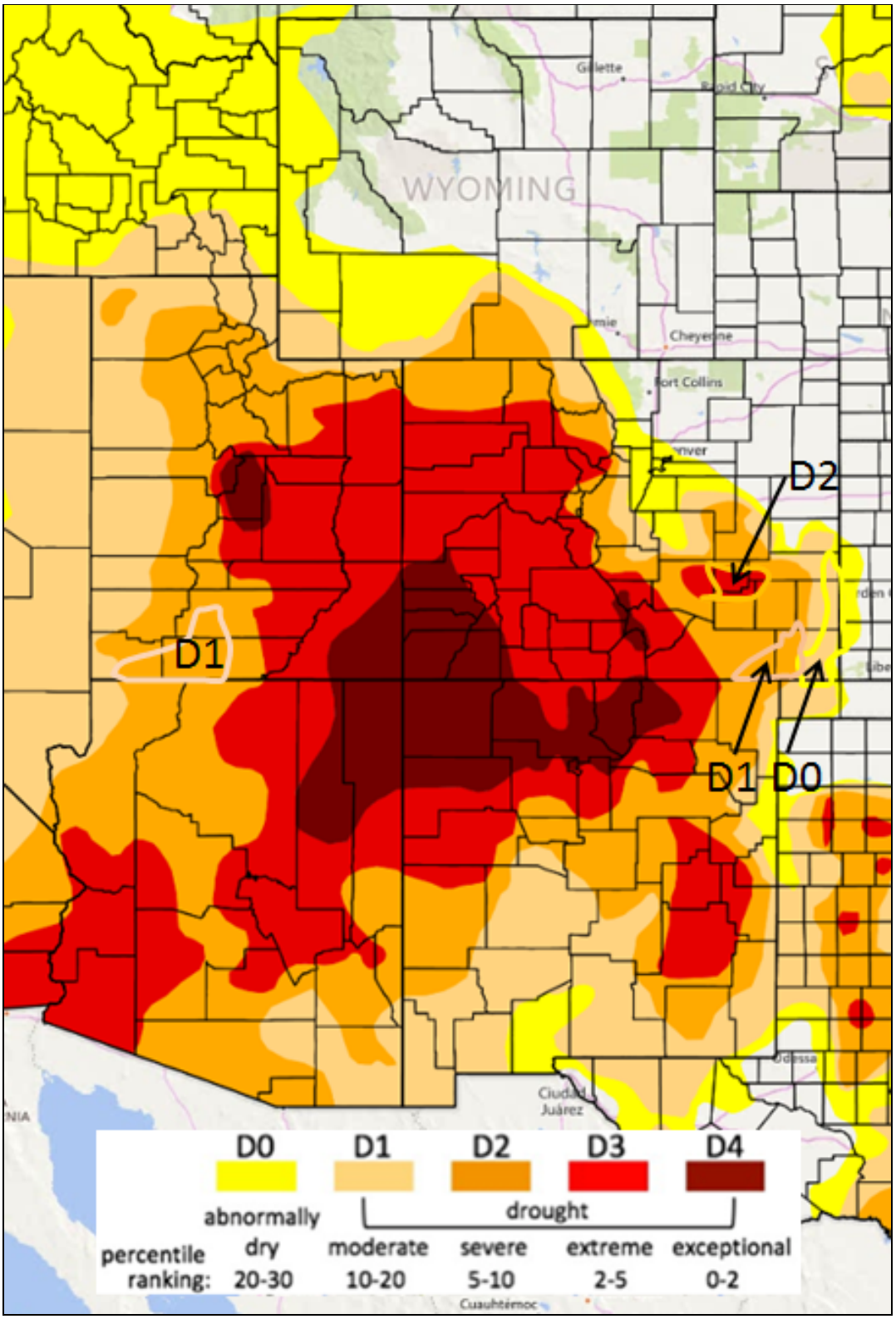


Summary and Recommendations



Drought – Exceptional	0 to 2 (D4)
Drought – Extreme	2 to 5 (D3)
Drought – Severe	5 to 10 (D2)
Drought – Moderate	10 to 20 (D1)
Abnormally Dry	20 to 30 (D0)

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 28, 2018

The last seven days have brought a taste of fall to parts of the Intermountain West, and a heavy dose of smoke to much of the Intermountain West. Precipitation totals were decent in the Colorado River Basin over the last seven days with much of the region receiving 0.50-2.00" of moisture. These

rains acted as life support for eastern Utah and western Colorado in what has been a brutally hot and dry summer. Some spots of east of the divide were fortunate enough to pick up some rain from a thunderstorm or two, but conditions were generally drier east of the divide.

A cool front dropping out of the northwest brought temperatures down east of the Continental Divide early last week. 7-day average temperatures were below average east of the divide and above average west of the divide. For the summer as a whole, the Intermountain West has been hotter than normal. That, in combination with dry conditions, has kept evaporative demand high. The Evaporative Demand Drought Index is showing the majority of the Intermountain West at above 70th percentile reference ET for the last three months, and showing record high conditions for chunks of southwest Colorado and eastern Utah. This, in combination with low winter snowpack, are the perfect ingredients for rapid drawdowns in water supply.

Streamflows this summer have been low across much of the Intermountain West, and reservoir supplies have generally trended downward with respect to average. Colorado statewide reservoir storage has dropped from 116% of normal at this time last year to 86% of normal now. Storage is down everywhere, but much better to the north than to the south. Major reservoirs such as McPhee and Blue Mesa are still releasing despite being at below 10th percentile storage for this time of year. This must be done in order to meet fish-related environmental conservation regulations.

The coming week looks to be mostly warm and dry across the Intermountain West with some heavier rainfall totals possible for southern New Mexico. The 8-14 day time frame shows some hope of the area remoistening. Longer term, the forecast for a developing El Nino is generally a positive thing across the four corners states, but could lead to some lower snow totals in the northern Rockies this winter.

Recommendations:

UCRB: It is recommended that D2 be improved to D1 for eastern Washington County, and western Kane and Garfield Counties in Utah. This area received more consistent than normal moisture from the start of July onward. Long term SPIs are now in the D1-Dnada range.

No further degradations are recommended at this time, but with water supply rapidly waning and impact reports streaming in saying "worse than 2002" there may be more D4 imminent for the west slopes of Colorado and for eastern Utah.

Eastern CO: It is recommended that D3 be improved to D2 in Crowley County and northern Otero County. While there were a few isolated thunderstorms in the area of the past week, it was not a remarkable week for moisture. However, neither short nor long-term SPIs still depict D3

conditions

It is recommended that D2 be improved to D1 in southeast Las Animas County and western Baca County. This area did receive some heavier rain over the last week (from 0.50 up to 2.00").

It is recommended that D1 be improved to D0 in eastern Baca and Prowers Counties. This area also received 0.50-2.00" of moisture over the past week. Even water year to date SPIs are now D0 at worst.