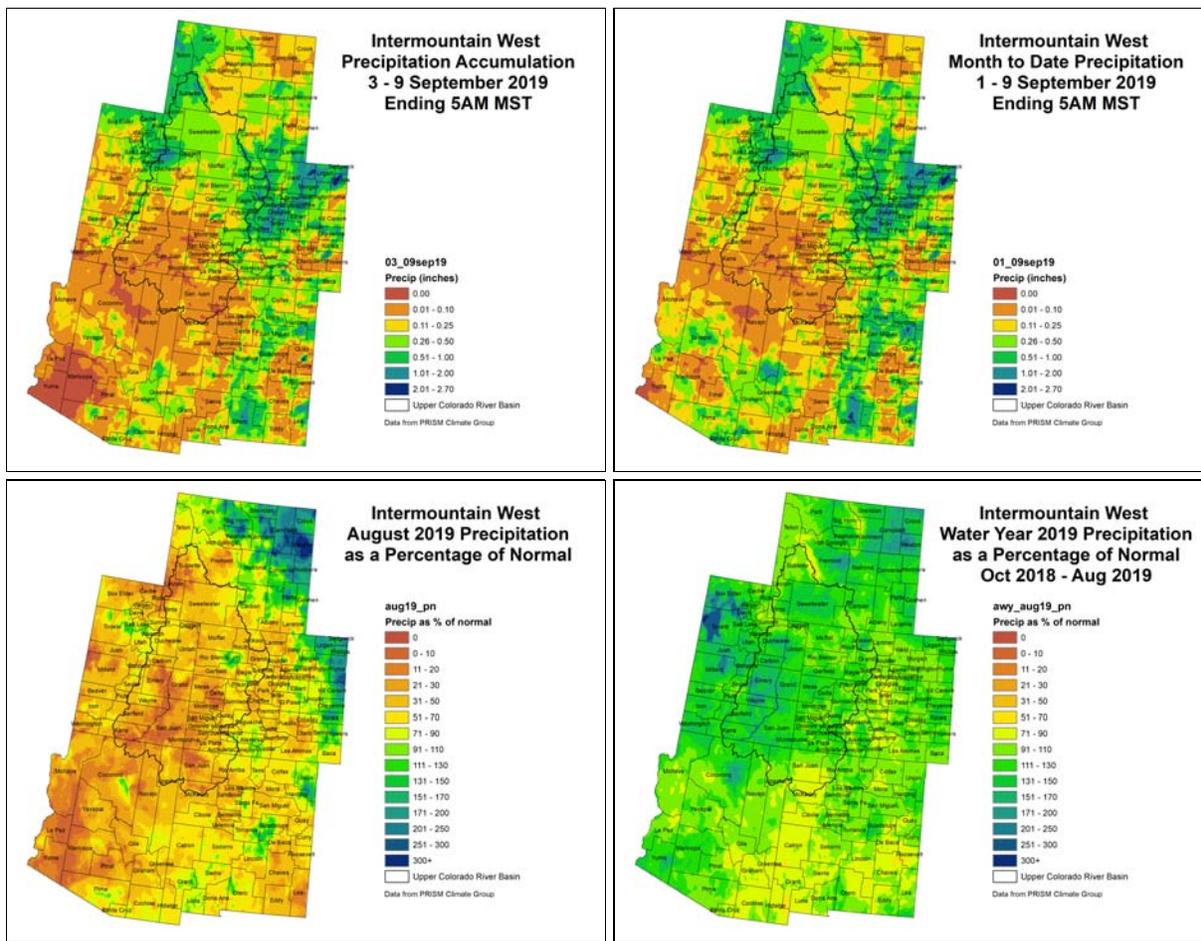


NIDIS Intermountain West
Drought Early Warning System
September 10, 2019

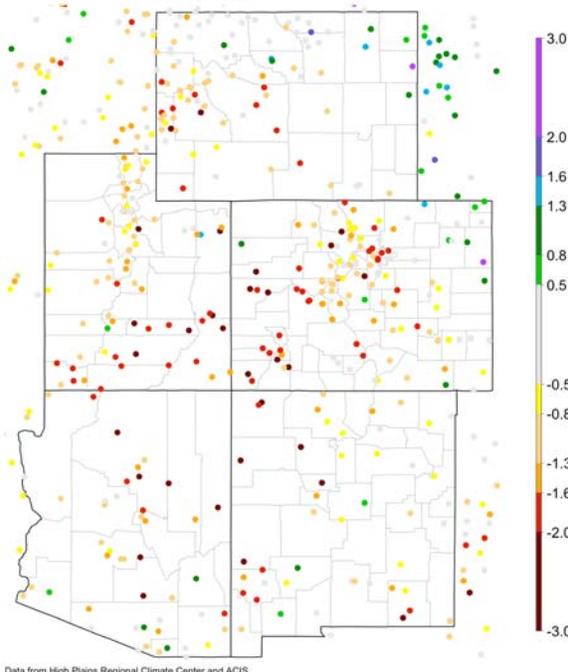
Precipitation



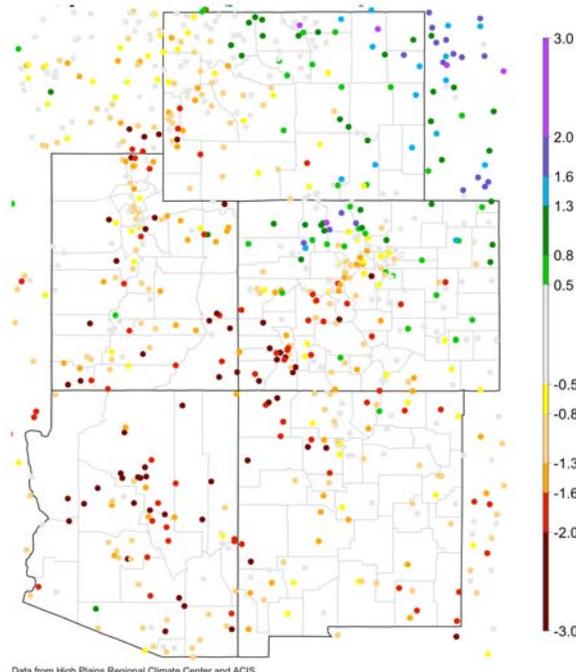
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index

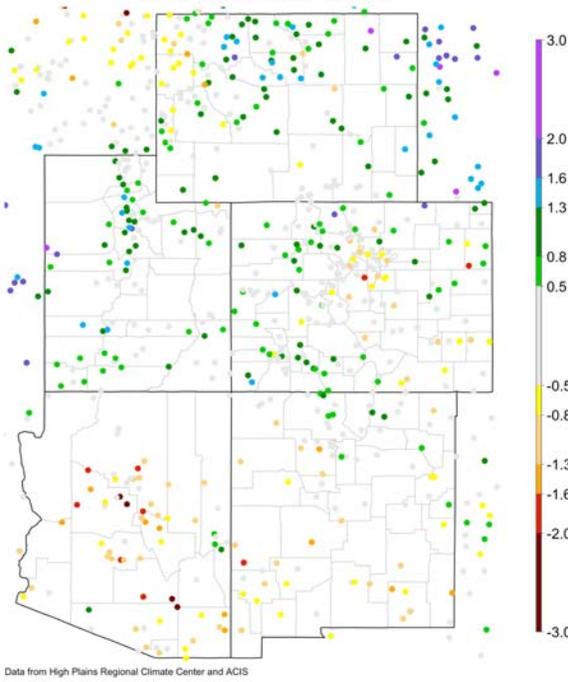
30-day SPI: 8/10/2019 - 9/8/2019



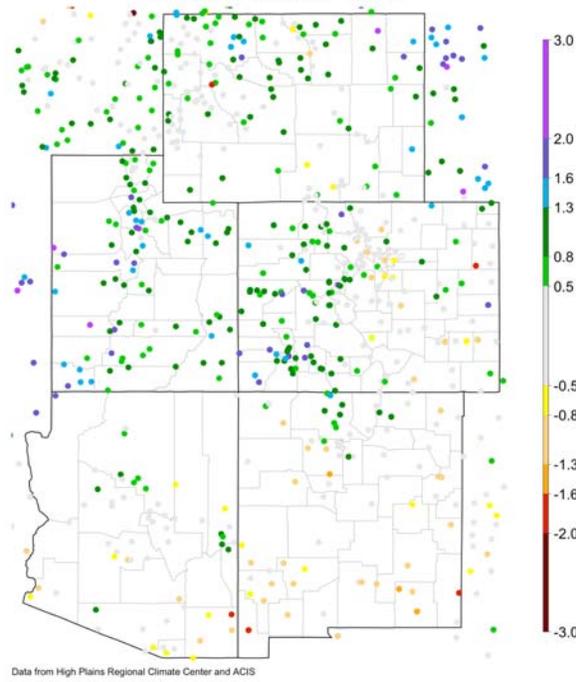
90-day SPI: 6/11/2019 - 9/8/2019



6-month SPI: 3/9/2019 - 9/8/2019



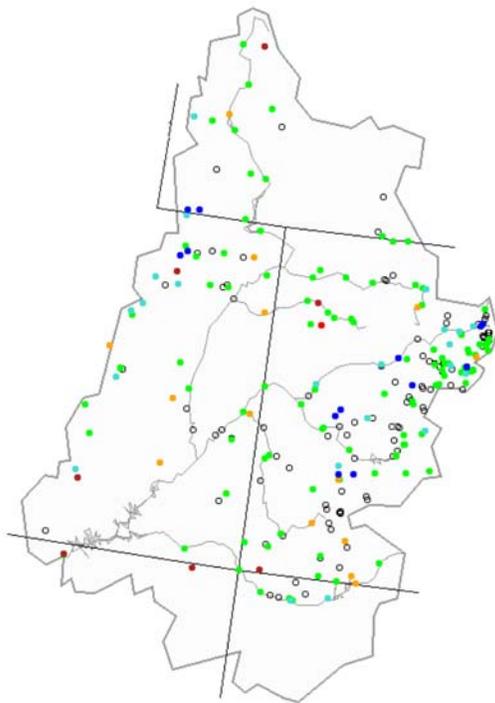
9-month SPI: 12/9/2018 - 9/8/2019



Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. Colors match the different drought categories with the U.S. Drought Monitor. 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.

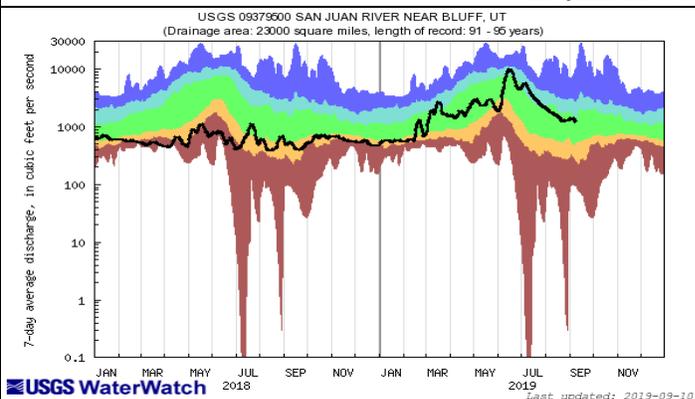
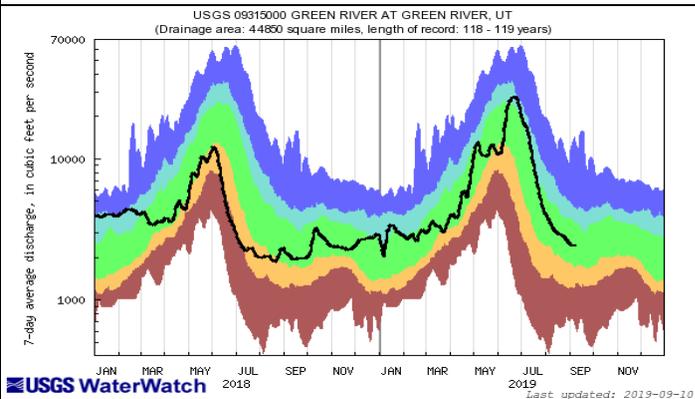
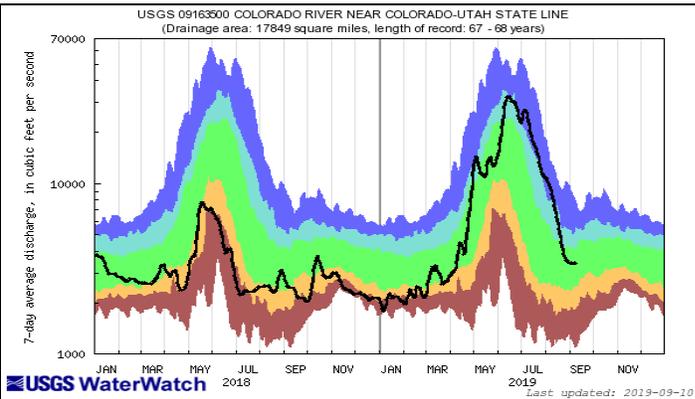
Streamflow

Monday, September 09, 2019



Explanation - Percentile classes

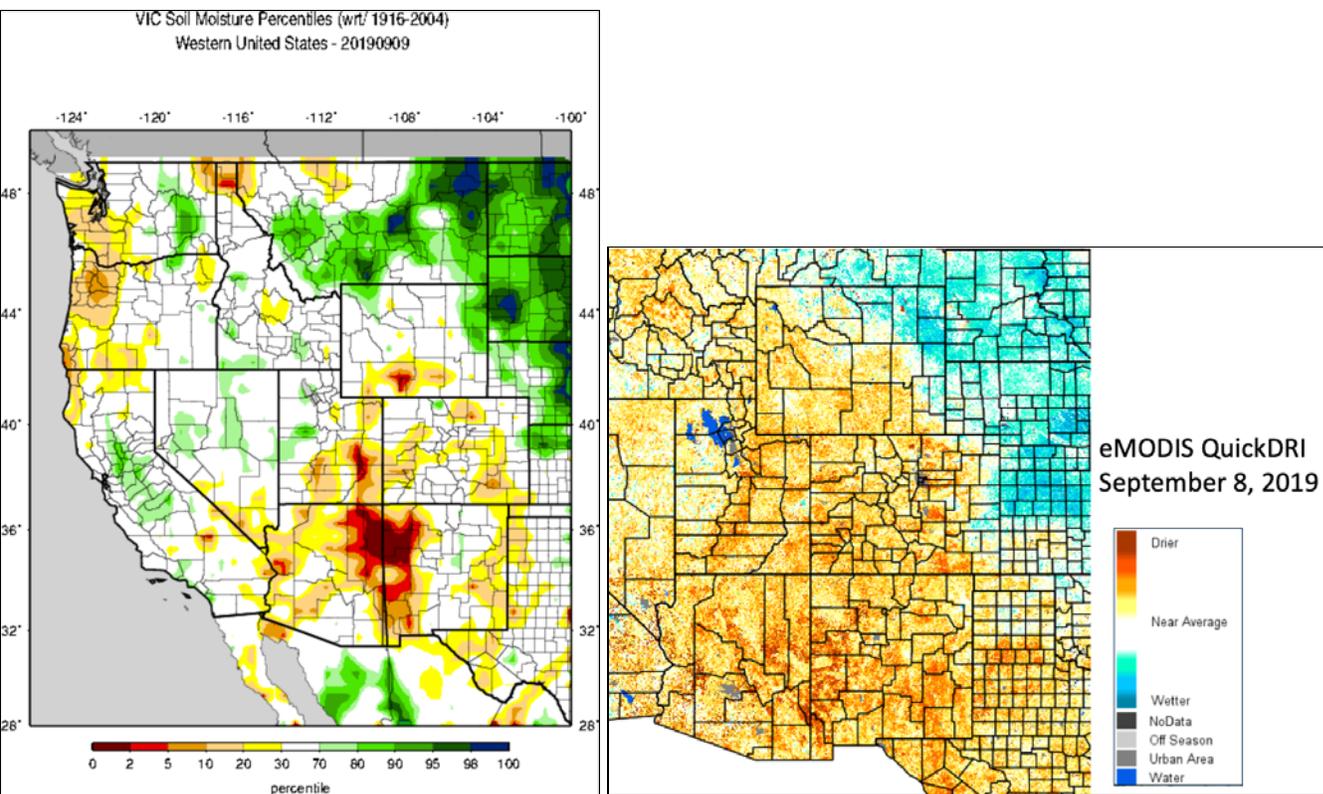
●	●	●	●	●	●	○
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	Not-ranked



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

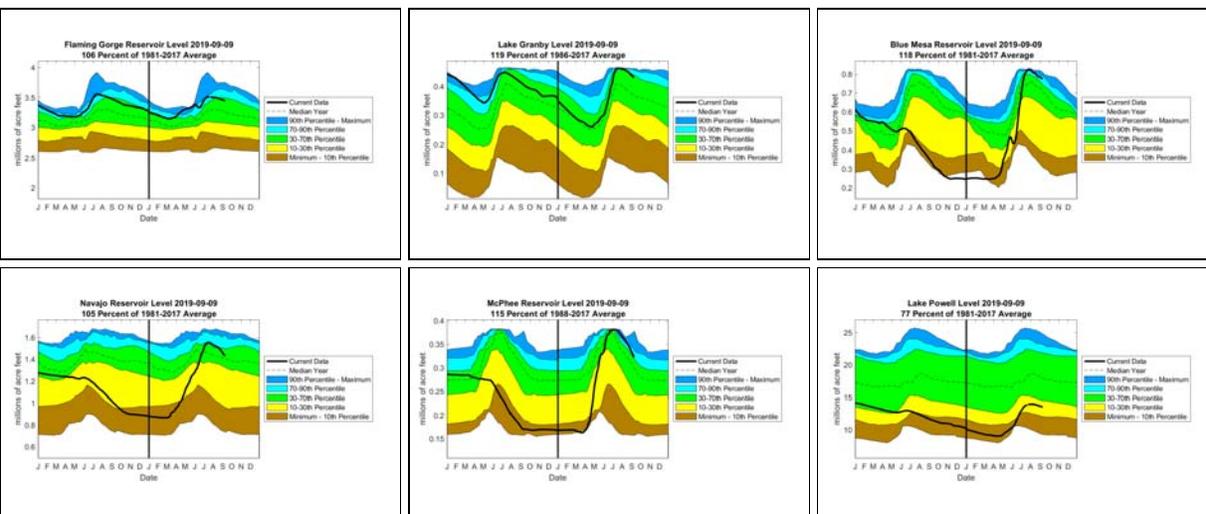
River at the CO-UT state line; the Green River, UT; and the San Juan River near Bluff, UT. All streamflow data provided by United States Geological Survey.

Surface Water

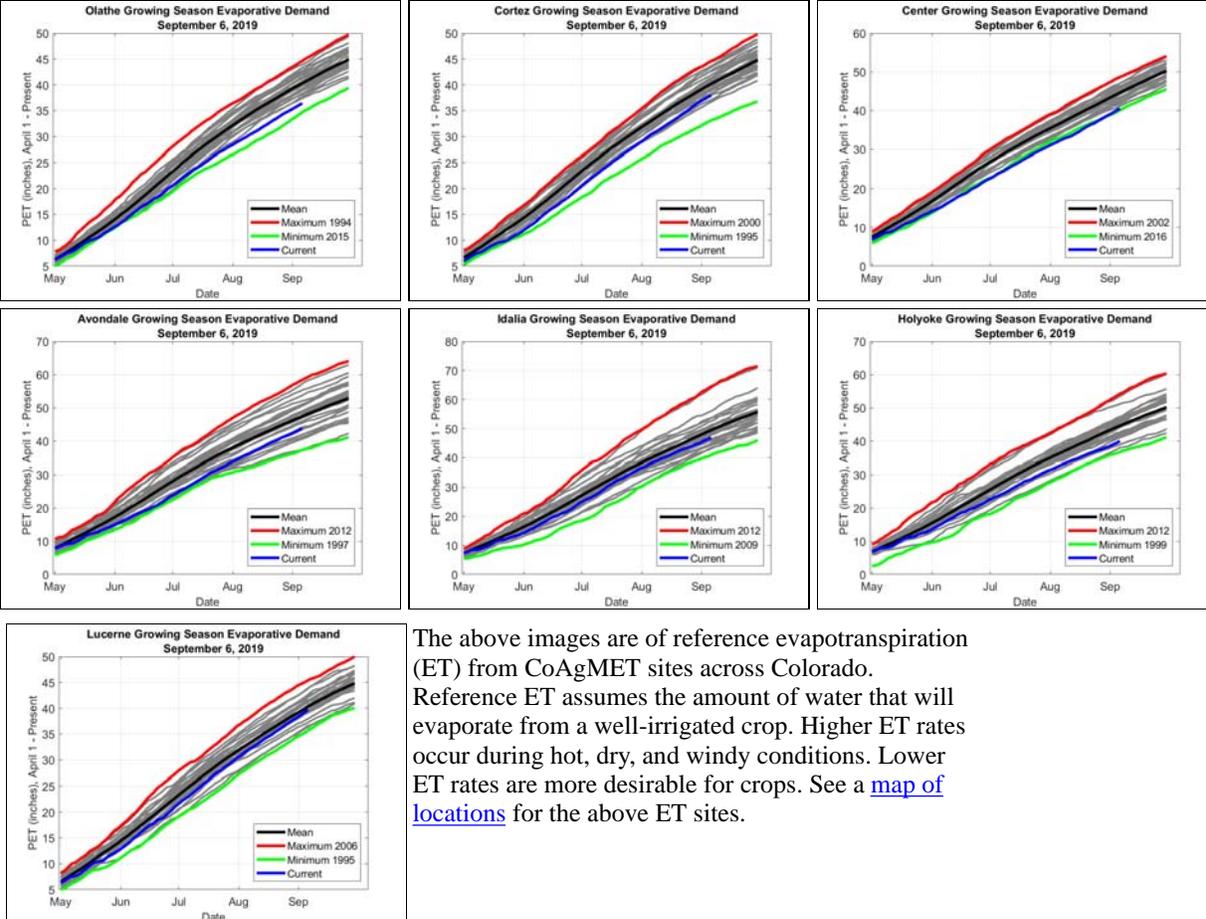


The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

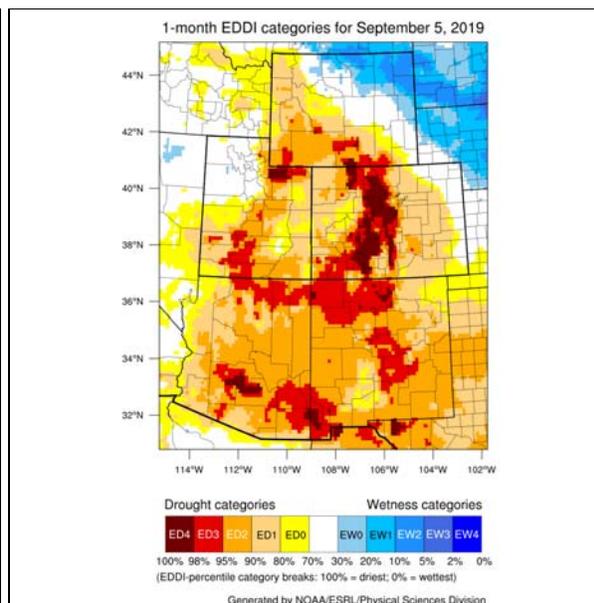
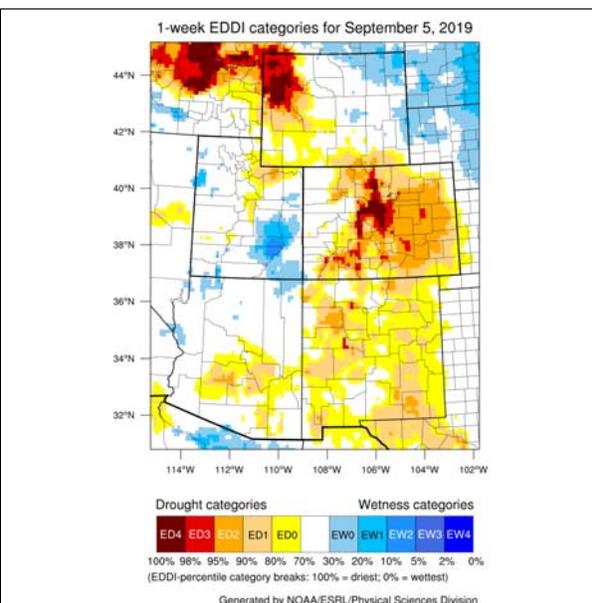
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir levels observed over the past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



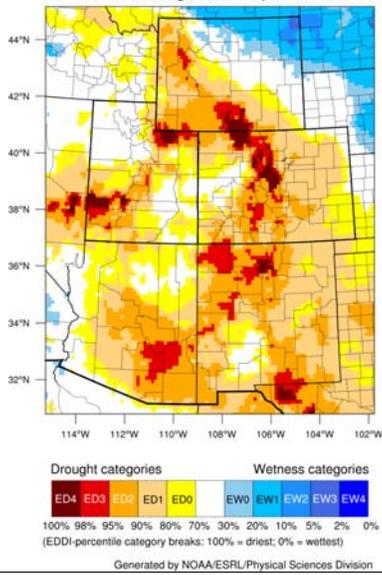
Evaporative Demand



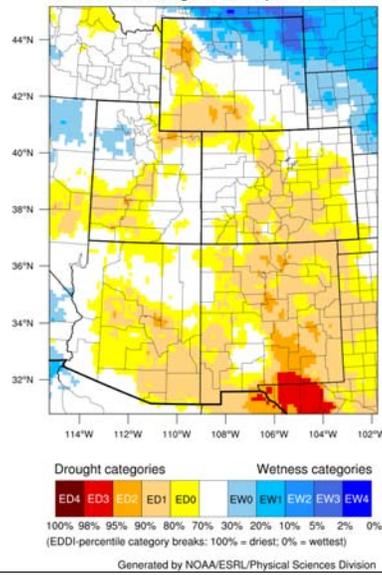
The above images are of reference evapotranspiration (ET) from CoAgMET sites across Colorado. Reference ET assumes the amount of water that will evaporate from a well-irrigated crop. Higher ET rates occur during hot, dry, and windy conditions. Lower ET rates are more desirable for crops. See a [map of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



2-month EDDI categories for September 5, 2019



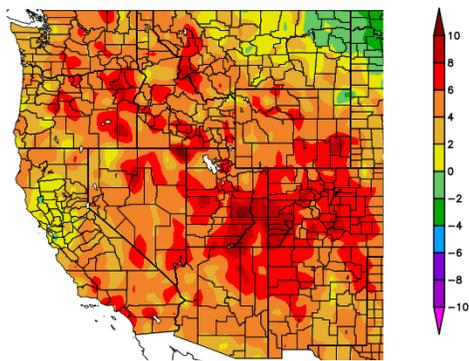
3-month EDDI categories for September 5, 2019



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.

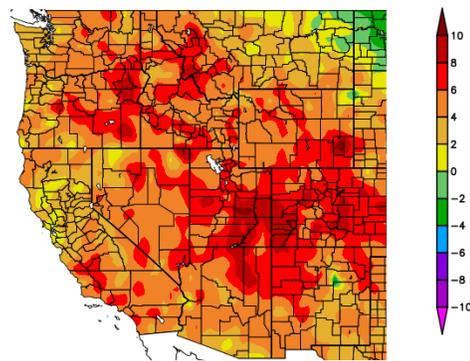
Temperature

Departure from Normal Temperature (F)
9/3/2019 - 9/9/2019



Generated 9/10/2019 at HPRCC using provisional data. NOAA Regional Climate Centers

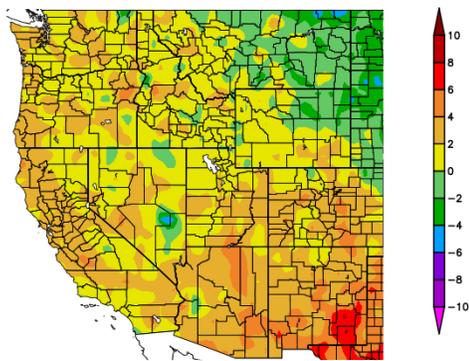
Departure from Normal Temperature (F)
9/1/2019 - 9/9/2019



Generated 9/10/2019 at HPRCC using provisional data. NOAA Regional Climate Centers

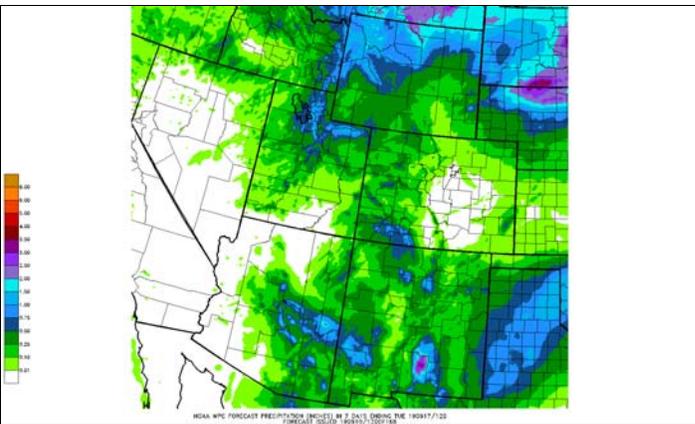
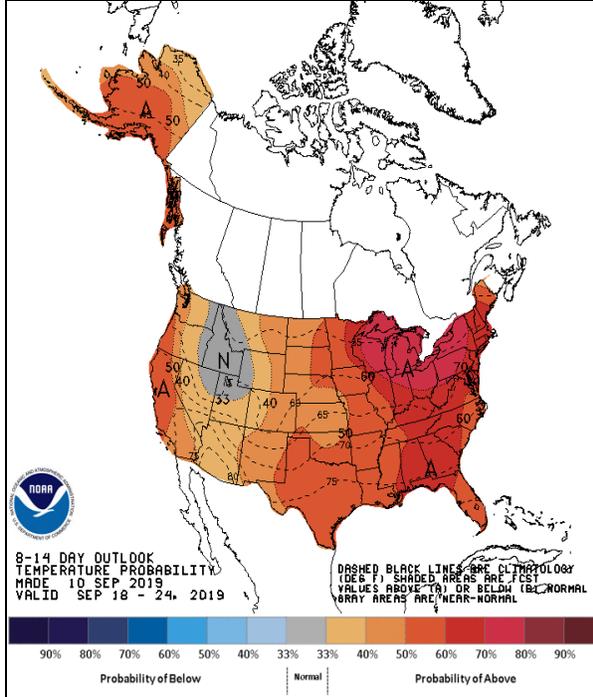
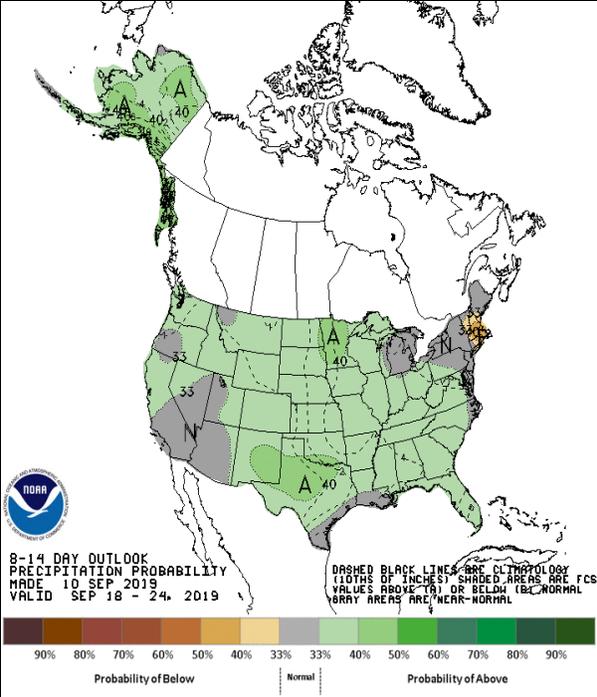
All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.

Departure from Normal Temperature (F)
8/1/2019 - 8/31/2019

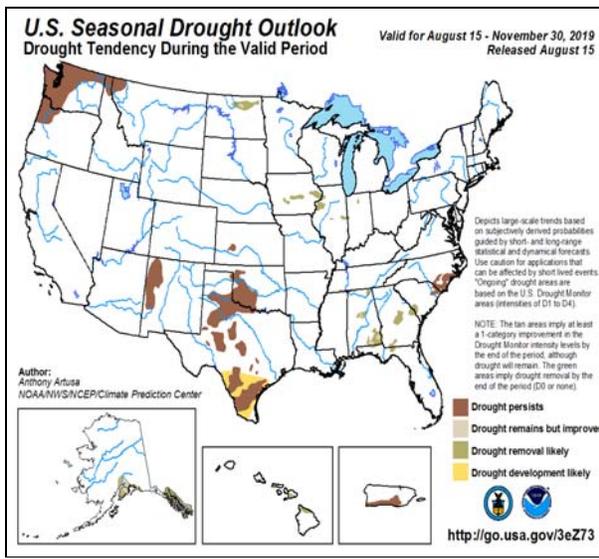
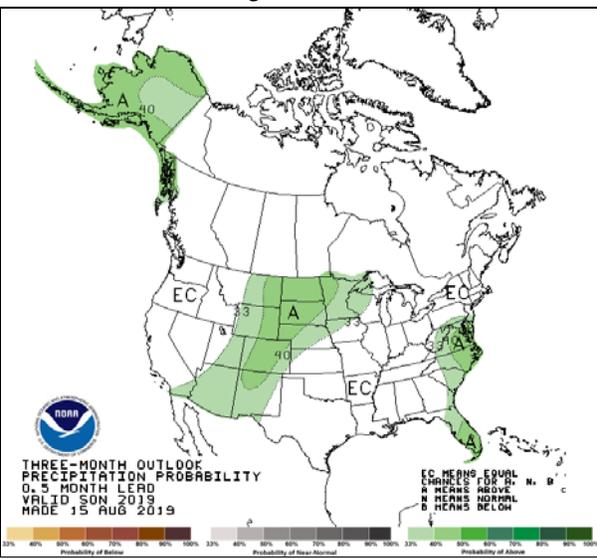


Generated 9/10/2019 at HPRCC using provisional data. NOAA Regional Climate Centers

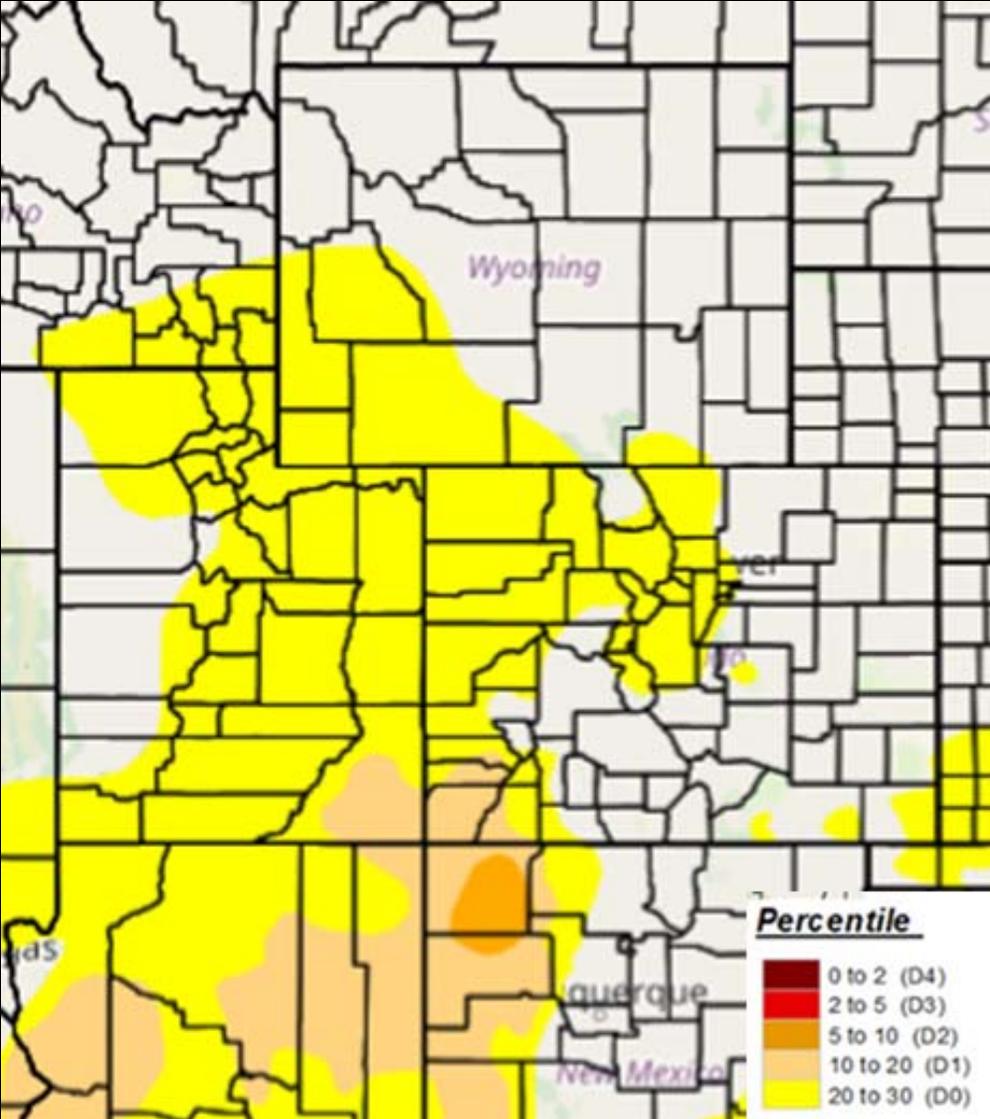
Condition Monitoring and Impacts



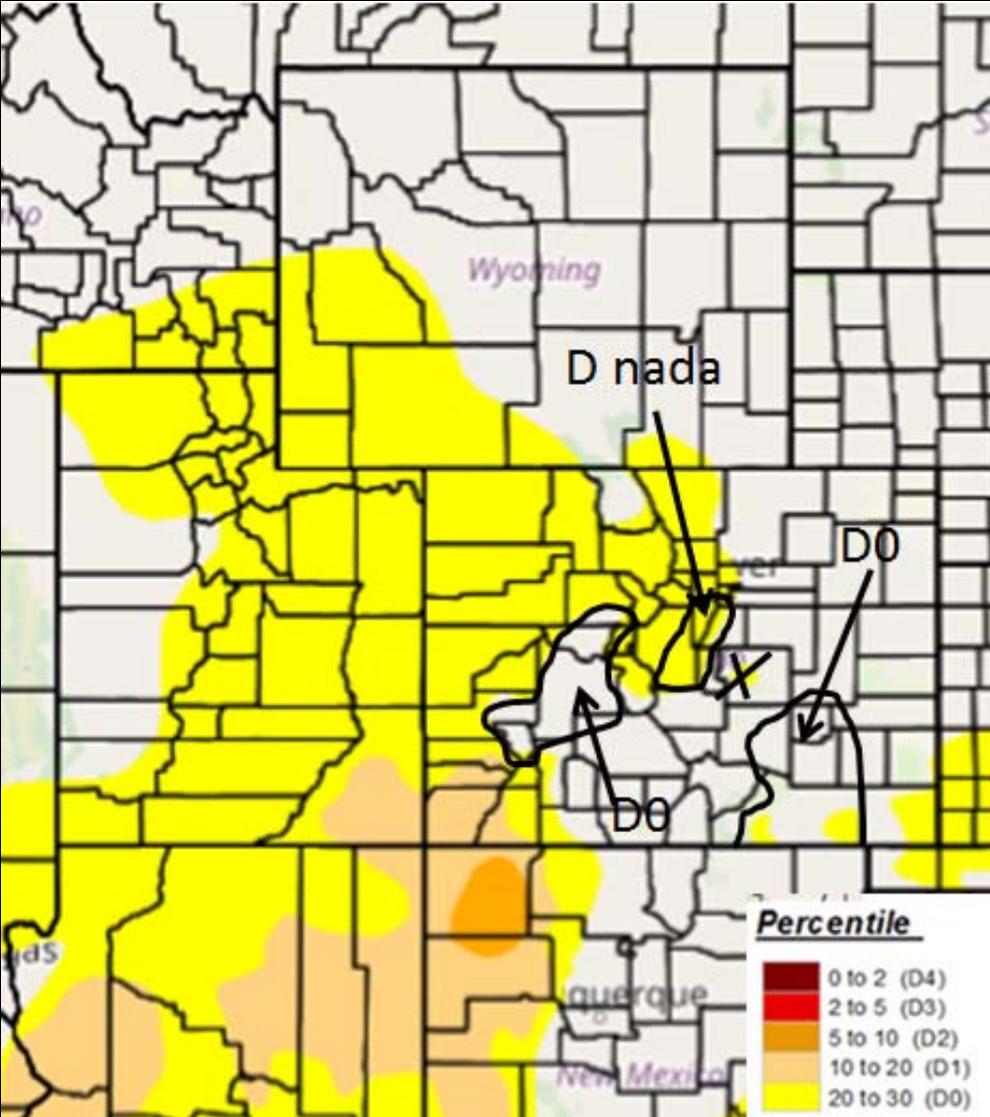
The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate 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: September 10, 2019

For the majority of the Intermountain West, August was much warmer than average (ranging from near average to the northeast in eastern Wyoming and northeast Colorado to record warm in the south in Arizona and New Mexico). August precipitation was above average for eastern WY and parts of eastern CO and much below average for western CO and NM, southwest WY, and most of UT and AZ. Parts of AZ and the Four Corners region have experienced their driest summer on record, largely due to the notable lack of monsoon precipitation.

Last week, hot and dry conditions continued for much of the UCRB. For most of the IMW, temperatures ranged between 2 and 8 degrees warmer than average with areas in central Utah seeing temperatures 10 degrees warmer than average. Some isolated accumulations of precipitation fell in western WY through northern Utah, as well as in southeast WY and northeast CO. However, the four corner region continued to see little to no precipitation over the last week. Across most of the region, SPIs are less than -1.5 on the 30, 60, and 90 day timescales. While the longer-term SPIs show better numbers, the short-term stresses are outweighing those long-term values. Even though some areas will receive near average precipitation for the water year, the last 90 days have taken a toll.

Evaporative demand has been much higher than average. Even though water supplies are still in good condition, reservoir levels are dropping quicker than normal for this time of year, and streamflows have also dropped off.

While temperatures won't be as warm this week, the outlook is that above average temperatures are likely to continue over the much of the IMW with the exception of northern Utah where normal temperatures are forecasted. Some precipitation activity is expected over the next 7 days, to include the four corners region as well as northern Utah. However, little to no precipitation is expected in central through eastern Colorado.

Recommendations:

UCRB: It is recommended that D0 be extended east to include Ouray and Gunnison counties in Colorado. The UCRB was mostly dry and warm over the last week with little to no precipitation in the four corners region. This area is showing a combination of August SPIs less than -1.5, 3-month precipitation for June-July-August in the bottom 10th percentile, less than 0.25" accumulation in the last 7 days, and 1-week EDDI at the D2 level or worse.

Eastern Colorado: It is recommended to shave back some D0 over the northern front range in Colorado. This area received over 1.00" of precipitation over the last week. It is also recommended to extend D0 over Las Animas county north to include Pueblo, Crowley, and Otero counties. This region did not receive precip over the last week. Lack of precip in combination with warmer temperatures has caused evaporative demand to increase. This is also in agreement with short term SPIs.