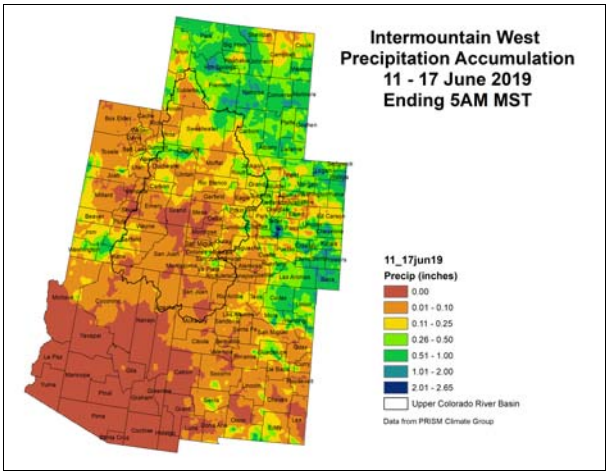
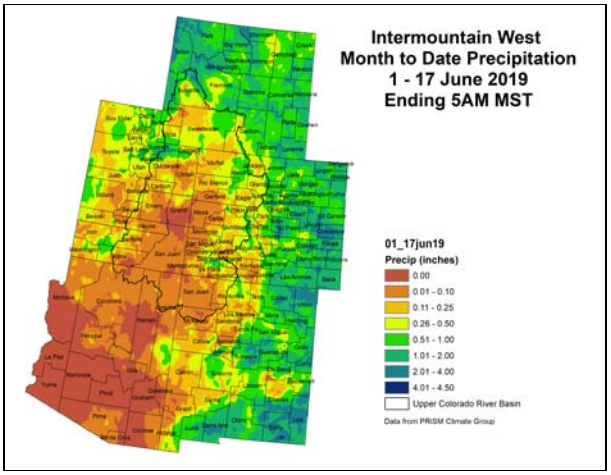
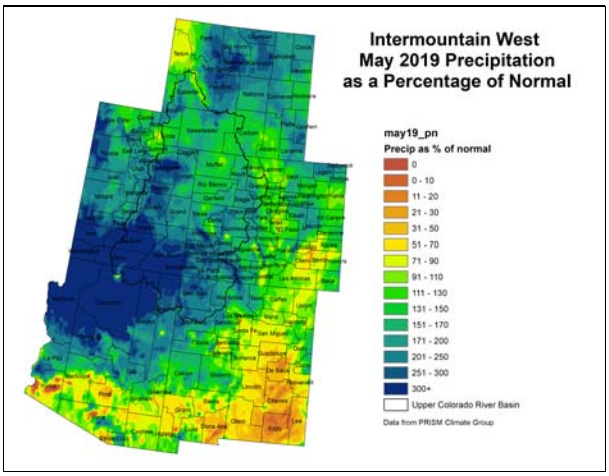
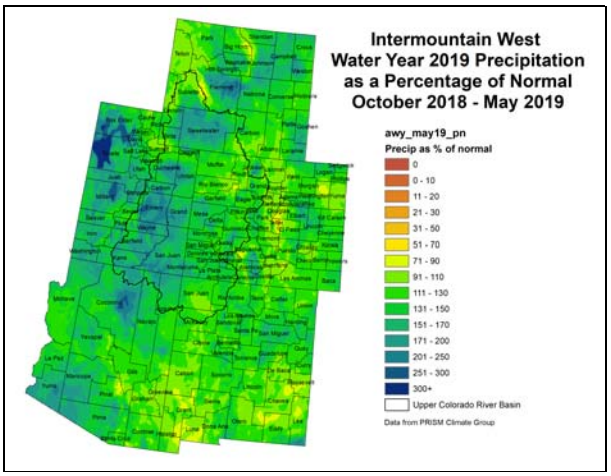
NIDIS Intermountain West
Drought Early Warning System
June 18, 2019

Precipitation



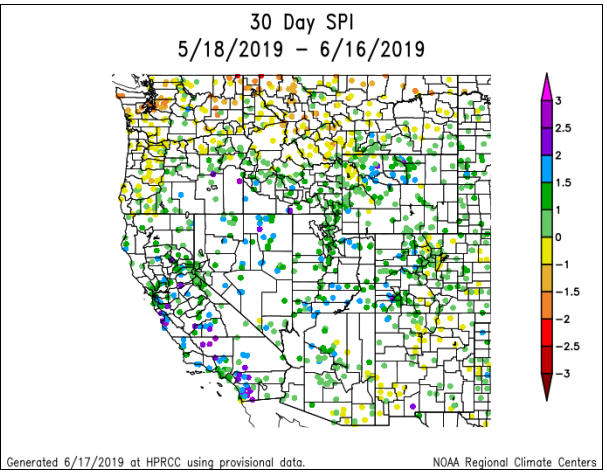


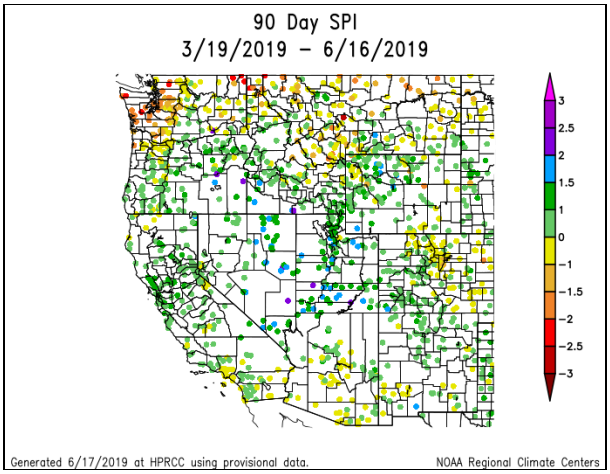


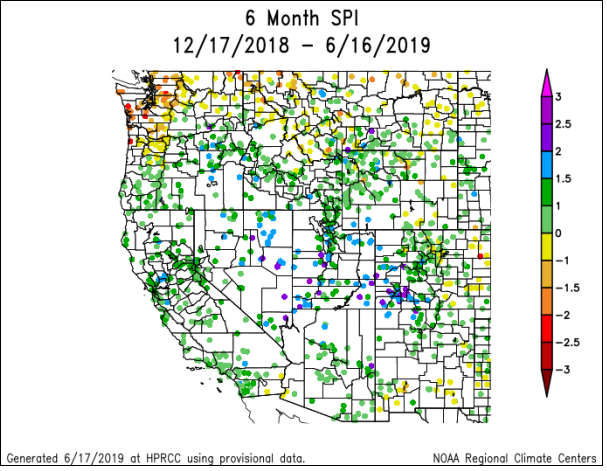


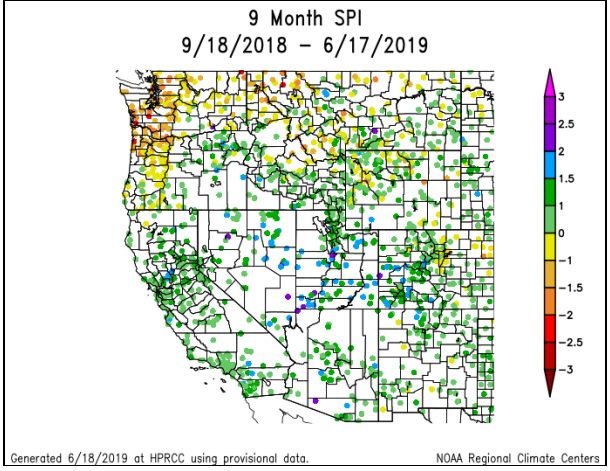
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index



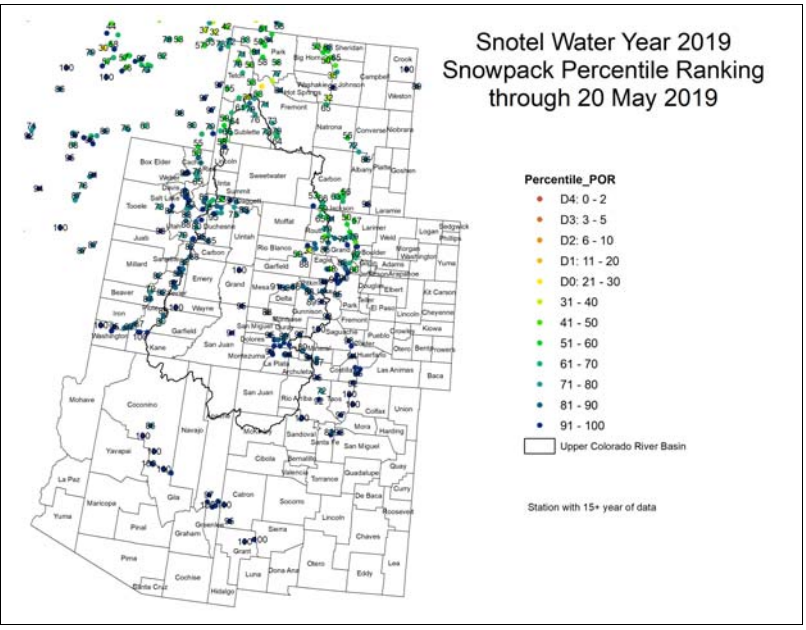




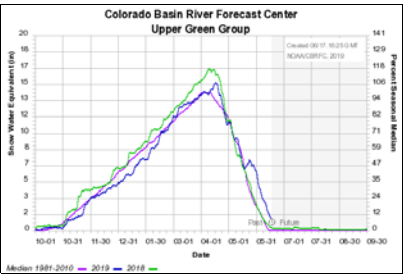


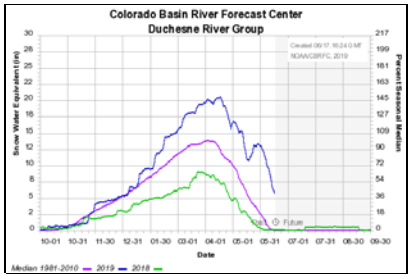
Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions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

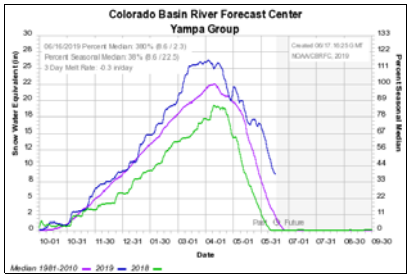
Snotel and Snowpack

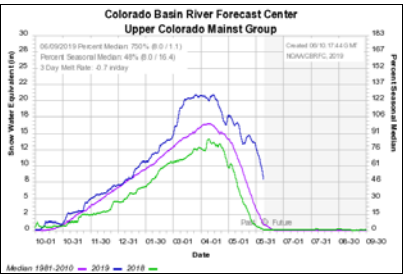


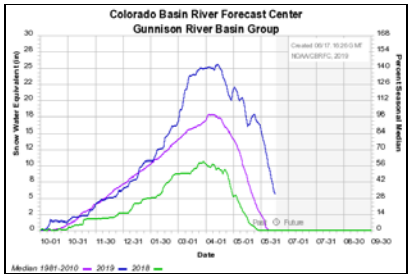
The above image shows SNOTEL snowpack percentiles for each SNOTEL site in the Intermountain West. The images below show accumulated snow water equivalent in inches (green) compared to average (blue) and last year (red) for several different sub-basins across the UCRB (and were created by the Colorado Basin River Forecast Center).

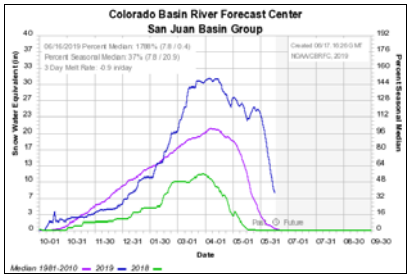




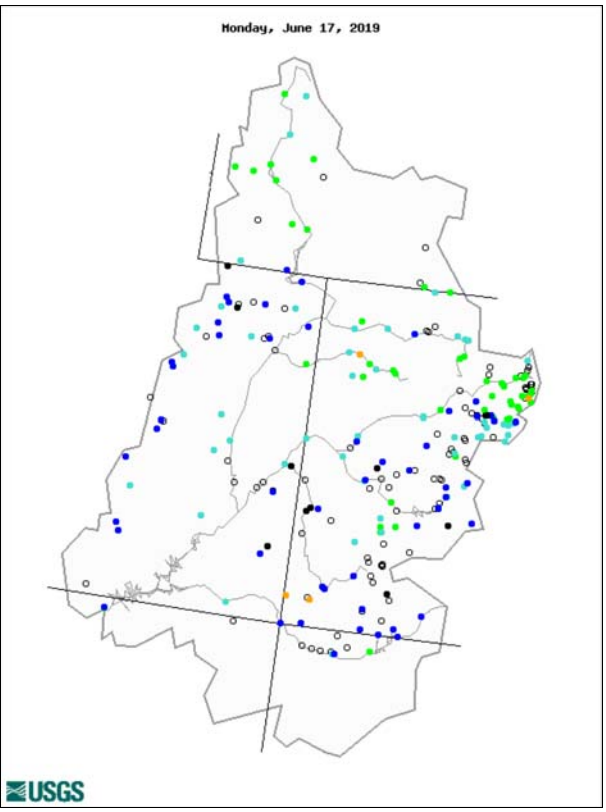


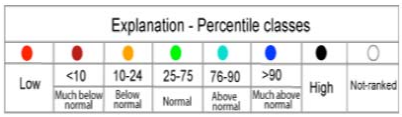


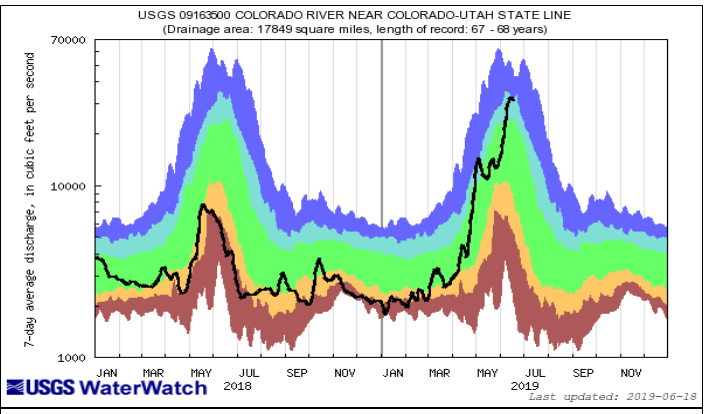


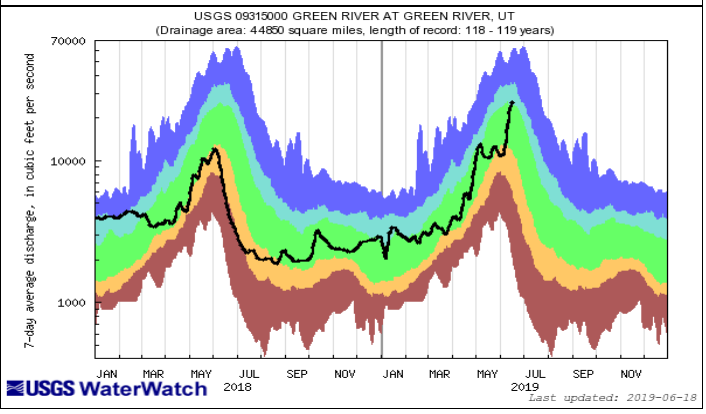


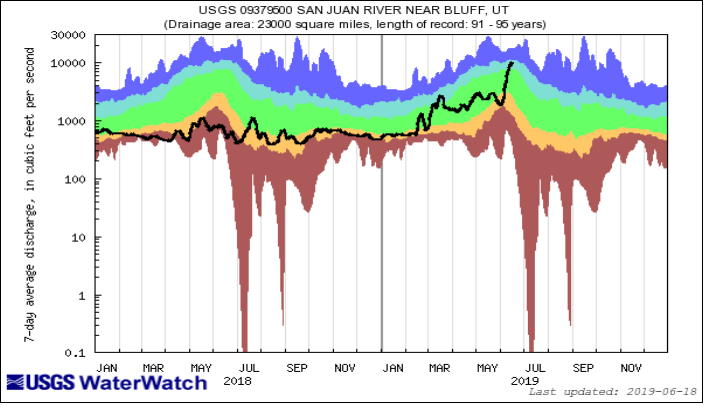
Streamflow


Monday, June 17, 2019
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

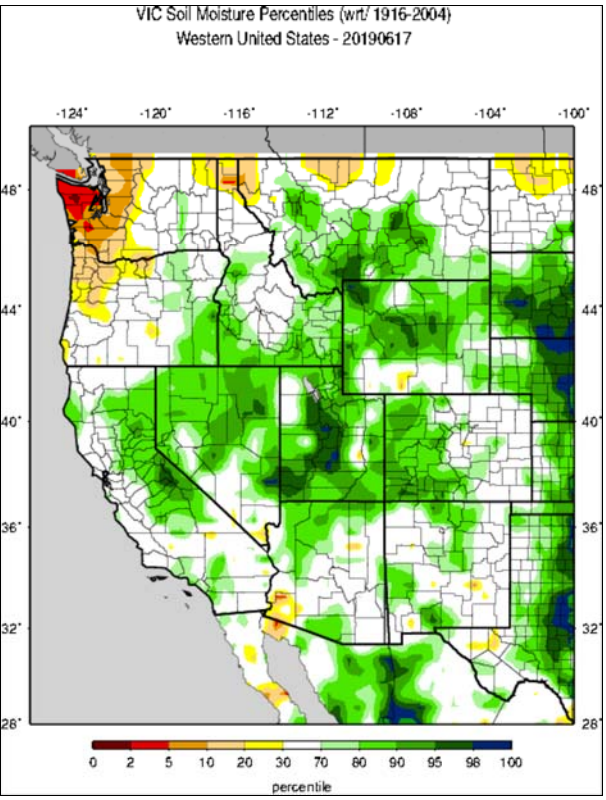

USGS 09163500 COLORADO RIVER NEAR COLORADO-UTAH STATE LINE
(Drainage area: 17849 square miles, length of record: 67 - 68 years)
7-day average discharge, in cubic feet per second
70000
10000
1000
JAN
MAR
MAY
JUL
SEP
NOV
JAN
MAR
MAY
JUL
SEP
NOV
2018
2019
USGS WaterWatch
Last updated: 2019-06-18

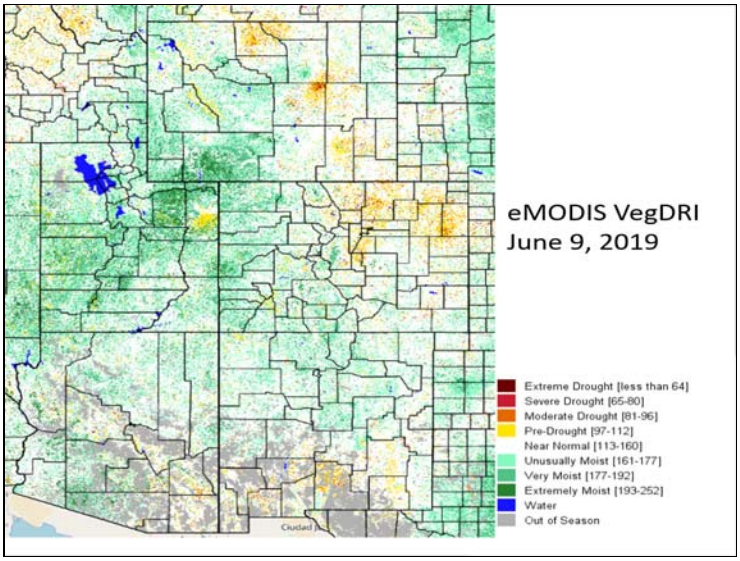

USGS 09315000 GREEN RIVER AT GREEN RIVER, UT
(Drainage area: 44850 square miles, length of record: 118 - 119 years)
7-day average discharge, in cubic feet per second
70000
10000
1000
JAN
MAR
MAY
JUL
SEP
NOV
JAN
MAR
MAY
JUL
SEP
NOV
2018
2019
USGS WaterWatch
Last updated: 2019-06-18



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.

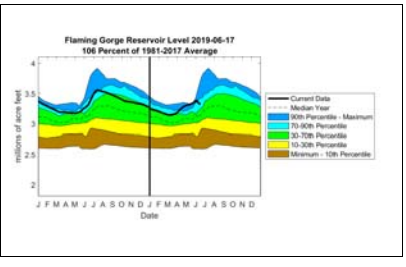
Surface Water

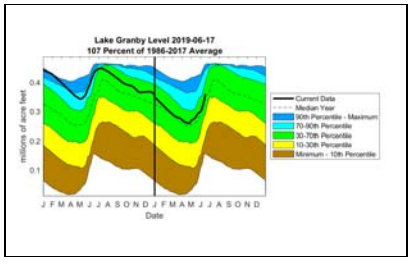


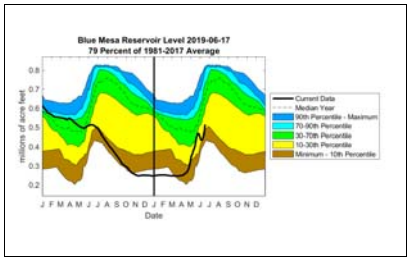


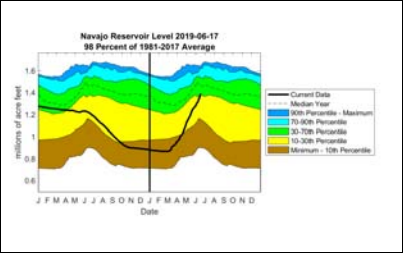
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

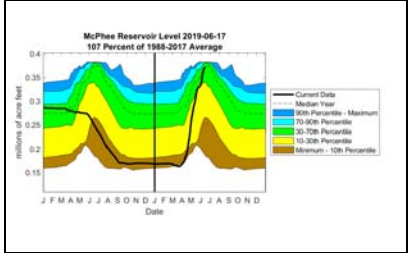
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir levels observed over the past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

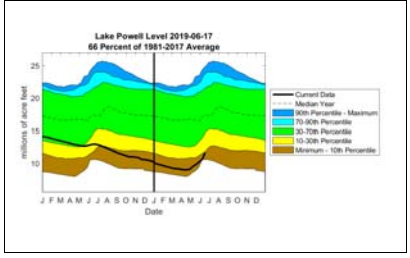




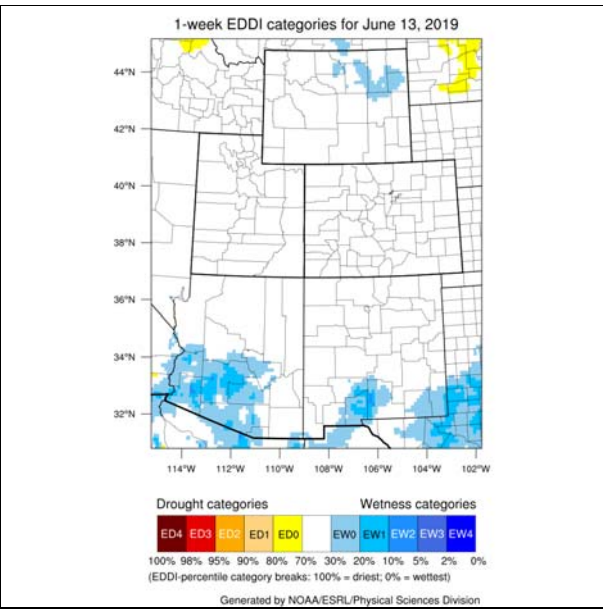


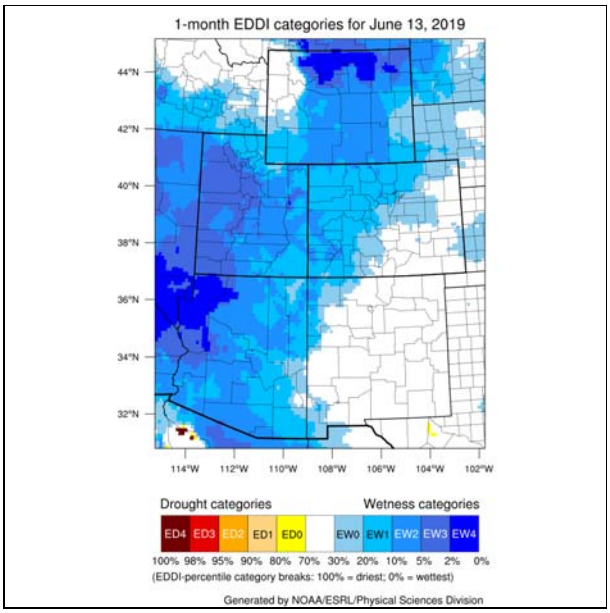


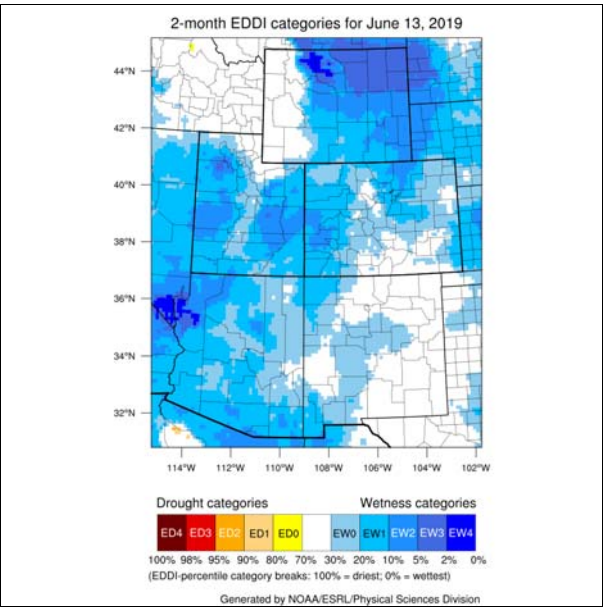


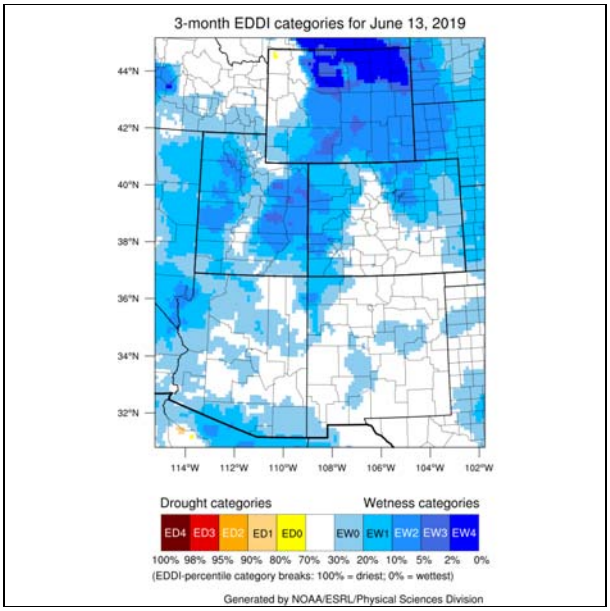


Evaporative Demand



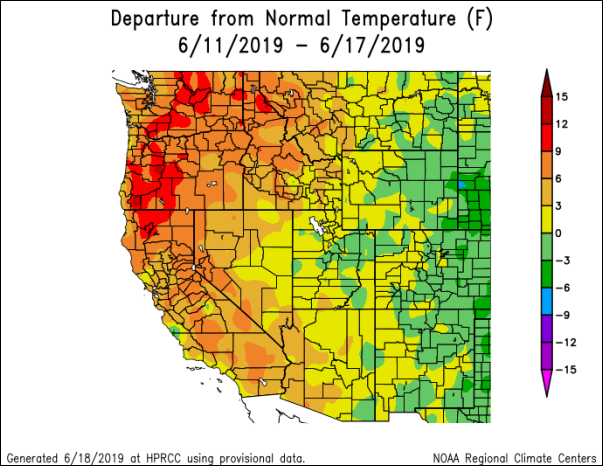


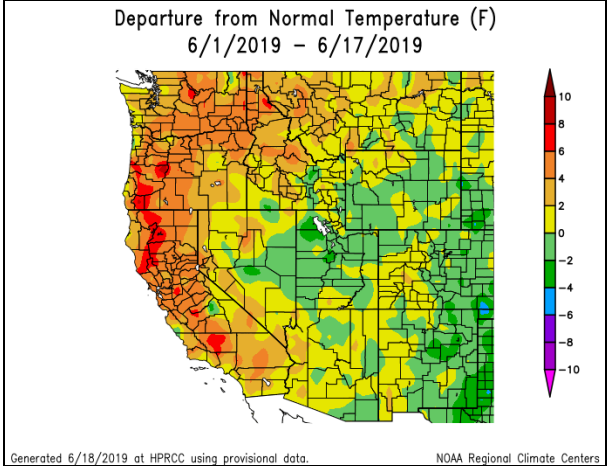




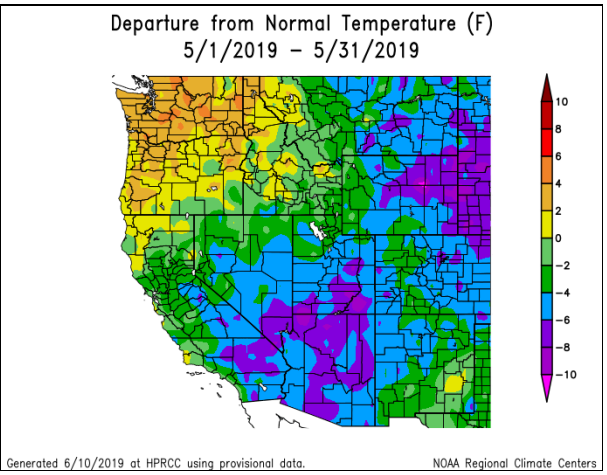
The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

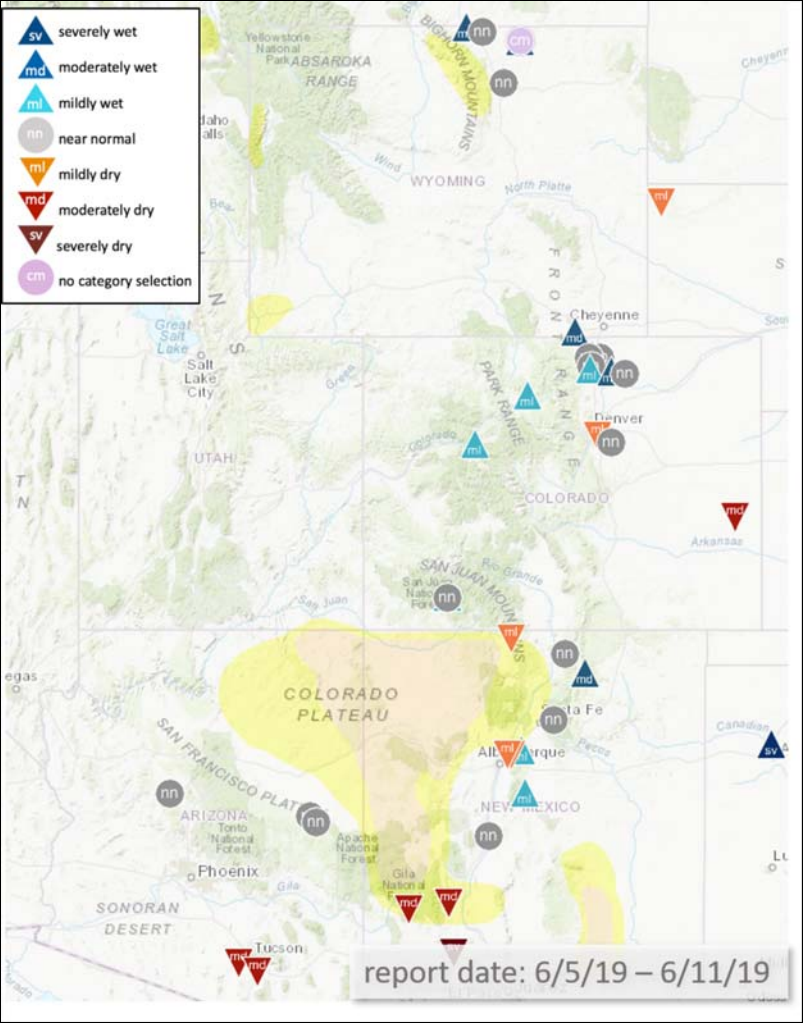




All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



Condition Monitoring and Impacts



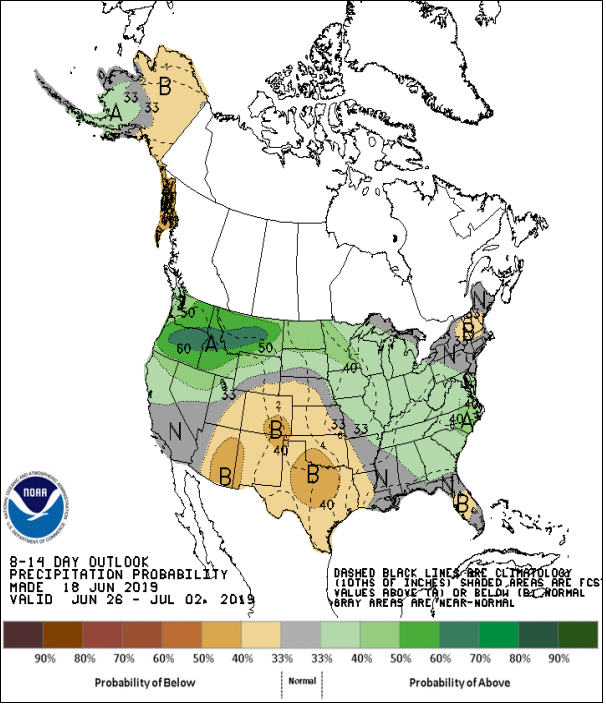
Map of current condition monitoring reports submitted to CoCoRaHS in the last week overlaid on the current U.S. Drought Monitor depiction. Specific impacts reports from local experts listed below.

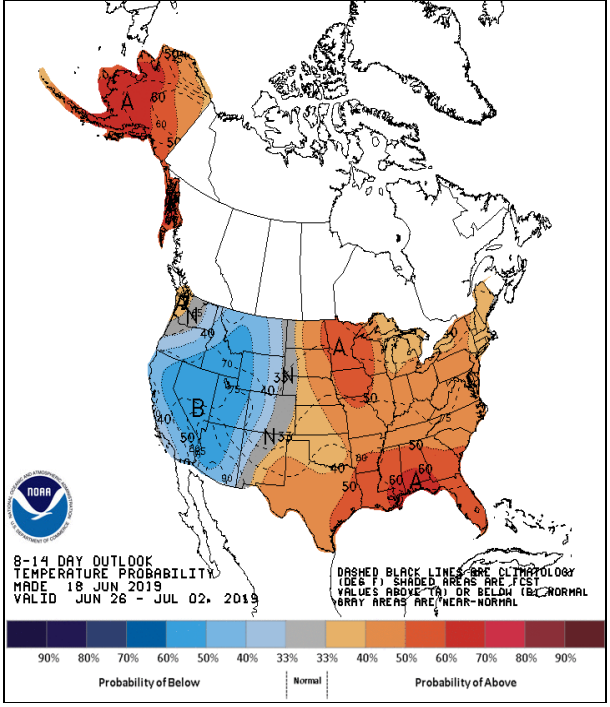
Troy Huse with Utah USDA- Sanpete County, "starting to get hotter and drying out a little. Lingering effects of the 2018 drought, still havent hit peak run off yet."

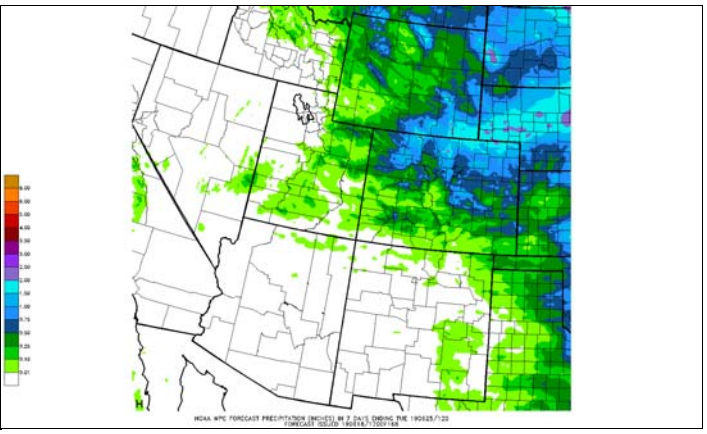
Chuck Hanagan with Colorado USDA- Rocky Ford- "Scatter showers bringing everyone in the area precipitation. However, localized storms mean some received 0.02 while other received 1.50 of precipitation. Good reports of grass and crops. Most ditches full."

Dawna Weirich with Colorado USDA Kiowa County- "FSA report of 12.00 on 6/18, roads washed out. Wheat is beginning to turn and needs to dry out a little before cutting." Verification of 12.00 in progress.

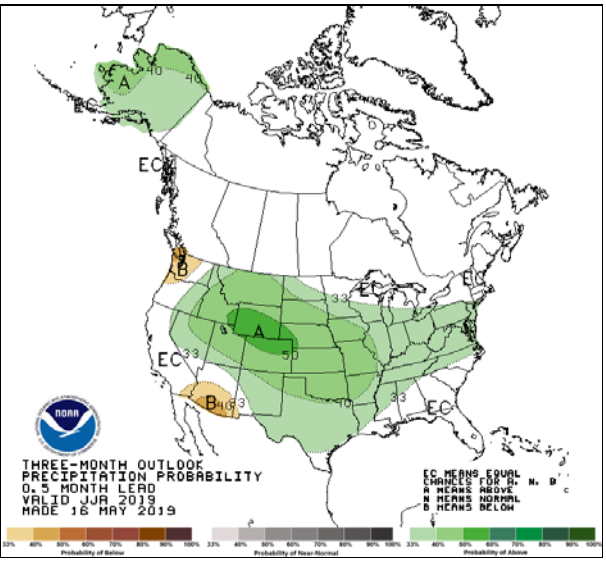
Outlook

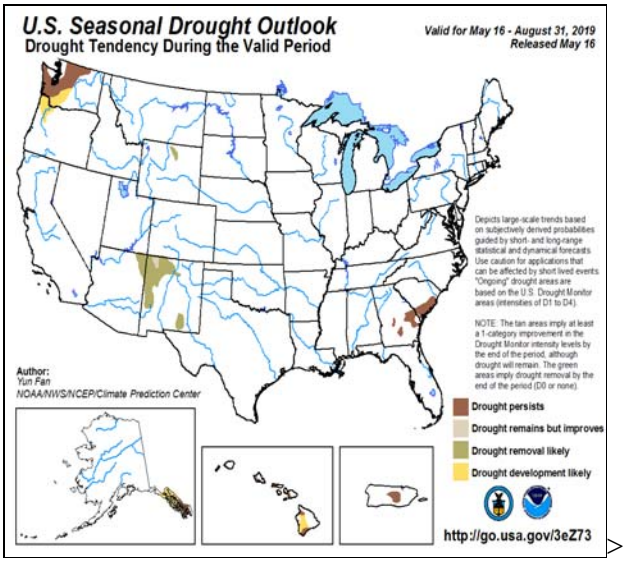




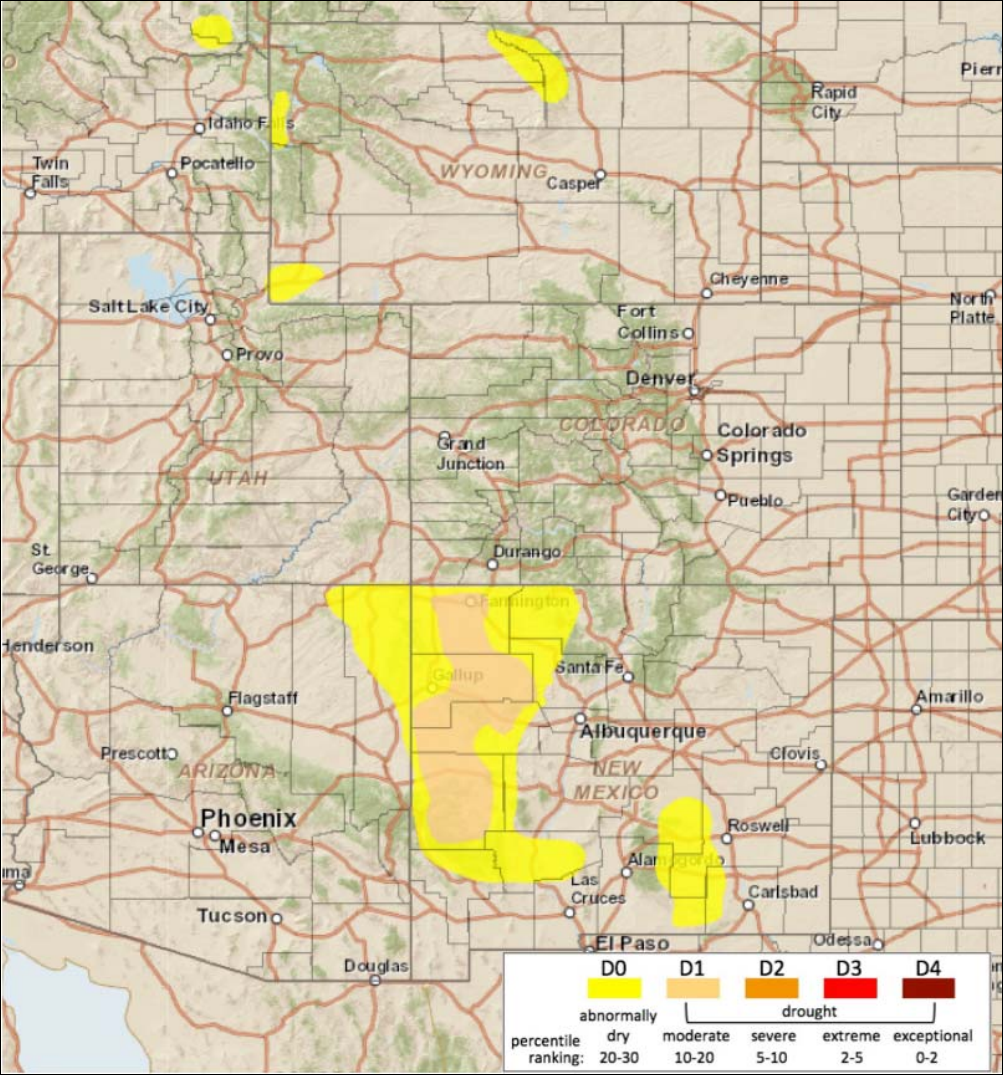


The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate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

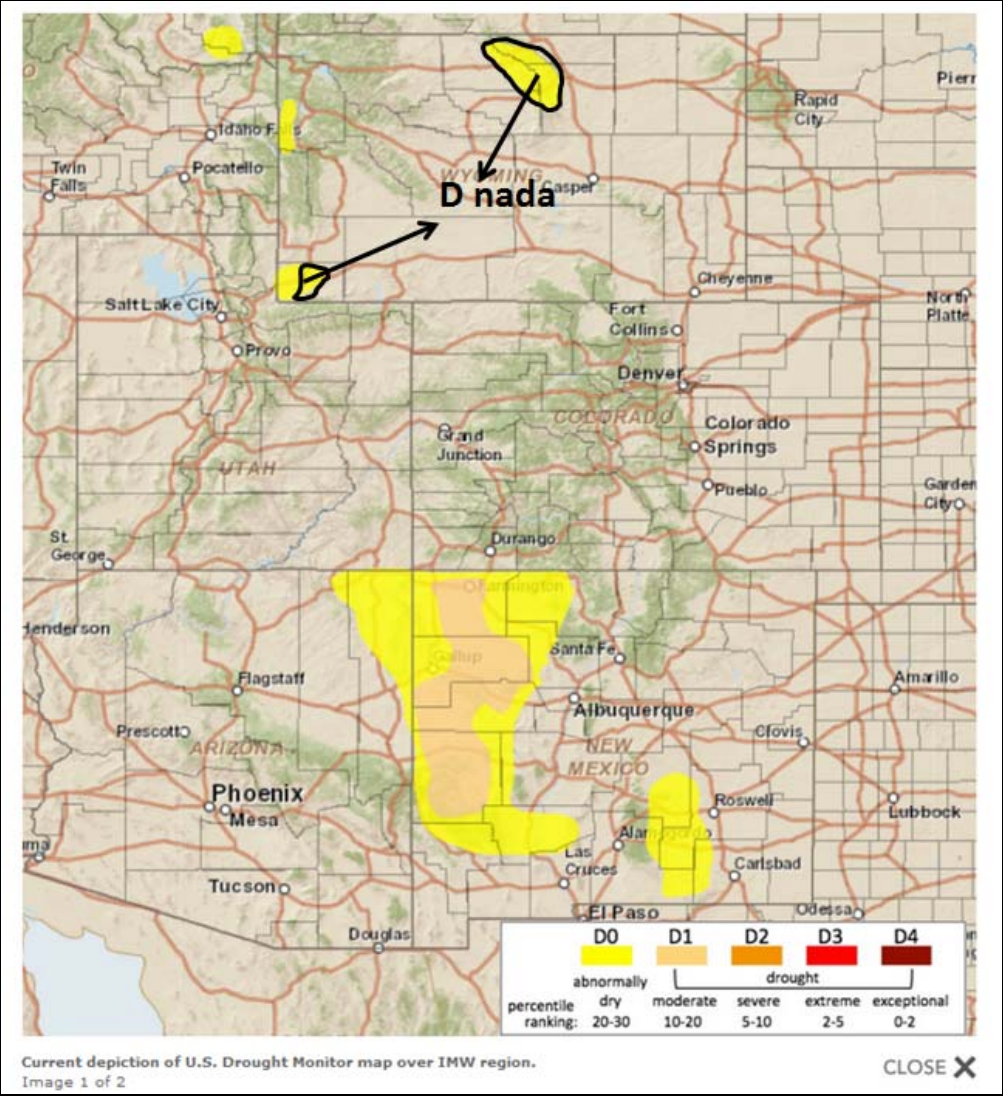




Summary and Recommendations



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: June 18, 2019

The Intermountain West has entered a typical summer pattern for the month of June. Month to date precipitation data is showing dry conditions through the Upper Colorado River Basin, Utah, Arizona and western New Mexico and scattered thunderstorm activity east of the basin. Most areas in northern Wyoming and eastern Colorado, over the last week, saw precipitation values of 0.50 to 2.00 with some regions receiving even more. Big Horn/Sheridan Counties in Wyoming saw 2.00 to 3.00 inches of precipitation and Lincoln and Kiowa counties in Colorado saw over 4.00 inches. With the wet and cool conditions experienced in the month of May, conditions for June are looking great going into the summer.

Over the last week temperatures remained fairly normal for the beginning of June. In general, eastern Wyoming, Colorado, and Utah saw temperatures -1 to -6 degrees cooler than average while the western portions of these states experienced normal to slightly above normal temperatures. This has kept evaporative demand below average for another week. While temperatures remained below average for much of the region, the daily average temperature is increasing as we enter the warm summer season. Thanks to recent cool and wet conditions, soil moisture shows a full recovery from the 2018 Four Corners drought. As the snowmelt works its way off the highest elevations, streams, rivers, and reservoirs are also seeing recovery. Since the snowmelt was delayed, rises on rivers and reservoirs is also a bit delayed. The biggest concern there is the risk of flooding as we continue into summer.

The outlook for the next week is showing a good chance for precipitation mainly east of

the Divide with southeastern Wyoming and northeastern Colorado expecting to see 1 to 2.50”. The two week outlook shows increased chances for drier conditions in the southern part of the IMW and better chance for wet conditions to the north. Temperatures are likely to remain cooler than normal for the UCRB while southeast Colorado is expected to experience above average temperatures.

Recommendations:

UCRB and Eastern Colorado: Status quo. There's a touch of dryness on the longer term SPI in Yuma County, however with the cool conditions and recent precipitation the crops are looking good and concerns are minimal. There's also some dryness starting to show up along the Arkansas River, but as with Yuma County, cooler temperatures and recent precipitation has kept evaporative demand low and there is not a big worry at this point. Local reports from the Arkansas valley are positive, crops are doing well, and there's even hope for some dryness as wheat harvest will begin soon.

Wyoming: We recommend a removal of the the D0 in the Big Horn Mountains. This area had a nice month of May and has received 1.0 to over 3" of precipitation so far this month. We are also recommending the D0 over Uinta County be pulled west to the Bear River and continue to extend west to the state border. The previous week brought over 1" to this area and SPIs don't show dryness.