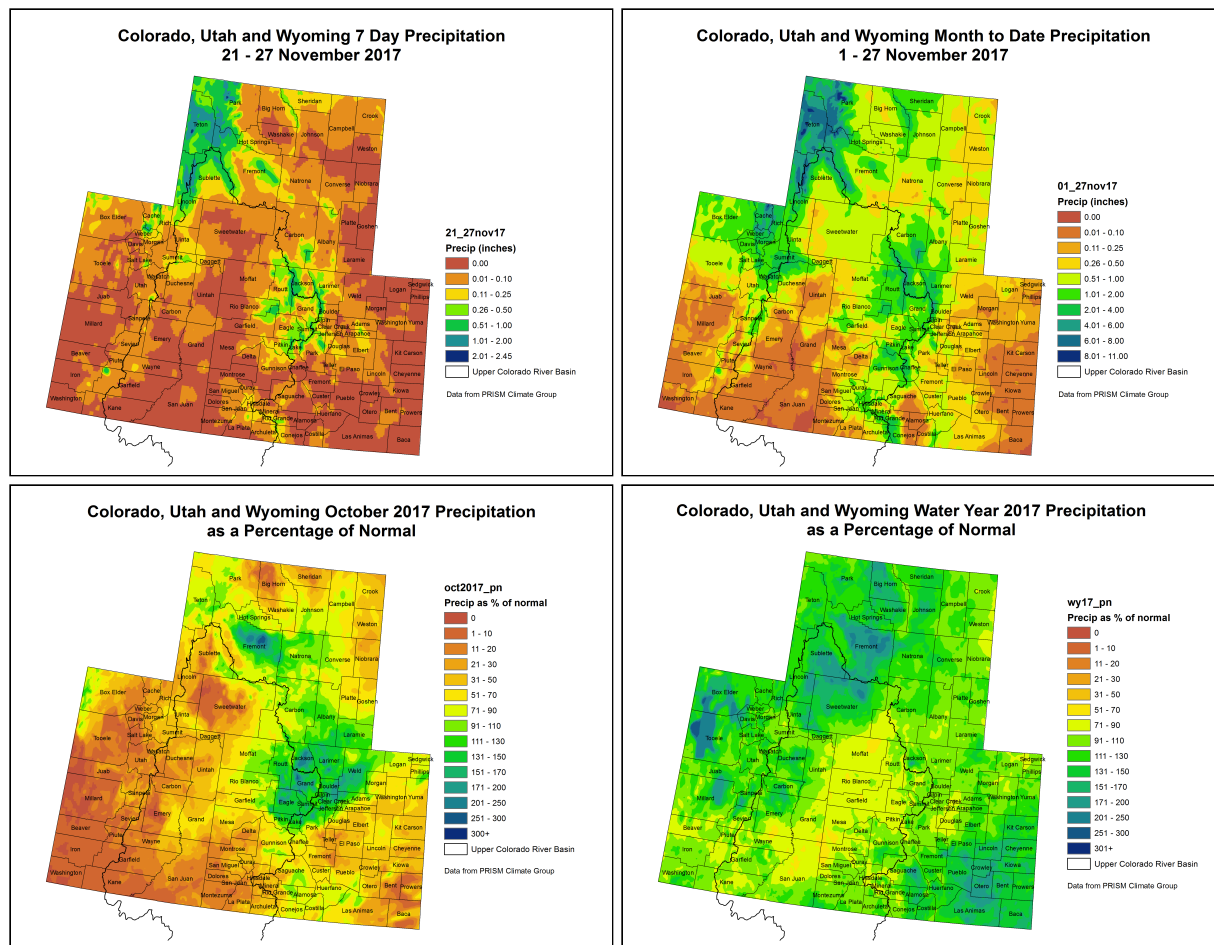


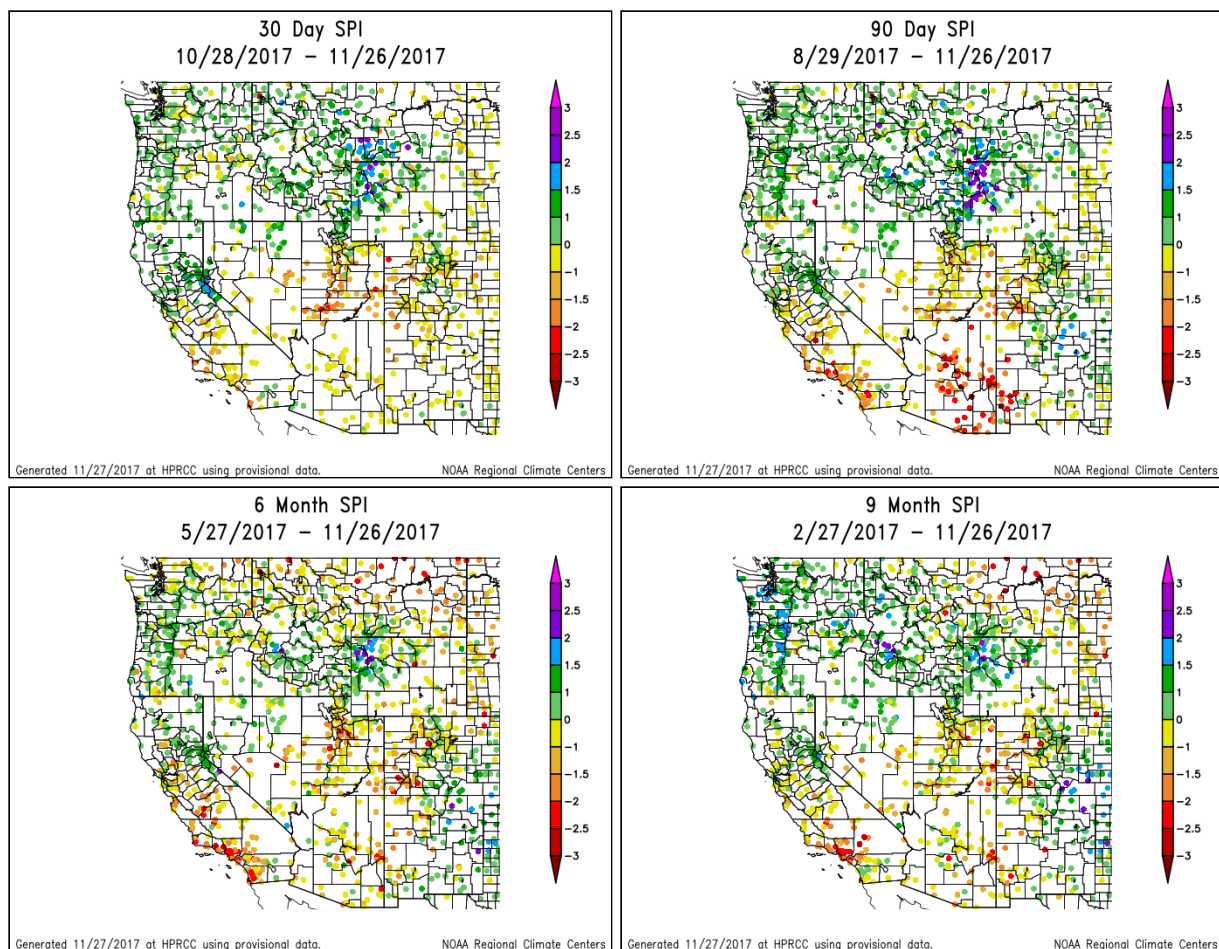
NIDIS Intermountain West Drought Early Warning System November 28, 2017

Precipitation



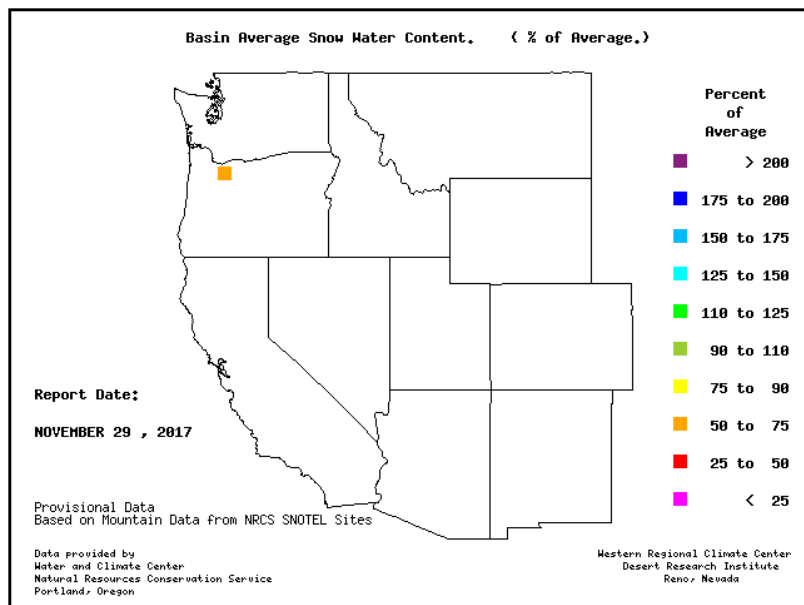
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index



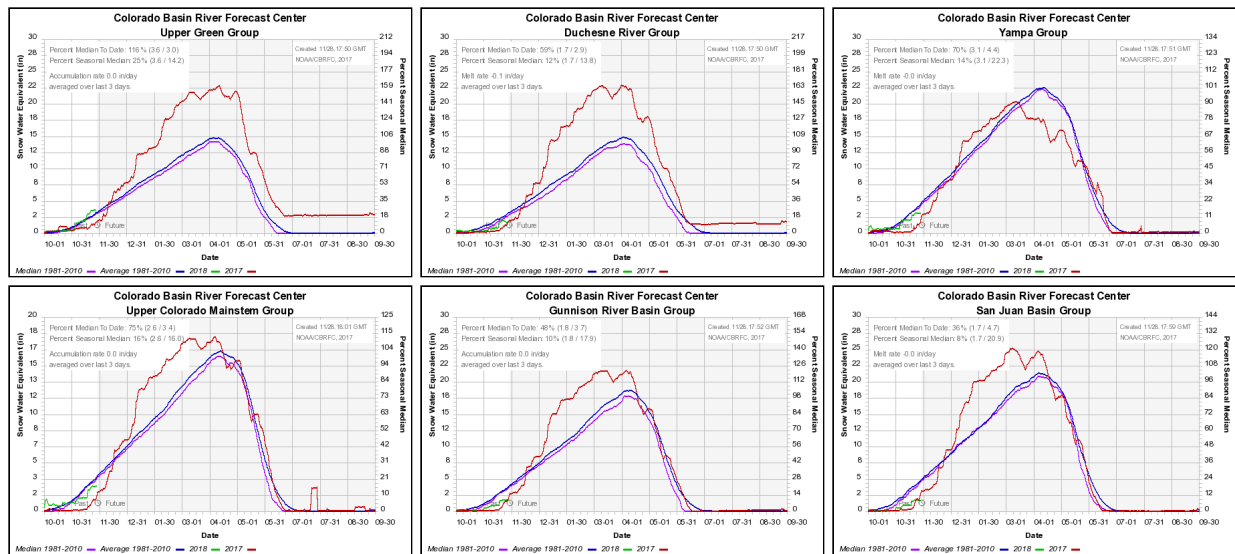
Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions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

Snotel and Snowpack

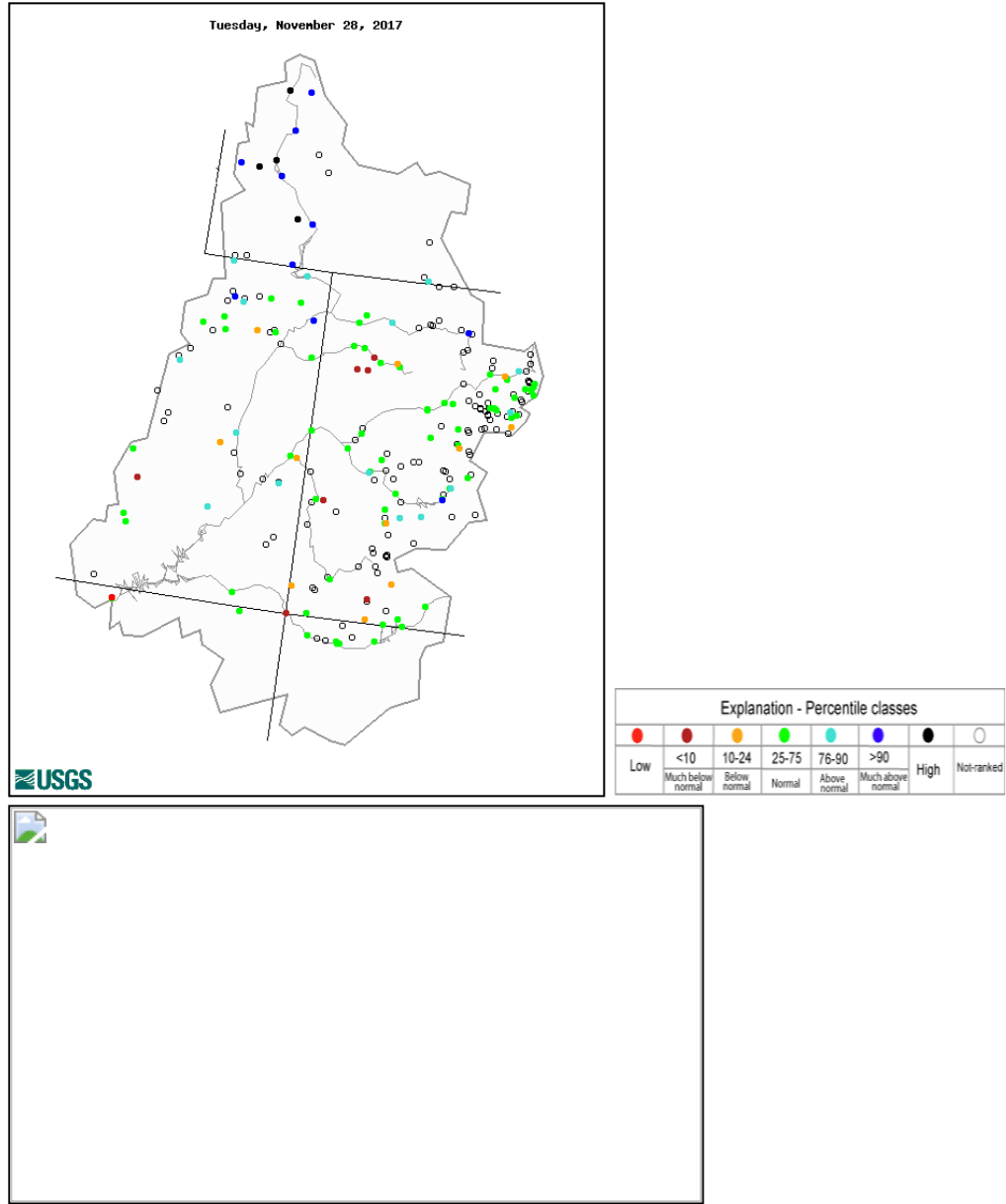


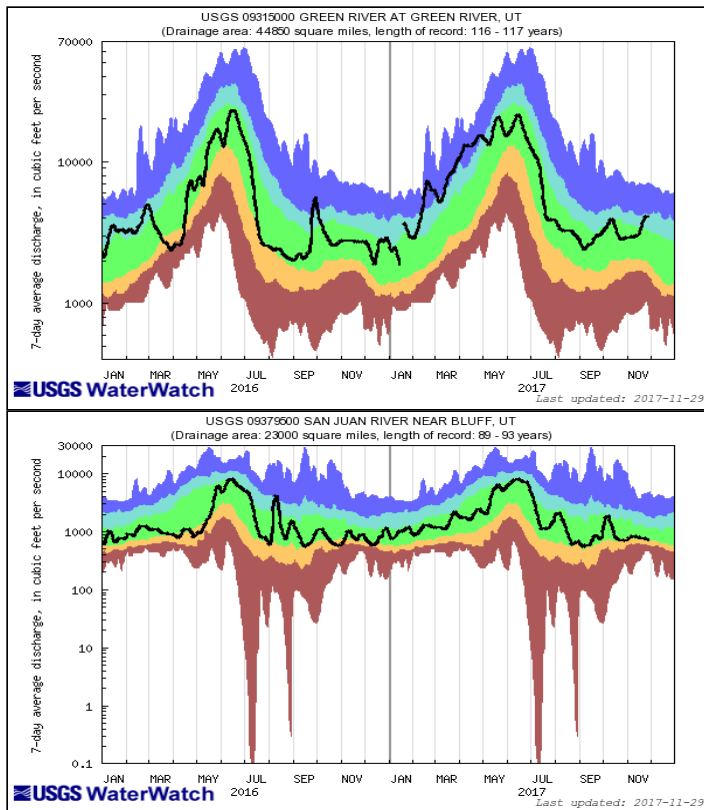
The above image shows sub-basin averaged snow water equivalent accumulations as a percent of average. The images below show accumulated snow water equivalent in inches (green) compared

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).



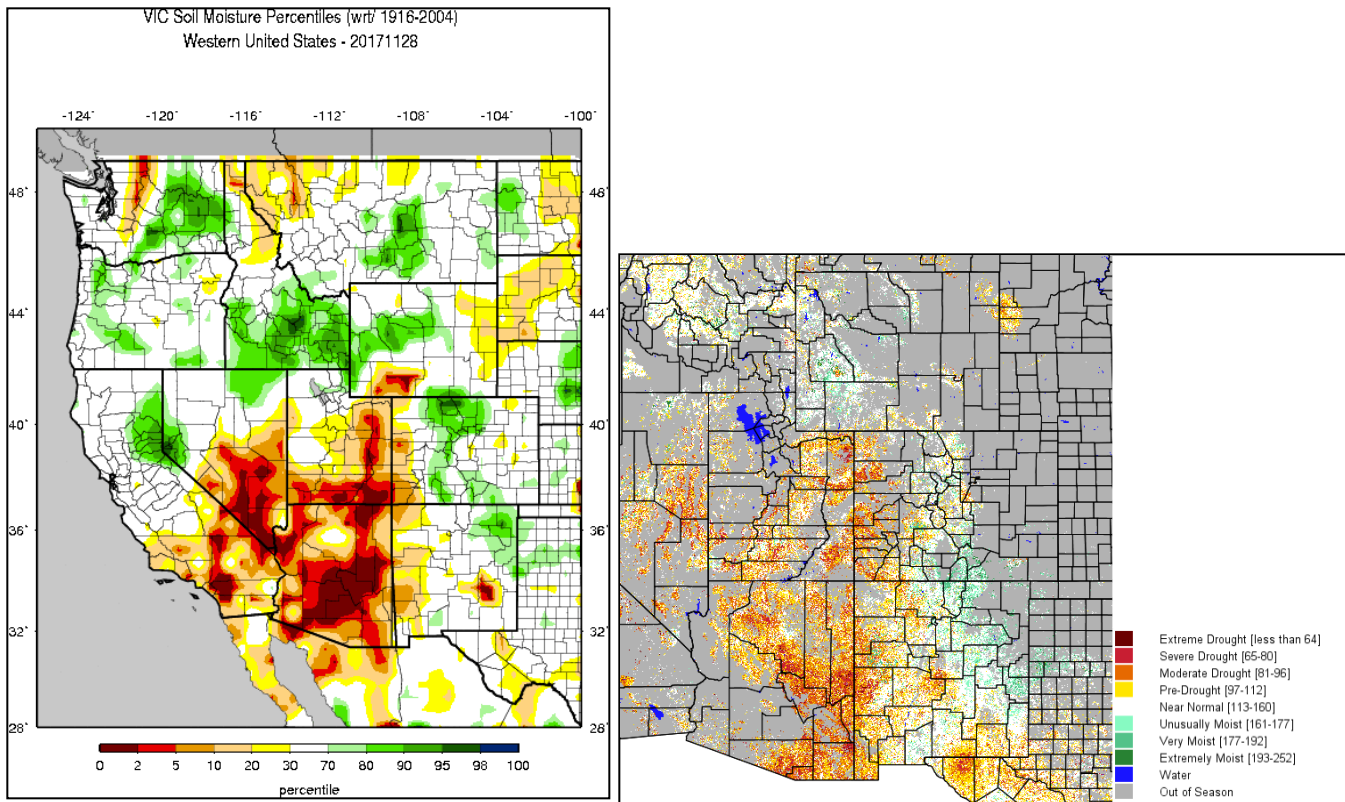
Streamflow





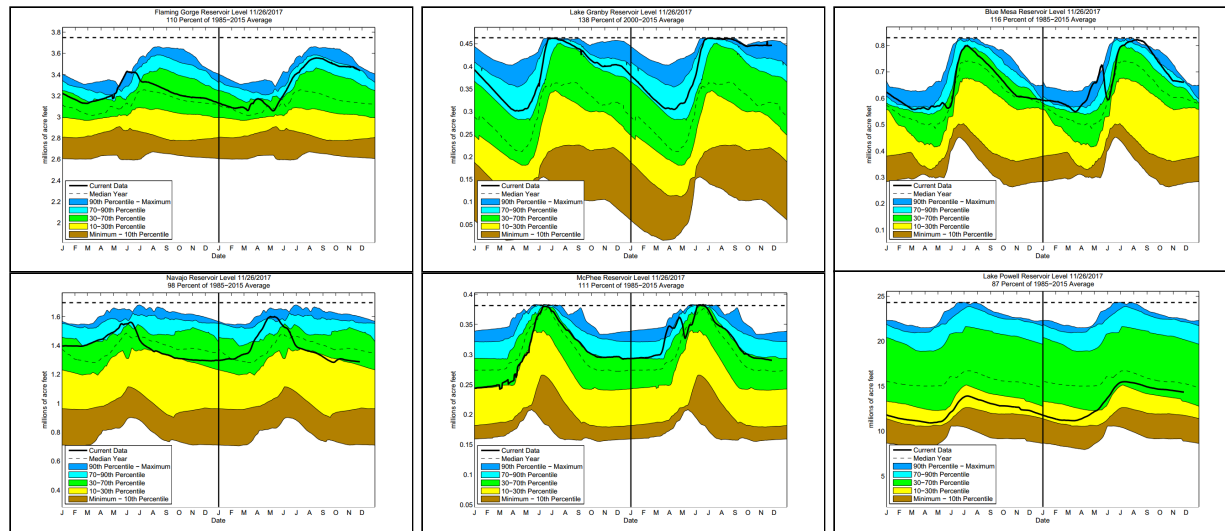
The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff,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

Surface Water

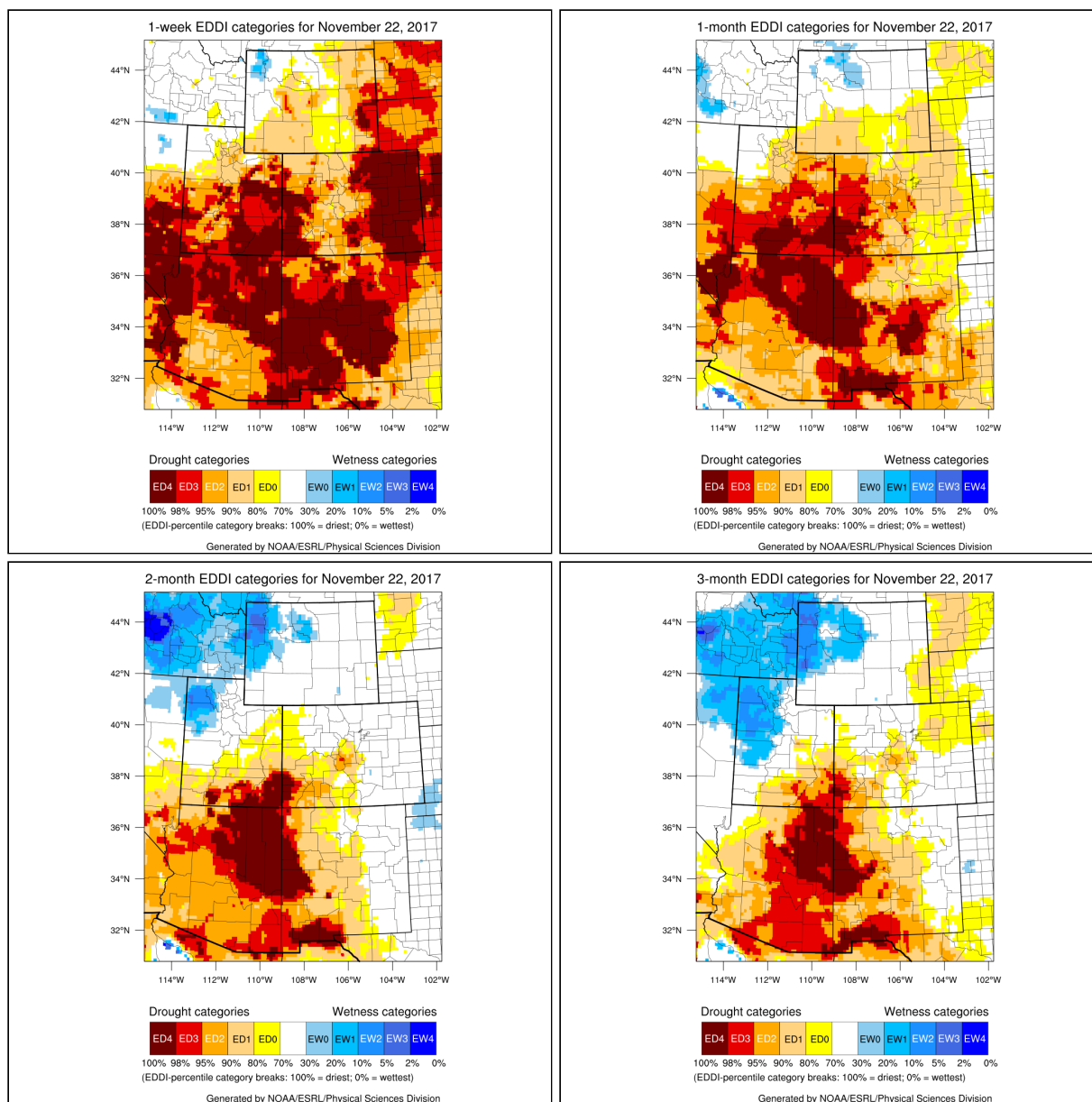


The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

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.

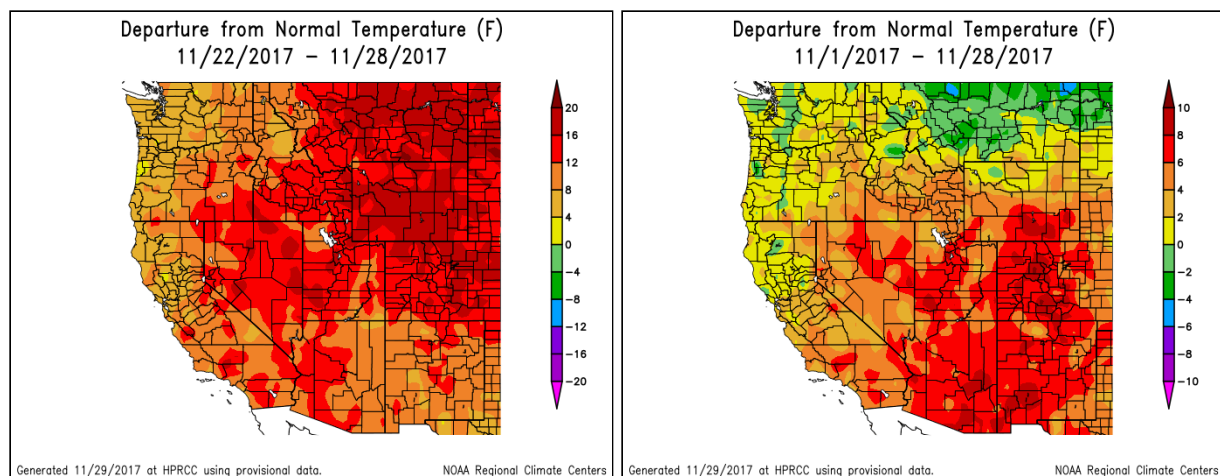


Evaporative Demand

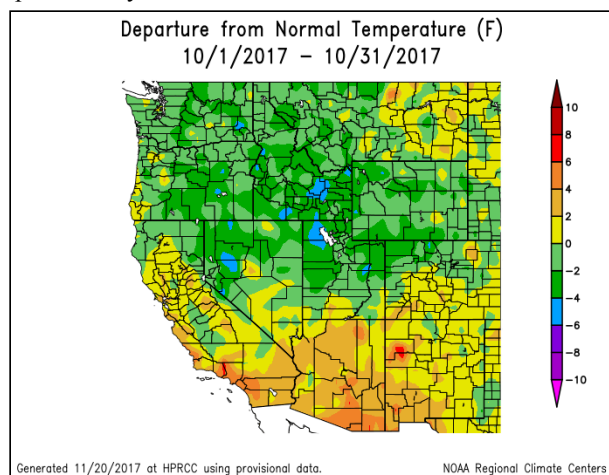


The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

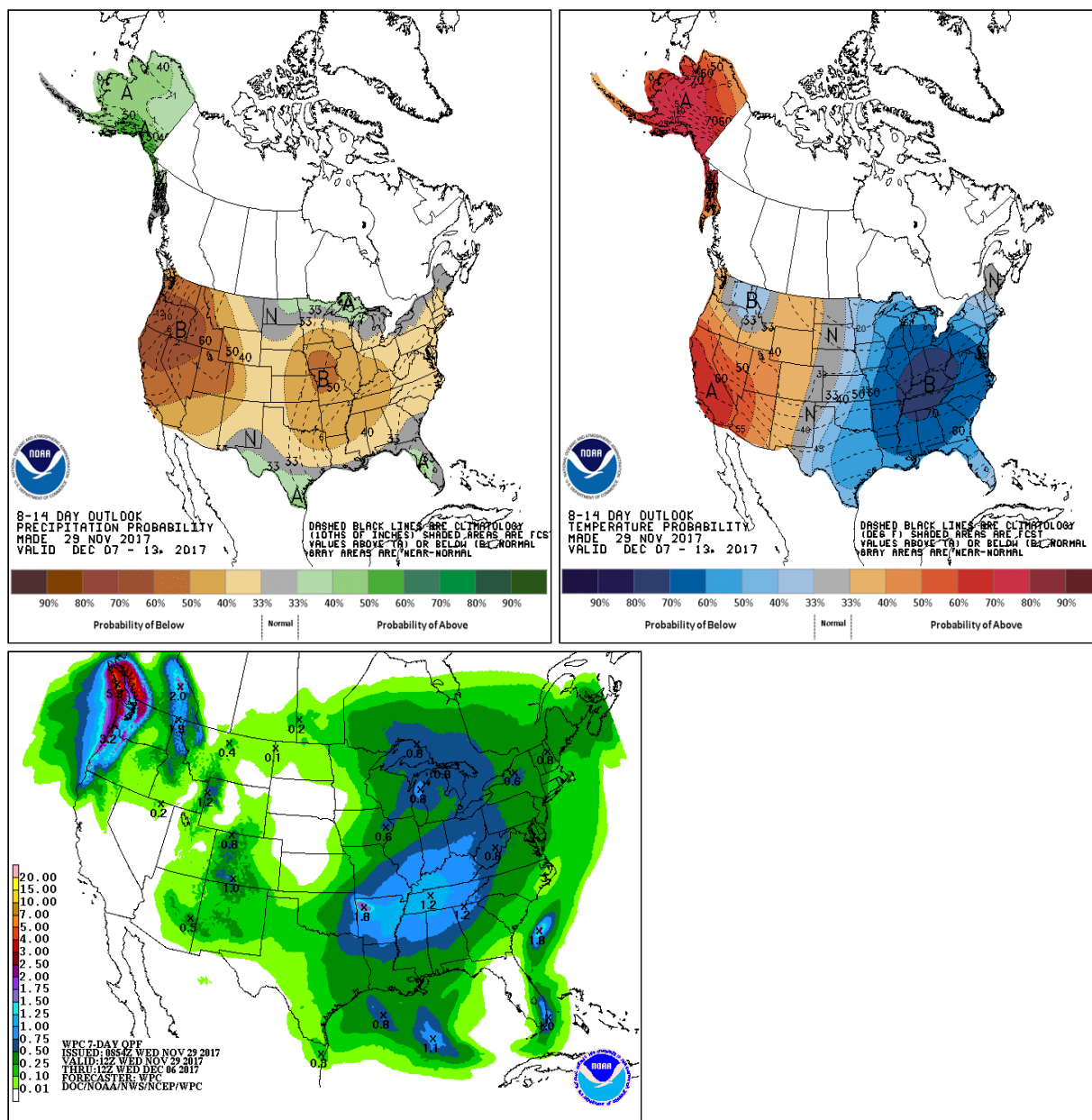
Temperature



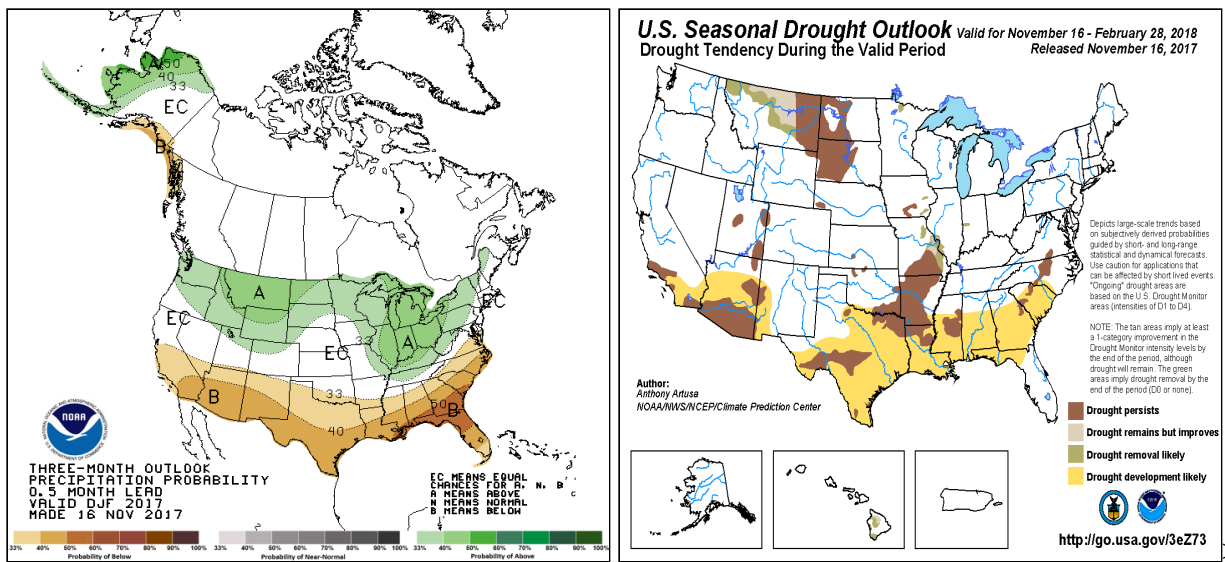
All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



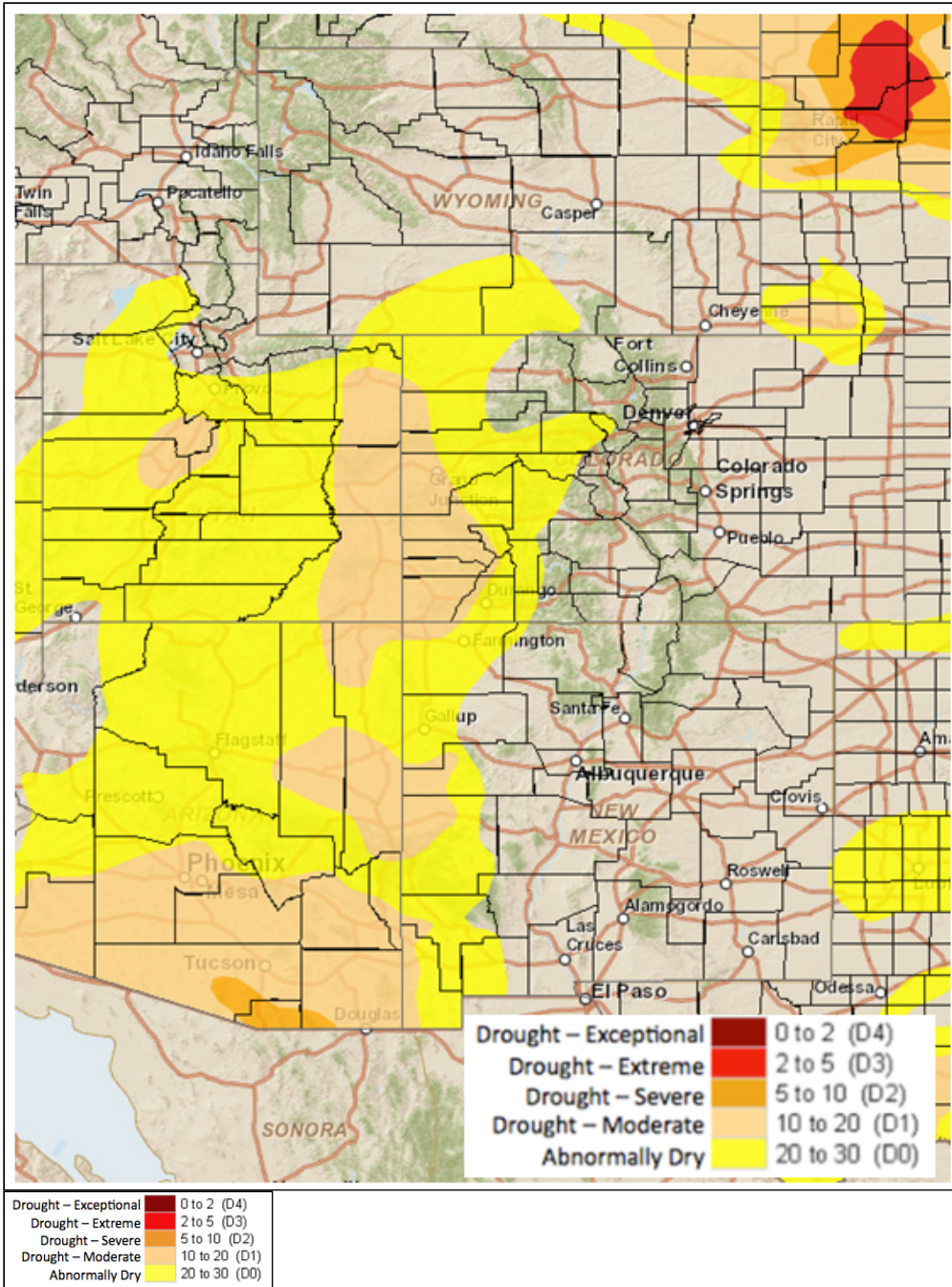
Outlook



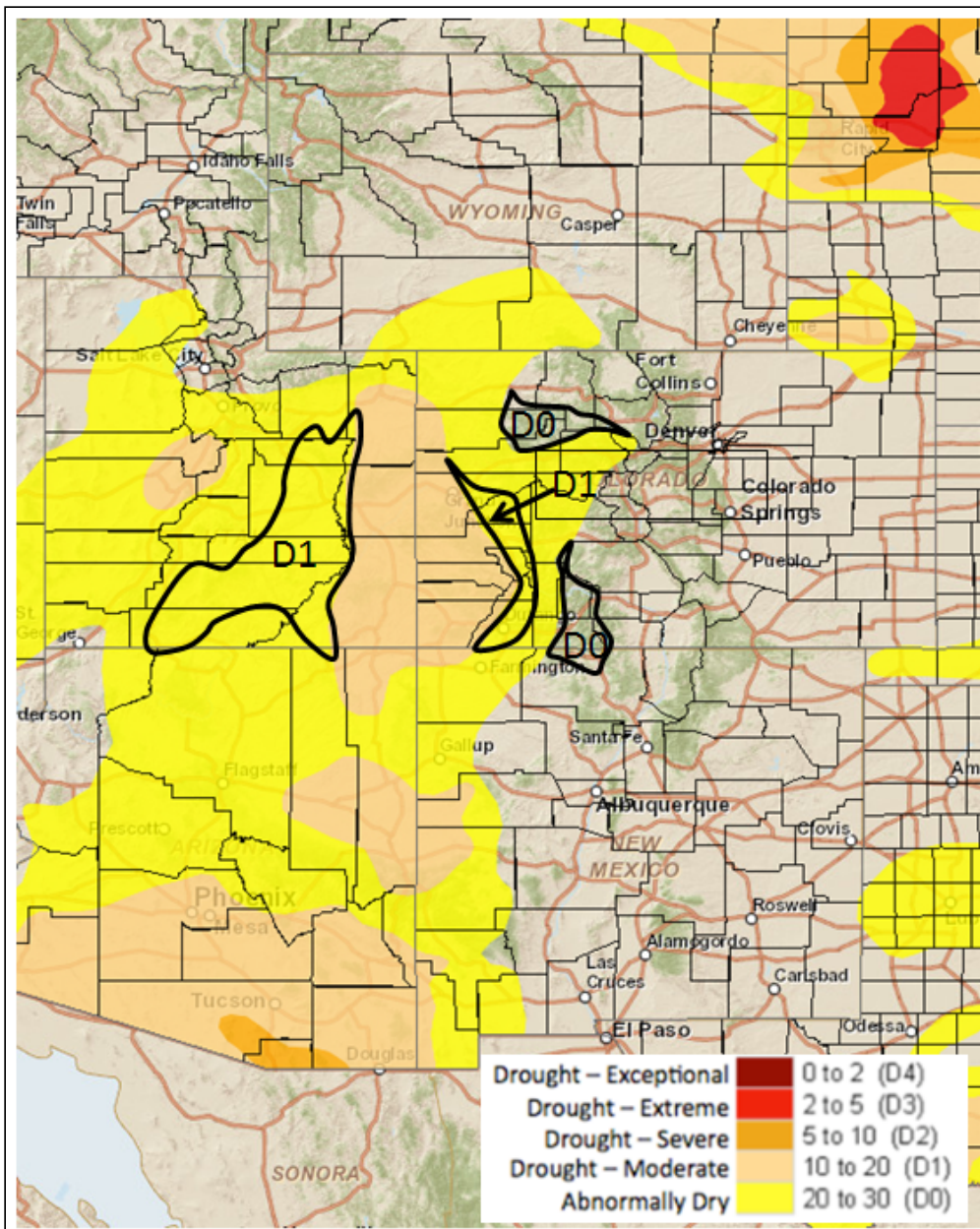
The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate 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: November 28, 2017

The winter season brings larger swings in temperature, especially for the Continental US. Even so, last week's weather in the Intermountain West was freakishly warm. Temperature anomalies averaged over the week were as much as 12-20 degrees above normal for the northern portion of the UCRB, eastern Colorado, and Wyoming. The lower basin and eastern New Mexico were mostly 4-12 degrees above normal.

It was also a dry week across much of the Intermountain West. The Tetons were the big exception, receiving between 1.0 and 1.5" of precipitation. The Tetons have consistently been wetter than other mountain ranges in the IMW recently, which is typical of a La Nina winter. The northern Rockies and Urban Corridor of Colorado also received some precipitation midweek last week. This was mostly between 0.5 and 1.0" in the higher elevations, and under a quarter of an inch in the lower elevations. Much of the southern UCRB and eastern Colorado were completely dry.

Snowpack is still above average in the northern part of the IMW and below average to the south, but most basins did not keep up over the last week, and some lost snow due to the warm temperatures. Snowpack is below 50% of normal for southern Utah and southwest Colorado. It is still below average for the rest of Colorado, and does not tilt towards above average until up into Wyoming.

Streamflows are typically low this time of year, but lower than normal 28-day average flows are now being recorded along the San Juan, Dolores, and White River Channels. Individual gage sites currently show a mixed bag of above and below normal flows. Soil moisture is also typically on the lower end this time of year at lower elevations. As a result of low precipitation and much higher than average evaporative demand, the area of drier than average soils in the UCRB continues to expand and intensify.

Condition monitoring reports from western Colorado stress moderately dry conditions. Impacts include lack of snow, perturbed deer migrations, and lack of available plant water.

Recommendations

UCRB: It is recommended that the D1 added to the western slopes of Colorado in USDM draft 1 be finalized. This included central Mesa County, eastern Montrose County, eastern Ouray County, eastern San Juan County, and central La Plata County.

It is recommended that D1 also be expanded on the western side of the UCRB. This expansion would include southern Duchesne County, east and central Carbon County, east and central Emery County, east and central Wayne County, all but far west Garfield County, central Kane County, and all but far west San Juan County. Last year's above average snowpack in Utah kept hydrologic drought mostly at bay, but these areas are now below average precipitation for the past 12 months on top of being much warmer and drier than normal recently. Streams are mostly at baseflow right now, and vegetation (what little of it there is) dormant, but we are seeing surface impacts from this dryness not just in the lack of snow, but in the soils and vegetative health as well.

It is recommended that D0 be expanded in two pockets on the western slopes: in Mineral and Archuleta Counties, and in eastern Garfield County, eastern Rio Blanco County, and southern Routt County. Late November is an important time of year for big snow totals in the Wolf Creek Pass area, one of the wettest spots in all of the UCRB, and thus far we've missed the mark. Precipitation is falling behind on short and long timescales in eastern Rio Blanco and eastern Garfield Counties.

Eastern Colorado: Status quo is recommended for the rest of Colorado.