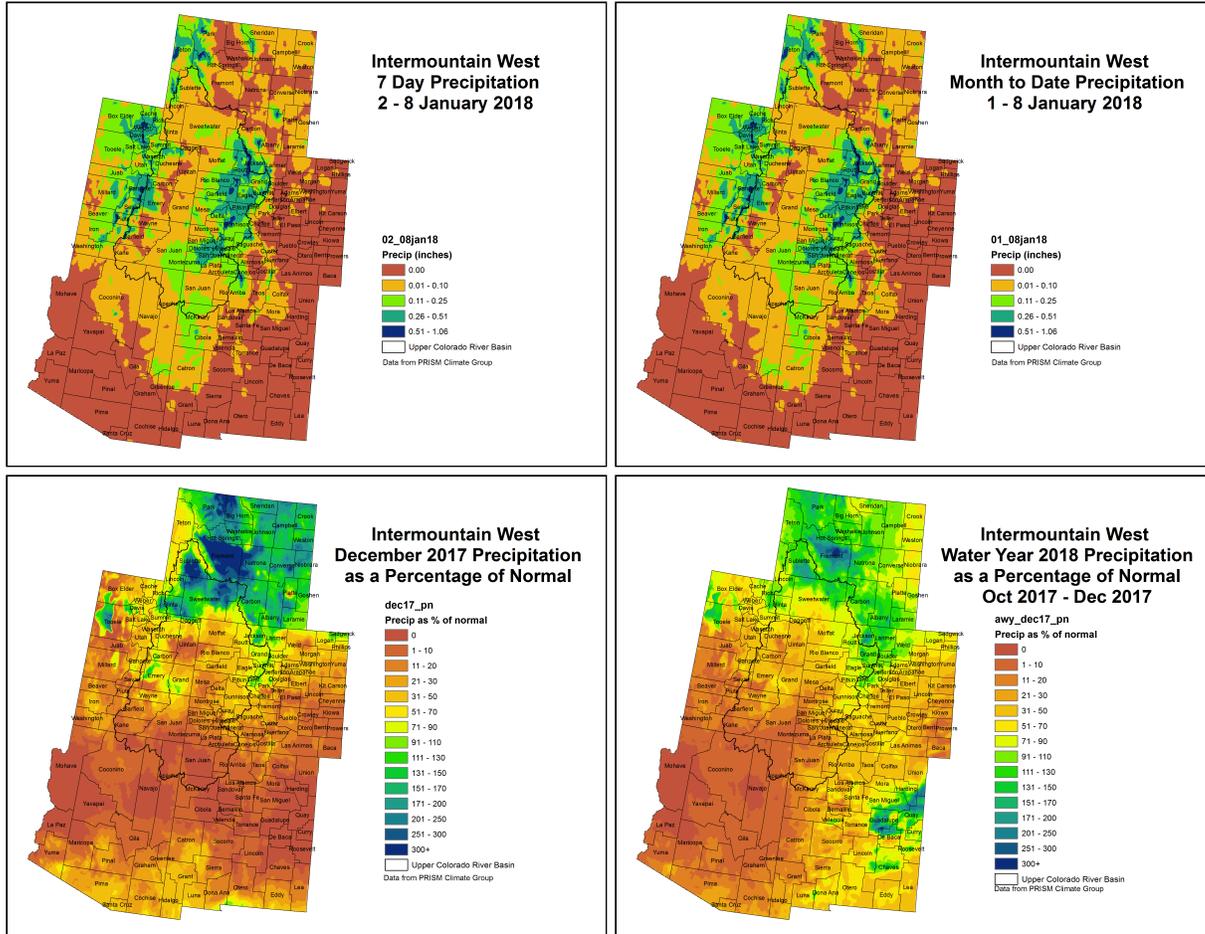


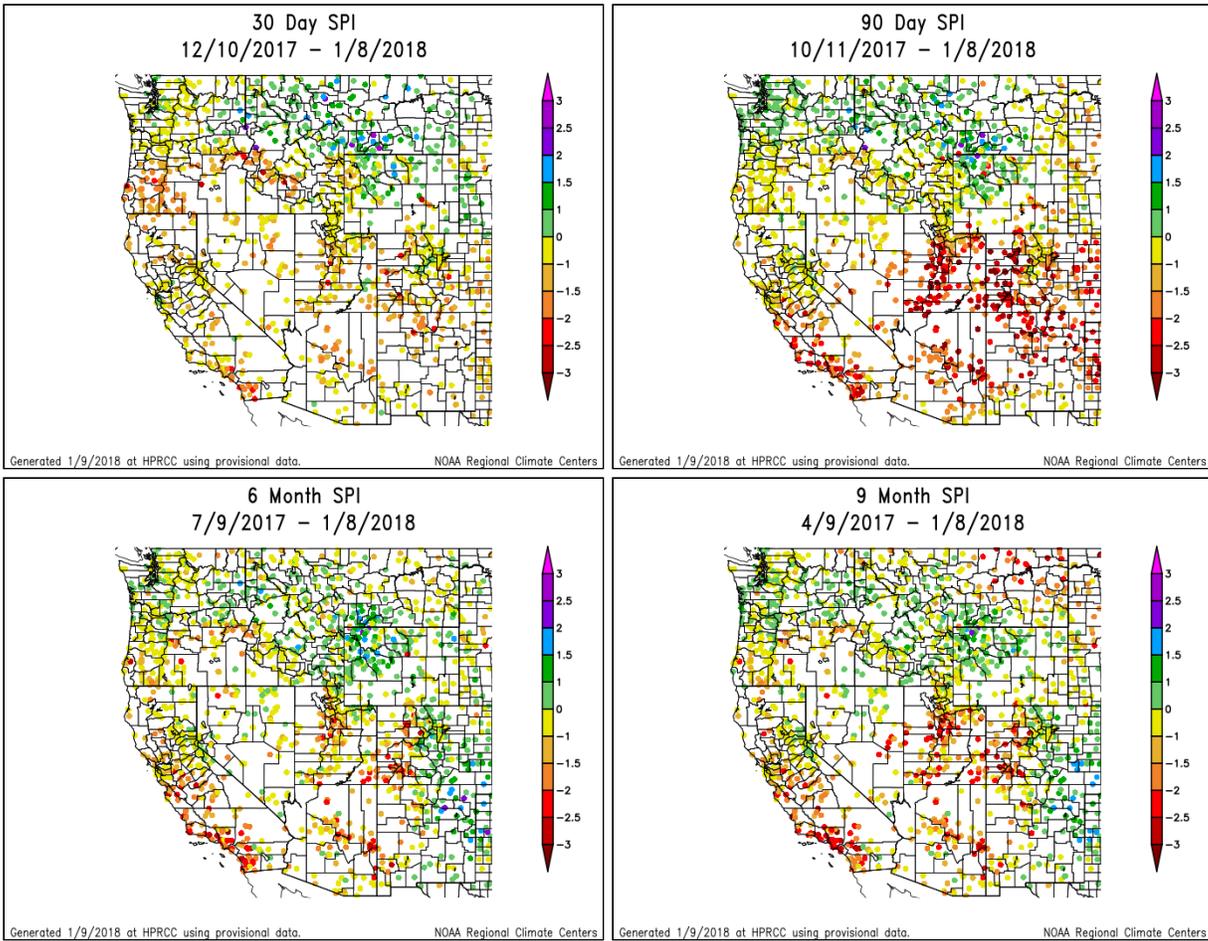
# NIDIS Intermountain West Drought Early Warning System January 9, 2018

## Precipitation



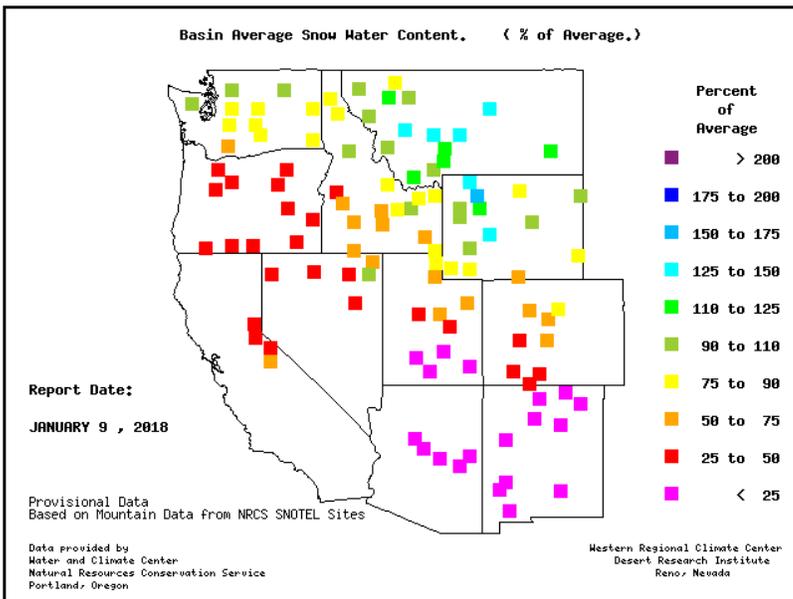
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

## Standardized Precipitation Index



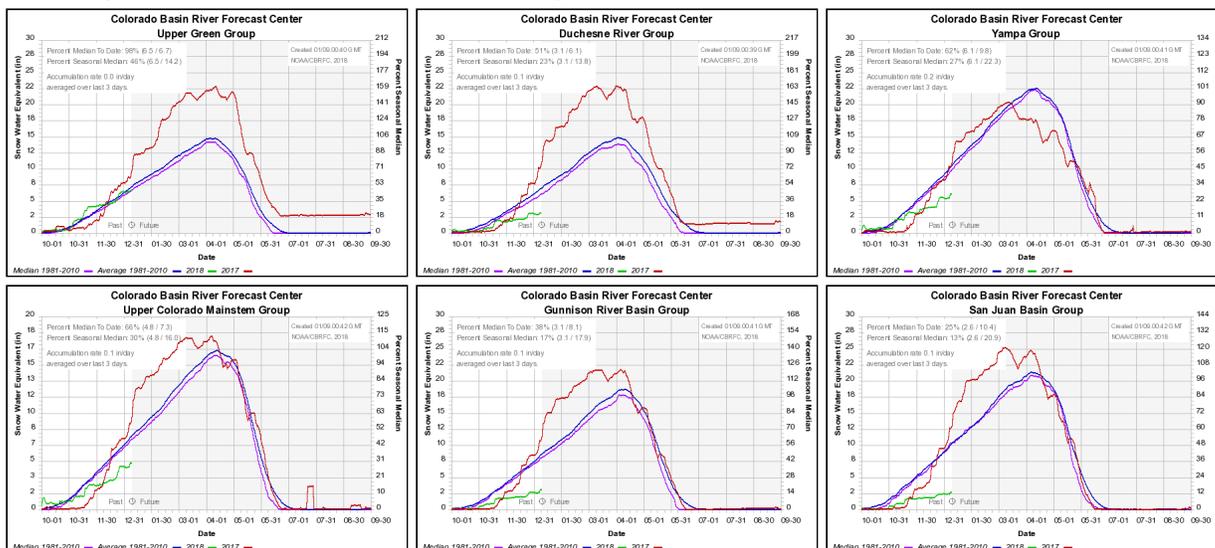
Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions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

## Snotel and Snowpack



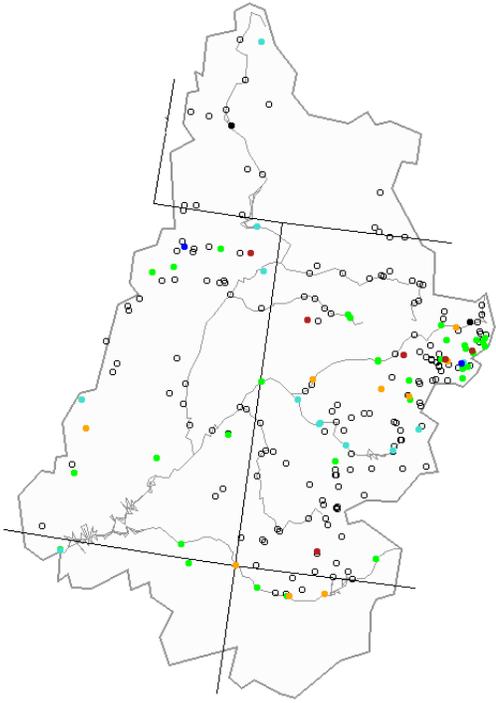
The above image shows sub-basin averaged snow water equivalent accumulations as a percent of average. The images below show accumulated snow water equivalent in inches (green) compared

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

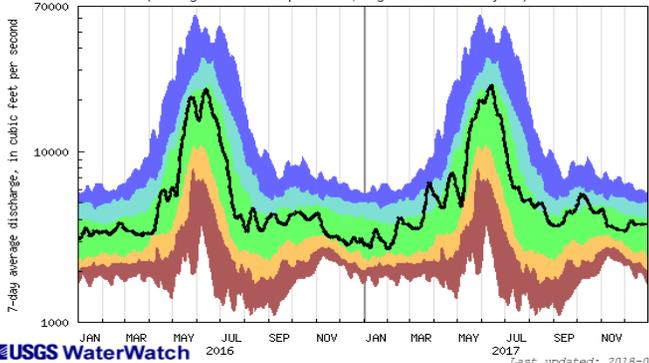
Monday, January 08, 2018



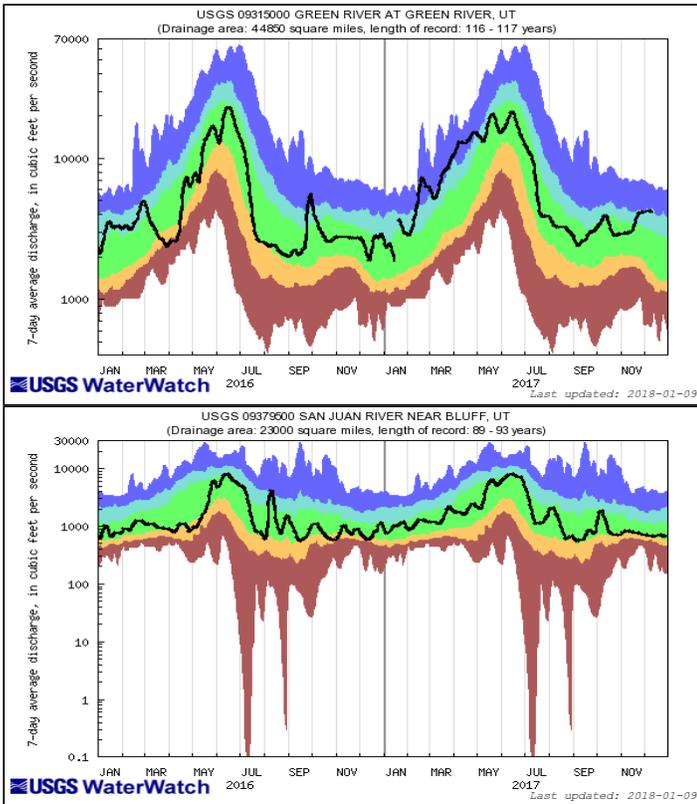
| Explanation - Percentile classes |                   |              |        |              |                   |      |            |
|----------------------------------|-------------------|--------------|--------|--------------|-------------------|------|------------|
|                           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



USGS 09163300 COLORADO RIVER NEAR COLORADO-UTAH STATE LINE  
(Drainage area: 17849 square miles, length of record: 65 - 66 years)

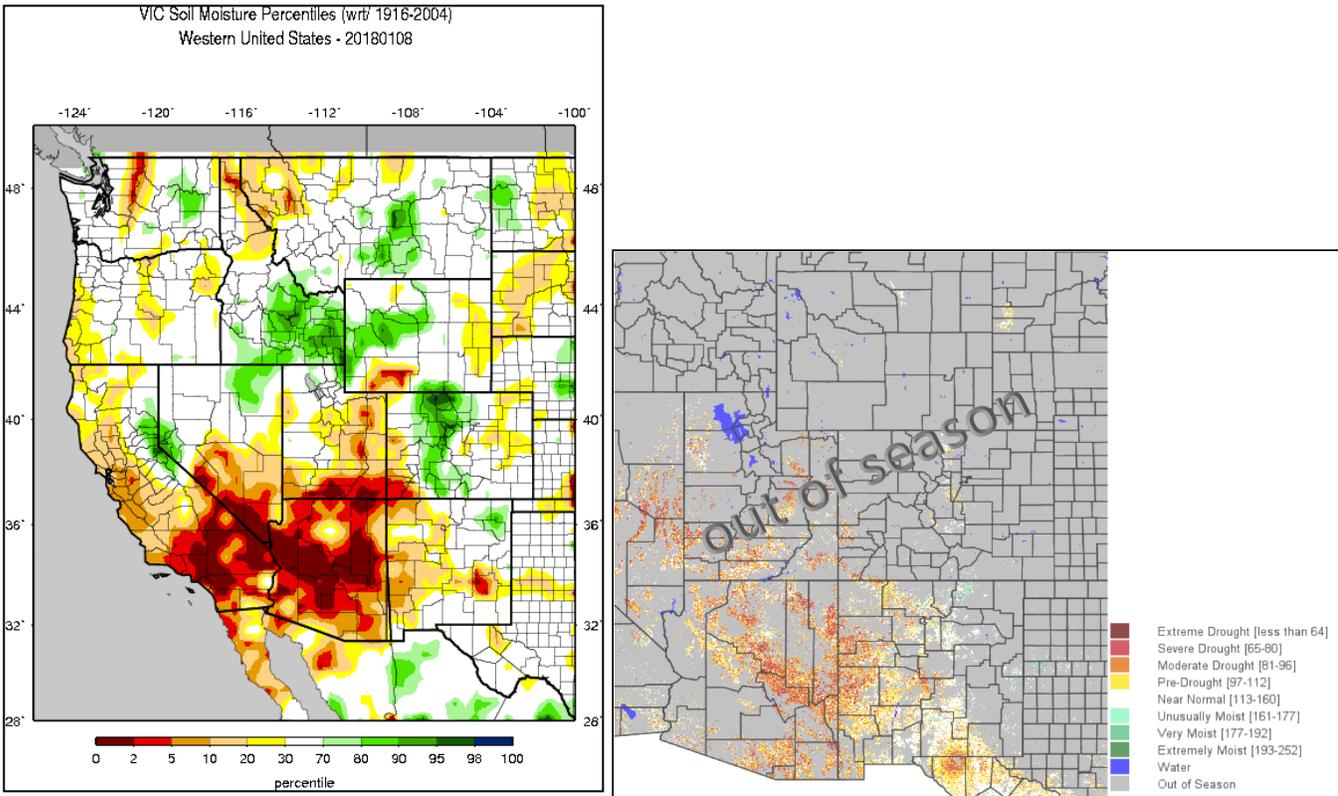


Last updated: 2018-01-09



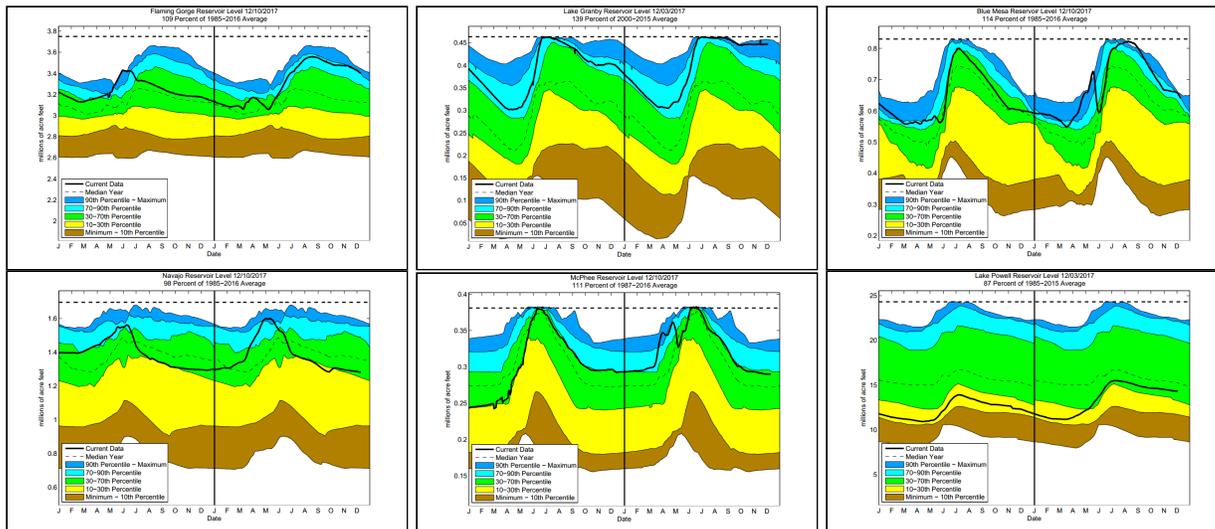
The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff,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

## Surface Water

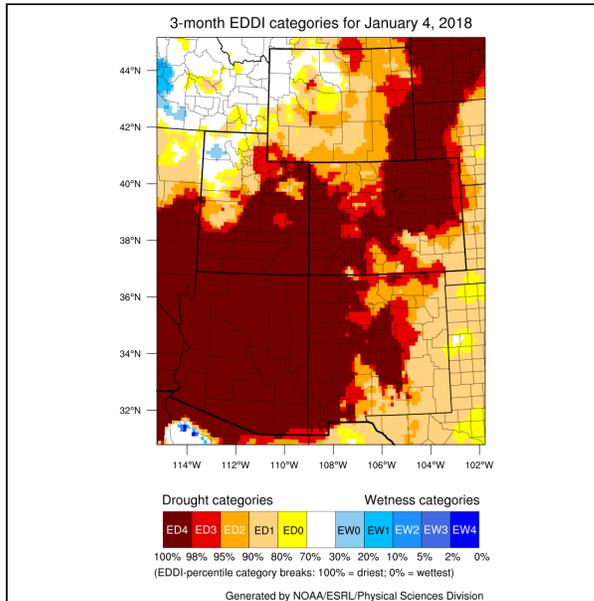
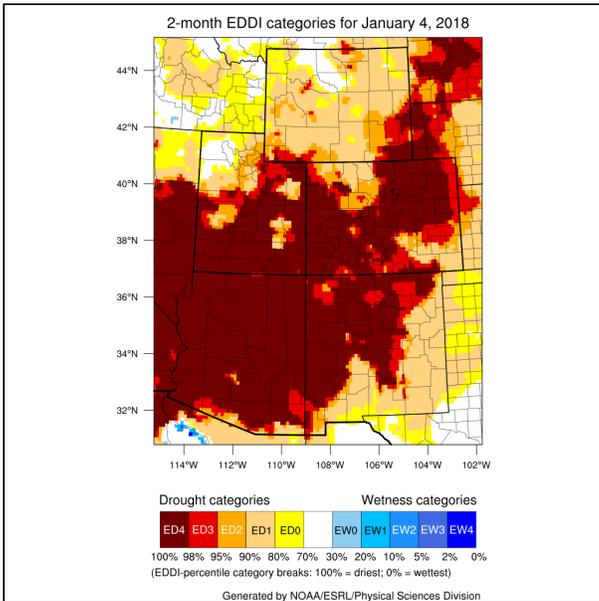
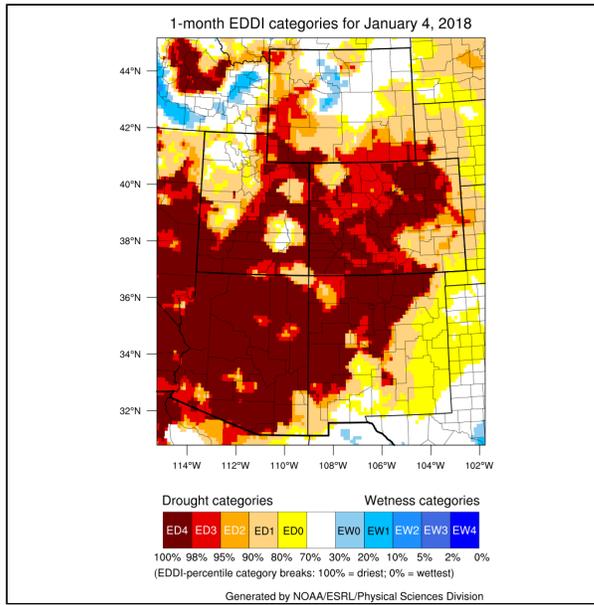
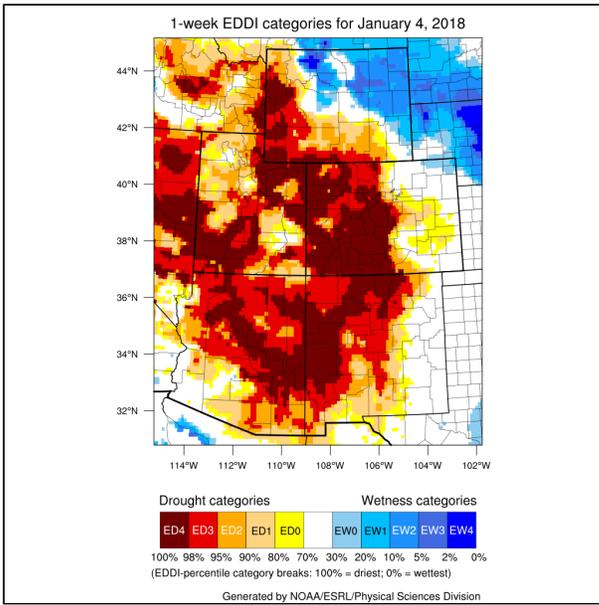


The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

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.

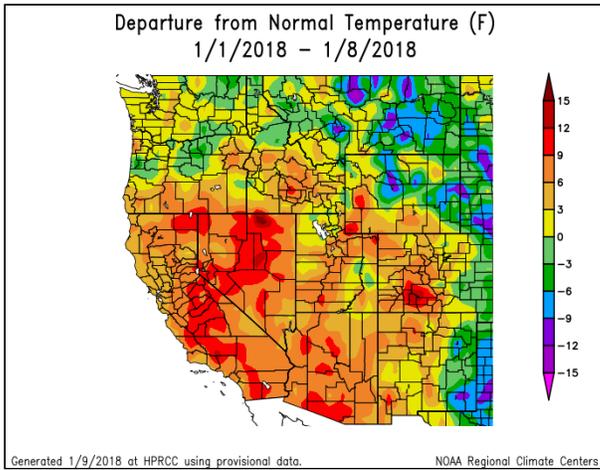
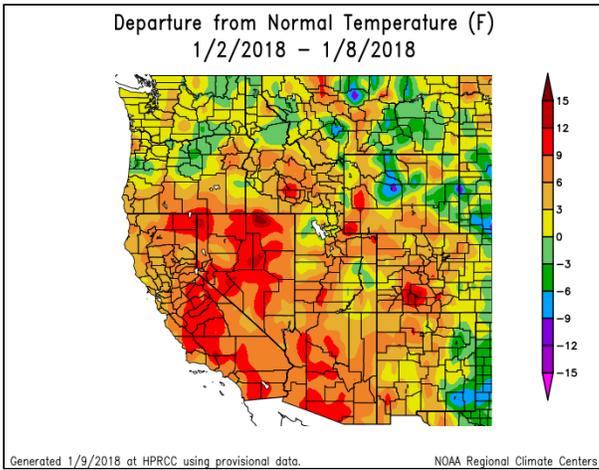


## Evaporative Demand

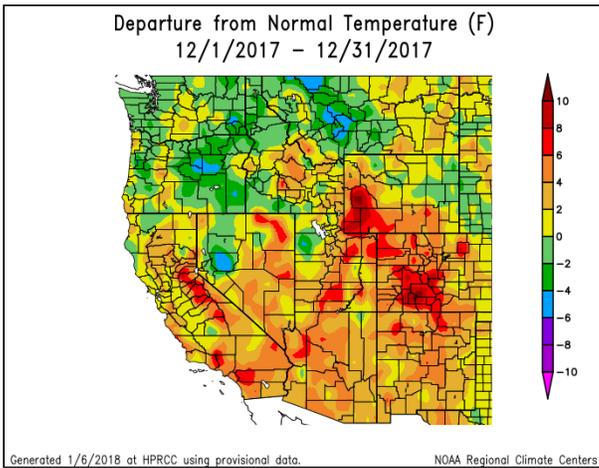


The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

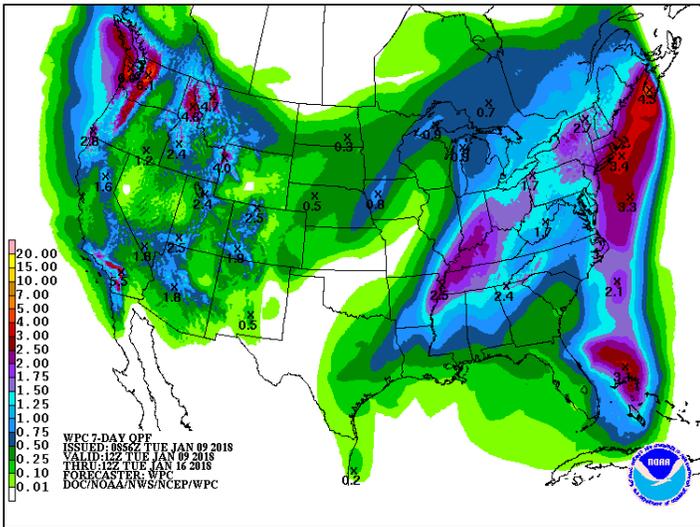
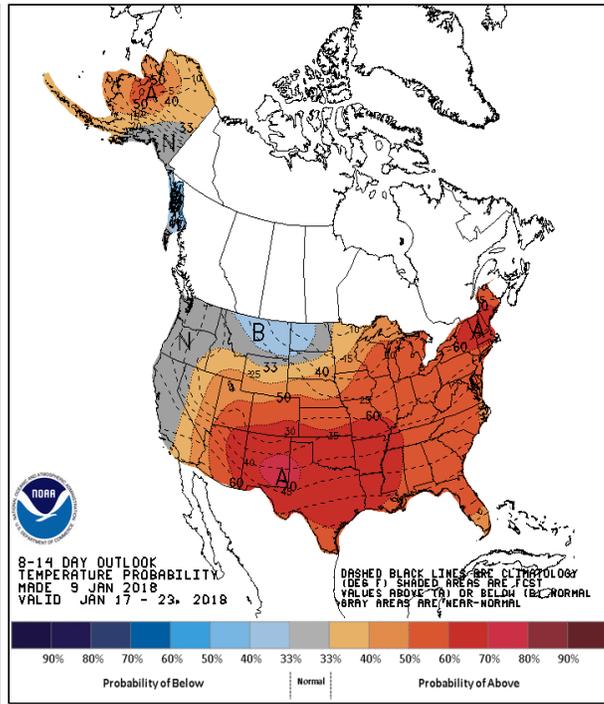
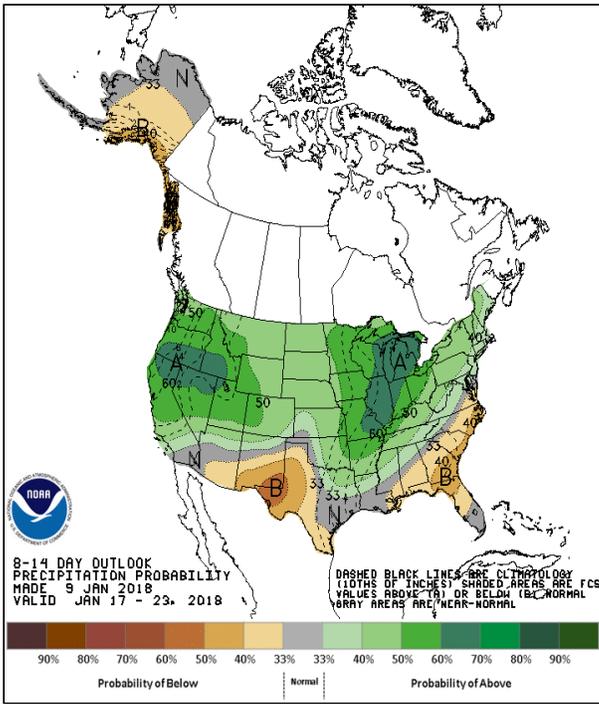
## Temperature



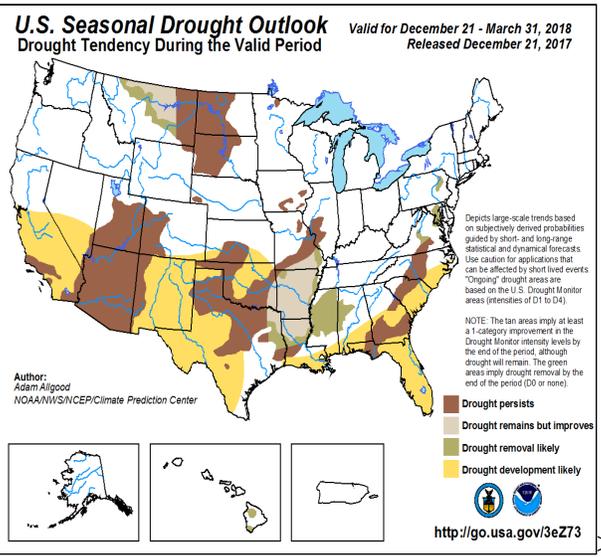
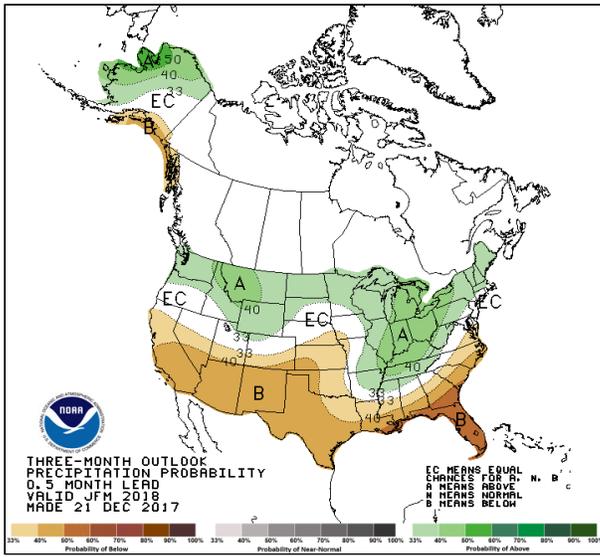
All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



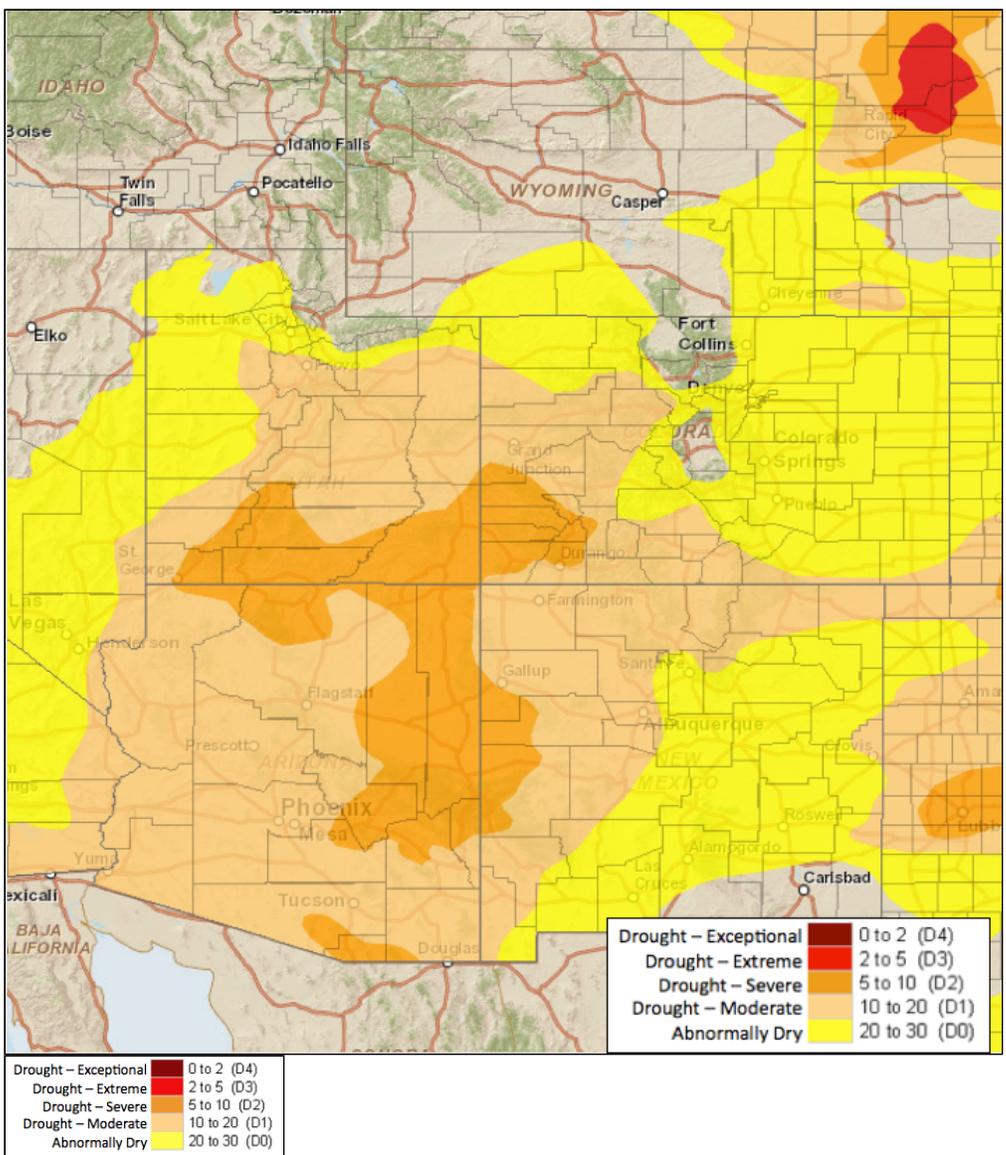
# Outlook



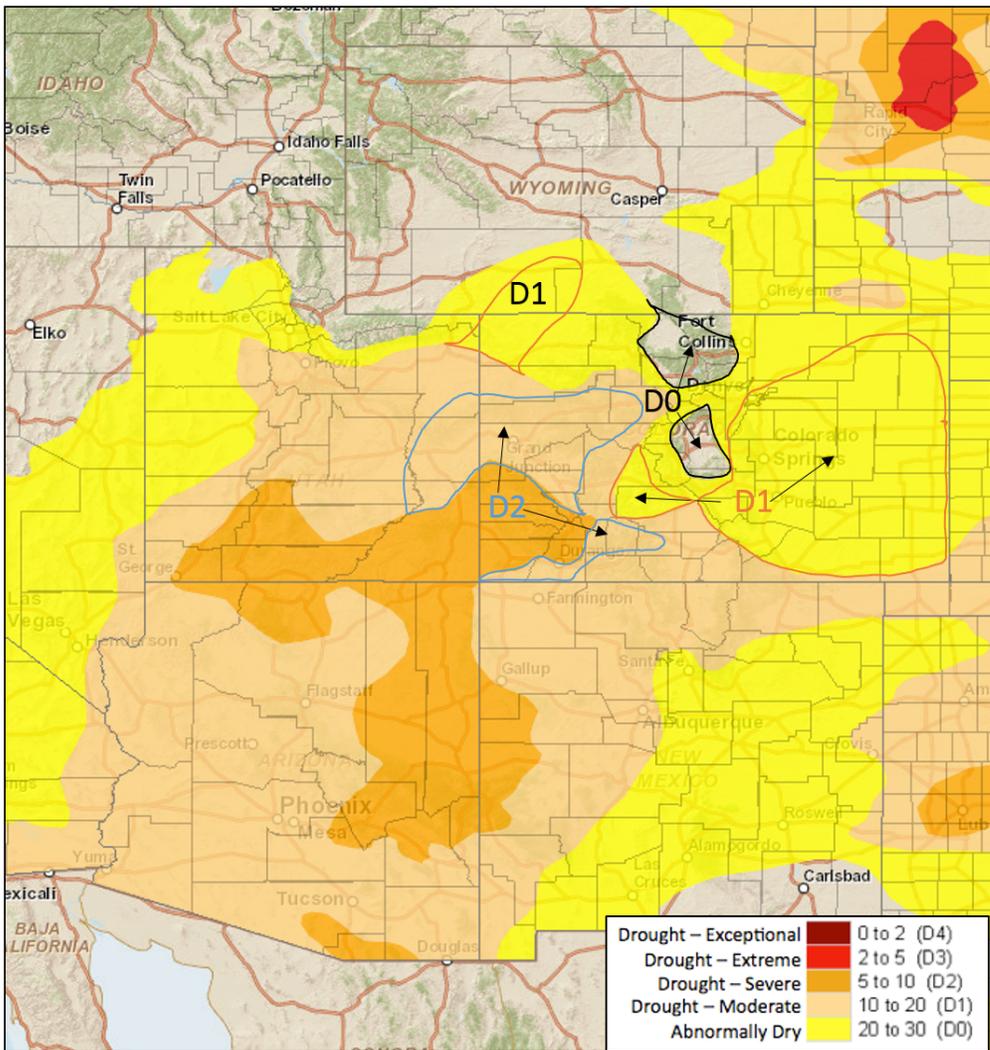
The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate 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: January 9, 2018

The Intermountain West saw another week of low precipitation amounts with the majority of the region receiving less than 0.10" over the week. The better precipitation amounts were mainly on the east side of the Upper Colorado River basin in Colorado, where the Colorado Rockies saw between 0.25" and 0.50", with a few isolated areas seeing up to 1.00" of new precipitation. This precipitation included the San Juan Mountains where precipitation has been extremely low. Central and northern Utah also saw up to 0.5" of new precipitation. For the most part, this is below normal for this time of the year.

East of the Continental Divide, eastern Colorado was mainly shut out for precipitation last week, adding to the dryness that has persisted for the past few months. SPIs are now negative, meaning below normal precipitation, out to the beginning of the water year for all of eastern Colorado, including the areas that currently sit without an abnormally dry or drought category. This may just be the justification needed to fill in these holes.

With the continued lack of precipitation, snowpack continues to be much below normal with the exception of northern Wyoming. All sub-basins in the UCRB are much below normal.

Temperatures through much of the region were above normal, making the impacts from low precipitation worse. In eastern Colorado, the warm temperatures are keeping the winter wheat crops from true dormancy, which

means crops could be badly damaged if a really cold snap comes through with no snow cover. The warm temperatures with the lack of precipitation and snowpack also cause drying soils, making it even harder to have a good crop this spring.

## **Recommendations**

**UCRB:** The US Drought Monitor Author has proposed expansion of D2 in eastern Utah and western Colorado. This area includes Grand County, Utah, Garfield, Mesa and Delta counties in Colorado, and a small eastward expansion in the San Juan Mountains, along the Rio Grande River in southern Colorado. We would like to expand more on the proposed expansion to include all of Garfield County, into Eagle County, catching western Pitkin County and all of Delta, Montrose and Ouray Counties. This expansion is being led by similarly poor snowpack conditions and SNOTEL precipitation percentiles showing their lowest on record for the water year to date.

We are also expanding on the D2 expansion to include La Plata and Montezuma counties to the CO-NM border. Our expansion is being led by the similarly dry SPIs through southwestern Colorado.

The USDM Author also proposed D1 expansion in Moffat County, CO, into Sweetwater and sw Carbon County, Wyoming. We agree with this expansion, unchanged. Rio Blanco and eastern Moffat counties are dry looking at SPI and SNOTEL, however September precipitation was better in this area, which can justify the difference in conditions.

**Eastern Colorado:** Widespread D1 expansion in eastern Colorado is recommended. This area has seen low precipitation and SPIs into the -2 to -2.5 for the past 90-days. On top of the low precipitation, as mentioned above, warm temperatures will most likely have a negative impact on the winter wheat crop.

We are also recommending D1 be expanded in Saguache County. We are recommending the D-nothing in Park County and neighboring counties be filled into D0. We are also recommending D0 in Jackson, Larimer, Boulder and Grand counties. These areas have seen better precipitation than the rest of Colorado, however recent dryness added with warm temperatures are causing snowpack numbers to remain much below normal, justifying the D0.