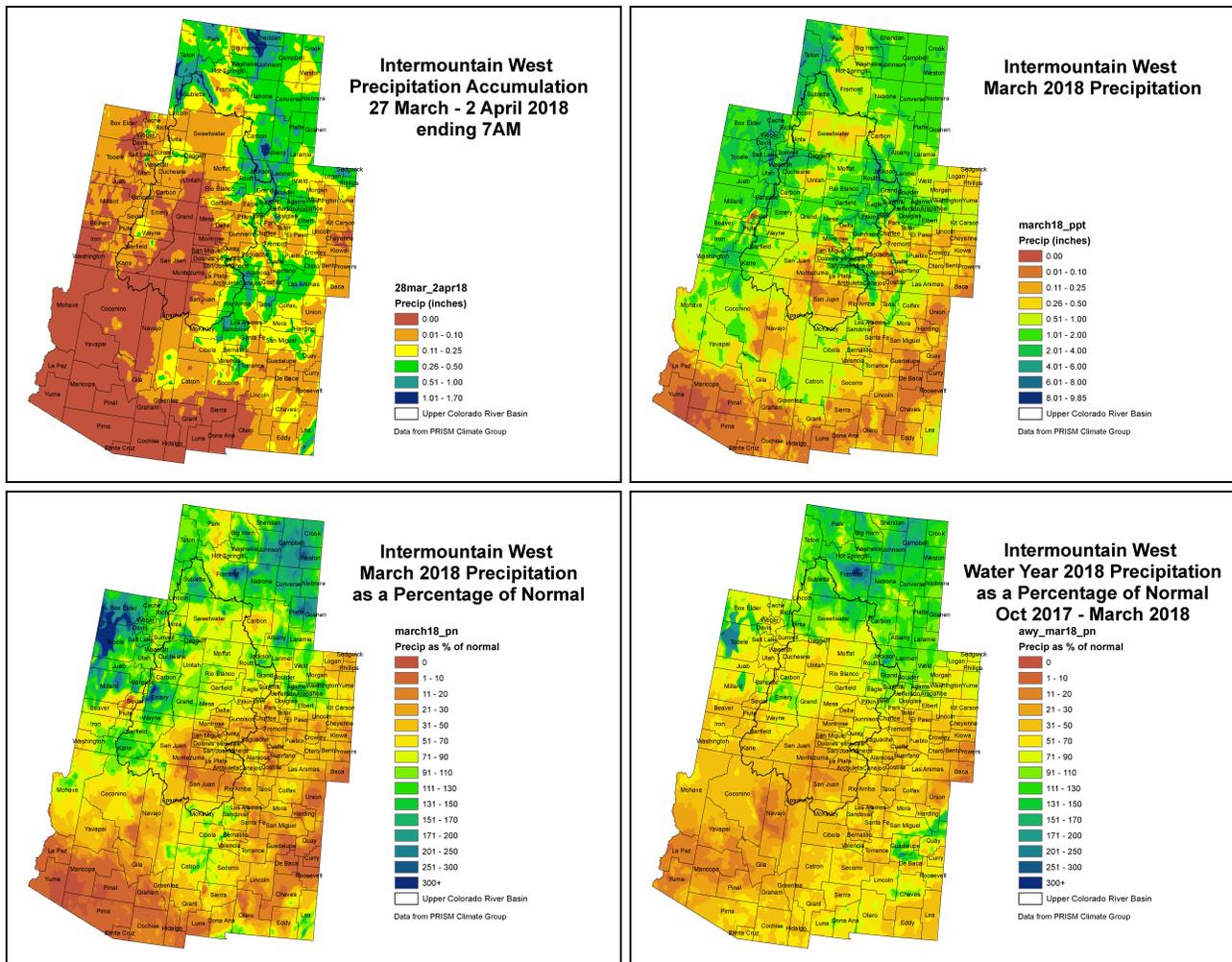


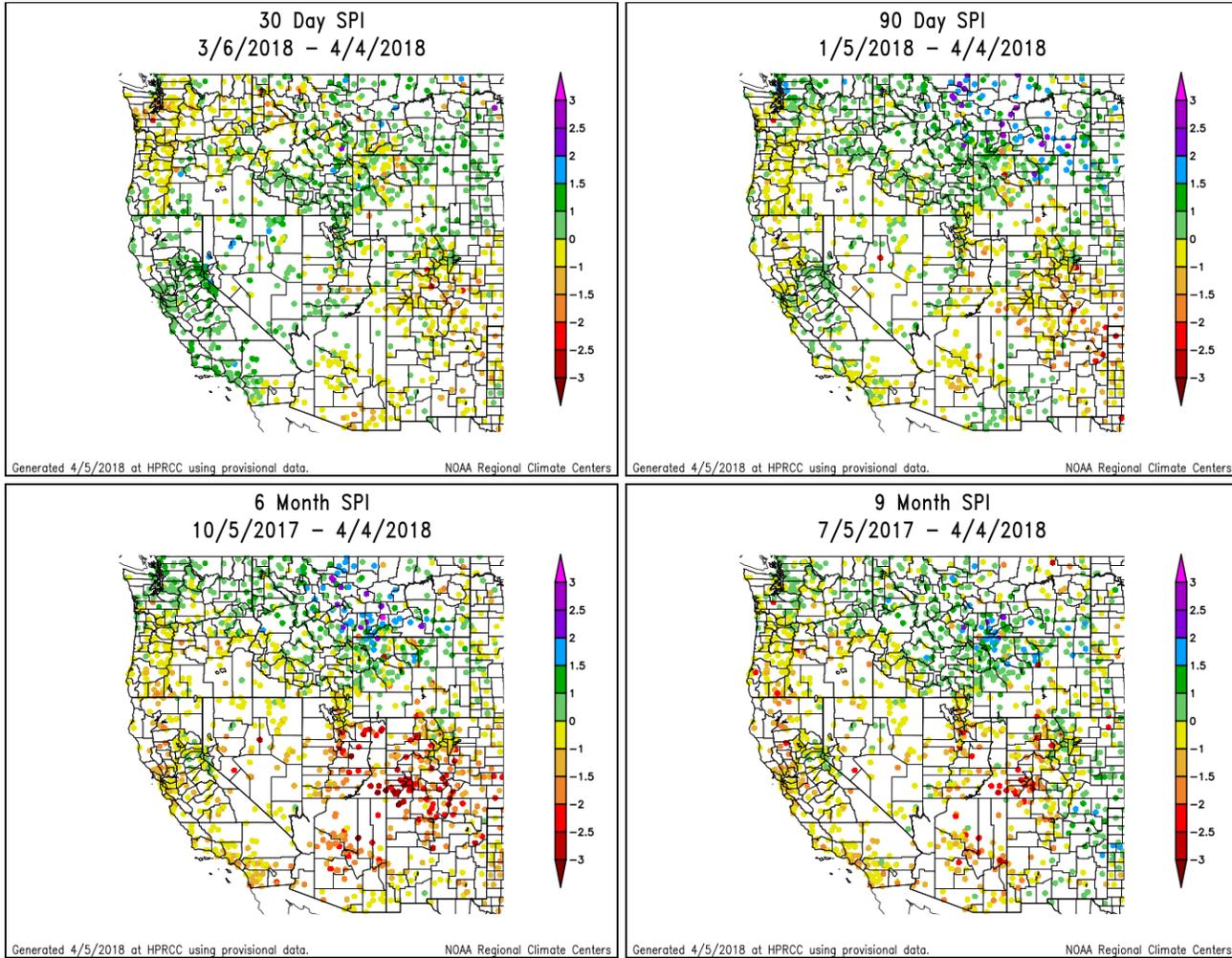
NIDIS Intermountain West Drought Early Warning System April 3, 2018

Precipitation



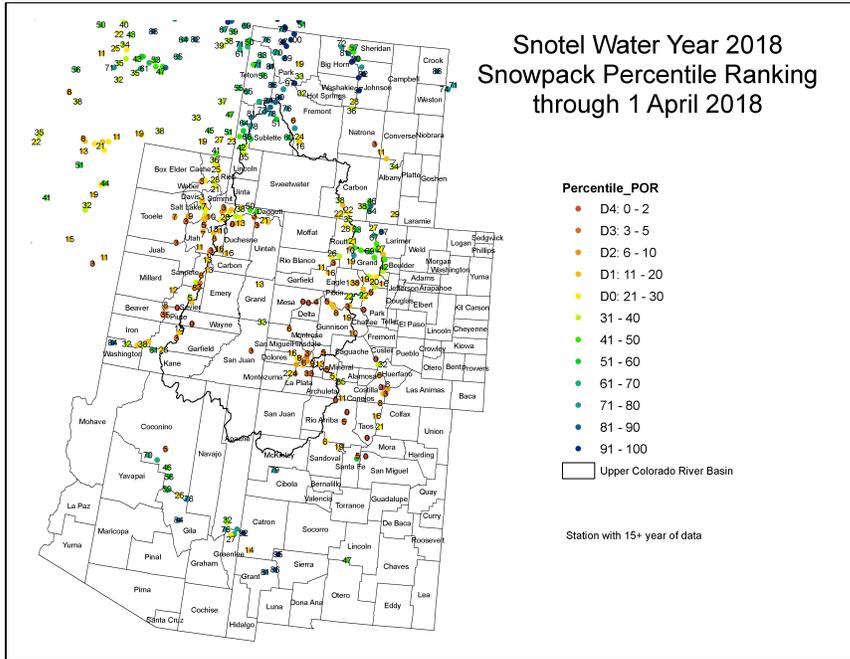
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index

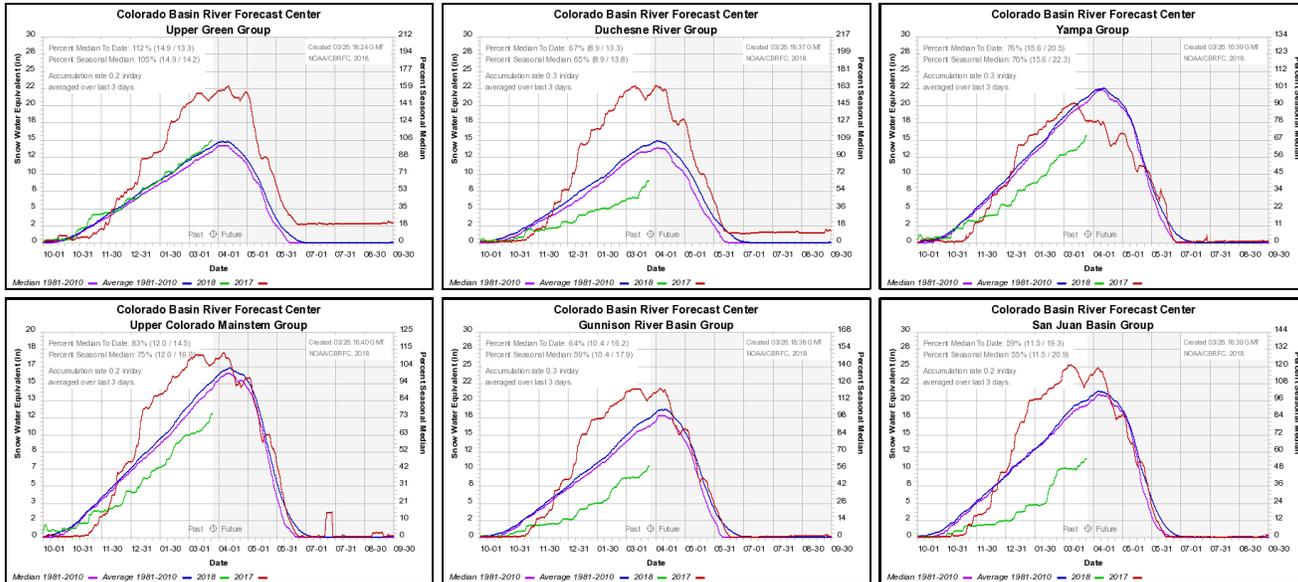


Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions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

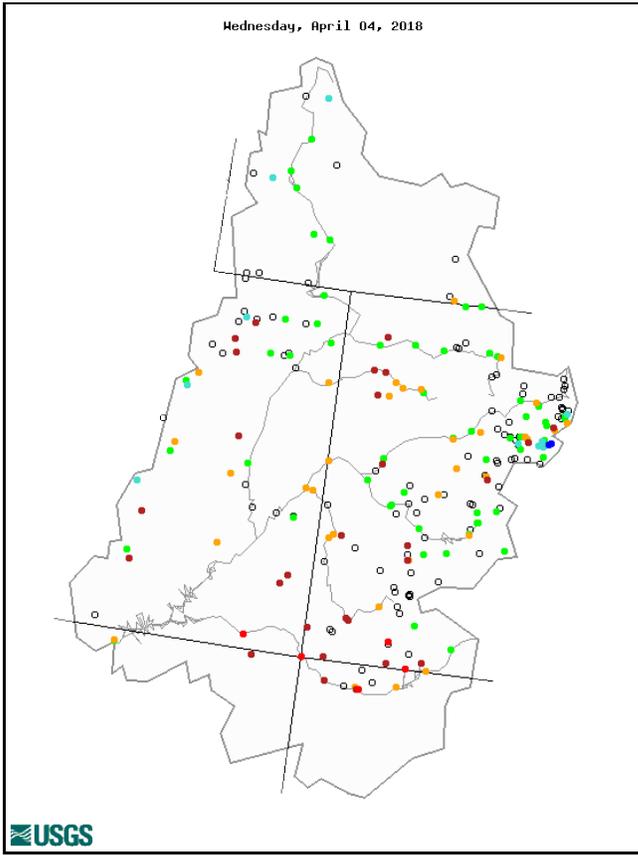
Snotel and Snowpack



The above image shows 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).

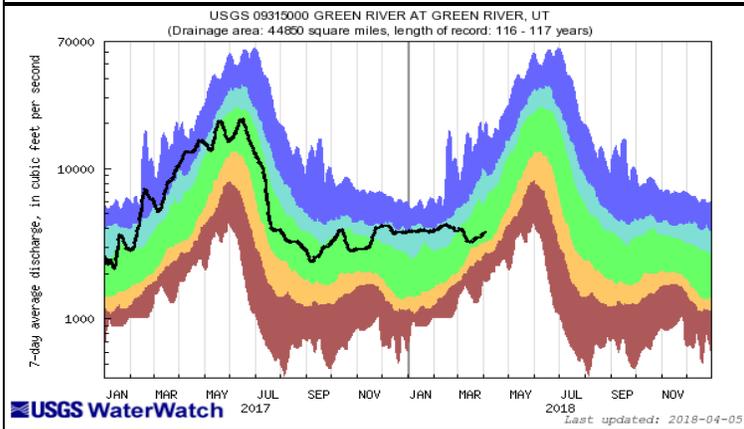
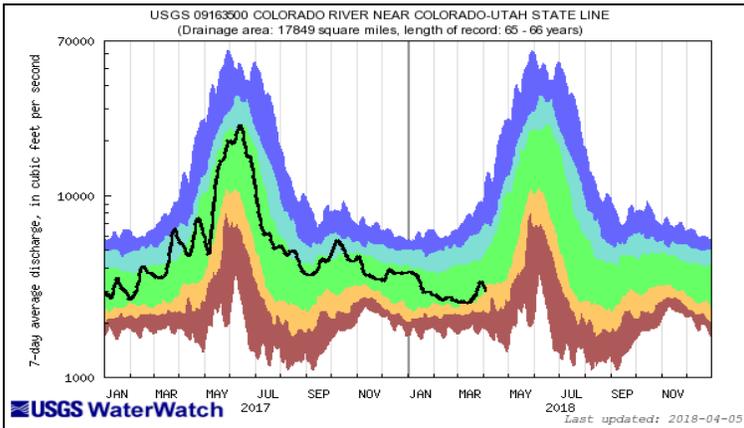


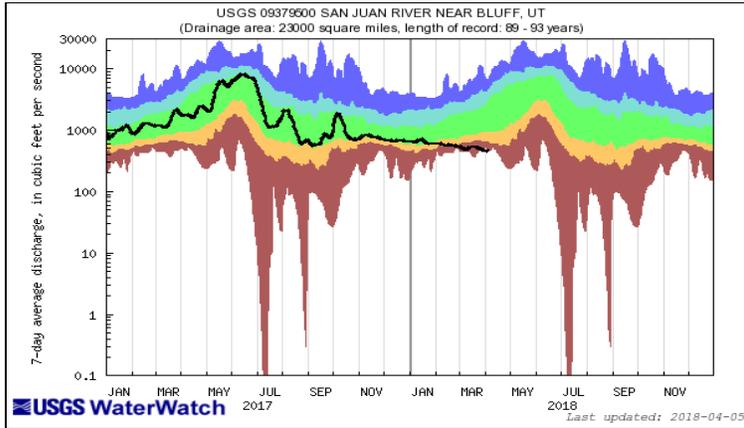
Streamflow



Explanation - Percentile classes

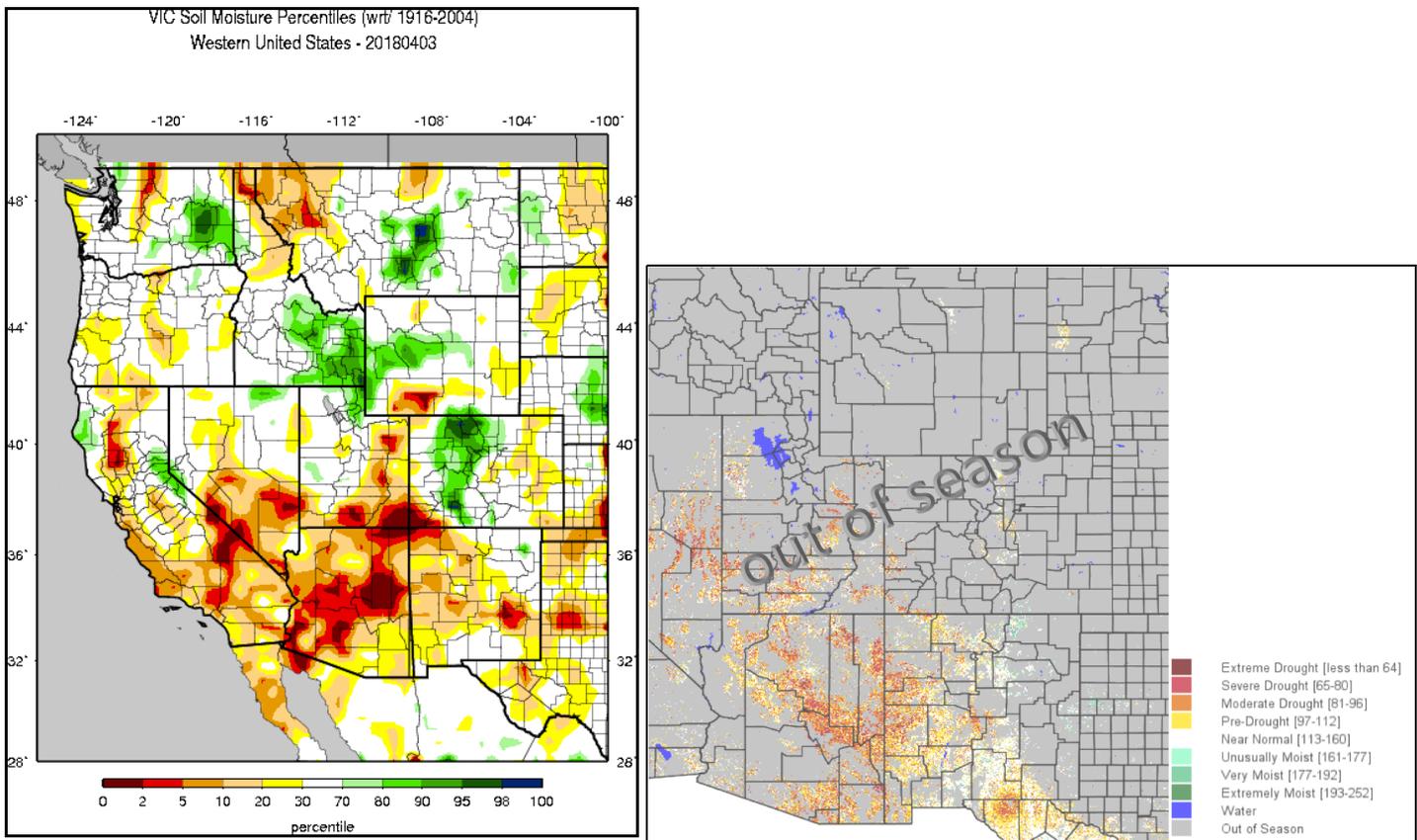
●	●	●	●	●	●	●	○
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		





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.

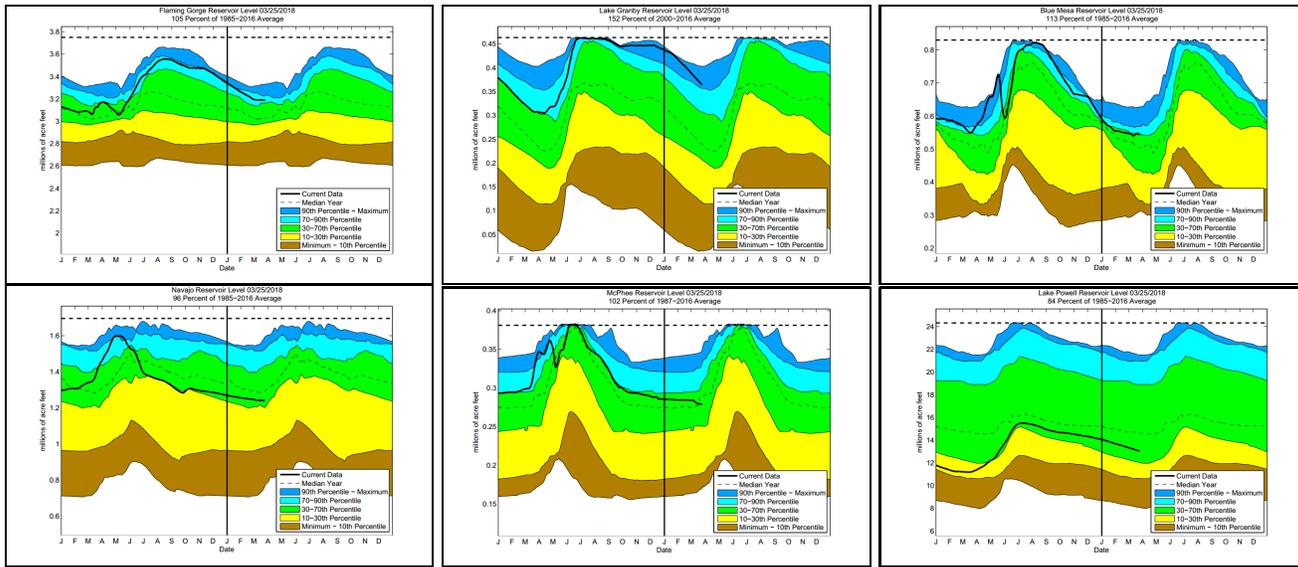
Surface Water



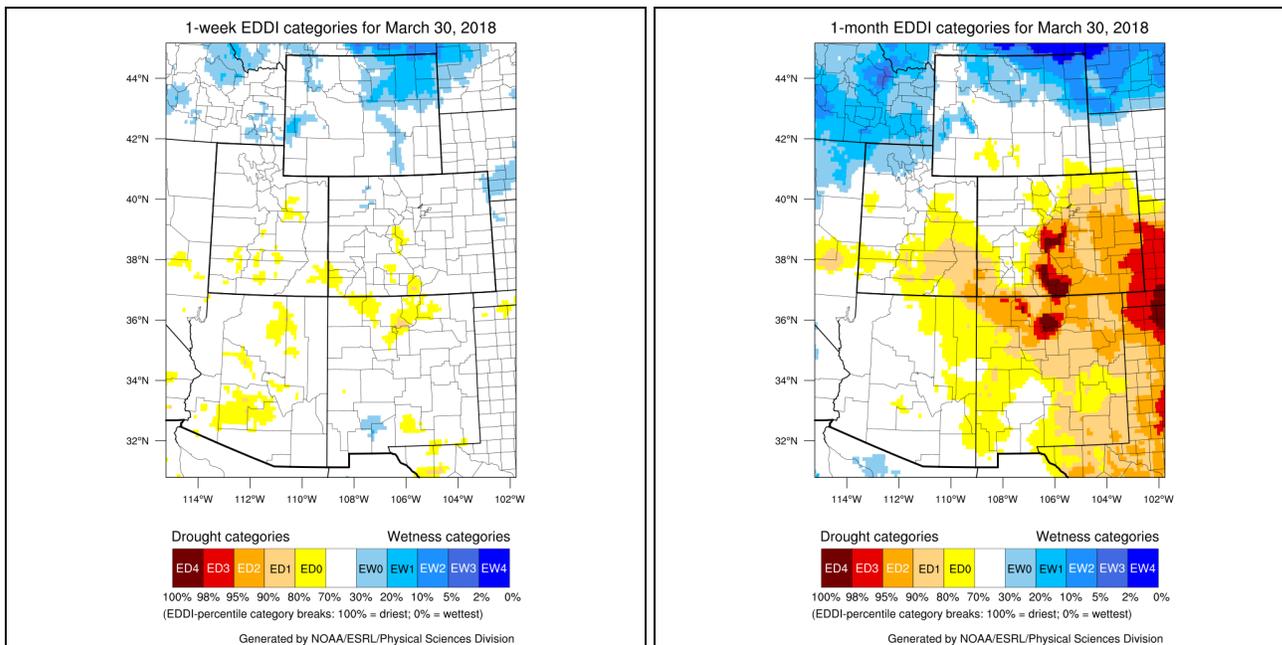
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

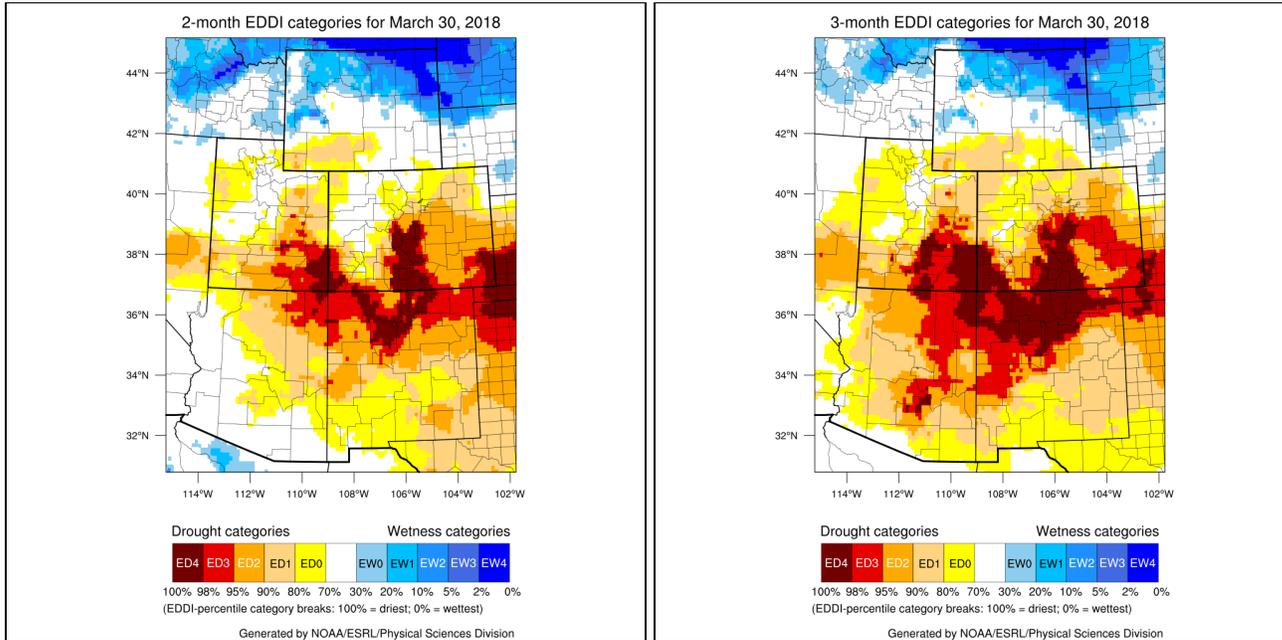
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir

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.



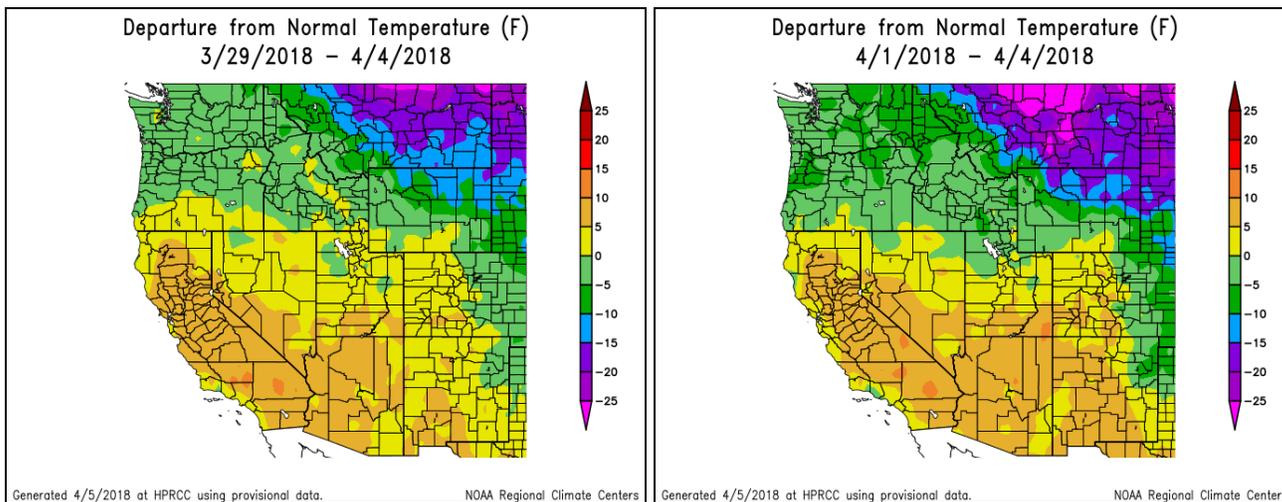
Evaporative Demand



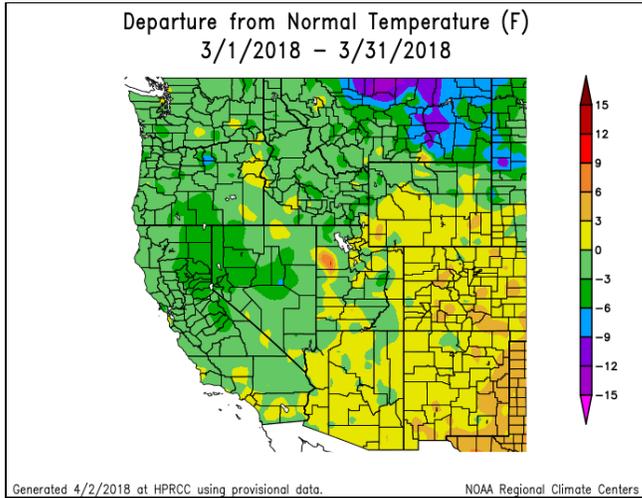


The above images are available courtesy of NOAA’s Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

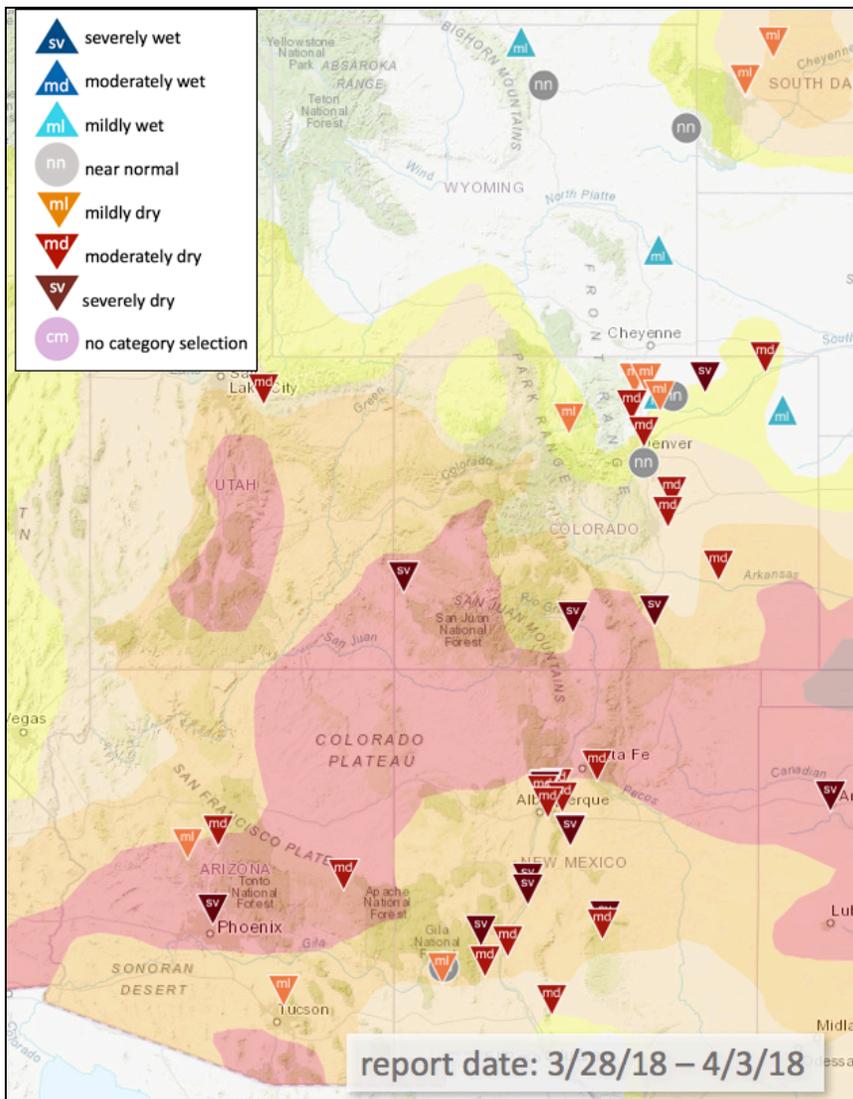
Temperature



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.

Bent and Prowers County FSA

Multiple fires still impacting the region. Winter wheat crops are not looking good. Majority of dryland is trying to hang on, but it's not rooted down due to lack of moisture. More windy and dry days will likely blow the crops out. There have been a few dust storms. And some precipitation has fallen, but with strong winds, the moisture quickly blows away and dries out. Ranchers are concerned about grass for cattle.

Irrigation water is running and there is water for storage. But farmers are expecting 13-18 runs of water, which is below last year, but above what they received in 2012-2013.

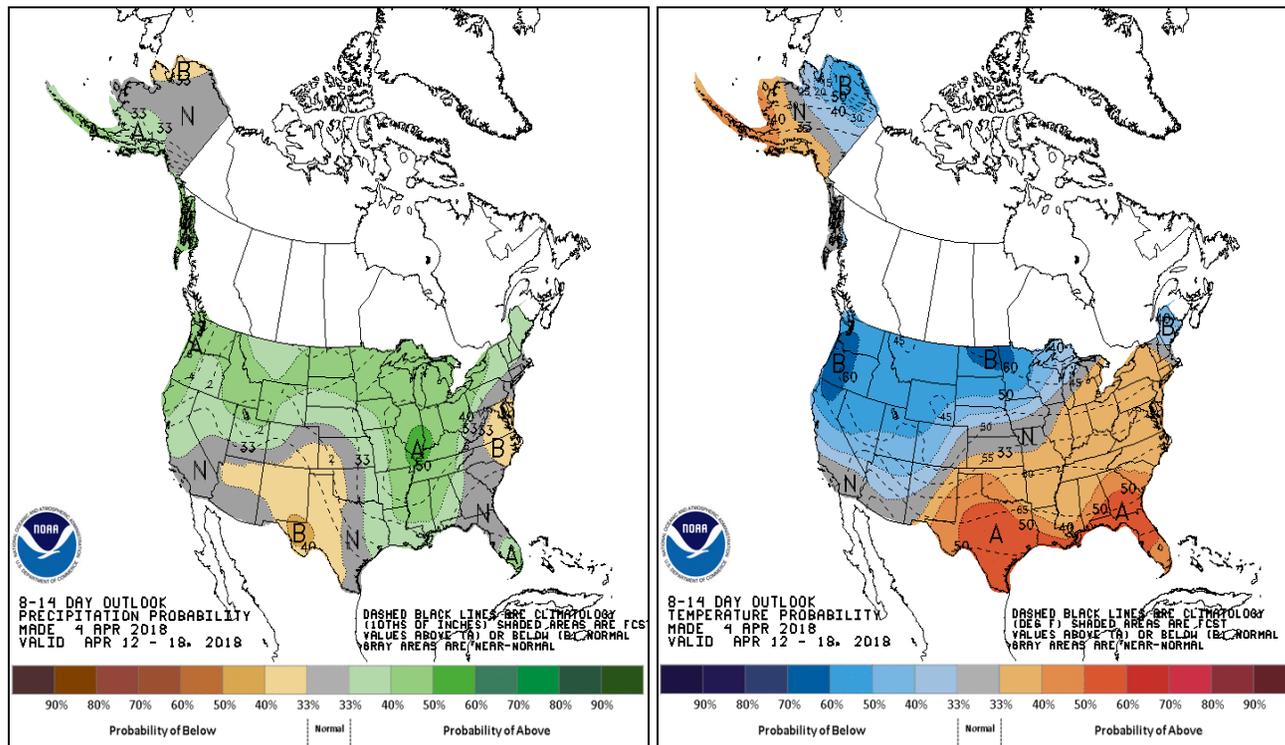
Otero and Crowley County FSA

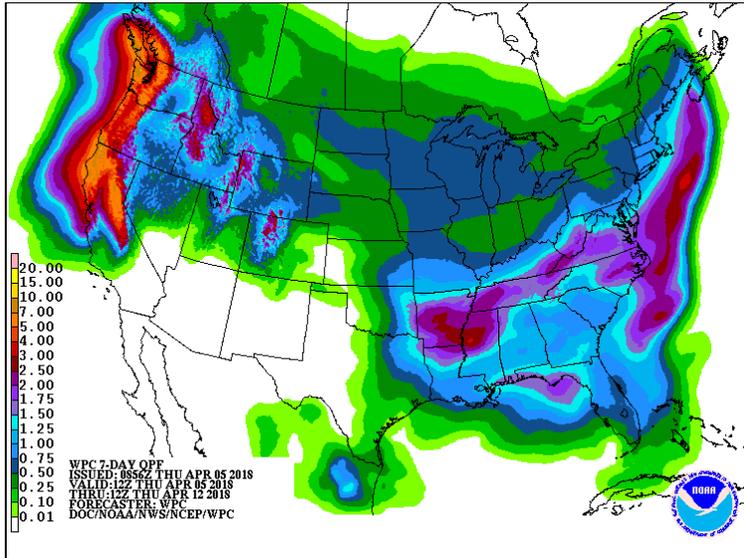
Conditions continue to decline. Soil sampling indicates little to no moisture present. Grazing periods are starting, so no precipitation directly results in losses. Irrigated cropland producers are concerned because, even though reservoir supplies are good, they will face difficulties with downstream exchanges due to low flows. Arkansas River irrigators have begun irrigating some crops. Fire danger is still an issue. Significant crop losses are expected, even on irrigated crops with more junior water rights. Producers are supplement feeding and stock ponds are holding, so reduction of herds isn't too much right now.

Baca County FSA

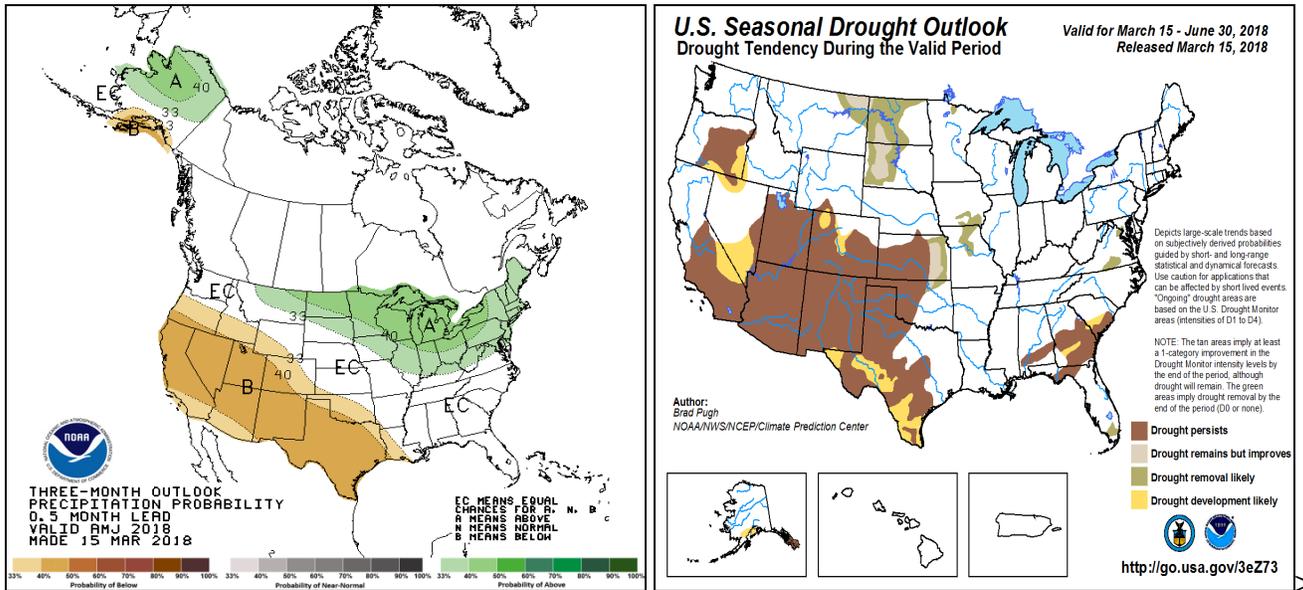
Additional smaller fires continue. High winds and dirt storms are an issue, similar to 2015. Wheat is not looking good. One decent rain did not accumulate much. Weeds benefited and greened up a little, but most of the grass is still dead.

Outlook

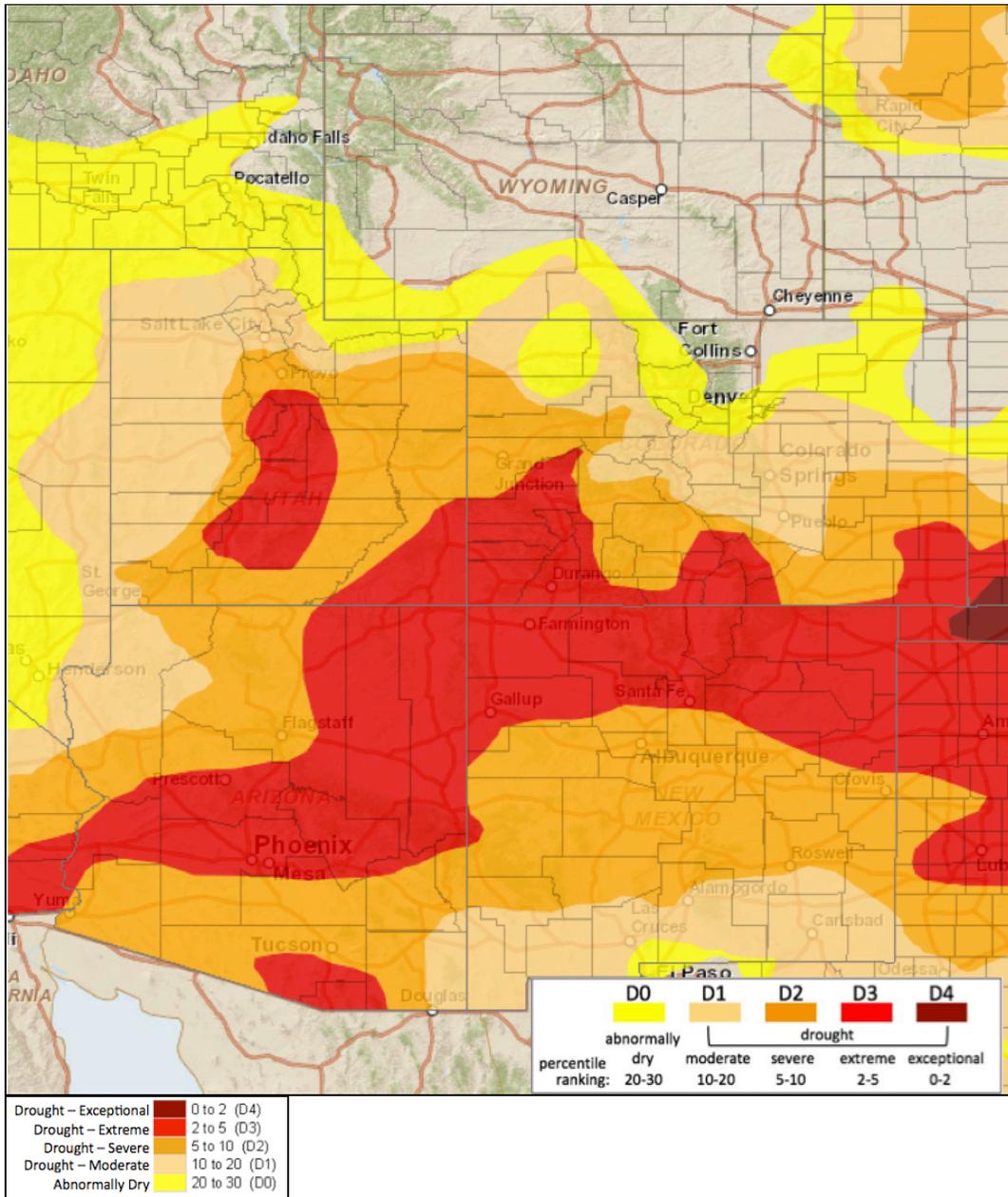




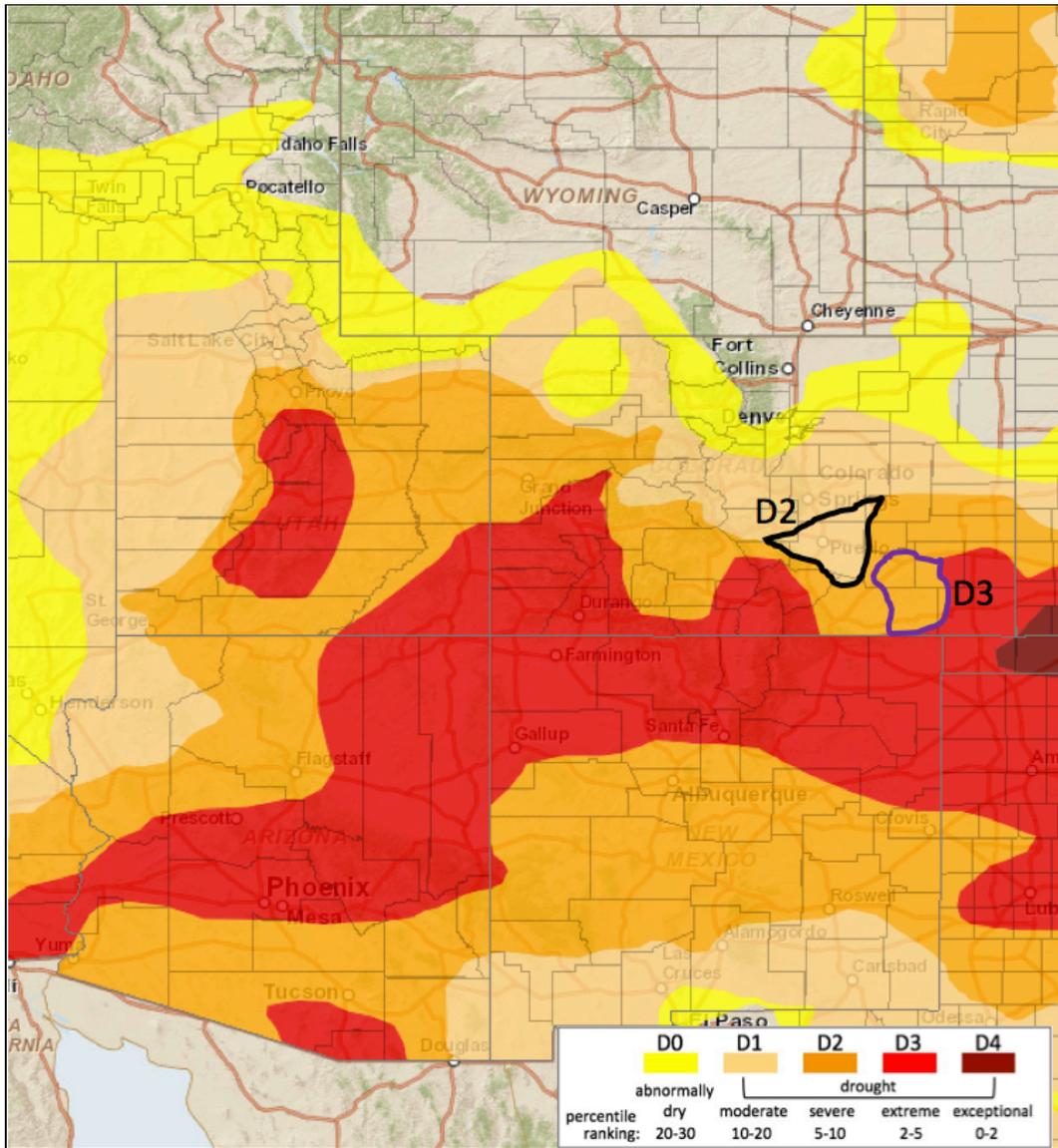
The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate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

The precipitation pattern that has dominated the Intermountain West region since the beginning of the water year continued for the month of March. For the most part, areas to the north saw near to above average precipitation, while areas to the south remained drier than average. A couple of areas of note are the central and northern ranges of Utah, which received widespread near average precipitation and a slight rebound in snowpack percentiles.

However, WYTD precipitation at SNOTEL sites throughout UT are still mostly below the 10th percentile.

March typically begins the ramp-up of spring precipitation to help kick-start the growing season. But for many areas of southern CO, eastern NM, and southern AZ, March precipitation was less than 20% of average. As we continue toward summer, these deficits become harder to make up. On the east side of the IMW, WYTD precipitation deficits from southeast CO and

eastern NM range from 2 to 3.5 inches. Around the Four Corners and down into the higher elevations of NM and AZ, WYTD deficits range from 4 to 9 inches - amounts that are unlikely to be made up prior to the start of the monsoon season.

Fire danger has been a major concern, especially for eastern areas of the IMW that saw a much wetter than average summer (which helped grow fuels) and are currently experiencing many dry and windy days.

Temperatures remained near average for most of the region in March, but as the temperatures are warming, crops are coming out of dormancy. And it is becoming evident that the crops in the south are not faring well. Without moisture soon, there are likely to be widespread losses. Concern with irrigated crops is that water rights may be called, or that the rivers will be too low to make the downstream exchanges. Farmers and ranchers are on high alert right now.

We are now reaching the typical time period of peak snowpack, and surprisingly, we haven't seen much early melting from the high elevation SNOTEL sites. Streamgages in the UCRB, which typically show a bump up in runoff in March, have struggled, indicating that melting of low elevation sites didn't yield as much snow as normal, and high elevation is holding onto its snowpack. In the next couple of weeks, we can expect to see an increase in runoff and snowpack begin its decline. As expected, the northern basins will finish near to slightly-below average, and the southern basins have remained well below average. Contributions from the Green and Colorado rivers will help flows for the basin, as a whole, but water supply forecasts throughout the UCRB are still below average. Combine that with a higher than average demand expected (due to drought over croplands), it's likely that water supply will not fully come up in late spring, and will come down more than usual during the summer.

Recommendations

UCRB: with so-so 30-day and 60-day SPIs, more seasonal temperatures, and due to the fact that the SNOTELs have held on to snowpack until peak, status quo is recommended at this time. We need to wait and assess how the melt season begins to evolve in the next couple of weeks (i.e., how much infiltrates the soils, how much goes to runoff, how much reservoirs come up, how quickly the temperatures warm up) before recommending more deteriorations.

Eastern Colorado: At this time, D4 conditions are not present in the data or impacts, so we recommend holding off on expanding D4 into southeast CO.

Some areas in D2 are currently reporting similar impacts to areas in D3, so a slight expansion of D3 (purple line) - to better represent a continuity of conditions - is recommended. A slight D2 expansion is suggested (black line) for areas that are -1.5 to -2 on the 30-day SPI.