

# NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

October 30, 2012

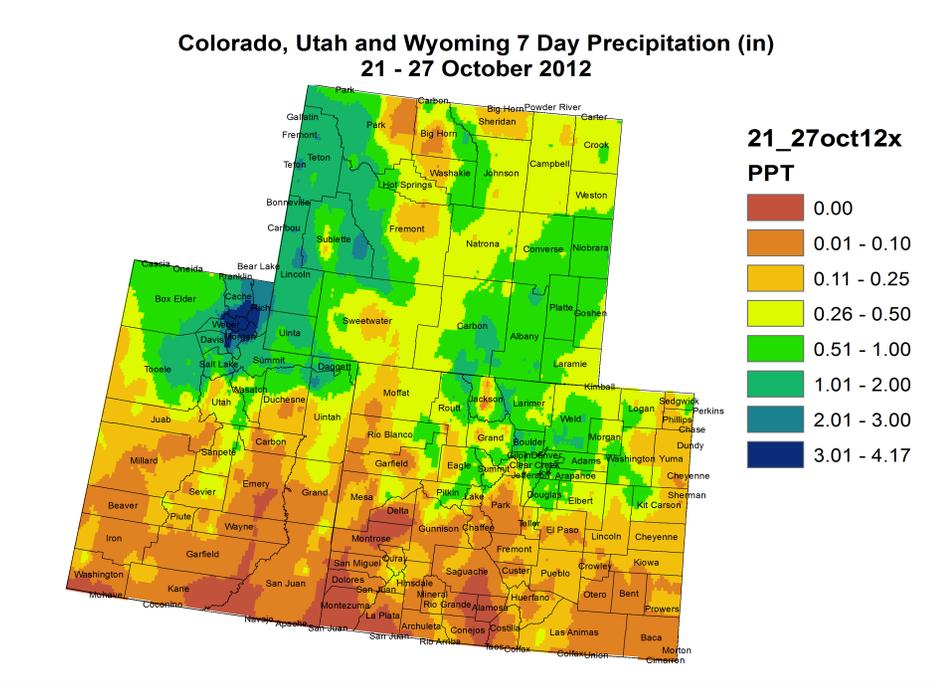


Fig. 1: October 21 – 27 precipitation in inches.

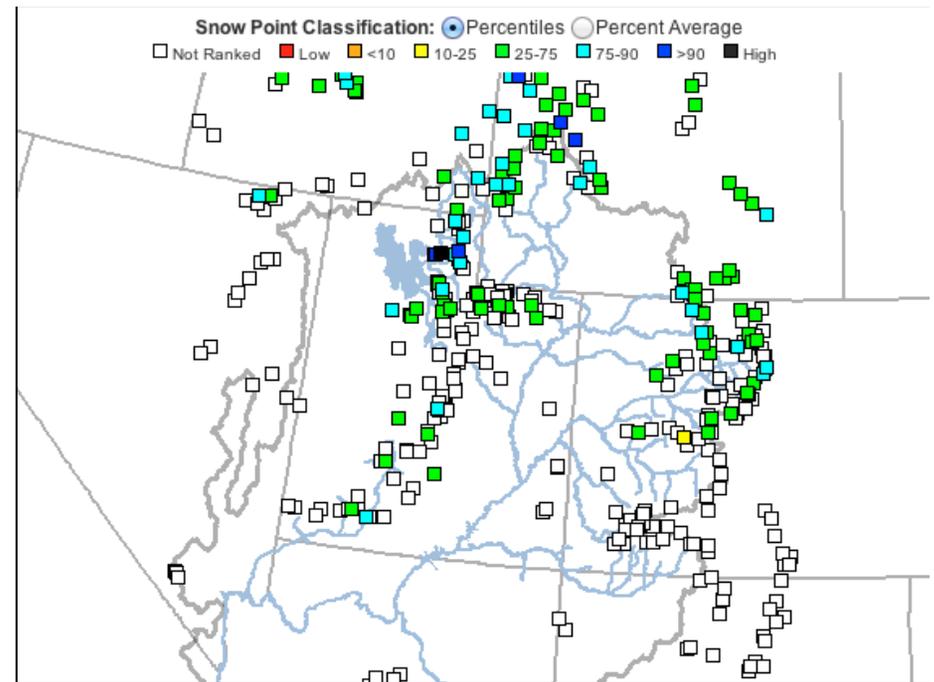


Fig. 2: SNOTEL snow water equivalent percentiles as of October 29<sup>th</sup> (product by Colorado Basin River Forecast Center).

## Precipitation

Last week, the northern part of the Upper Colorado River Basin (UCRB) received over .25 inches of precipitation while the southern part of the basin was drier (Fig. 1). Northern Utah received from .50 inches to over 3 inches of moisture last week, while western Wyoming saw between .50 and 2 inches. More spotty precipitation fell in northern Colorado and into the northeast plains, with totals between .25 inches to 1 inch. All of southern CO was drier, receiving less than .25 inches for the week. Month-to-date, most of the UCRB has received between .50 and 4 inches with the exception of some scattered lower elevation areas receiving less than .50 inches in October.

About half of the SNOTEL sites around the basin have started accumulating snowpack since the beginning of the water year (Fig. 2). Sites with snowpack in the near average range are shown as green boxes. The white boxes denote stations with no snowpack at this time. Most of the sites with snow (in the northern part of the basin, along the Uintas in UT, and along the Continental Divide in northern CO) are showing snowpack in the near average range. Very little to no snow has begun accumulating in the southern portion of the basin.

# Streamflow

As of October 28<sup>th</sup>, about 33% of the USGS streamgages in the UCRB recorded normal (25<sup>th</sup> – 75<sup>th</sup> percentile) to above normal 7-day average streamflows (Fig. 3). About 37% percent of the gages in the basin are recording much below normal or low (i.e. lowest on record) streamflows (an increase from 30% one week ago). Much below normal flows are found scattered throughout the basin. It is important to note that with baseflows dominating during this time of year, small changes in flows can lead to large percentile changes.

Flows on two of the three key gages across the basin are in the below normal range (Fig. 4). Flows on the Colorado River near the CO-UT state line and on the San Juan River near Bluff, UT have stayed nearly steady since last week at the 13<sup>th</sup> and 19<sup>th</sup> percentiles, respectively. Flows on the Green River at Green River, UT dropped to the 7<sup>th</sup> percentile this past week (from the below normal range to the much below normal range).

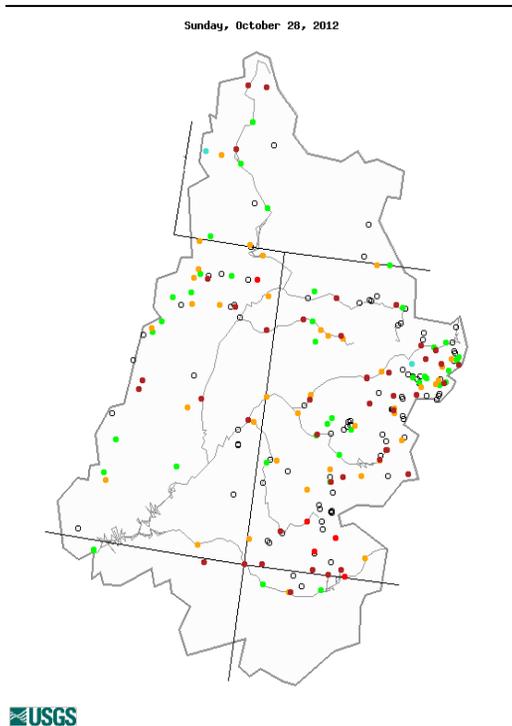
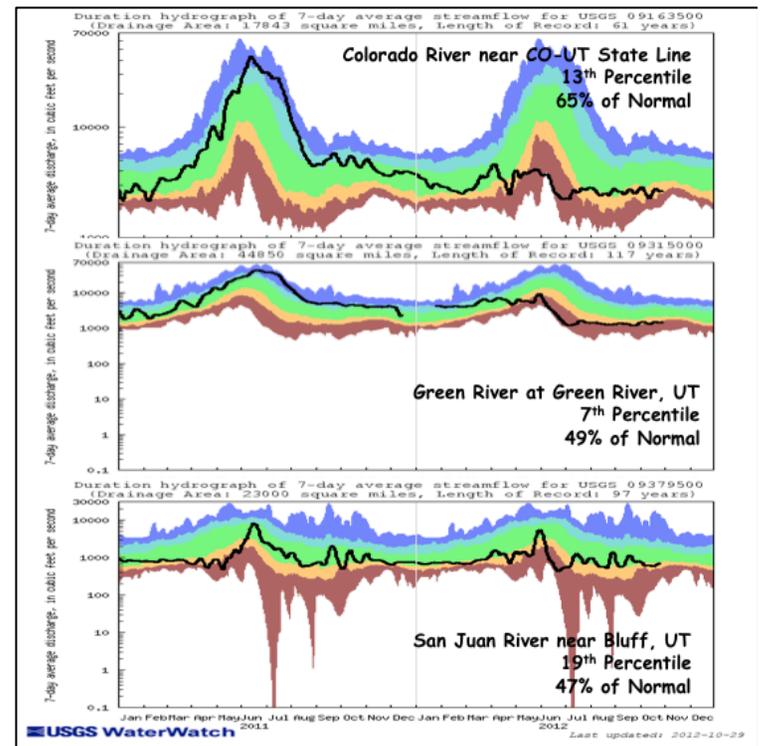


Fig. 3: 7-day average discharge compared to historical discharge for October 28<sup>th</sup>.

Fig. 4: USGS 7-day average discharge over time at the CO-UT stateline (top), Green River, UT (middle) and Bluff, UT (bottom).



## Water Supply and Demand

Last week most of the UCRB experienced cooler than average temperatures, with parts in the north seeing temperatures 5 to 10 degrees below average. East of the basin, temperatures were also cooler than average. Satellite vegetation conditions show very dry vegetation through most of the UCRB, though this product is nearly out of season and there is little to no growth in the vegetation during this time of year anyway. Improved vegetation conditions show up along the Continental Divide in CO. The VIC soil moisture model shows extremely dry soils through most of WY, with soil dryness around the 10<sup>th</sup> to 20<sup>th</sup> percentile in northeast UT and western CO (Fig. 5). Dry soils also show up in southeast CO with near normal soil moisture in northeast CO and in the San Luis Valley in southern CO.

Since the beginning of the month, all the major reservoirs in the UCRB have seen a decrease in storage volumes, which is normal for this time of year. Lake Granby, Navajo, Dillon, and McPhee reservoirs have seen larger decreases than normal while Lake Powell and Flaming Gorge have seen smaller decreases than what is normal for this time of year. Most of the reservoirs are between 60% and 80% of the October average. Blue Mesa is lowest at 52% of average while Flaming Gorge is highest at 97% of average.

## Precipitation Forecast

Fairly benign conditions will persist over the majority of the UCRB through the upcoming week underneath a building ridge of high pressure (Fig. 6). A weak upper level disturbance will brush across the northern fringe of the basin on Friday, bringing a slight moderation in temperatures and a slight chance of snow showers over the Continental Divide of WY and extreme northern CO. Any precipitation that does occur with this feature is expected to be light and isolated in nature. A high pressure ridge then rebuilds over the UCRB for the weekend with dry conditions and above average temperatures on tap for early next week.

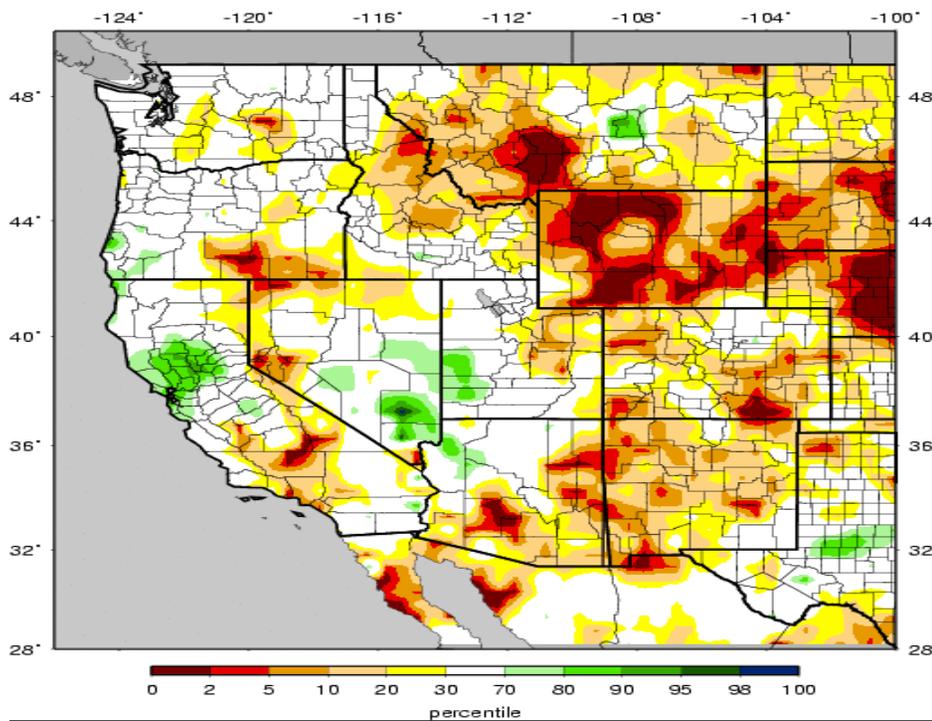


Fig. 5: VIC modeled soil moisture percentiles for the western U.S. as of October 28<sup>th</sup>.

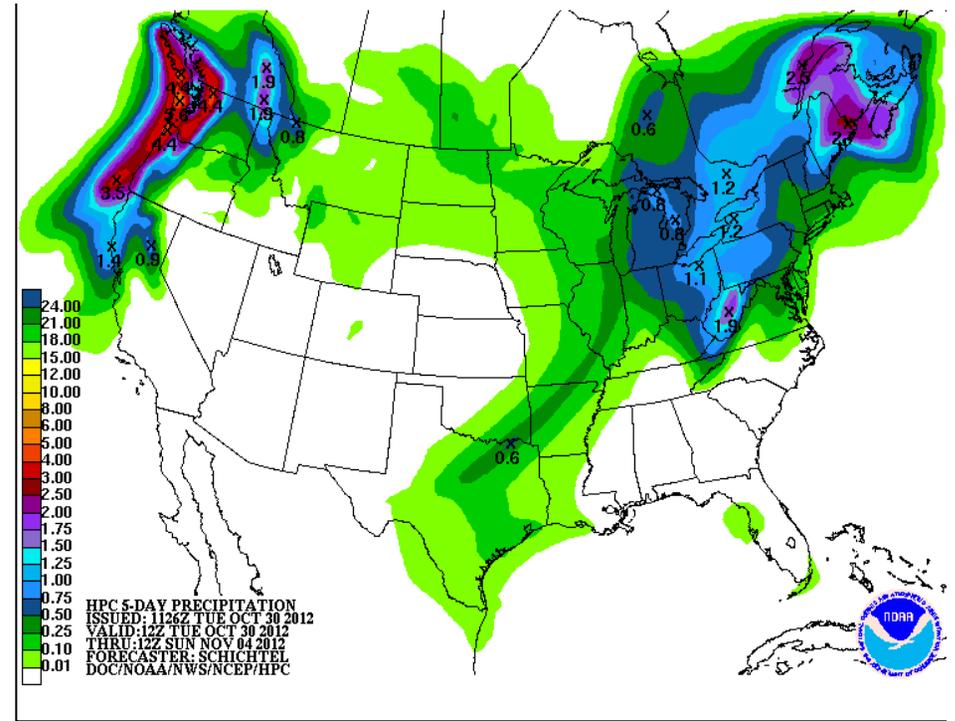


Fig. 6: Quantitative precipitation forecast (QPF) by the Hydrologic Prediction Center out to 12UTC Sunday.

# Drought and Water Discussion

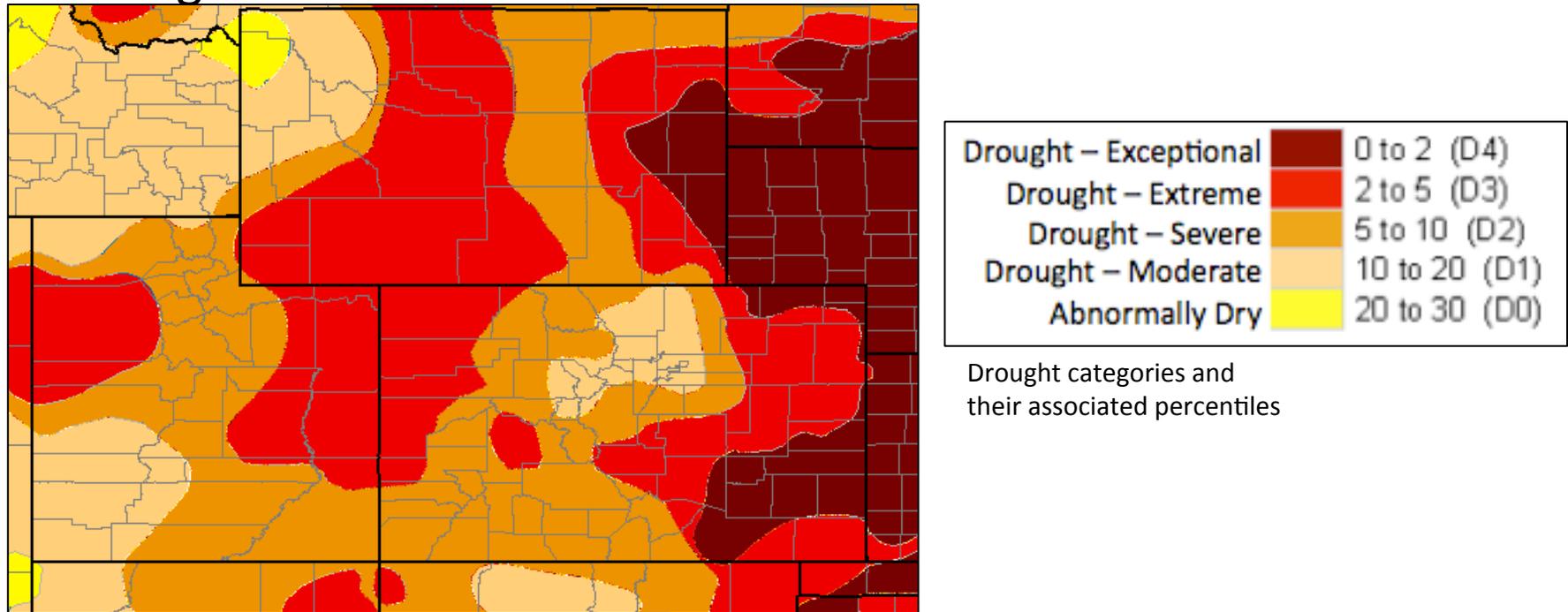


Fig. 7: October 23<sup>rd</sup> release of U.S. Drought Monitor for the UCRB.

**UCRB:** Status quo is recommended for the basin in the current depiction of the U.S. Drought Monitor (USDM) map (Fig. 7). The current USDM author has removed a very small amount of D3 in far southwest WY in a recent draft. Although short-term standardized precipitation indices (SPIs) for northwest CO, northeast UT, and southwest WY are greater than -1.0, long-term SPIs still show values below -1.5, so it is recommended to wait for a couple more strong storms to move through the area before making any widespread improvements to the D3.

**Eastern CO:** Status quo is recommended for the rest of CO in the current depiction of the USDM map (Fig. 7). The area has only received minor precipitation accumulations this month, but this is a normally dry time of year for the region, and the impacts are more limited, so the recommendation is to hold off on any more degradations or D4 expansion at this time.