



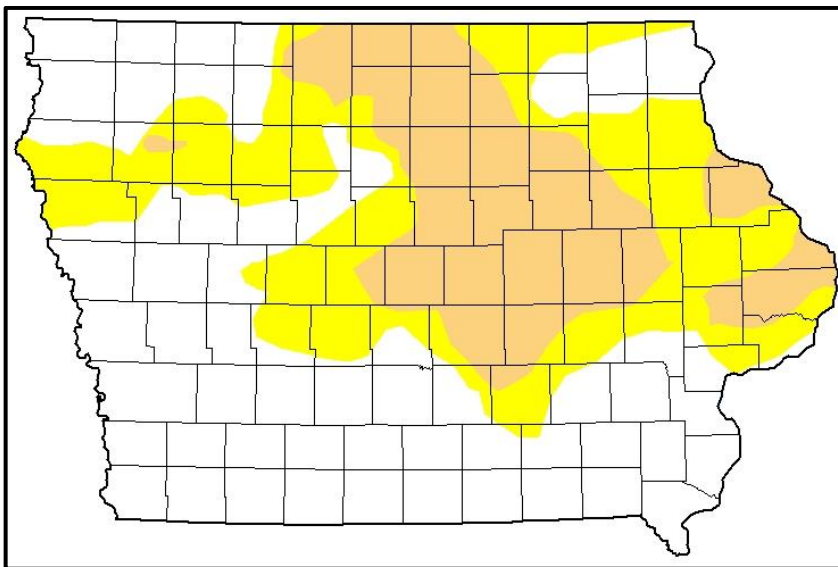
WATER SUMMARY UPDATE

Published Date November 4, 2021 | Issue 125

A snapshot of water resource trends for October, 2021

Drought Monitor - Conditions as of November 2, 2021

National Drought Mitigation Center and partners

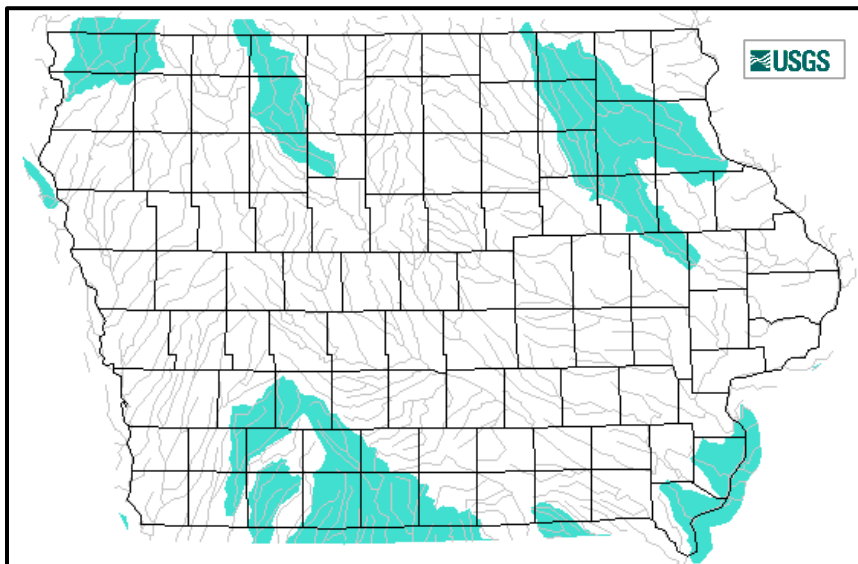


Intensity:

■ D0 Abnormally Dry	■ D3 Extreme Drought
■ D1 Moderate Drought	■ D4 Exceptional Drought
■ D2 Severe Drought	

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

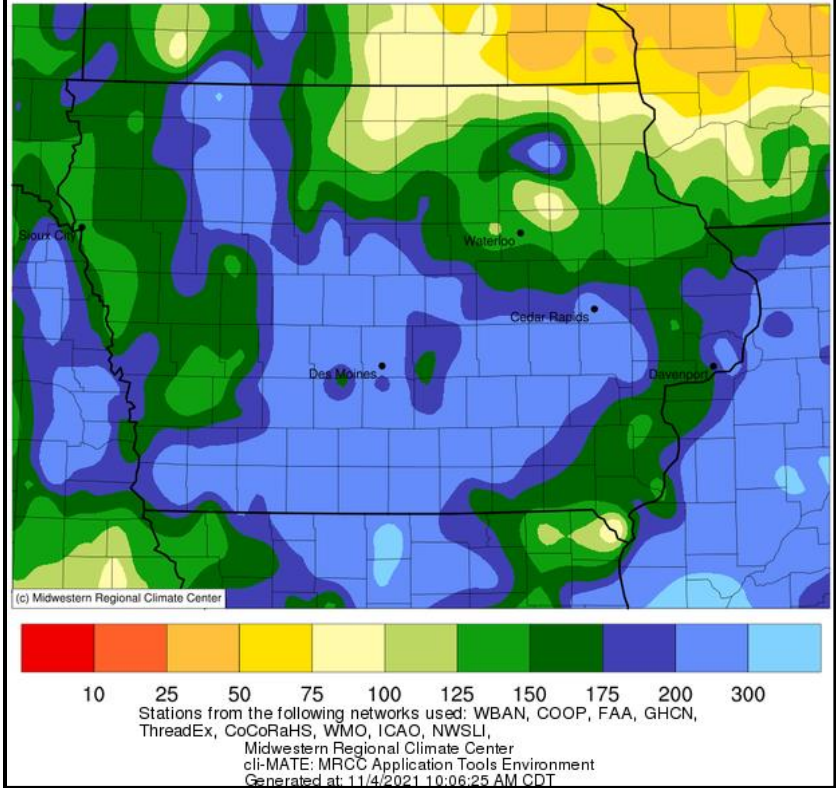
Stream Flow – October, 2021



Explanation - Percentile classes					
■	■	■	■	■	■
Low	<10	10-24	25-75	76-90	>90
	Much below normal	Below normal	Normal	Above normal	Much above normal
					High

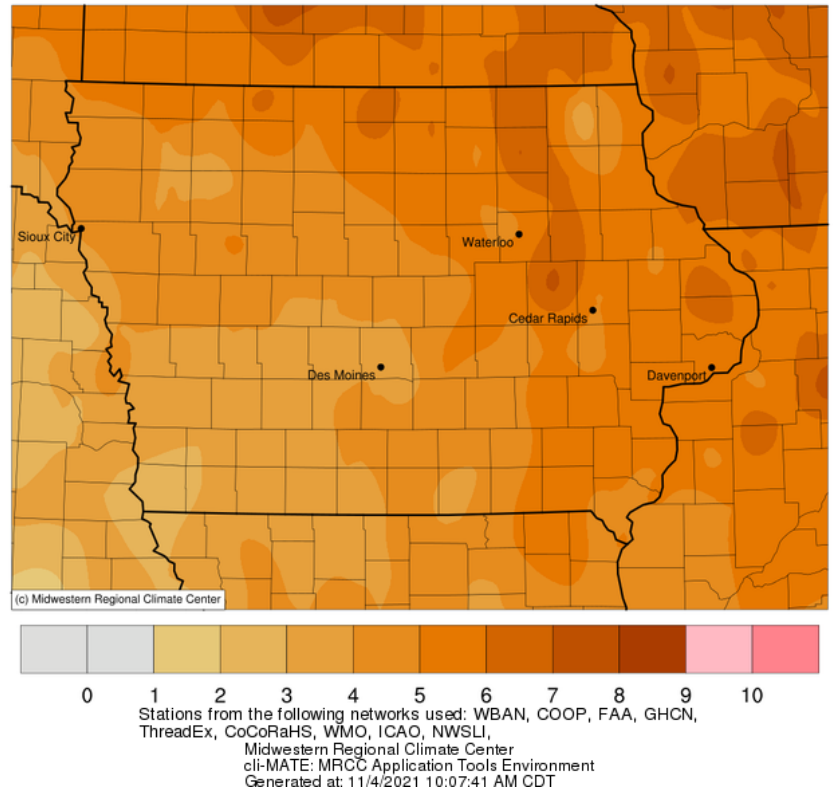
Accumulated Precipitation (in): Percent of 1991-2020 Normals

October 01, 2021 to October 31, 2021



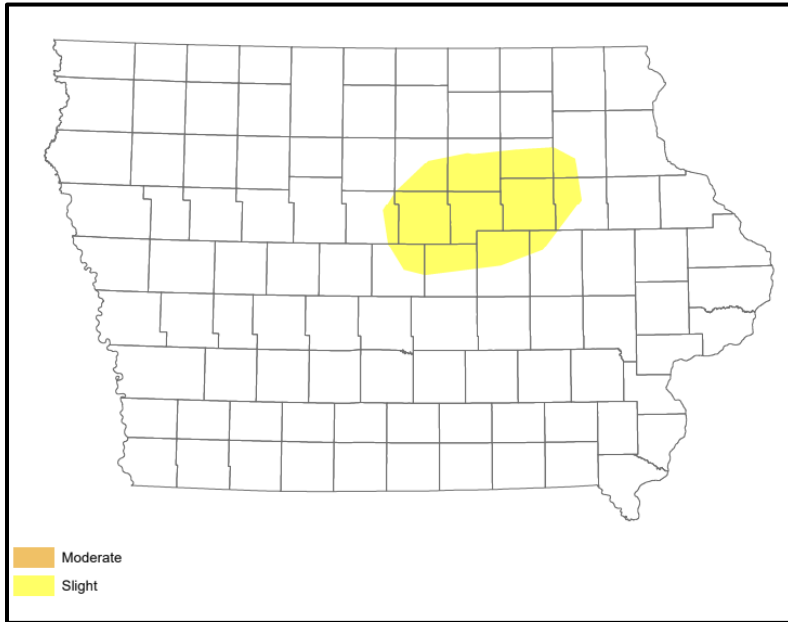
Average Temperature (°F): Departure from 1991-2020 Normals

October 01, 2021 to October 31, 2021



Shallow Groundwater - Conditions for October 2021

Iowa DNR and IIHR-Hydroscience and Engineering



RECENT DEVELOPMENTS AND CHANGES

SUMMARY

October 2021 brought much needed rain that resulted in significant improvement in conditions across the entire state. The month's rainfall of nearly 5 inches resulted in October 2021 ranking as one of the top ten wettest Octobers on record. Streamflow improved across most of the state, as did soil moisture levels. Despite the abnormally wet conditions, little to no flooding occurred, a result of the very dry conditions prior to this month. Shallow groundwater conditions are improved as well, with only a limited area of slight concern in north-central Iowa. As a result of these conditions, the US Drought Monitor shows significant improvement, with D2 (Severe Drought) conditions eliminated from Iowa for the first time in 15 months.

DROUGHT MONITOR

The drought monitor map released today shows significant improvement in Iowa, with just over half the state showing no dryness or drought. D2 (Severe Drought) conditions were removed from the state. The last time Iowa was free from D2 conditions was the week of July 7, 2020. Current conditions in Iowa show the lowest amount of the state impacted by dryness or drought since early March 2020. D1 (Moderate Drought) remains in areas where precipitation deficits of 8.00 or more inches still exist. Significant dryness and drought remain to the east and north of Iowa in Wisconsin, Minnesota, and northern Illinois.

OCTOBER PRECIPITATION AND TEMPERATURE

A more active storm track towards the end of the month brought unseasonably wet conditions statewide with preliminary estimates having October 2021 as one of the top 10 wettest in 149 years of statewide records. This rainfall was much-needed and beneficial in helping recharge soil-moisture profiles and improve stream flows. Most National Weather Service stations reported above-normal totals with a majority of these stations measuring at least two inches above average. The statewide preliminary precipitation was 4.97 inches, around 2.35 inches above normal. Monthly precipitation totals ranged from 2.05 inches in Forest City to 9.18 inches near Murray. A wetter October last occurred in 2017, which was the fourth wettest October on record.

Iowa experienced unseasonably warm conditions through October with positive departures from around three degrees in the southwest to over six degrees northeast. The preliminary statewide average temperature was 55.4 degrees, 4.0 degrees warmer than normal with a warmer October last occurring in 2007. Davenport Municipal Airport reported the month's high temperature of 87 degrees on October 1, 16 degrees above normal. Elkader and Mason City Municipal Airport reported the month's low temperature of 23 degrees on October 23, on average 11 degrees below normal.

OCTOBER STREAM FLOW

During the month of October, streamflow conditions moved into the normal condition for the majority of the state. The Turkey, Wapsipinicon, East Fork Des Moines, Rock, East Fork 102, Nodaway, Thompson, and Chariton Rivers moved into the above normal since the last water summary update.

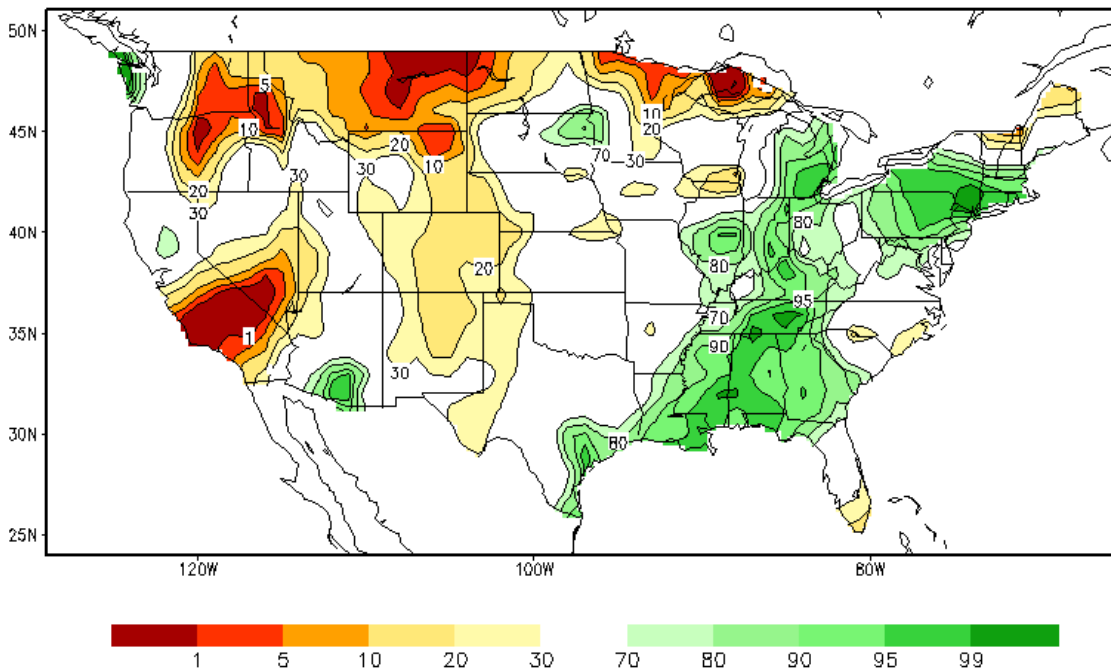
OCTOBER SHALLOW GROUNDWATER

Shallow groundwater conditions have improved statewide, especially across Central, North Central and Northeast Iowa. Moderate to heavy rainfall during October improved shallow groundwater conditions in most locations. An area of slight concern remains in parts of Central and North Central Iowa.

OCTOBER SOIL MOISTURE

Recent rainfall in the state has continued the improvement in soil moisture. The calculated soil moisture ranking (see figure below) shows most of Iowa with soil moisture levels in the normal range, while a small area of the state shows soil moisture in the lowest 20 percent. The lowest 20 percent soil moisture conditions were present over nearly the entire northern half of Iowa as recently as August, so the current conditions are a significant improvement over the past two months. The most recent Iowa Crop Progress & Condition report from the National Agricultural Statistics Service (released November 1, 2021) indicates that 86 percent of the state has adequate or surplus topsoil moisture, and 65 percent of the state has adequate or surplus subsoil moisture.

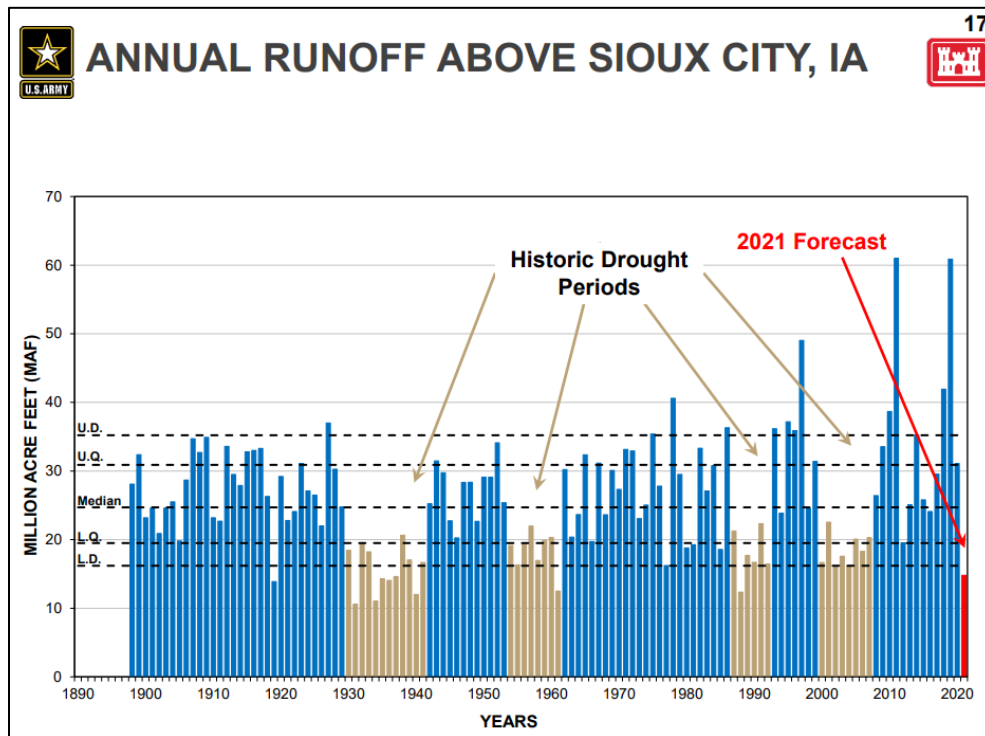
Calculated Soil Moisture Ranking Percentile
OCT, 2021



MISSOURI RIVER BASIN CONDITIONS

At its recent Fall 2021 Missouri River Basin Water Management Public Meetings the Corps of Engineers provided a summary of this years’ conditions in the basin. The National Weather Service (NWS) summarized the year in the basin as very dry and warm, leading to soil moisture deficits and a persistent drought. The NWS is predicting warmer-than-normal temperatures will continue into January for at least the southern half of the basin, while temperature trends for the northern half of the basin are unclear. While chances do favor a wet winter for the northern Rockies, there is no good signal to indicate precipitation trends over the majority of the basin over the next 3 months.

The 2021 forecast for runoff in the Missouri River Basin at Sioux City is 14.8 Million Acre Feet (MAF), compared to an average runoff of 25.8 MAF. This would make 2021 among the ten lowest runoff years on record (see figure below for historical basin runoff comparison). Runoff projections for 2022 will be initiated in January of 2022. Water conservation measures were enacted on July 1, and all designated flood storage (16.3 MAF) will be available to start 2022 runoff season, along with another 8 MAF of conservation storage. Service level for 2022 navigation season is likely to be below full service, and possibly at minimum service levels. Gavins Point Dam releases will be reduced to winter rate starting around November 22, and will be based on the September 1 System storage check.



ADDITIONAL INFORMATION

For additional information on the information in this Water Summary Update please contact any of the following:

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