



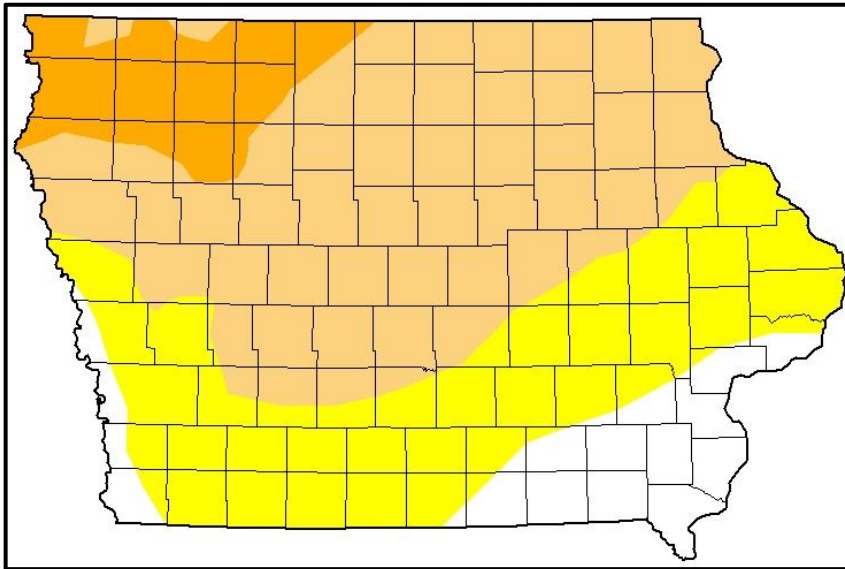
WATER SUMMARY UPDATE

Published Date June 10, 2021 | Issue 119

A snapshot of water resource trends for the month of May 2021

Drought Monitor - Conditions as of June 10, 2021

National Drought Mitigation Center and partners

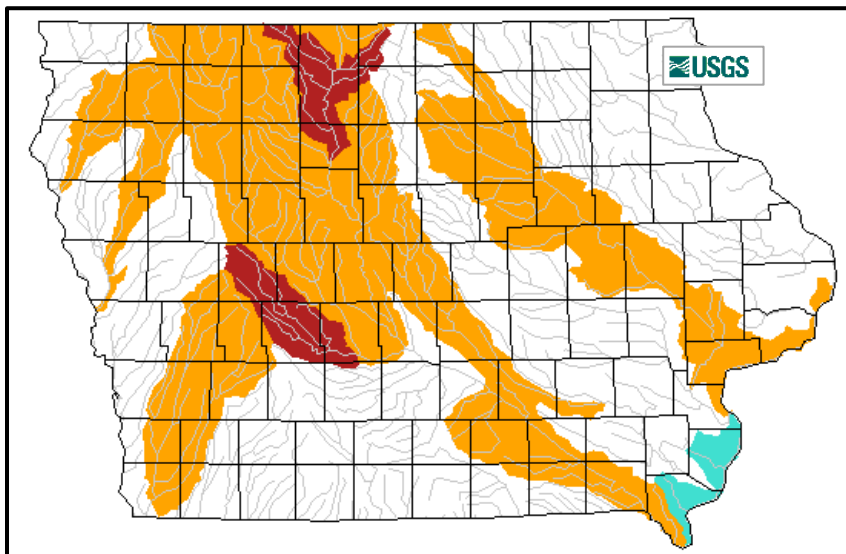


Intensity:

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

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

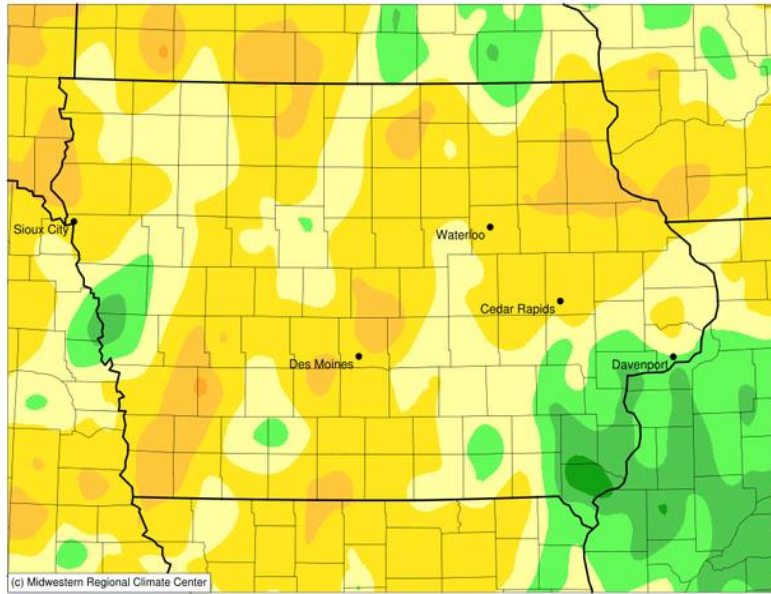
Stream Flow – May 2021



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

Accumulated Precipitation (in): Departure from 1991-2020 Normals

May 01, 2021 to May 31, 2021



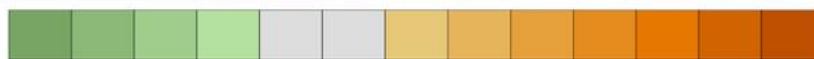
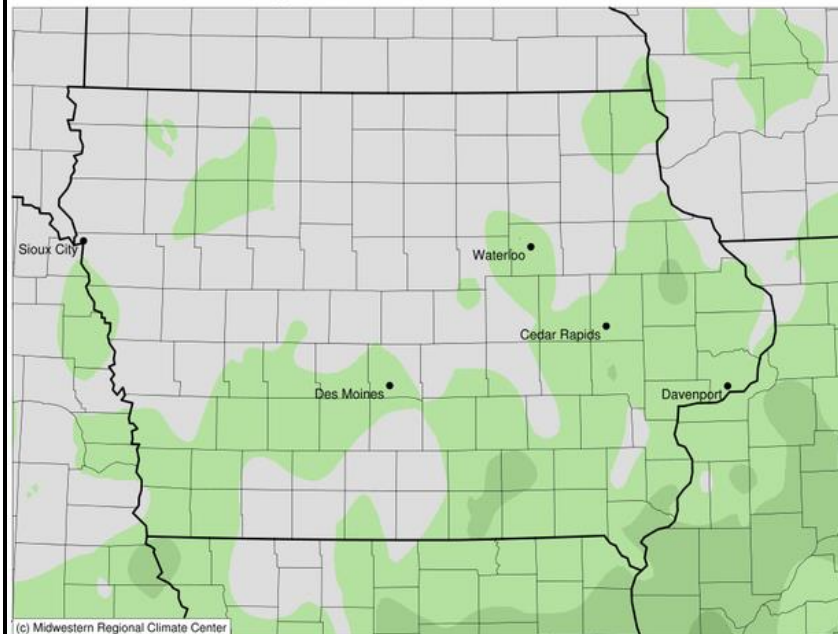
-3 -2 -1 0 1 2 3 4 5

Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI, Midwestern Regional Climate Center, cli-MATE: MRCC Application Tools Environment

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

May 01, 2021 to May 31, 2021



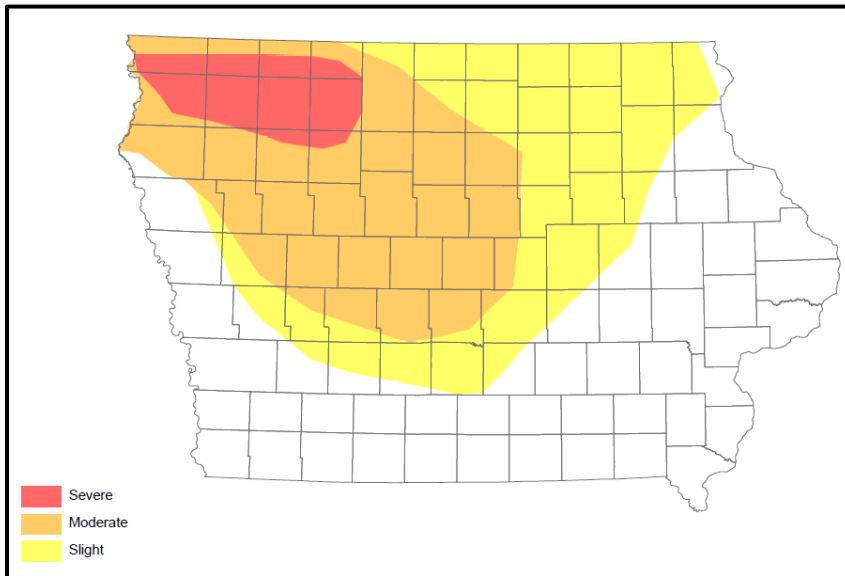
-4 1 6

Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI, Midwestern Regional Climate Center, cli-MATE: MRCC Application Tools Environment

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Shallow Groundwater - Conditions for May 2021

Iowa DNR and IIHR-Hydroscience and Engineering



RECENT DEVELOPMENTS AND CHANGES

SUMMARY

Nearly all of the indicators across a majority of the state show a deterioration of moisture conditions. Precipitation averaged more than an inch below normal for the month of May, streamflows are dropping, soil moisture is low, and shallow groundwater conditions are a concern in several areas of the state. The US Drought Monitor, a blend of many hydrologic indicators shows that Iowa has slipped farther into drought, with nearly 90 percent of the state in some form of dryness or drought. D0, D1 and D2 coverages all have increased over the past weeks, with D2 – Severe Drought, now covering almost ten percent of Iowa. The month of June marks the month of greatest average rainfall for portions of the state, after which monthly averages begin to decrease. Widespread average or above-average rainfall is needed to prevent further deterioration to hydrologic conditions in the state.

SPRING SUMMARY

Meteorological spring encompasses the months of March, April, and May. Spring 2021 averaged 50.2 degrees, 1.9 degrees above normal. This spring ties 1902, 1911, 1936 and 2006 as the 29th warmest on record; Spring 2016 was warmer. Precipitation totaled 8.08 inches or 2.42 inches below normal. This ties 1935 as the 52nd driest spring in 149 years of records with a drier spring last occurring in 2000.

DROUGHT MONITOR

As of the first week of June, D0-D2 categories covered 89 percent of the state, the highest extent since early-September 2020. The most recent US Drought Monitor Map shows 32 percent of the state rated as D0 - Abnormally Dry, 47 percent rated as D1 – Moderate Drought, and 10 percent rated as D2 – Severe Drought. D2 conditions are expected to occur just six to ten percent of the time, so these conditions are not expected to occur frequently.

Rainfall in the second week of May brought much needed relief, especially to the southern one-third of Iowa, where about 15% of D0 was removed. Additional rainfall and cooler temperatures held the map status quo through the end of May. With warmer and drier conditions building in during the first week of June and below average rainfall over the last seven to 10 days, D1 drought conditions significantly expanded across the northern two-thirds of Iowa with additional D0 expansion into southern Iowa; only southeastern Iowa is free of abnormally dry and drought conditions.

MAY PRECIPITATION AND TEMPERATURE

Iowa's statewide average precipitation totaled 3.71 inches, or 1.13 inches below normal, ranking May 2021 as the 64th driest in 149 years of statewide records; a drier May occurred in 2014. Most of Iowa's National Weather Service co-op stations reported below-average totals during the month; pockets of two to three-inch deficits were reported across the state. Extreme southeastern Iowa was the only section of the state to report above-average totals, on the order of one to three inches. Monthly precipitation totals ranged from 1.95" in Akron to 8.53" at a Community Collaborative Rain, Hail and Snow (CoCoRaHS) network rain gauge near West Point in Lee County.

The statewide average temperature was 59.0 degrees, 0.9 degree cooler than normal; a colder May occurred last year. May's statewide average maximum temperature was 69.3 degrees, 1.5 degrees below normal while the average minimum temperature was 48.7 degrees, 0.6 degree above normal. Spencer Municipal Airport reported the month's high temperature of 97 degrees on the 1st, 31 degrees above average. Estherville Municipal Airport reported the month's low temperature of 26 degrees on the 11th, 18 degrees below normal.

APRIL STREAM FLOW

Since the last water summary update, streamflow conditions across approximately a half of the state are now classified as "below normal." The Skunk, Des Moines, Raccoon, Floyd, Little Sioux, Nishnabotna and the Cedar River basin have below normal flow (lowest 25 percent of flows), while portions of the Raccoon and Des Moines River basins have much below normal flow (lowest 10 percent of flows).

The US Army Corps of Engineers forecasts that runoff in the Missouri River basin above Sioux City will be 17.9 Million Acre Feet (MAF), or about 69 percent of average runoff. Based on monthly studies, drought conservation measures of reduced navigation flow support on the Missouri River will be enacted on July 1.

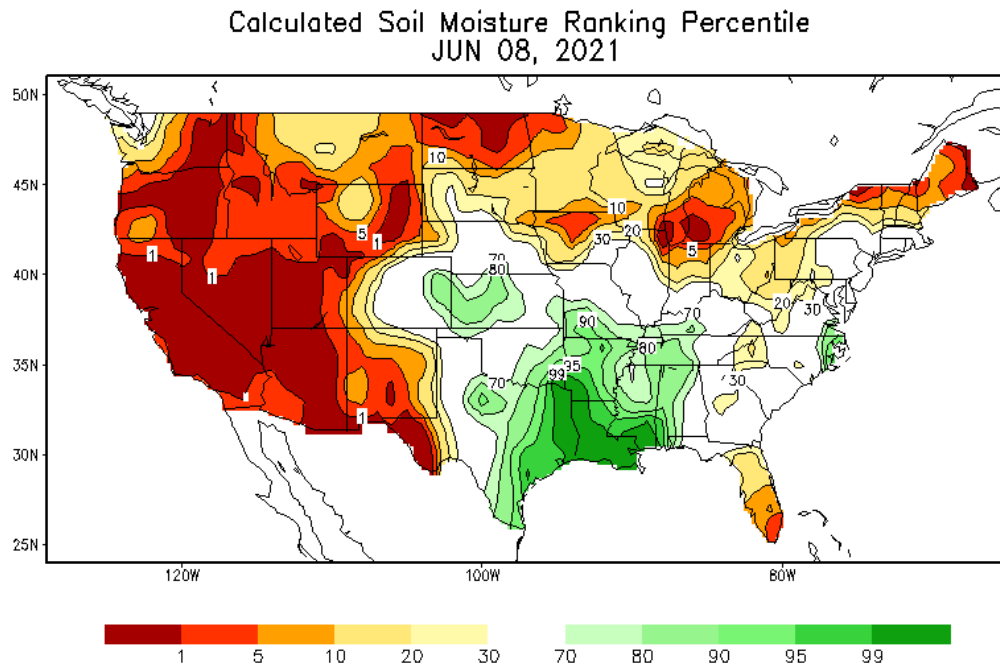
MAY SHALLOW GROUNDWATER

Shallow groundwater conditions continue to be well below normal in Northwest Iowa, especially in the Floyd, Little Sioux, and Ocheyedan River watersheds. Severe to moderate shallow groundwater conditions exist in parts of Buena Vista, Cherokee, Clay, Emmet, Lyon, O'Brien, Osceola, Palo Alto, Plymouth, and Sioux counties. Parts of Central and North Central Iowa are seeing falling groundwater levels, and are now areas of moderate groundwater concern. Additional precipitation is needed across most of Iowa during the summer months to prevent further deterioration in shallow groundwater conditions.

Water utilities in some parts of western Iowa have initiated mandatory water use restrictions, and without widespread soaking rains, restrictions are expected to expand. Summer's typical hot weather increases the demand for water, which will further impact Iowans.

MAY SOIL MOISTURE

Soil moisture levels across the state continue to decline. The June 7 Iowa Crop Progress & Condition report indicates that topsoil moisture levels are rated 7% very short, 32% short, 59% adequate and 2% surplus, while subsoil moisture levels are rated 12% very short, 34% short, 53% adequate and 1% surplus. Subsoil moisture conditions in northwest, west central, central and south-central Iowa were rated over 50% short to very short. The calculated soil moisture ranking map from NOAA's Climate Prediction Center shows a large area of north central Iowa with soil moisture levels below the fifth percentile ranking.



ADDITIONAL INFORMATION

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

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