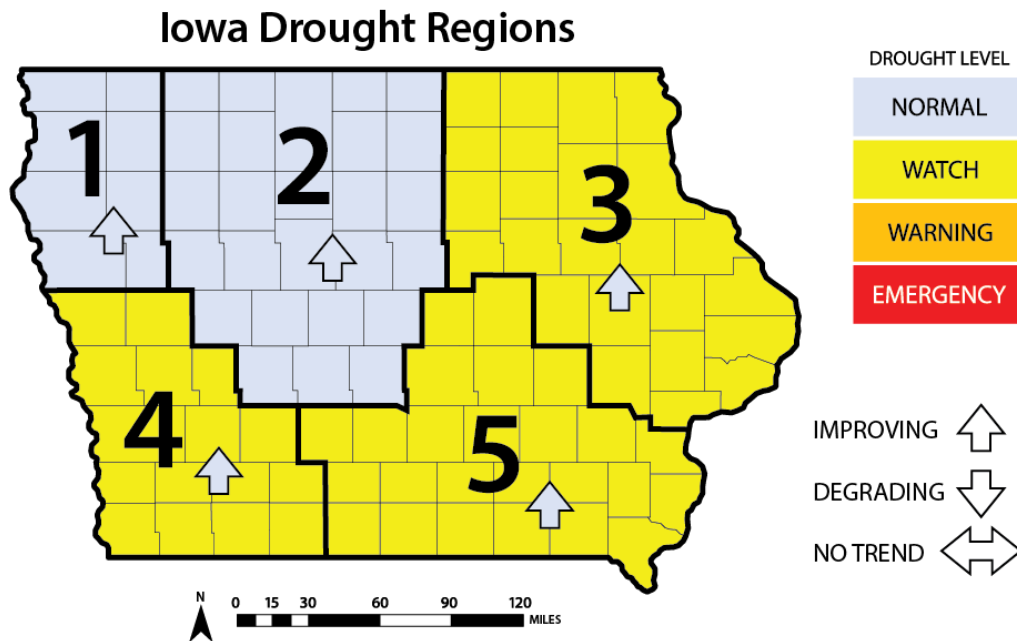


WATER SUMMARY UPDATE

Published Date May 9, 2024 | Issue 155

A snapshot of water resource trends for April 2024

IOWA DROUGHT CONDITIONS



CONDITION SUMMARY

A question often heard recently is this: “Is the drought over?” The answer is that in some parts of Iowa, yes, but in much of the state it is not. Above normal rainfall in April continues to help improve drought conditions, and since October, five of the last seven months have brought above normal rainfall to the state. In the month of April Iowa received 4.16 inches of precipitation, 0.49 inches above normal. Recent rains have improved conditions, but additional months of above-normal moisture are still needed to eliminate drought conditions across the driest parts of Iowa. For the month of April, temperatures averaged 50.7 degrees or 2.1 degrees above normal.

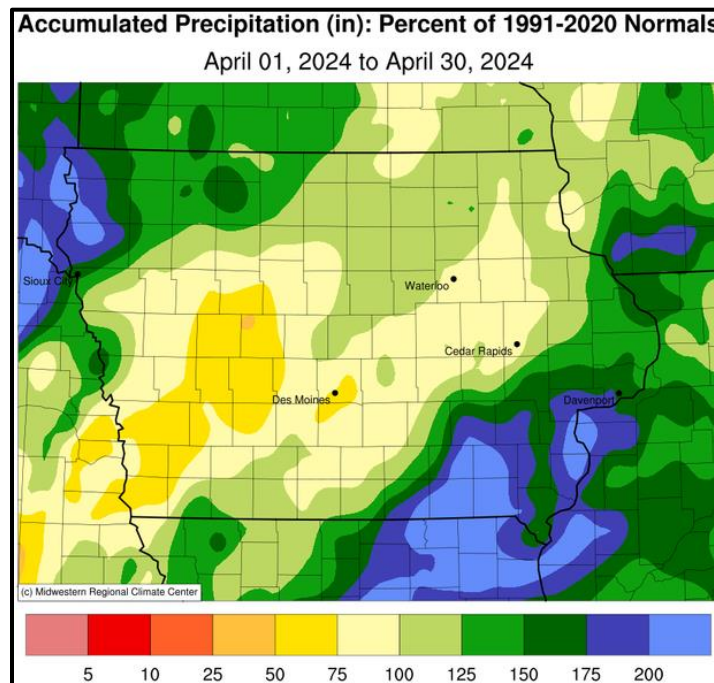
The US Geological Survey reports that streamflow has improved across the state, with some flooding occurring for the first time in 2024. The US Drought Monitor, one measure reflected in the Iowa Drought Plan (IDP), shows improvement across many areas of the state, showing no D3 – Extreme Drought coverage in Iowa for the first time in nearly two years. Soil moisture levels continue to improve as well.

According to the Iowa Drought Plan drought conditions are getting better across most of the state. While Drought Regions 3, 4 and 5 (northeastern and southern Iowa) remain in Drought Watch, conditions are improving, and those areas could be moved to “Normal” status if rainfall surpluses continue. Despite recent wet months, one-year precipitation deficits of five to seven inches still exist across much of Iowa.

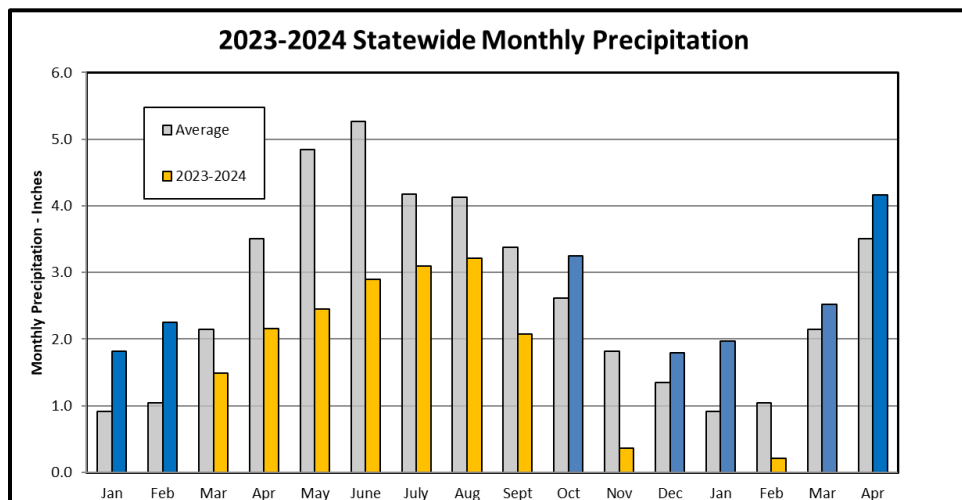
April Precipitation and Temperature

For the second month in a row, unseasonably wet conditions were reported across Iowa. The wettest conditions were found in northwest and southeastern Iowa where precipitation was 150-300 percent of normal. Swaths of west-central and east-central Iowa saw precipitation shortages, with areas of 75 percent of normal precipitation and smaller pockets of 50-75 percent of normal. Monthly precipitation totals ranged from 2.02 inches at Audubon Municipal Airport to 8.99 inches in Bloomfield.

Temperatures through April varied from one to three degrees above average over a majority of Iowa's reporting stations; only pockets of northeast Iowa had near-normal temperatures. Spencer Municipal Airport and Winterset reported the month's high temperature of 89 degrees on the 13th and 14th, on average 30 degrees above average. Elkader reported the month's low temperature of nine degrees on the 6th, 10 degrees below normal.



The graph below shows monthly precipitation in Iowa compared to normal (gray bars), and indicates that Iowa received above normal precipitation during five of the last seven months. Over this seven-month period, the State has received 14.55 inches of precipitation, 1.26 inches above normal. If the first week of May is included, the state has received 16.83 inches of precipitation, almost 3 inches above normal. As the state moves into the wettest months of the year, this trend is encouraging.



Standardized Precipitation Index (SPI)

The SPI is an index based on accumulated precipitation for various time scales. SPI is the most commonly used indicator worldwide for detecting and characterizing meteorological droughts. The SPI indicator measures precipitation differences based on a comparison of observed total precipitation amounts over the period of interest with the long-term historical precipitation record for that period. Droughts are characterized by negative SPI values, while positive SPI values indicate wet periods. The range of SPI values is between -2 and +2.

Both the 90-day and the 180-day SPI values for all Drought Regions in April (comparing February, March, and April precipitation) are all above zero. This indicates an overall improvement in precipitation going back six months, and puts all the drought regions into normal conditions for this indicator.

Drought Region	3-month SPI	6-month SPI	IDP Classification ↑ = improving ↓ = degrading ↔ = no trend
1	+ 1.8	+ 1.4	Normal ↑
2	+ 1.4	+ 1.0	Normal ↑
3	+ 0.7	+ 0.6	Normal ↑
4	+ 0.6	+ 0.6	Normal ↑
5	+ 0.9	+ 1.3	Normal ↑

Standardized Streamflow Index (SSI) and Streamflow

SSI is a metric that compares current streamflow against the historical record to determine how far away the current streamflow value is from the river's historical mean observed on the same date. Drought index values typically range from 0 (streamflow is the same as the mean) to -3, which indicates the current streamflow is three standard deviations less than the historical mean for the period. Positive SSI values indicate wetter than normal or flood-level flows. All of the SSI values in all five drought regions have improved over the last month, reflecting the overall improvement of hydrological conditions across the state. For April, the SSI for each drought region is:

Drought Region	30-Day SSI	365-Day SSI	IDP Classification ↑ = improving ↓ = degrading ↔ = no trend
1	+ 0.69	- 0.52	Normal ↑
2	- 0.03	- 1.07	Drought Watch ↑
3	- 0.46	- 1.24	Drought Watch ↑
4	- 0.12	- 1.48	Drought Watch ↑
5	- 0.55	- 1.55	Drought Warning ↑

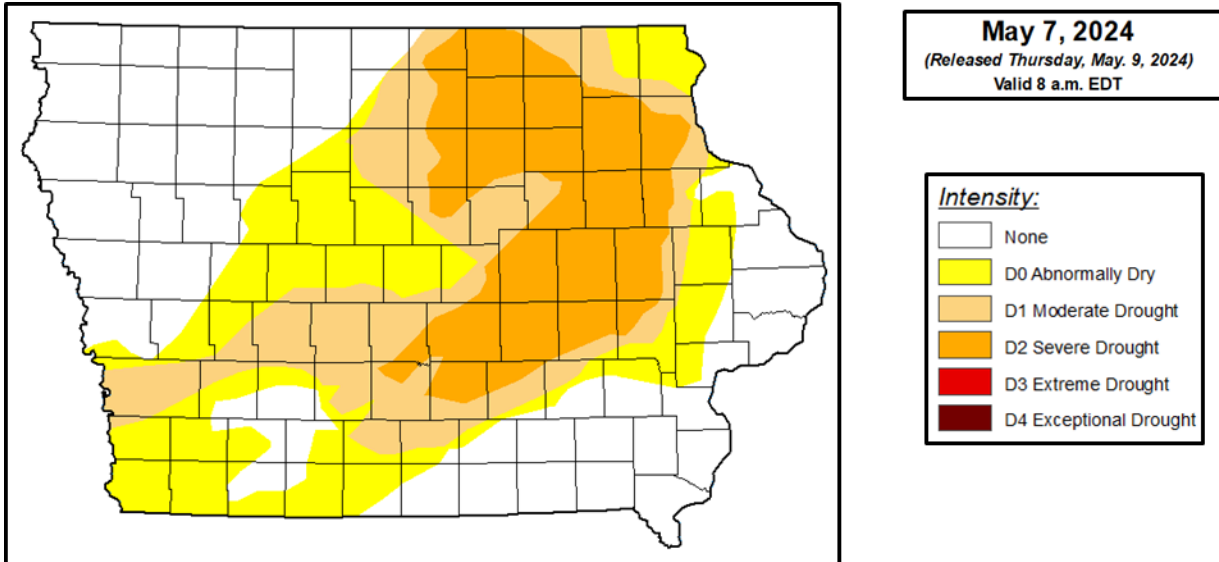
Although stream flows are improving, their conditions can lag behind precipitation, as runoff works its way into the system. Much like the SSI shows, the US Geological Survey indicates that streamflow conditions improved in April across most of the state. Rain events after the end of April have pushed some rivers and streams into flood stage – something not seen in Iowa for over a year. Continued wetter than normal conditions should continue to improve surface water flow conditions moving into the month of May.

US DROUGHT MONITOR AND DROUGHT CONDITIONS

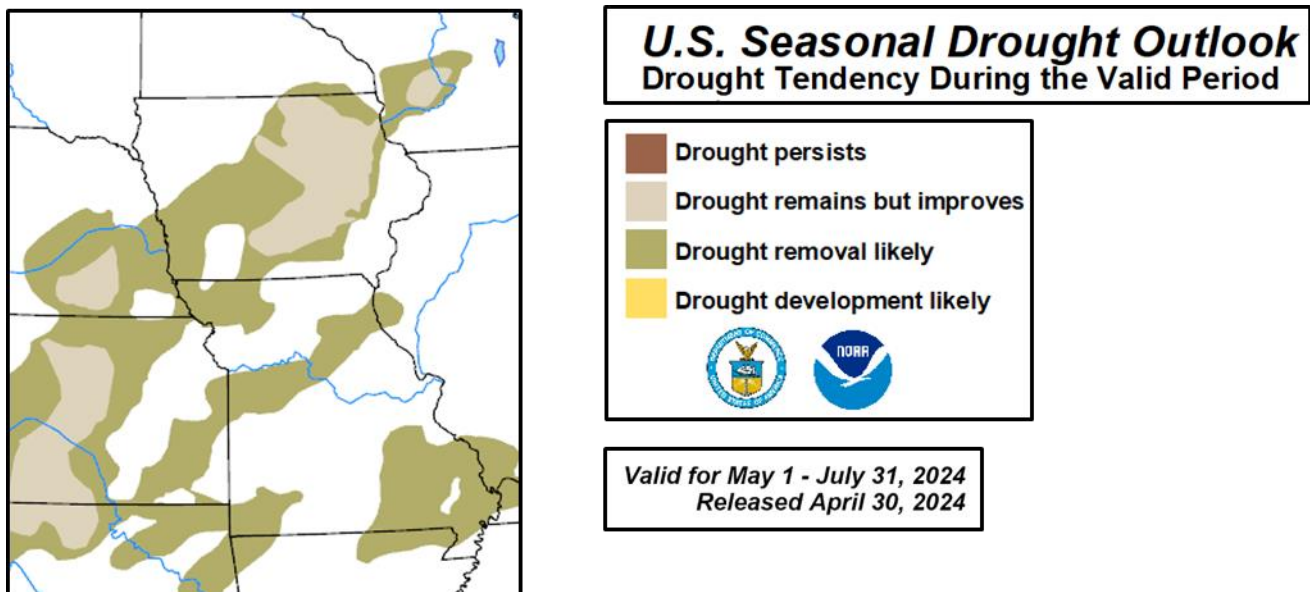
The current US Drought Monitor map continues to show significant improvement in drought conditions across Iowa over the past month. The areas of the state classified in D3-Extreme Drought have been completely removed from the state. This marks the first time in almost two years that D3 has been absent from Iowa. The area of D2 – Severe Drought, has remained the same at about 20 percent of the state. The area designated as D1 – Moderate Drought – has been cut in half, reduced from 37 percent to 18 percent. The area of the state that is free from any drought or dryness has increased

from nearly 10 percent to over 40 percent. This week marks 209 weeks with some classification of drought or dryness in Iowa, dating back to May 5, 2020. This remains the longest period of drought since the start of the US Drought Monitor in 2000 and the longest drought since 1954-1959.

On a national scale, over 65 percent of the United States remains free from drought or dryness. Over the past month drought conditions have improved in the upper Midwest, and deteriorated in parts of Kansas and Oklahoma. The only remaining area of D4 – Exceptional Drought is in southeast New Mexico.



The Seasonal Drought Outlook issued on April 30 by the Climate Prediction Center (CPC), valid for May 1 through July 31, indicates that drought conditions should continue to improve across Iowa into the summer months, with drought removal in southwest and parts of central Iowa, and drought remaining (but improving) across eastern Iowa.



OTHER WATER RESOURCE INFORMATION

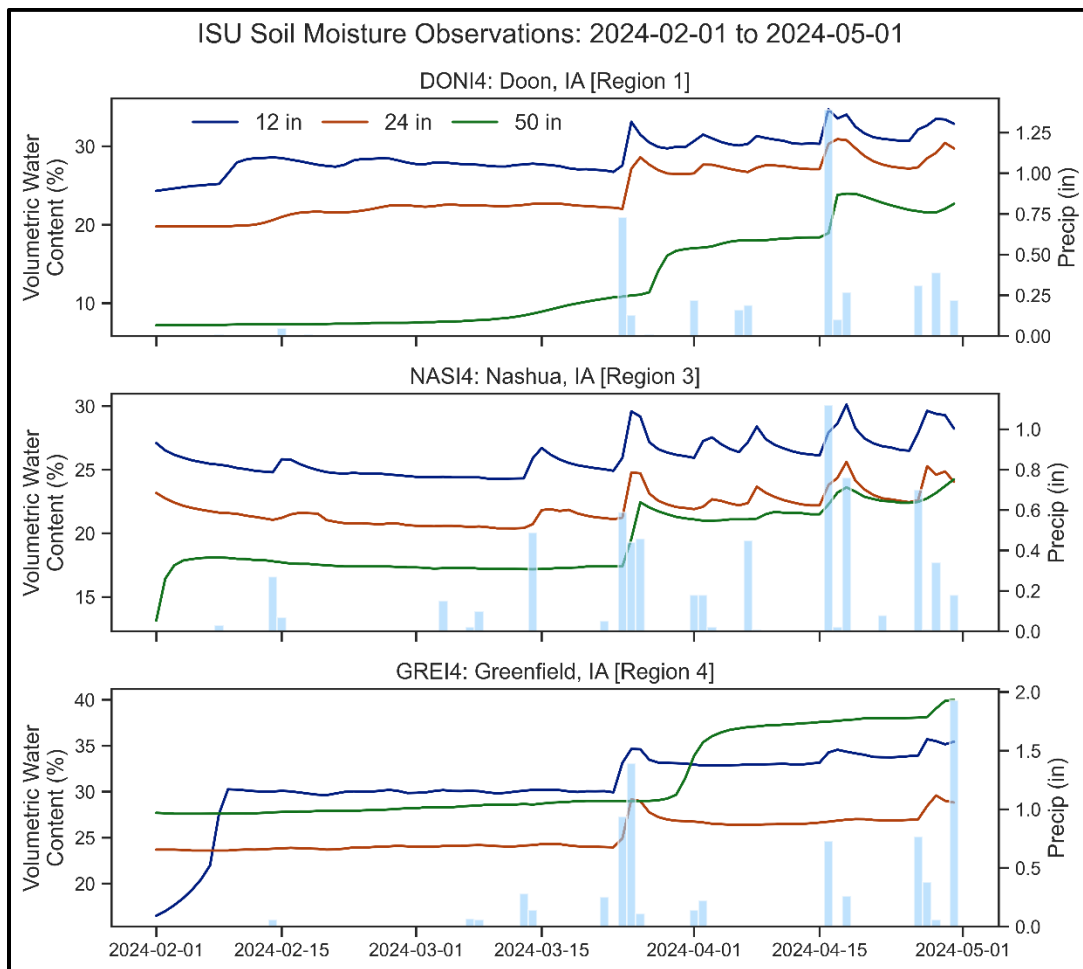
Border River Conditions

The annual runoff forecast for the upper Missouri River Basin above Sioux City has been raised to 19.2 Million Acre Feet (MAF). Despite this improvement, the annual runoff is projected to be just 75% of average. Soil moisture is above normal in South Dakota, below normal in eastern Montana and western North Dakota, and near normal for the rest of

the upper Basin. Drought or abnormally dry conditions are currently present in 52% of the Basin. Drought conditions in most of the upper Basin are likely to persist during May.

April Soil Moisture

The graphs below show measured soil moisture values for three locations for the last three months and at three depths. At each of these locations soil moisture has increased over the last month in response to recent wetter than normal conditions. The May 6 USDA’s National Agricultural Statistics Service (NASS) report rates topsoil moisture at 16 percent very short or short, 65 percent adequate and 19 percent surplus. Subsoil moisture condition is rated at 27 percent very short or short, 64 percent adequate and 12 percent surplus. These percentages reflect a significant improvement over last month’s condition.



ADDITIONAL INFORMATION

This edition of the Water Summary Update continues to reflect use of the 2023 Iowa Drought Plan (IDP), which was developed as a collaborative effort between the Department of Natural Resources, the Department of Agriculture and Land Stewardship, and the Department of Homeland Security and Emergency Management. The IDP can be seen in its entirety on the DNR’s website: [The Iowa Drought Plan](#).

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