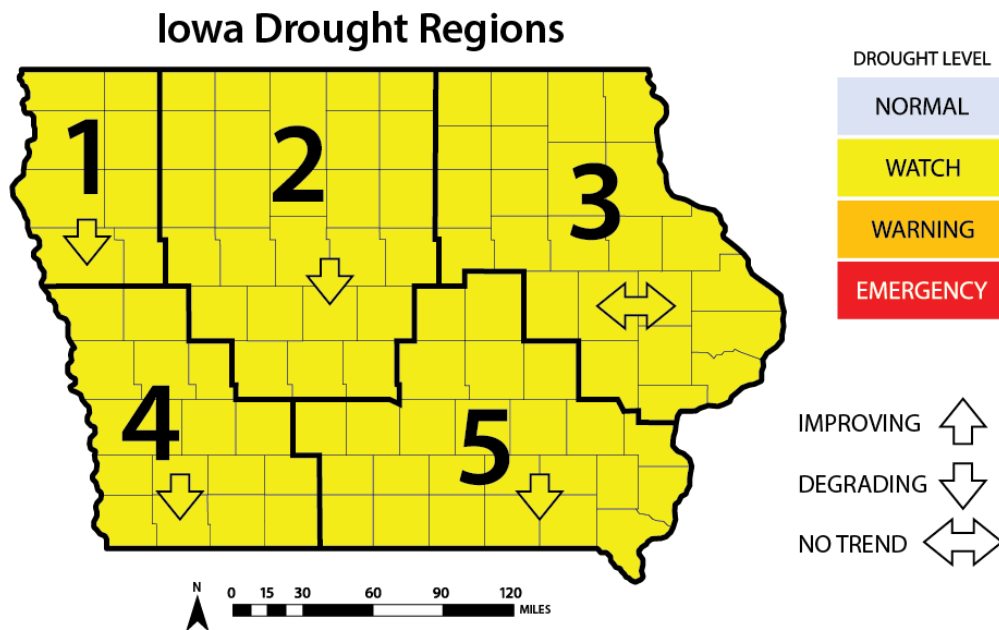


WATER SUMMARY UPDATE

Published Date November 7, 2024 | Issue 161

A snapshot of water resource trends for October 2024

IOWA DROUGHT CONDITIONS



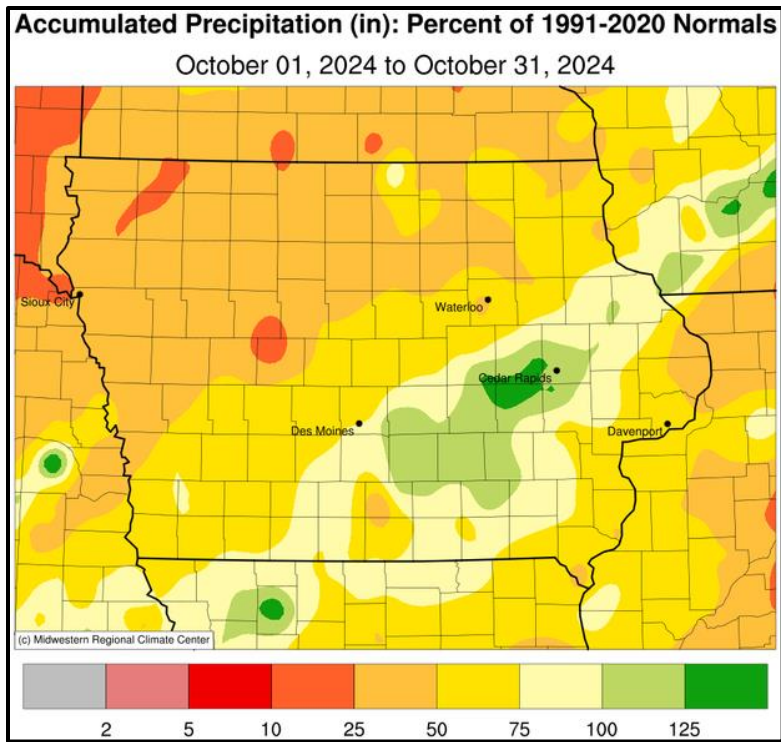
CONDITION SUMMARY - END OF OCTOBER TURN-AROUND FOR RAIN

After the driest September in 152 years of records, nearly all of October had similar record dry conditions. It was only rainfall during the last week of the month that helped prevent worsening drought conditions. For October, the preliminary statewide precipitation totaled 1.90 inches, or 0.79 inches below normal. Rainfall in the months of September and October was almost 3.5 inches below normal. Soil moisture and stream flows showed some recovery at the end of the month, but were still below normal. Rainfall that came in the first days of November continued to improve conditions. The precipitation outlooks issued by the National Weather Service’s Climate Prediction Center show chances for above normal precipitation over the next month.

October Precipitation and Temperature

Iowa’s preliminary statewide precipitation totaled 1.90 inches, or 0.79 inches below normal. The first 29 days of the month were among the driest on record for the month of October. National Weather Service (NWS) stations and other gauges across Iowa’s northwestern half reported deficits on the order of one to two inches during that period. Portions of southeastern Iowa experienced slightly wetter conditions. Monthly precipitation totals ranged from 0.44 inches in Lake Park to 4.29 inches in Vining.

The statewide average temperature was 56.7 degrees, 5.7 degrees warmer than normal. Atlantic reported the month’s high temperature of 96 degrees on the 5th, 26 degrees above normal. Mapleton reported the month’s low temperature of 17 degrees on the 16th, 20 degrees below normal.



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 -3 and +3, denoting “extremely dry” to “extremely wet”.

Both the 90-day and 180-day SPI values for all Drought Regions in October (comparing August, September, and October precipitation) are nearly all declining. All the SPI values have declined over the last month, and they to reflect the extreme dry conditions of September and October.

Drought Region	3-month SPI	6-month SPI	IDP Classification ↑ = improving ↓ = degrading ↔ = no trend
1	- 1.5	- 0.2	Watch ↓
2	- 1.2	+ 1.7	Watch ↓
3	- 0.7	+ 0.7	Normal ↓
4	- 0.8	- 0.3	Normal ↓
5	- 0.5	+ 0.2	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. SSI values in all five drought regions have declined due to recent dry condition, with Drought Regions 2, 4, and 5 designated in Drought Watch.

Drought Region	September SSI	October SSI	IDP Classification ↑ = improving ↓ = degrading ↔ = no trend
1	- 0.66	+ 0.4	Normal ↓
2	- 1.17	- 0.40	Watch ↓
3	- 0.73	- 0.40	Normal ↓
4	- 1.21	-0.73	Watch ↓
5	- 1.03	- 0.89	Watch ↓

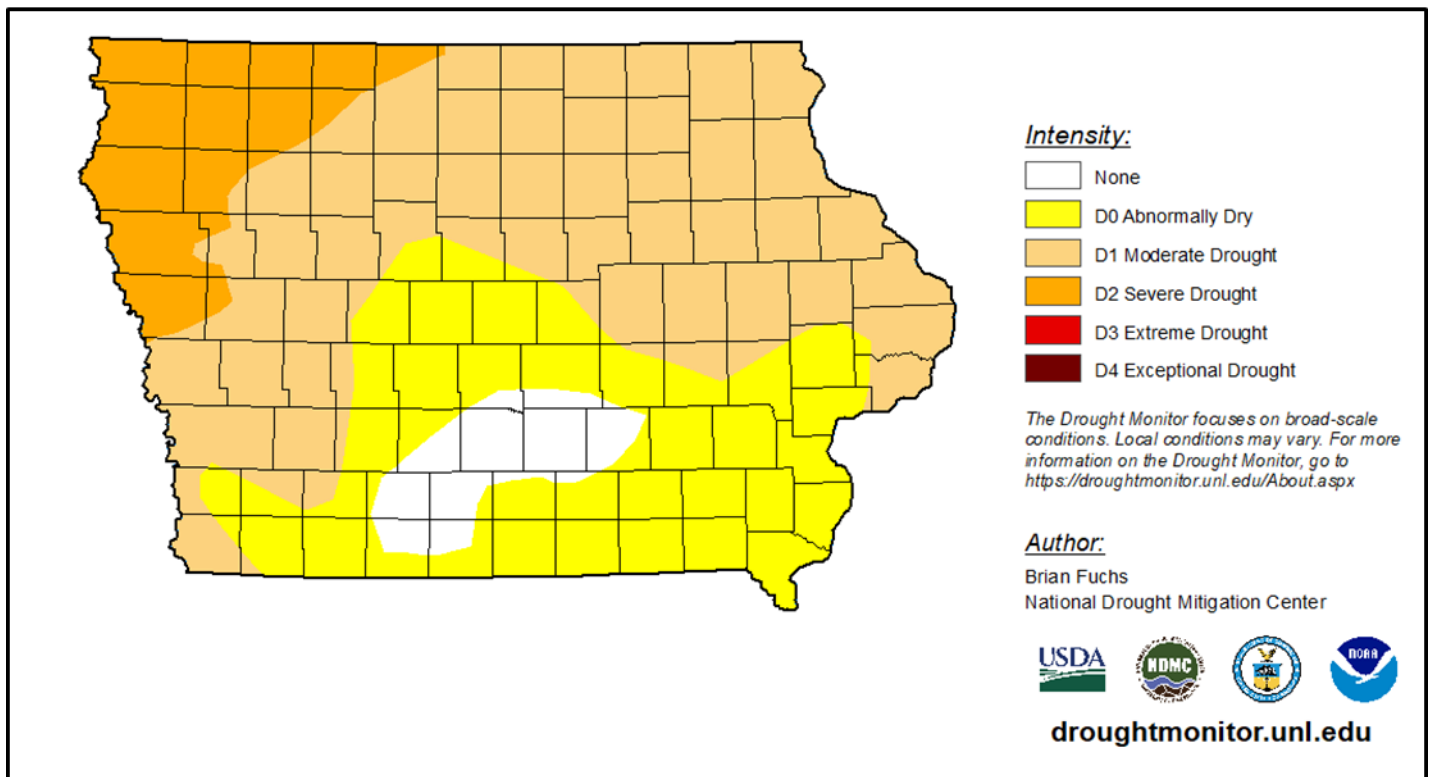
According to the US Geological Survey, the very low precipitation in both September and October resulted in a significant decline in streamflow levels across the state, with many gages falling into below-normal conditions. However, recent substantial rainfall over the past week has led to an increase in stream flow statewide. At the end of October, approximately 35% of the state exhibited below-normal streamflow, but this figure has decreased to around 19% following the recent precipitation.

US DROUGHT MONITOR AND DROUGHT CONDITIONS

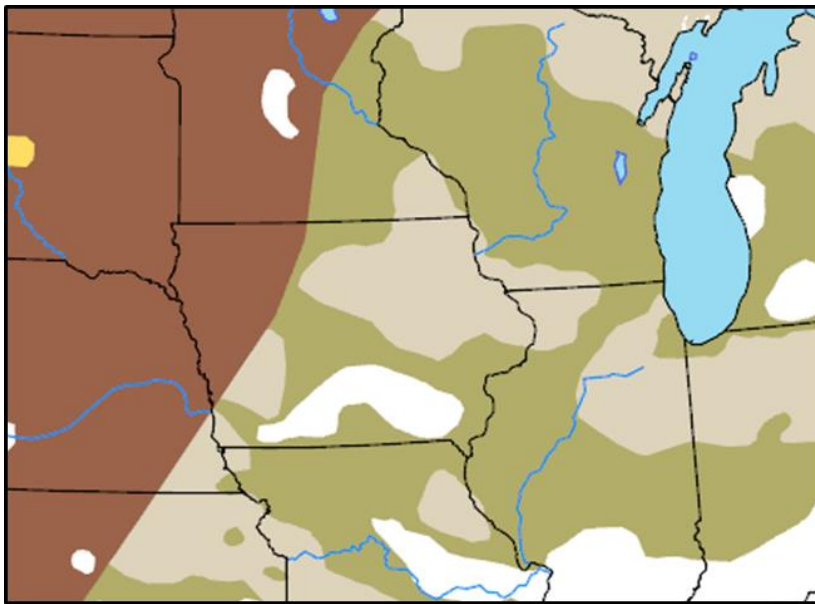
The current US Drought Monitor (USDM) shows the impact of the dry September and October. At the start of October about 22 percent of Iowa was rated as D1 - Moderate Drought, and just over one percent was rated as D2 - Moderate Drought. By the end of October those coverages had expanded to 37 and 50 percent respectively. At the end of October all of Iowa was rated as abnormally dry or some form of drought. This rapid expansion of drought conditions is known as “rapid onset drought, or “flash-drought.” The rain that came at the end of October and into early November has helped to alleviate these conditions. The most recent USDM, released on November 7, shows one class improvement in conditions across most of the state, with only one area of D2 - Severe Drought covering about 13 percent of northwest Iowa.

U.S. Drought Monitor Iowa

November 5, 2024
(Released Thursday, Nov. 7, 2024)
Valid 7 a.m. EST

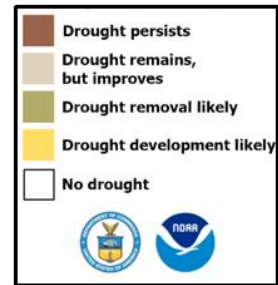


The Seasonal Drought Outlook released on October 31 by the Climate Prediction Center (CPC), valid through January 31, 2025, shows the potential for drought persistence in northwest Iowa, and drought improvement or removal over the rest of the state. This outlook considers the impacts of recent rainfall as well as seasonal precipitation outlooks. Drought tends to be stable during the winter months, so improvement or removal is seen as a positive development.



U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period

Valid for November 1, 2024 - January 31, 2025
Released October 31, 2024



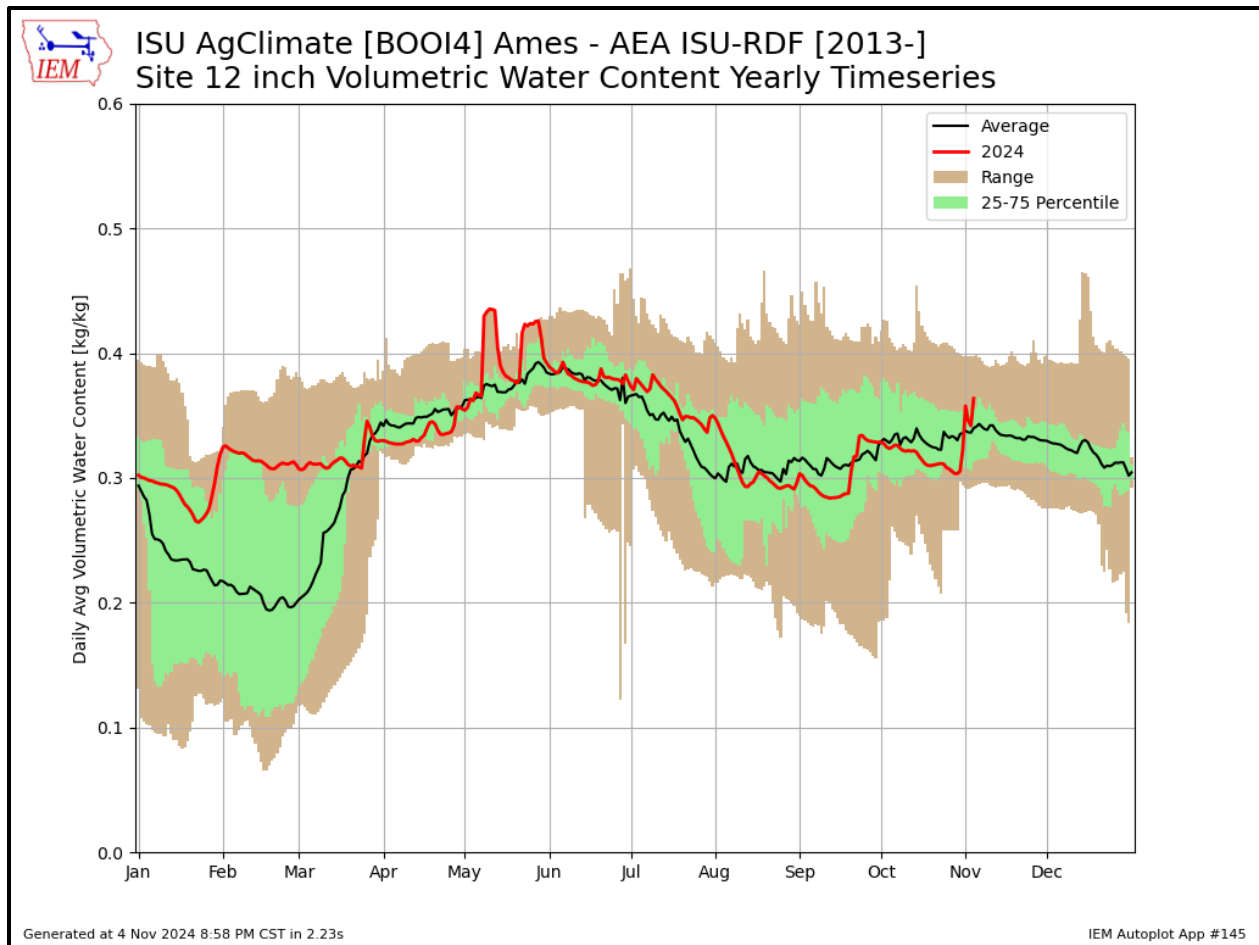
OTHER WATER RESOURCE INFORMATION

Border River Conditions

Current conditions on both the Missouri and Mississippi Rivers show generally normal flows. On the Missouri River the US Army Corps of Engineers reports that total reservoir storage peaked for the year in July, and is following their forecast levels. Storage should be at slightly below normal levels by the end of the calendar year, which will allow for flood storage in 2025.

October Soil Moisture

The most recent United States Department of Agriculture’s National Agricultural Statistics Service (NASS) report issued on November 4 shows improvement over the past week in both topsoil and subsoil moisture levels. The percentage of the topsoil designated as short or very short of soil moisture decreased from 85 percent to 59 percent, while the values for subsoil decreased from 80 percent to 69 percent. The graph below shows soil moisture levels in Ames for 2024. The black line indicates long-term average soil moisture content, while the red line shows the value for 2024. The drying of the soil in September and October can be seen as the red line drops below the black line and declines throughout the fall months. The late October and early November rainfall is reflected in the rapid rise in the red line - and shows that for this location, soil moisture is now above the 75th percentile. The Iowa Geological Survey also reports that soil moisture conditions during the month of October declined, but showed a very recent increases, especially in southwest Iowa where recent rainfall has been plentiful.



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](https://www.dnr.iowa.gov/2023/04/20/2023-Iowa-Drought-Plan).

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