

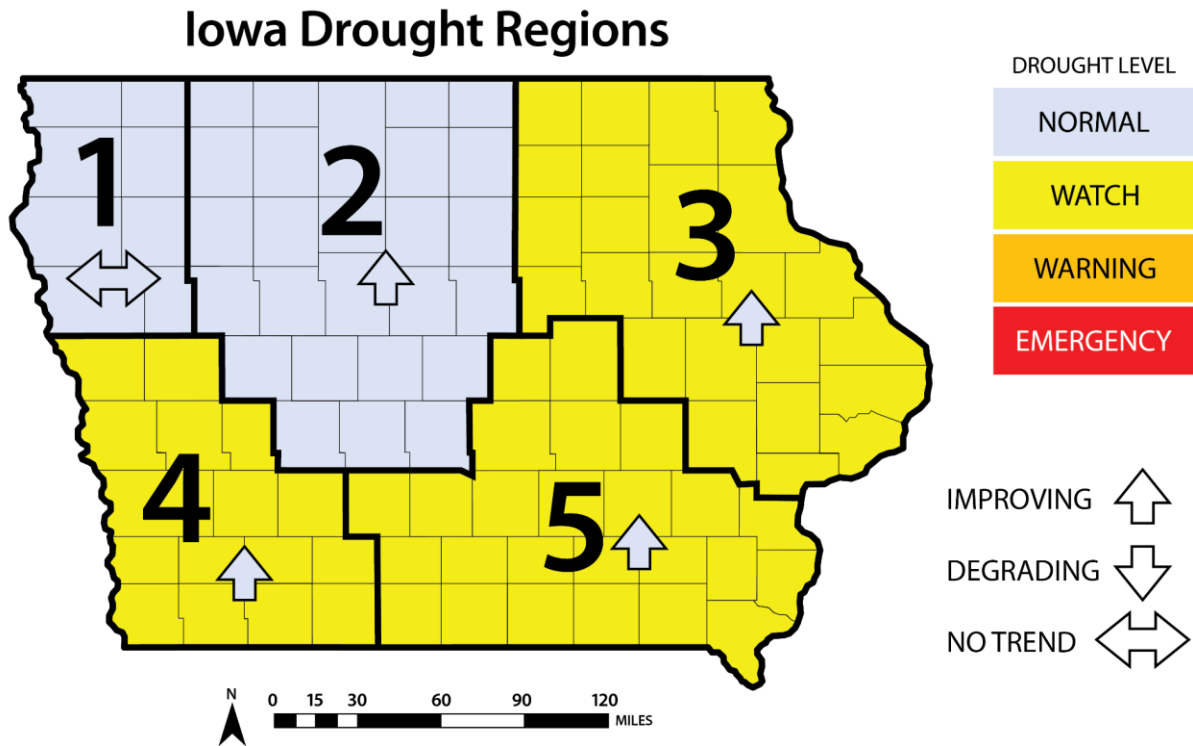


WATER SUMMARY UPDATE

Published Date February 8, 2024 | Issue 152

A snapshot of water resource trends for January 2024

IOWA DROUGHT CONDITIONS



CONDITION SUMMARY

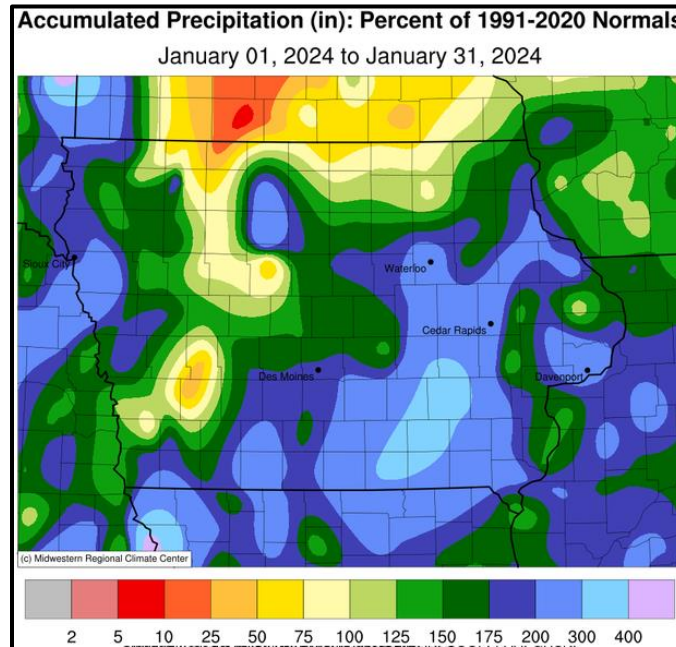
January was another wetter than normal month, with three of the last four months bringing above normal precipitation (October, December, and January). Since October 1, statewide precipitation has been 7.24 inches, 106 percent of normal. January’s preliminary statewide average precipitation was 1.92 inches, nearly one inch above normal. Temperatures averaged 20.0 degrees, or a half of a degrees above normal. Stream flow has also improved over the past month, with most streams moving into normal flow conditions. The US Drought Monitor, one measure reflected in the Iowa Drought Plan (IDP), still shows nearly all of the state in some form of dryness or drought, but less than 20 percent of Iowa designated as D3 – Extreme Drought. This D3 coverage is only about one half of what it was at the beginning of January.

Overall conditions have improved, with Drought Regions 3, 4 and 5 (northeastern and southern Iowa) rated as Drought Watch, an improvement over conditions last month. This reflects a gradual improvement in drought conditions reflected in nearly all the drought measures used by the IDP. Continued above normal precipitation should result in further improvement to conditions as the state transitions from winter to spring.

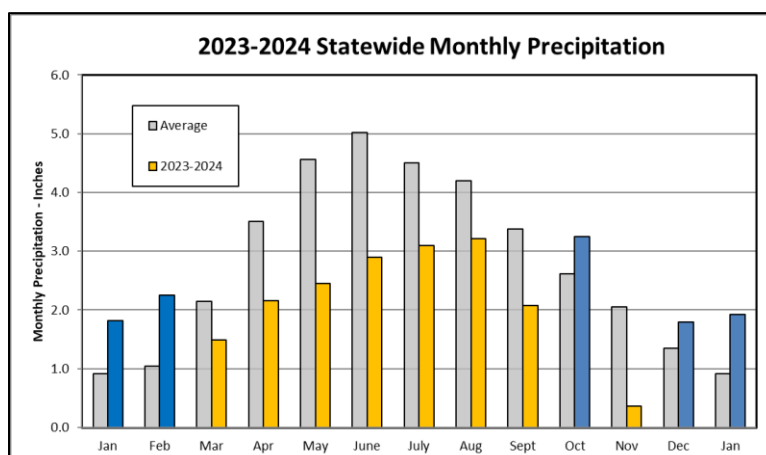
January Precipitation and Temperature

January was the second winter month in which the state received above average precipitation. Most stations reported more than 150% of their normal expected precipitation for January, which is climatologically the driest month of the year. Statewide preliminary average precipitation totaled 1.92 inches or 0.95 inch above normal. Monthly precipitation totals ranged from 0.45 inches at Spirit Lake to 5.25 inches near Bloomfield. The statewide average snowfall was 17.6 inches, 9.3 inches above average, tying 1929 as the 3rd snowiest January on record Ottumwa reported the highest monthly snowfall at 38.7 inches.

Preliminarily, January temperatures averaged 20.0 degrees, 0.50 degrees above normal. Shenandoah reported the month's high temperature of 58 degrees on the 31st, 23 degrees above normal. Primghar reported the month's low temperature of -28 degrees on the 14th, 37 degrees below normal.



The graph below shows monthly precipitation in Iowa compared to normal (gray bars). Three of the last four months (October, December, and January) have had above normal precipitation. This is the trend that is needed to ultimately move the state out of drought conditions – provided that it continues through the spring and early summer months. It should be noted, however, that one year ago the state saw similar above normal moisture in the winter months, but then the spring months turned dry.



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.

90-day SPI values for the Drought Regions for the month of January (comparing November, December, and January precipitation) range from +0.8 to -0.1, with all values close to or above zero. 180-day SPI values are mostly negative, but all are in the IDP Normal range.

Drought Region	3-month SPI	6-month SPI	IDP Classification ↑ = improving ↓ = degrading ↔ = no trend
1	+0.2	+0.2	Normal ↓
2	-0.1	-0.5	Normal ↓
3	+0.0	-0.5	Normal ↔
4	+0.3	-0.9	Normal ↔
5	+0.8	-0.7	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. For January, the SSI for each drought region is:

Drought Region	30-Day SSI	365-Day SSI	IDP Classification ↑ = improving ↓ = degrading ↔ = no trend
1	-0.52	-0.60	Normal ↔
2	-0.95	-0.89	Normal ↑
3	-1.27	-0.57	Drought Watch ↓
4	-1.02	-1.35	Drought Watch ↑
5	-1.84	-1.32	Drought Warning ↔

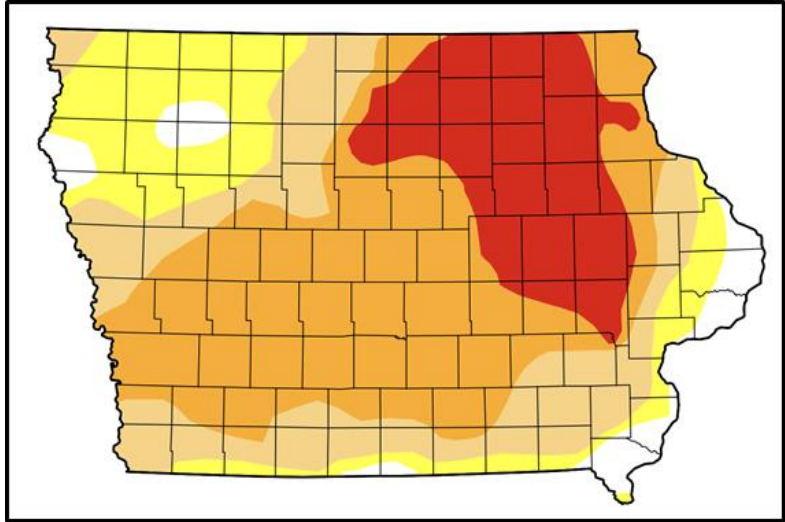
According to the US Geological Survey, streamflow conditions in January improved across the state, with most streams moving into normal conditions. The Raccoon River moved into the much below normal flow range, while the Iowa, Cedar, and Chariton Rivers remain in the below normal flow conditions. It should be noted that during the winter season, USGS streamflow data may be impacted by ice formation and backwater.

US DROUGHT MONITOR AND DROUGHT CONDITIONS

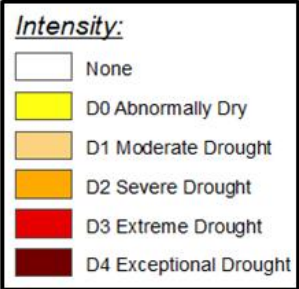
The US Drought Monitor shows considerable improvement over the past month. The area of the state classified in D3-Extreme Drought was reduced from 35 percent at the beginning of January to 18 percent by the end of the month. At the same time, the area of the state designated as free from drought or dryness increased from 2.8 to 5.2 percent. The most noticeable improvement has been in the south-central and southeastern parts of the state. Currently about 18 percent of Iowa is rated as D3 – Extreme Drought, 38 percent is rated as D2 – Severe Drought, and 22 percent is rated as D1-Moderate Drought. D0 – Abnormally Dry, is technically not considered drought, and 16 percent of Iowa is now rated in this category. Parts of Iowa along the Mississippi River, as well as small areas of northwest Iowa are the only parts of

the state that are shown with normal conditions. This week marks the 196th week with some classification of drought or dryness in Iowa, dating back to May 5, 2020. This is the longest period of time since the start of the US Drought Monitor in 2000.

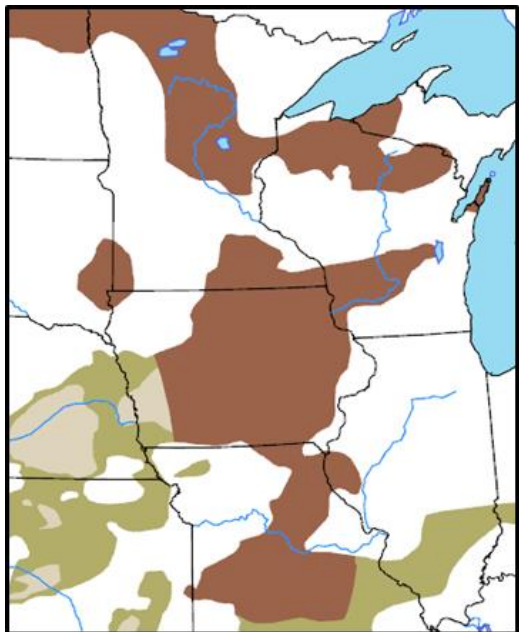
On a national scale, many of the western states are free from dryness or drought. The most significant drought conditions are located in the south and southeast – with areas of D4-Exceptional Drought in southern New Mexico and northern Mississippi.



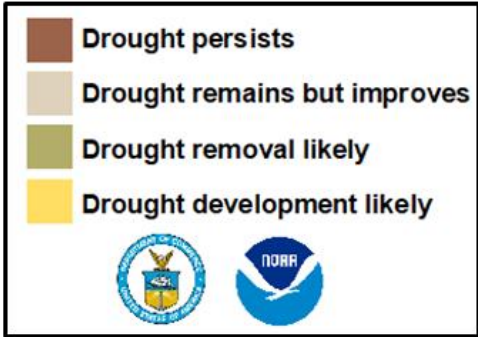
February 6, 2024
 (Released Thursday, Feb. 8, 2024)
 Valid 7 a.m. EST



The Seasonal Drought Outlook issued by the Climate Prediction Center (CPC), valid for February 1 through April 30, shows a tendency for drought to persist across much of the state, with continued improvement or drought removal possible in southwest Iowa.



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



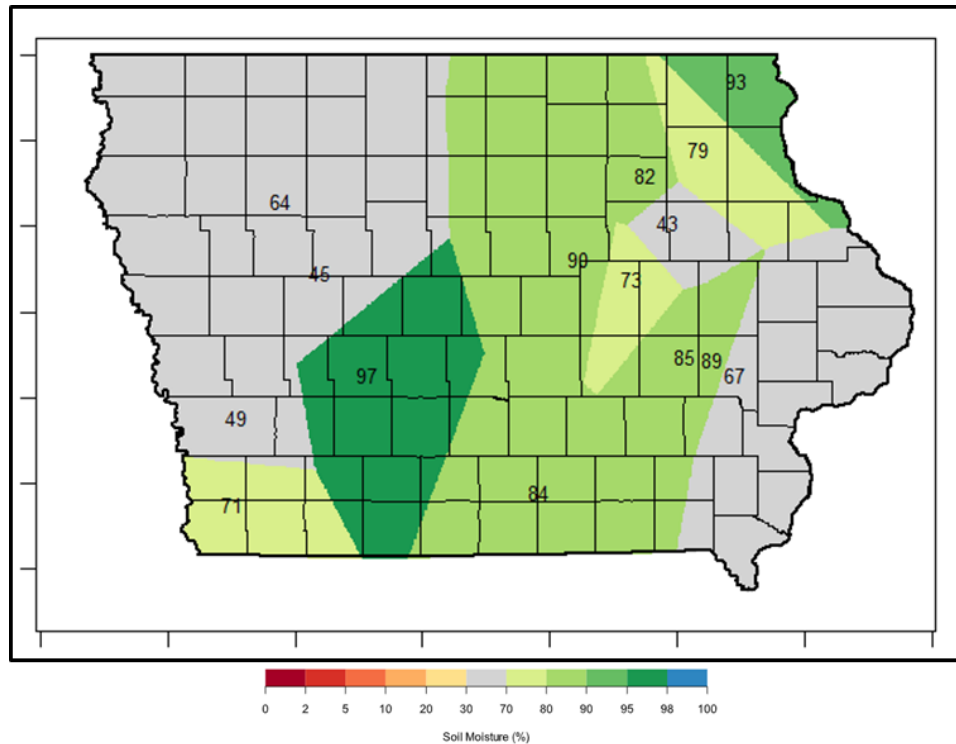
Valid for February 1 - April 30, 2024
Released January 31, 2024

OTHER WATER RESOURCE INFORMATION

November Soil Moisture

January’s precipitation has resulted in a considerable increase in soil moisture at lower layers of soil especially in south and central Iowa. In the active layer of soil, areas that were dry last month in western Iowa have now normal conditions,

and soils in south central Iowa are close to saturation level. The figure below shows soil moisture at the 20-inch depth, and wet soils that now exist in parts of the state.



Missouri River Conditions

In their weekly update of Missouri River conditions dated January 6, 2024, the Army Corps of Engineers indicate that the volume of water stored in the system of reservoirs is 52.8 Million Acre-Feet (MAF), a slight increase over the past month. The annual runoff forecast for the Basin above Sioux City is expected to be below normal, with drought conditions in the lower Basin expected to improve by the end of April, but then drought conditions are expected to persist or worsen in the upper Basin. Mountain snowpack is currently below average in upper reaches of the river. On February 4, the reach above Fort Peck had 5.8 inches of snow water equivalent (SWE), 57% of average, and the reach between Fort Peck and Garrison had 5.9 inches of SWE, 64% of average.

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](#).

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

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