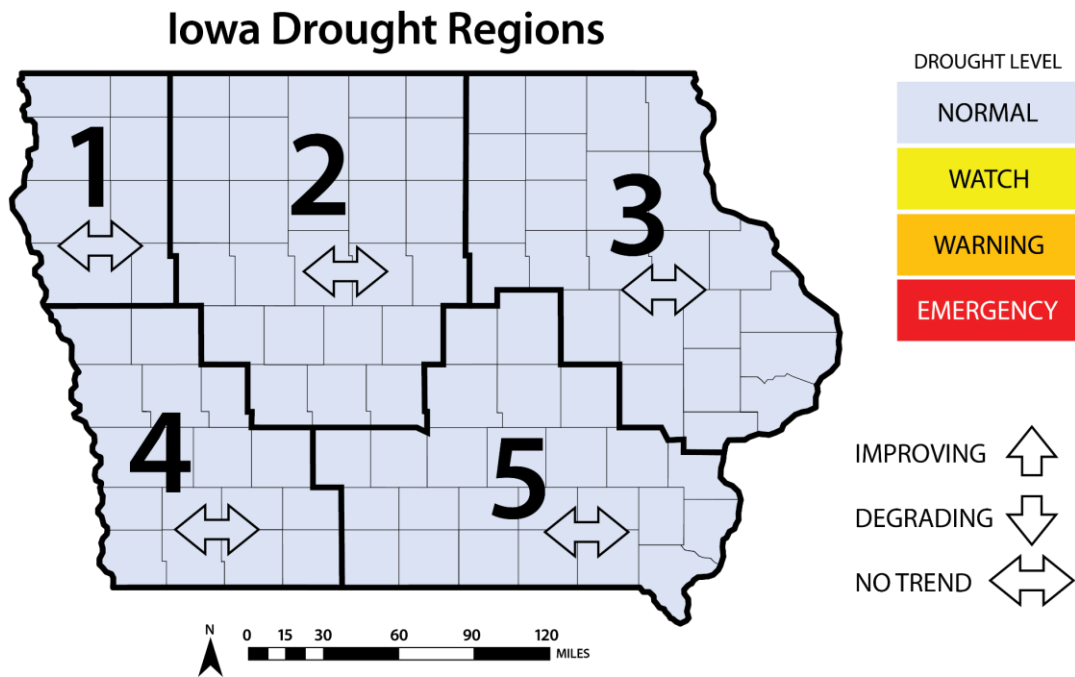


WATER SUMMARY UPDATE

Published Date July 11, 2024 | Issue 157

A snapshot of water resource trends for June 2024

IOWA DROUGHT CONDITIONS



CONDITION SUMMARY - MONTH OF JUNE BRINGS HEAVY RAIN TO NORTHWEST IOWA

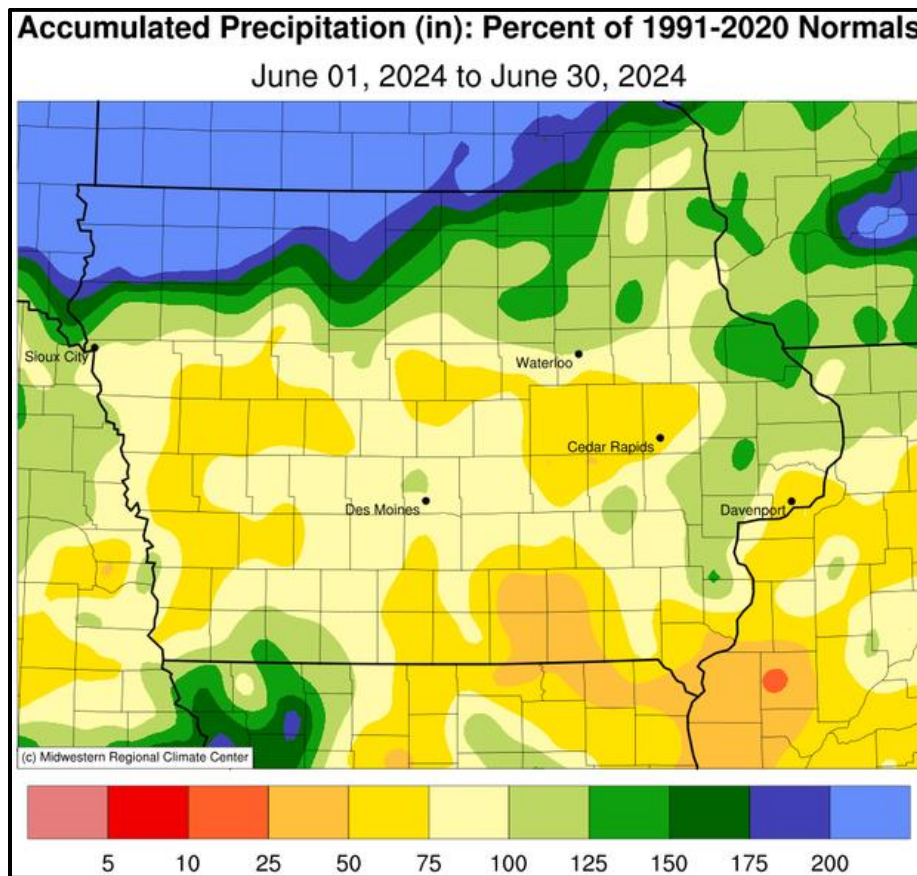
After moving out of drought in May, June brought significant rainfall over northern Iowa that produced flooding in many locations. June, already climatologically the wettest month for Iowa, saw rainfall of 5.22 inches, which is near normal for the state. However, locations in northwest and north-central Iowa reported two to three times the normal precipitation, while much of the southern two-thirds of Iowa received near to slightly below normal totals with some locations receiving only 50 to 75 percent of normal rainfall. Since the start of the Water Year on October 1, Iowa has received nearly 27 inches of precipitation, which is over three inches more than normal - ranking as the 11th wettest October to June period on record for the state since 1895. Statewide temperatures in June averaged 72.0 degrees or 2.1 degrees above normal.

Soil moisture levels have improved across the state in response to recent rainfall events, with nearly all of Iowa showing adequate to surplus soil moisture. The US Drought Monitor, one measure reflected in the Iowa Drought Plan (IDP), shows very limited areas of D0 - Abnormal Dryness.

According to the IDP, all five monitoring regions are drought free, with conditions stabilized. After above normal precipitation in seven of the last nine months, all areas of the state are now in "Normal" condition.

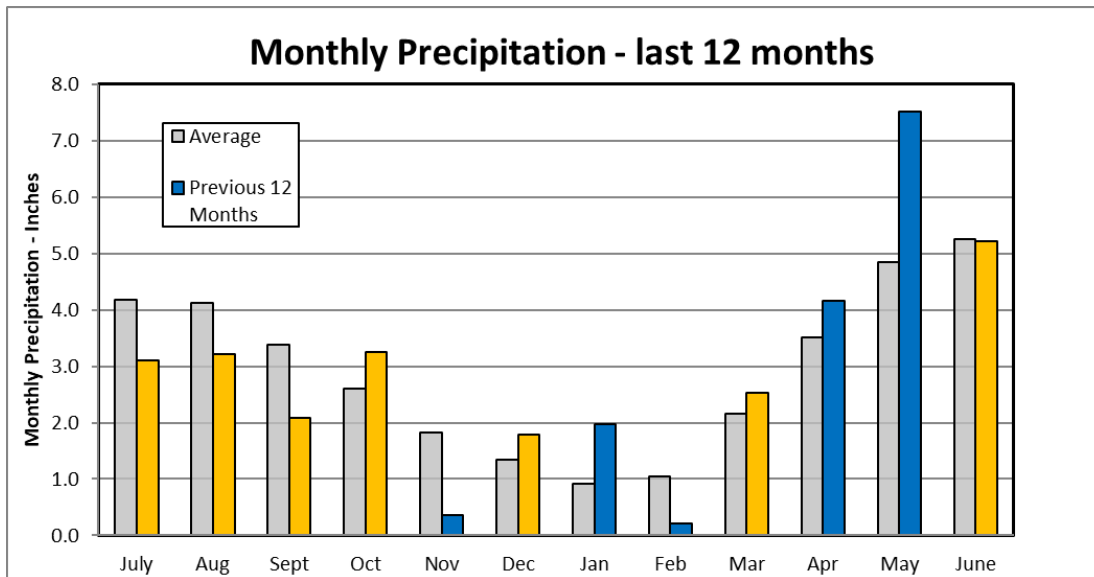
June Precipitation and Temperature

Overall statewide precipitation through June was near-normal with a notable exception across northern Iowa. Many stations in northwest and north-central Iowa reported two to three times the normal monthly precipitation. Twelve counties saw their top ten wettest June on record, which is of particular note as June is climatologically the wettest month for the northern two-thirds of Iowa. National Weather Service co-op stations in Lake Park and Spirit Lake, which started reporting in 1912 and 1893, respectively, had their wettest June on record. Portions of the southern two-thirds of Iowa received near to slightly below normal precipitation with deficits in the 50-75 percent range in some locations. Monthly precipitation totals ranged from 1.96 inches at Rathbun Dam to 18.46 inches at a Community Collaborative Rain, Hail and Snow (CoCoRaHS) network gauge in Lake Park. For Lake Park, in Dickinson County, this represents more than a half-years' worth of rainfall



The graph below shows monthly precipitation in Iowa compared to normal (gray bars), and indicates that Iowa received above normal precipitation during seven of the last eight months, although just barely below normal for June. More importantly, rainfall has been above normal during the wettest months of the year. This month-over-month trend has helped lift the state out of drought conditions, and unfortunately has pushed some areas into flood conditions.

Average temperatures were warmer than normal across most of Iowa with the warmest conditions found in east-central and southern Iowa. Stations along the Iowa-Minnesota border reported average seasonal temperatures. Little Sioux reported the month's high temperature of 102 degrees on June 24, 17 degrees above normal. Iowa City reported the month's low temperature of 43 degrees on June 11, 15 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 June (comparing April, May, and June precipitation) are well above zero. This shows significant 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	+ 2.6	+ 2.3	Normal ↔
2	+ 2.3	+ 2.2	Normal ↔
3	+ 2.0	+ 2.0	Normal ↔
4	+ 1.6	+ 1.2	Normal ↓
5	+ 1.3	+ 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. All of the SSI values in all five drought regions continue to improve, reflecting the overall improvement of hydrological conditions across the state

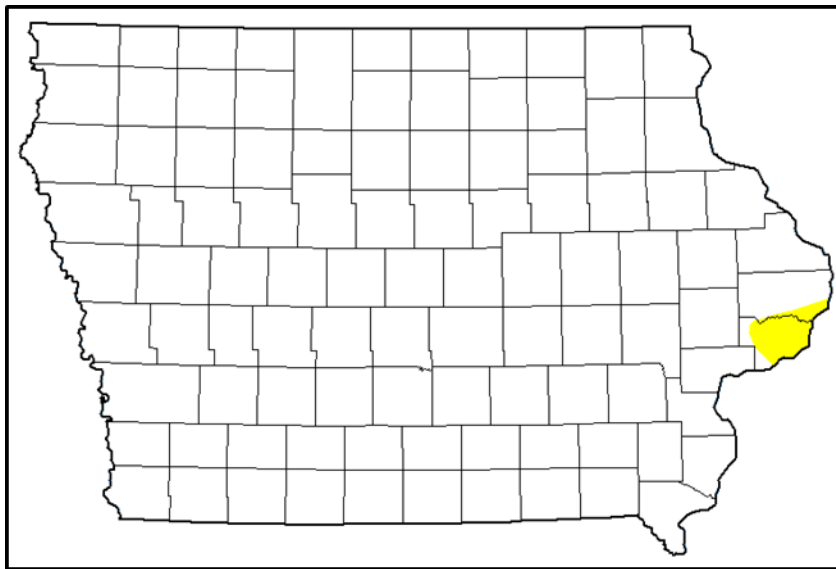
Streamflow values can be averaged over short periods of time (hourly or daily) or over longer periods of time (weekly, monthly or yearly). Daily flows tend to be flashier, as individual rainfall events will stand out, while monthly flows can smooth out the impact of rainfall events. When flooding events occur across Iowa or other parts of the US, monthly flow data is a good indication of continuous precipitation trends - which is the objective of this report. Therefore, some of the short-term extreme flows from a brief rainfall event (like late June’s rain in NW Iowa) get smoothed into the 7-day average flows reported by the US Geological Survey (USGS). The USGS shows during June, precipitation across the northern part of the state kept rivers in above-normal and much-above-normal conditions. The upper Des Moines, Little Sioux, Big Sioux, Floyd, Rock, and Ocheyedan Rivers moved or remained in the much-above condition. The Upper Iowa,

Maquoketa, and lower Des Moines Rivers have remained in the above-normal condition. The Chariton and Thompson have moved from above-normal conditions to below-normal conditions. The rest of the state is in normal conditions.

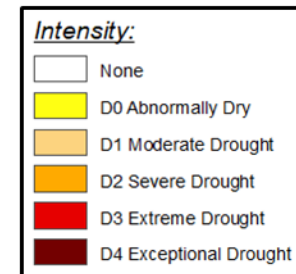
Water levels at Saylorville Reservoir, just north of Des Moines, have been rising steadily in the aftermath of the rains in northern Iowa. Between June 23 and July 10, the reservoir's water level rose 40 feet, and is expected to crest at an elevation of 880.5 feet, less than four feet below the spillway elevation of 884.

US DROUGHT MONITOR AND DROUGHT CONDITIONS

The current US Drought Monitor shows continued improvement in conditions that started this spring. At the start of June, the USDM included an area of D0 - Abnormally Dry conditions in eastern and northeast Iowa. By the start of July, conditions were upgraded to show only a very small portion of the eastern part of Iowa in D0, with over 99 percent of the state free from all dryness and drought. This represents the best conditions in Iowa since May 5, 2020, a period of 218 weeks.

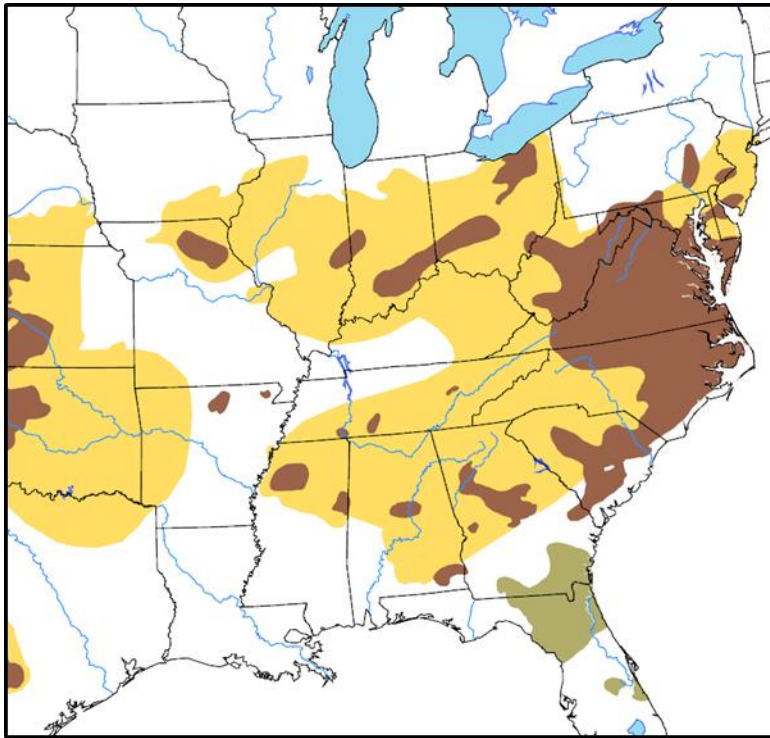


June 4, 2024
(Released Thursday, Jun. 6, 2024)
Valid 8 a.m. EDT








On a national scale, about half of the United States is free from drought or dryness. Small areas of D3 - Extreme Drought, or D4 - Exceptional Drought, are present in New Mexico, and Texas, and the coastal Carolinas. These areas represent just over one percent of area of US. Abnormal dryness and D1 - Moderate Drought is present across much of the southern United States east of the Rocky Mountains. Most of the upper Midwest is free from drought or dryness as the summer progresses.



The Seasonal Drought Outlook issued on June 30 by the Climate Prediction Center (CPC), valid for July 1 through September 30, indicates that drought conditions could become present in southeast Iowa over the summer months. This potential drought area is part of a large area of potential drought conditions that extends from southeast Iowa through Illinois, Indiana, and Ohio, and then eastward into the mid-Atlantic states.



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

Valid for July 1 - September 30, 2024
Released June 30, 2024

-  Drought persists
-  Drought remains, but improves
-  Drought removal likely
-  Drought development likely
-  No drought

OTHER WATER RESOURCE INFORMATION

Border River Conditions

Current conditions on both the Missouri and Mississippi Rivers show above normal flows and flood conditions. These elevated flows are caused by excessive near-term rainfall that occurred across South Dakota, Iowa, Minnesota, and Wisconsin. The Missouri River system of reservoirs has all of its flood storage capacity available. On the Missouri River, the US Army Corps of Engineers stopped discharge from the reservoir system to allow for excessive runoff to move downstream through the Missouri River corridor. For the entire Missouri River Basin, drought conditions have worsened over the last month along western portions of the Basin (lower right). Over 50% of the Basin is now in drought or abnormally dry conditions, up from approximately 30% at the beginning of June.

June Soil Moisture

With the wet month of June, soil moisture has increased in most of the state to normal levels. The July 8 USDA’s National Agricultural Statistics Service (NASS) report reports that more than 90 percent of the topsoil and subsoil moisture levels in the state are adequate or surplus.

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/2023/06/29/the-iowa-drought-plan).

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

- General Information, Tim Hall, Iowa DNR..... Tim.Hall@dnr.iowa.gov, 515-452-6633
- State Climatologist & Drought Coordinator, Justin Glisan, IDALS..... Justin.Glisan@iowaagriculture.gov, 515-281-8981
- Standardized Streamflow Index (SSI), Elliot Anderson, IGS elliott-anderson@uiowa.edu, 319-335-1575
- Stream Flow, Dan Christiansen, USGS dechrist@usgs.gov, 319-358-3639
- Stream Flow, Mike Anderson, Iowa DNR..... Michael.Anderson@dnr.iowa.gov, 515-725-0336
- Soil Moisture, Filipe Quintero Duque, Iowa Flood Center felipe-quintero@uiowa.edu, 319-384-1727