IOWA DEPARTMENT OF NATURAL RESOURCES

WATER SUMMARY UPDATE

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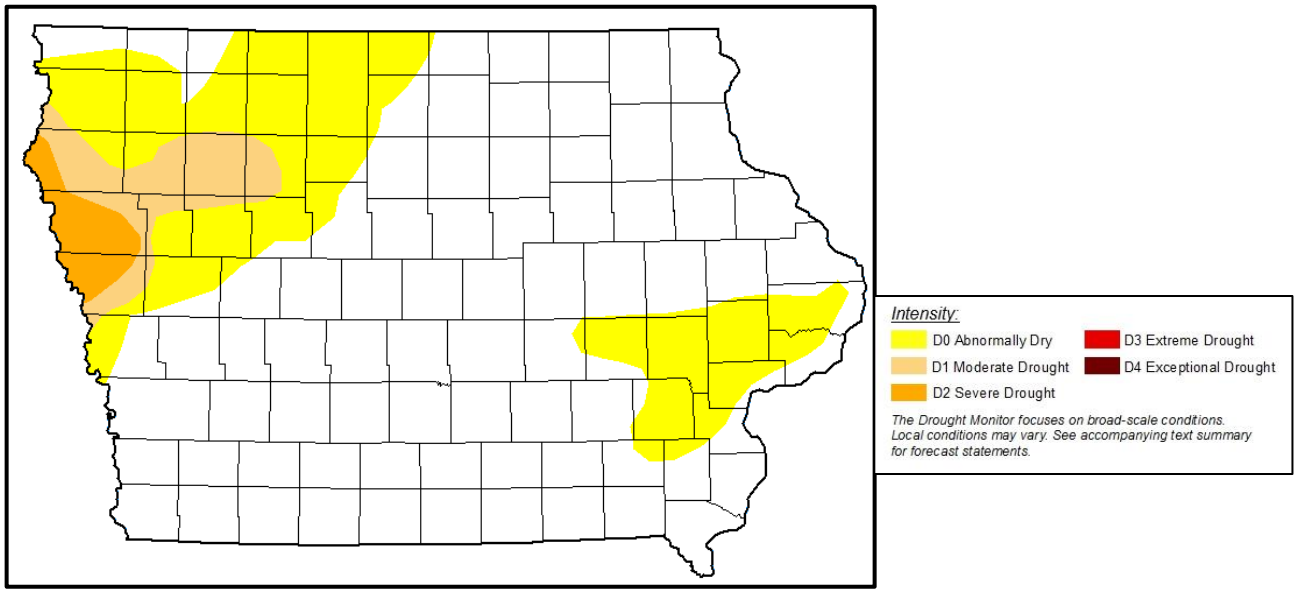
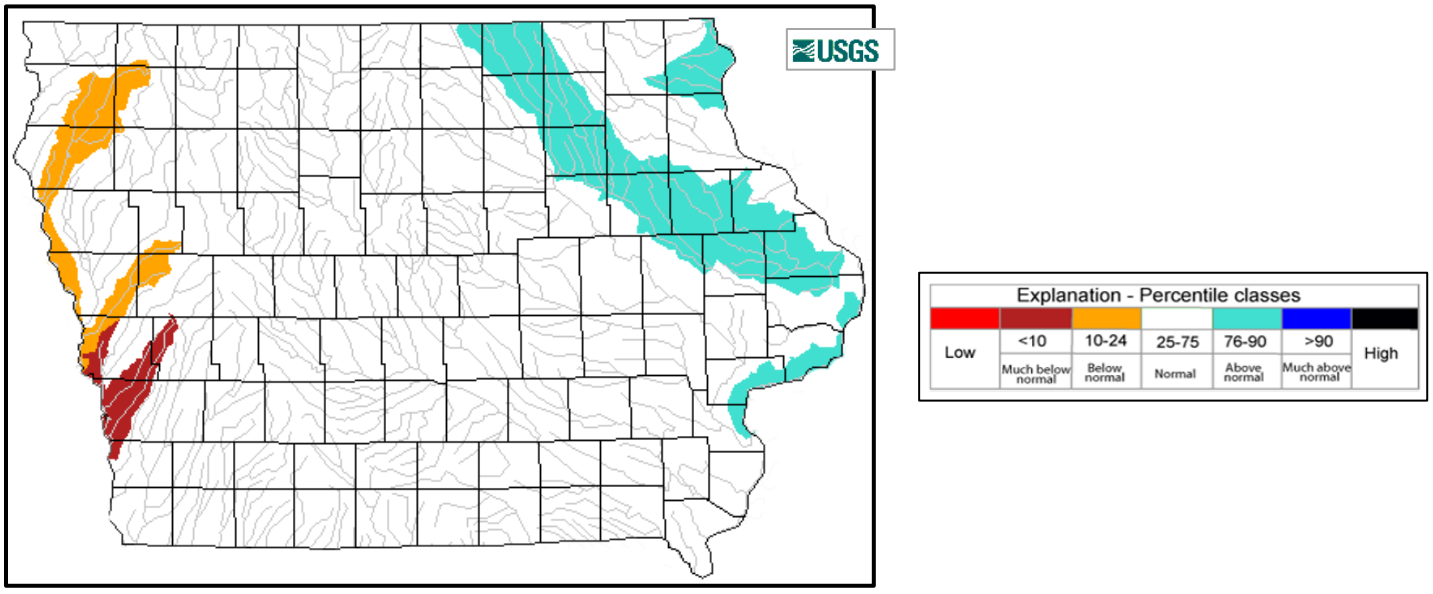
A snapshot of water resource trends for May, 2022

Drought Monitor - Conditions as of June 7, 2022

National Drought Mitigation Center and partners

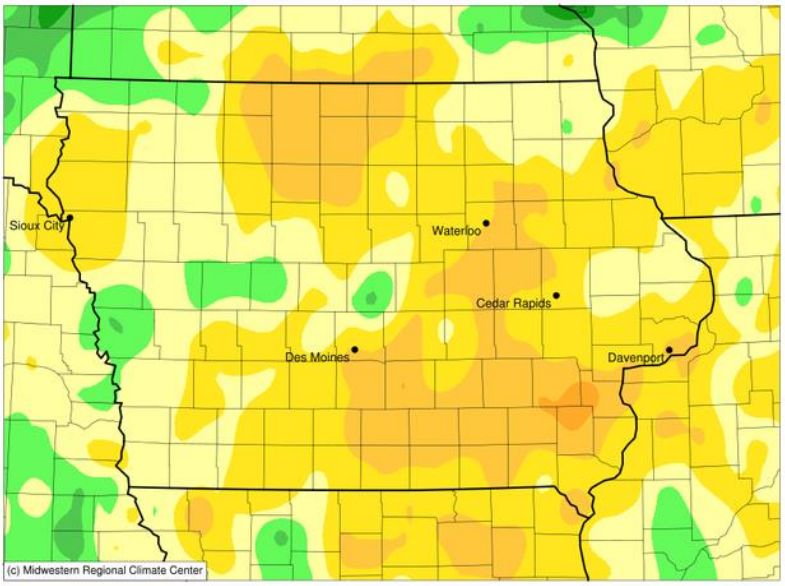


Stream Flow – May, 2022



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

May 01, 2022 to May 31, 2022



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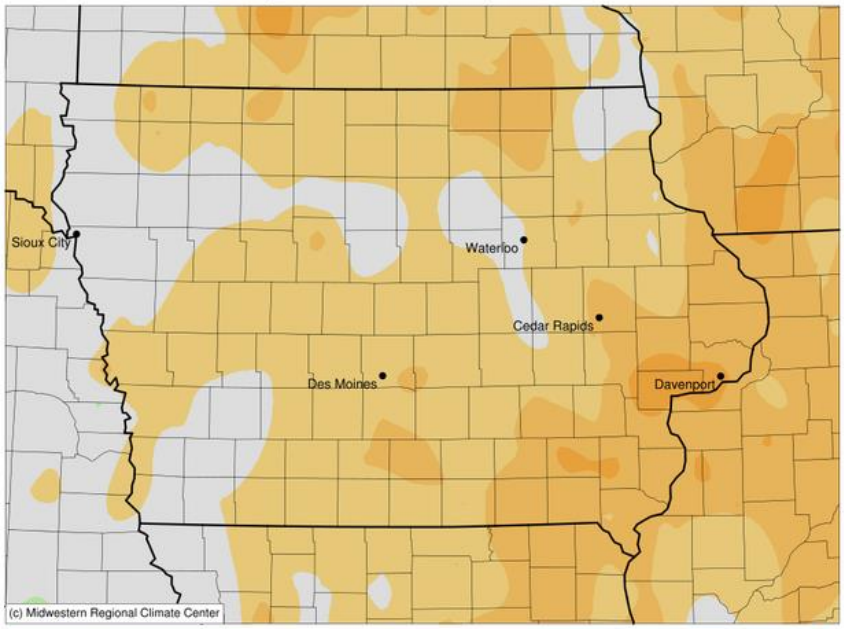
Average Temperature (°F): Departure from 1991-2020 Normals

May 01, 2022 to May 31, 2022



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Midwestern Regional Climate Center
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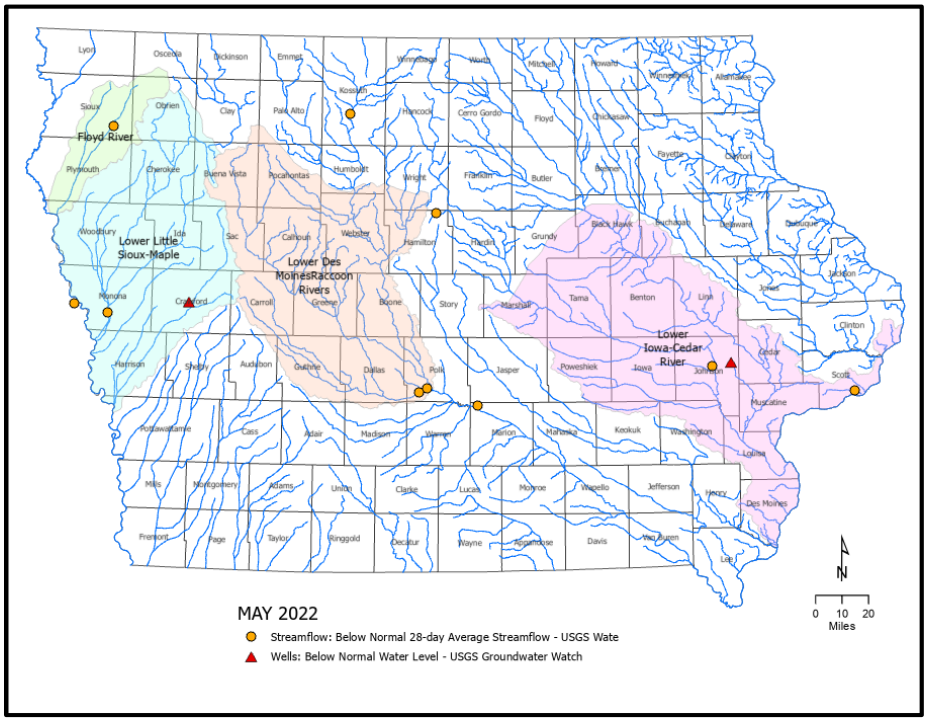
Shallow Groundwater - Conditions for May, 2022

Iowa DNR and Iowa Geological Survey – IIHR Hydroscience and Engineering



RECENT DEVELOPMENTS AND CHANGES

SUMMARY

The month of May was warmer and drier than normal, with Iowa receiving about 3.5 inches of rain. While conditions may have seemed wet for the month, this total is 1.38 inches less than average for May. Drought conditions improved in some parts of the state, with most of the dryness and drought continuing in northwest Iowa. Soil moisture, streamflow, and groundwater conditions follow this same pattern, with the driest of conditions existing in northwest Iowa. As temperatures warm, concern for increasing water demand could impact streamflow and shallow groundwater conditions in that part of the state. The month of June is, on average, the wettest month of the year in Iowa, and normal rainfall patterns should continue to improve conditions.

DROUGHT MONITOR

During the month of May the US Drought Monitor reflected continued improvement in conditions across much of the state, but drought conditions remain in parts of northwest Iowa. The overall area classified as being abnormally dry or in some form of drought decreased from 44 percent at the start of May to 28 percent by the end of May. Most of this improvement was seen in the D0 (Abnormally Dry) area which decreased from 30 percent to 20 percent, and the D1 (Moderate Drought) area which decreased from 10 percent of the state to 5 percent. The D2 (Severe Drought) area continues its presence in Woodbury County, and areas to the north and south.

Much of the western United States continues to experience significant drought conditions, with conditions worst in New Mexico, where nearly half of that state is rated in the worst category of drought, D4 (Exceptional Drought). Most of the states to the east of Iowa show little to no dryness or drought.

MAY PRECIPITATION AND TEMPERATURE

Iowa's statewide average precipitation totaled 3.46 inches, or 1.38 inches below normal, ranking May 2022 as the 57th driest in 150 years of statewide records. Most of Iowa's National Weather Service co-op stations reported below-average totals during the month, especially in north-central and southeastern Iowa where isolated pockets of three to four inch deficits were observed. Only sections of southwestern and northeastern Iowa measured above-average totals. Monthly precipitation totals ranged from 1.79 inches in Swea City to 7.30 inches in Nevada.

The statewide average temperature was 61.4 degrees, 1.5 degrees warmer than normal. May's statewide average maximum temperature was 72.2 degrees, 1.1 degrees below normal, while the average minimum temperature was 50.5 degrees, 1.7 degrees above normal. Little Sioux reported the month's high temperature of 100 degrees on the 12th, 29 degrees above normal. Several northern stations reported the month's low temperature of 29 degrees on the 4th, on average 13 degrees below normal.

Spring Temperature and Precipitation Summary:

The meteorological spring is defined as the months of March, April and May, and in 2022 temperatures for these months averaged 47.4 degrees, or 0.9 degree below normal. This ties Spring 1915 and 1926 as the 63rd warmest on record. Precipitation for the spring months totaled 9.37 inches or 1.13 inches below normal. Spring 2021 was drier while spring 2019 was wetter and was the 10th wettest on record.

MAY STREAM FLOW

During the month of May, streamflow conditions remained in the normal condition for the majority of the state. Portions of the Floyd, and the Monona-Harrison Ditch have remained in the below normal condition. The Yellow, Maquoketa, and Wapsipinicon Rivers have moved into the above normal condition since last month.

MISSOURI RIVER BASIN CONDITIONS

The US Army Corps of Engineers (USACE) reports that runoff continues to be below average in the upper Missouri River Basin above Sioux City, Iowa. Below-normal precipitation, dry soil conditions in the western portions of the basin, and cooler-than-normal temperatures have slowed mountain snowmelt, resulted in a May runoff total of only 79% of average. The 2022 calendar year forecast for runoff in the basin, updated on June 1, is 18.3 MAF, or about 71% of average. Mountain snowpack in the basin has peaked, with about 50% of the annual peak snow remaining, which is normal for this time of the year. The total volume of water stored in the Missouri River reservoir system is now 49.1 million acre-feet (MAF), an increase of 0.8 MAF since the start of May. This storage volume is well below the 57 MAF normally stored at this time of the year. USACE is projecting that the volume of water stored will remain close to this level until the fall, when the volume of stored water decreases moving into the winter months.

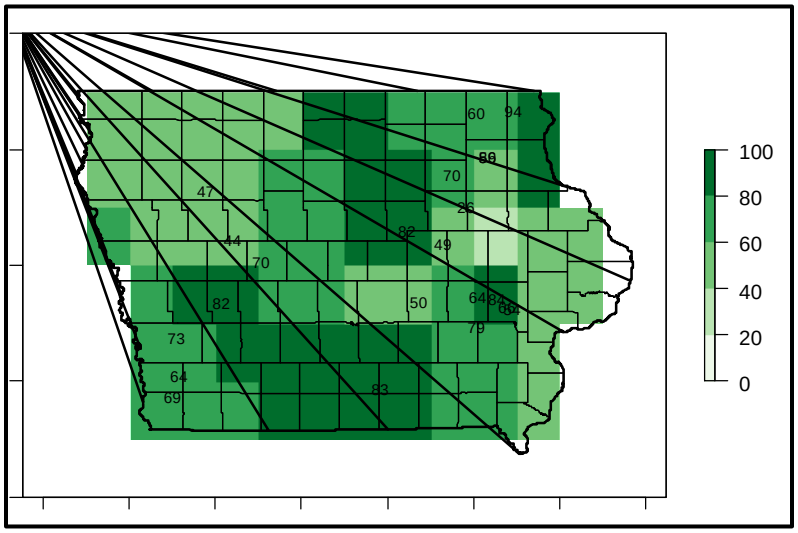
MAY SHALLOW GROUNDWATER

May shallow groundwater level conditions were statistically normal across much of the state, with a decrease in the areas vulnerable to low water levels. Stream baseflow trends can be used as an indicator of water level changes in shallow aquifers, and during May, below normal baseflow was located in two general areas. These include parts of northwest Iowa (around the Floyd River, Lower Little Sioux and Maple Rivers, Lower Des Moines and Raccoon Rivers), and parts of east-central to southeast Iowa (around the Lower Iowa and Cedar Rivers). In addition, there are a few other locations mainly in the central part of the state where groundwater could be low.

Two USGS drought wells also exhibited statistically below normal groundwater levels. There has also been a report of a low oxbow lake level connected to the Missouri River in the Council Bluffs/Omaha area. Current impacts to groundwater are relatively minor, with no reports of shortage; however, if drought conditions continue to intensify, especially in the noted areas, vulnerability to declining shallow groundwater levels and reduced aquifer recharge could occur. Future precipitation will have a significant impact on aquifer level recovery rates.

MAY SOIL MOISTURE

The Iowa Flood Center map shows soil wetness in percentage, at the 20-inch depth for the last day of May. All of the state shows improved soil moistures, with much of the state showing more than 80 percent soil wetness. The United States Department of Agriculture's (USDA's) Crop Progress & Condition report for June 6, 2022 indicates 86 percent of topsoil and 70 percent of subsoil in the state has adequate or surplus moisture. The drier parts of the state, based on subsoil moisture reported by USDA, are the northwest, west central, and southeast regions of Iowa.



ADDITIONAL INFORMATION

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