IOWA DEPARTMENT OF NATURAL RESOURCES

WATER SUMMARY UPDATE

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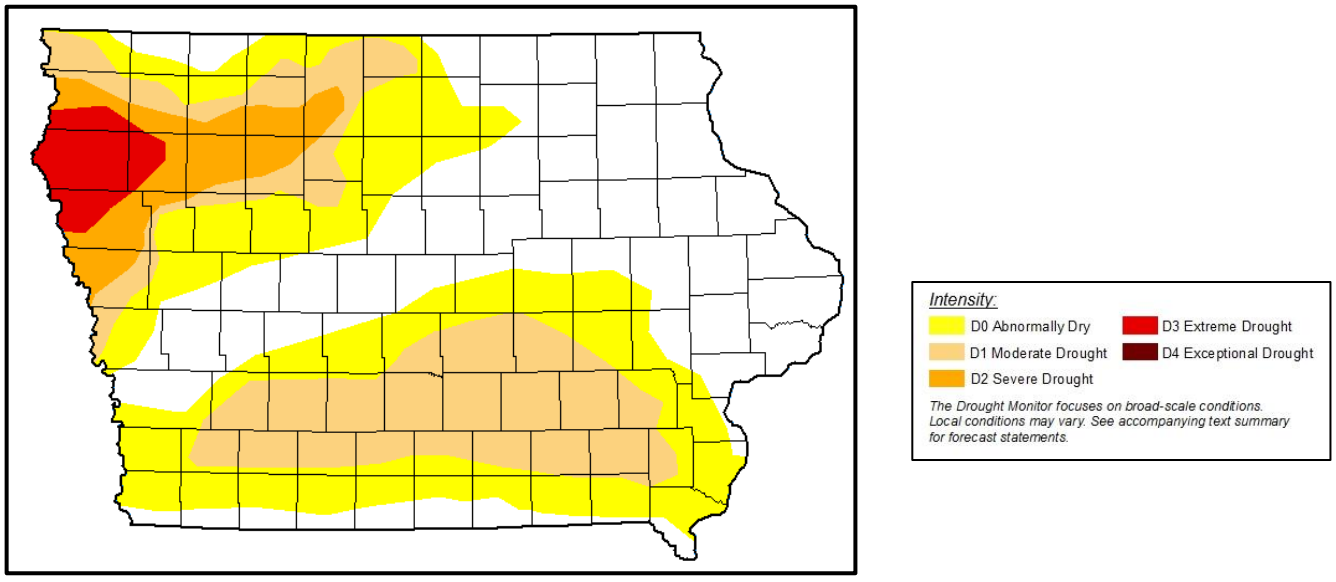
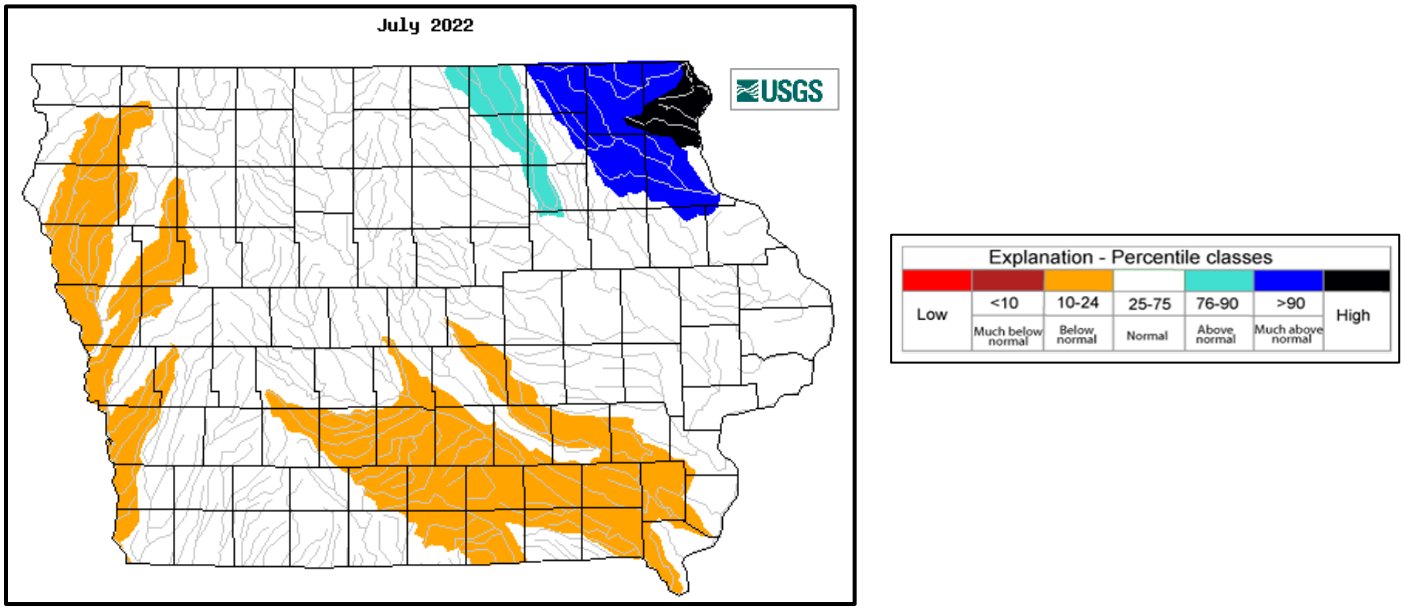
A snapshot of water resource trends for July, 2022

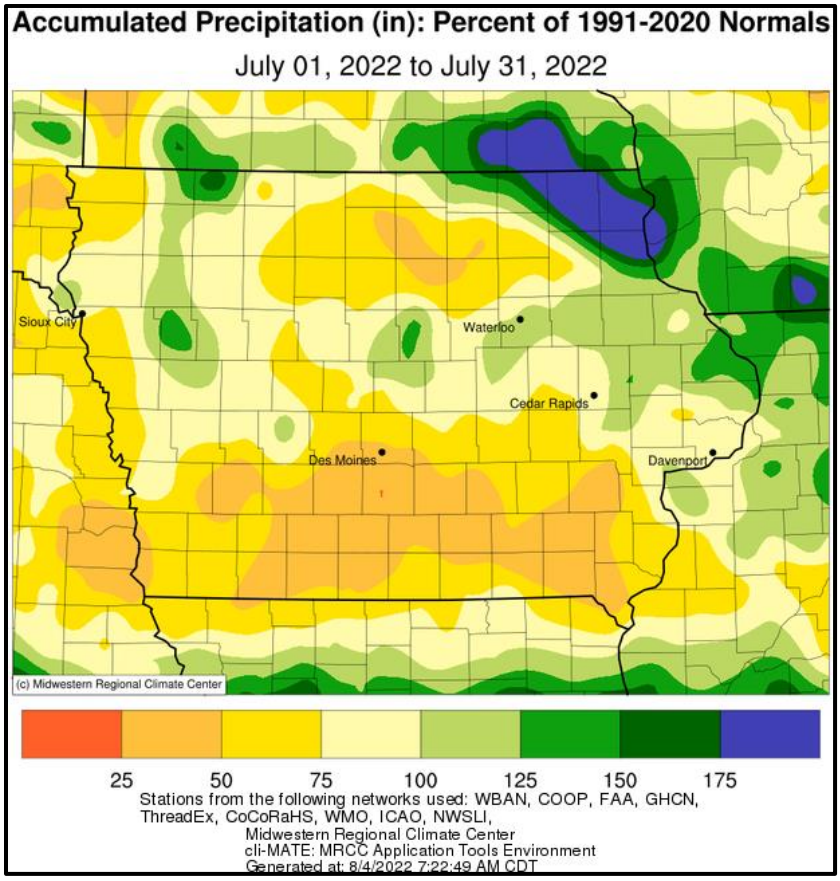
Drought Monitor - Conditions as of August 2, 2022

National Drought Mitigation Center and partners



Stream Flow – July, 2022




Accumulated Precipitation (in): Percent of 1991-2020 Normals
July 01, 2022 to July 31, 2022
Sioux City
Waterloo
Cedar Rapids
Des Moines
Davenport
(c) Midwestern Regional Climate Center
25
50
75
100
125
150
175
Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI,
Midwestern Regional Climate Center
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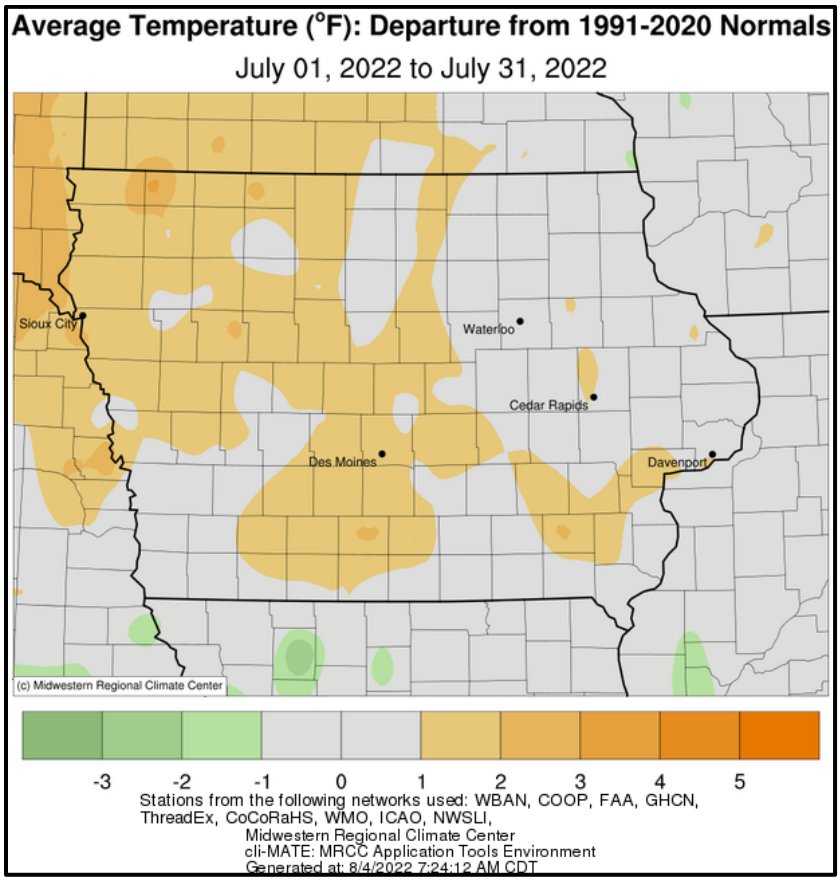
Average Temperature (°F): Departure from 1991-2020 Normals
July 01, 2022 to July 31, 2022
Sioux City
Waterloo
Cedar Rapids
Des Moines
Davenport
(c) Midwestern Regional Climate Center
-3
-2
-1
0
1
2
3
4
5
Stations from the following networks used: WBAN, COOP, FAA, GHCN, ThreadEx, CoCoRaHS, WMO, ICAO, NWSLI,
Midwestern Regional Climate Center
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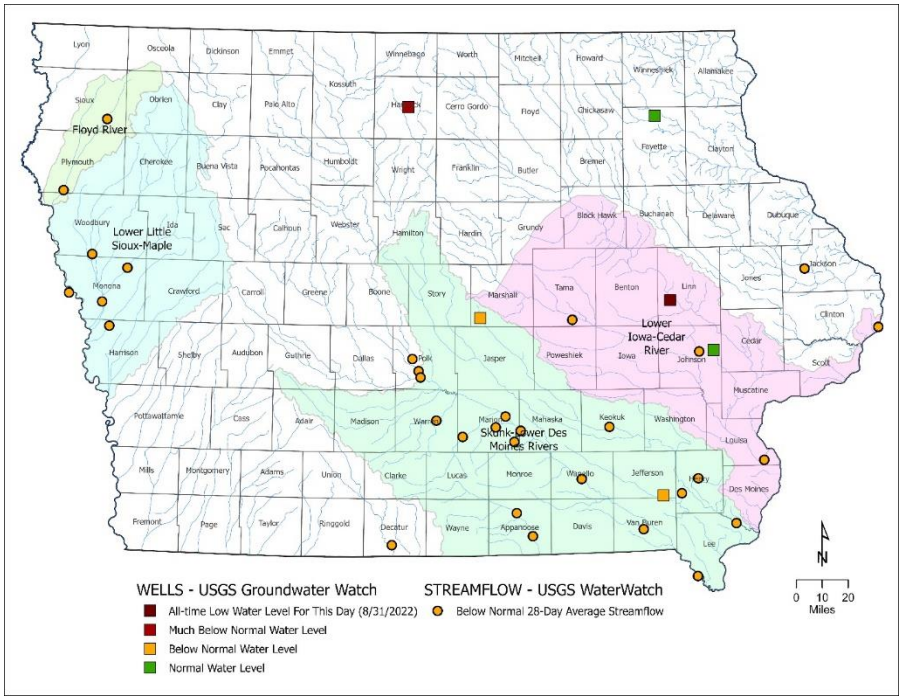
Shallow Groundwater - Conditions for July, 2022

Iowa DNR and Iowa Geological Survey – IIHR Hydroscience and Engineering



RECENT DEVELOPMENTS AND CHANGES

SUMMARY

July ended with a statewide average precipitation of 3.39 inches, or 0.78 inches below normal. This was the fourth month in a row of below normal rainfall, with six out of the seven months of 2022 ending drier than average. This consistent dryness, especially in northwest and southern Iowa has resulted in further expansion of drought conditions across the state. The driest conditions were found across southern Iowa, with some locations four inches short of rainfall during July. This lack of rain resulted in an expansion of drought conditions into all or parts of 24 counties across the southern part of the state. This lack of rain was accompanied by temperatures that were slightly above normal for the month. Streamflow in western Iowa is dropping, and concern for shallow groundwater availability is increasing in some areas.

DROUGHT MONITOR

Lower than normal rainfall in July led to an expansion of drought conditions over the last month. During the month of July drought conditions expanded in both northwest Iowa as well as southern Iowa. In northwest Iowa the area of D3 Extreme Drought doubled from 1.5 percent to over three percent of the state during July. Extreme drought conditions now cover all of Plymouth County, as well as parts of the four counties surrounding Plymouth County. In southern Iowa, a large area of D1 drought was introduced, covering all or part of 24 counties stretching almost from the Missouri River to the Mississippi River. 60 percent of Iowa is now designated as being abnormally dry or in drought, up from less than 50 percent at the start of July.

Drought conditions are also building in states surrounding Iowa. D4 Exceptional Drought, the most severe drought designation, is present in western Kansas as well as western Nebraska. Almost the entire state of Nebraska is designated as abnormally dry or in drought conditions, as is over 80 percent of Kansas and over 60

percent of South Dakota. Large areas of dryness and drought are now present in Missouri and Minnesota as well.

JULY PRECIPITATION AND TEMPERATURE

For the month of July, the statewide preliminary average precipitation totaled 3.39 inches, or 0.78 inches below normal. July was drier than average across a majority of Iowa with pockets of above-average rainfall totals in northeastern and western Iowa. The driest conditions were found in south-central Iowa with departures of up to four inches below normal. Monthly precipitation totals ranged from 0.50 inches in Columbia (Marion County) to 11.37 inches at a gauge in Postville.

Slightly above-normal monthly temperatures were observed across Iowa's reporting stations in July with positive departures of up to a degree over much of the state. Near-normal conditions were reported across parts of eastern and southern Iowa. The statewide preliminary average temperature was 74.3 degrees, 0.9 degree warmer than normal. Several stations reported the month's high temperature of 100 degrees on the 5th and 23rd, on average 15 degrees above normal. Storm Lake reported the month's low temperature of 42 degrees on the 29th, 17 degrees below normal.

JULY STREAM FLOW

During the month of July, streamflow conditions remained normal for much of the state. Portions of the Floyd, West Fork Ditch, Maple, Soldier, and Monona-Harrison Ditch have below normal flow, and Chariton, Lower Des Moines, and Skunk Rivers have decreased to below normal conditions since the June Water Summary Update. The Upper Cedar has moved into the above normal condition, and the Turkey and Upper Iowa Rivers are in the much above normal condition since the last water summary update. The Yellow River has moved from normal last month to the high condition. DNR staff also note that some reaches of the North Raccoon river are at or near protected flow, which could result in withdrawal restrictions for some irrigators.

MISSOURI RIVER BASIN CONDITIONS

On August 1 the Corps of Engineers System updated their forecast for runoff in the upper Missouri River (the area upstream of Sioux City). The forecast now stands at 20.6 million acre-feet (MAF), which is about 80% of average. The total amount of water stored in all of the reservoirs in the Corps of Engineers' system is 51.8 MAF, 0.2 MAF less than last week and 0.5 MAF less than last month. This storage volume is about 90 percent of normal storage volume for this time of the year, and 75 percent of the volume of water that was in the reservoirs in the flood year of 2011.

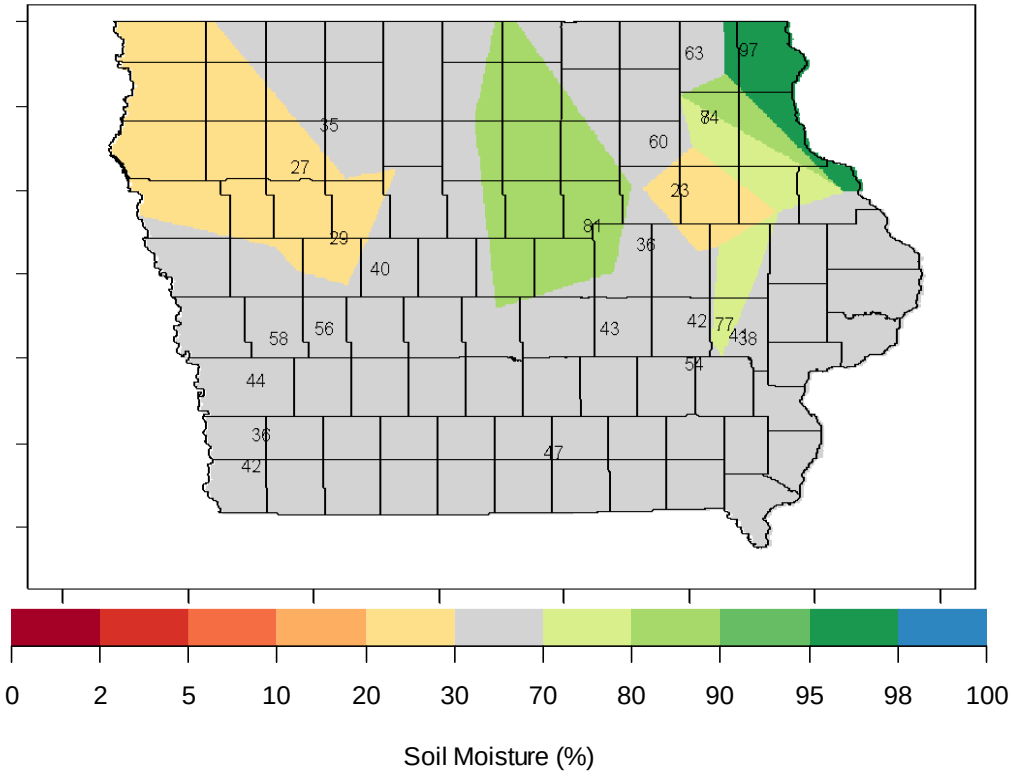
JULY SHALLOW GROUNDWATER

July shallow groundwater level conditions were statistically normal across much of the state but with some areas continuing to exhibit increased water stress and declining levels. Stream baseflow trends are used as an indicator of long-term water level changes in shallow aquifers and during July below normal baseflow was observed in three general areas. These include parts of northwest Iowa (around the Floyd River and Lower Little Sioux and Maple Rivers), parts of east-central to southeast Iowa (around the Lower Iowa and Cedar Rivers), and parts of south-central to southeast Iowa (around the Skunk and Lower Des Moines Rivers). There are also other locations showing stress mainly located along the margins of the areas highlighted above. North-central Iowa (around the Upper Des Moines River) showed improvement since June. Future precipitation will have a significant impact on aquifer level recovery rates.

Some water utilities in northwest Iowa have noted that some shallow wells are showing low water levels. In some wells levels are below normal and continuing to stay that way. High temperatures can significantly increase livestock water consumption. High temperatures and lack of significant rainfall will increase this problem.

JULY SOIL MOISTURE

The Iowa Flood Center map shows soil wetness, in percentage, at the 20-inch depth for the last day of July. The map is obtained from interpolation of soil moisture gages. The map indicates that the lowest soil moistures are located primarily in the northwest part of the state, as well as an area in east central Iowa. The August 1 US Department of Agriculture's National Agricultural Statistics Service (NASS) report that indicates that topsoil and subsoil moisture levels have declined in the state over the last month. In early July only about one-third of topsoil and subsoil was rated as short or very short of moisture. By the end of July these ratings had risen to over 45 percent. Across western and southern Iowa 65 to 70 percent of subsoil and topsoil is now rated as short to very short of moisture.



ADDITIONAL INFORMATION

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

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