

NWS FORM E-5 U.S. Department of Commerce
NOAA, NATIONAL WEATHER SERVICE

HSA OFFICE:
Grand Rapids, MI

MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS

REPORT FOR (MONTH & YEAR):
August 2022

TO: NATIONAL WEATHER SERVICE (W/OS31)
HYDROMETEOROLOGICAL INFO CENTER
1325 EAST-WEST HIGHWAY, RM 13468
SILVER SPRING, MD 20910

DATE:
September 14, 2022

SIGNATURE:
Bruce Smith, MIC
Andrew Dixon, Service Hydrologist

When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (WSOM E-41).

An **X** inside this box indicates that no flooding occurred within this hydrologic service area.

Summary

August 2022 continued the generally active summer weather pattern over Lower Michigan. This featured numerous rounds of showers and thunderstorms across the area, with some occasionally dropping locally heavy rains of 1-3 inches. For the most part this rain was beneficial, and ended up improving the drought conditions that had developed earlier in the summer north of the I-96 corridor. Some minor flooding occurred along the I-96 corridor during one of these heavy rainstorms on August 3, and again near Mount Pleasant on both August 24th and August 29th. This was primarily nuisance flooding of poor drainage areas and low spots, though some of the flooding in Mount Pleasant lingered a bit longer than usual as some overflowing fields kept water on roads for numerous hours even after the rain had ended. All of the major river basins in the area got in on these typical summertime rains, but the Muskegon Basin was affected repeatedly during the 2nd half of the month, leading to above average runoff and river water levels for this time of year.

Flood Conditions

The trend toward normal (or even wetter than normal) conditions that began in late July generally continued through August, which allowed for gradually rising water levels on our larger rivers. The big 3 river basins (Kalamazoo, Grand, and Muskegon) all spent most of the month around the 75th percentile flow for this time of year. Thankfully, this resulted in no river flooding as the “normal” values for August are near their lowest points for the year. Nevertheless, if this trend continues into the fall months we will have to start thinking about soil moisture conditions and river levels heading into the wintertime freeze-up period, which does have impacts on the spring flood risk.

Flood Stage Report

No forecast points exceeded flood stage during the month. Thus, the NWS Form E-3 “Flood Stage Report” was not issued.

River Conditions

The end of August percentage of normal flow for selected rivers is listed below:

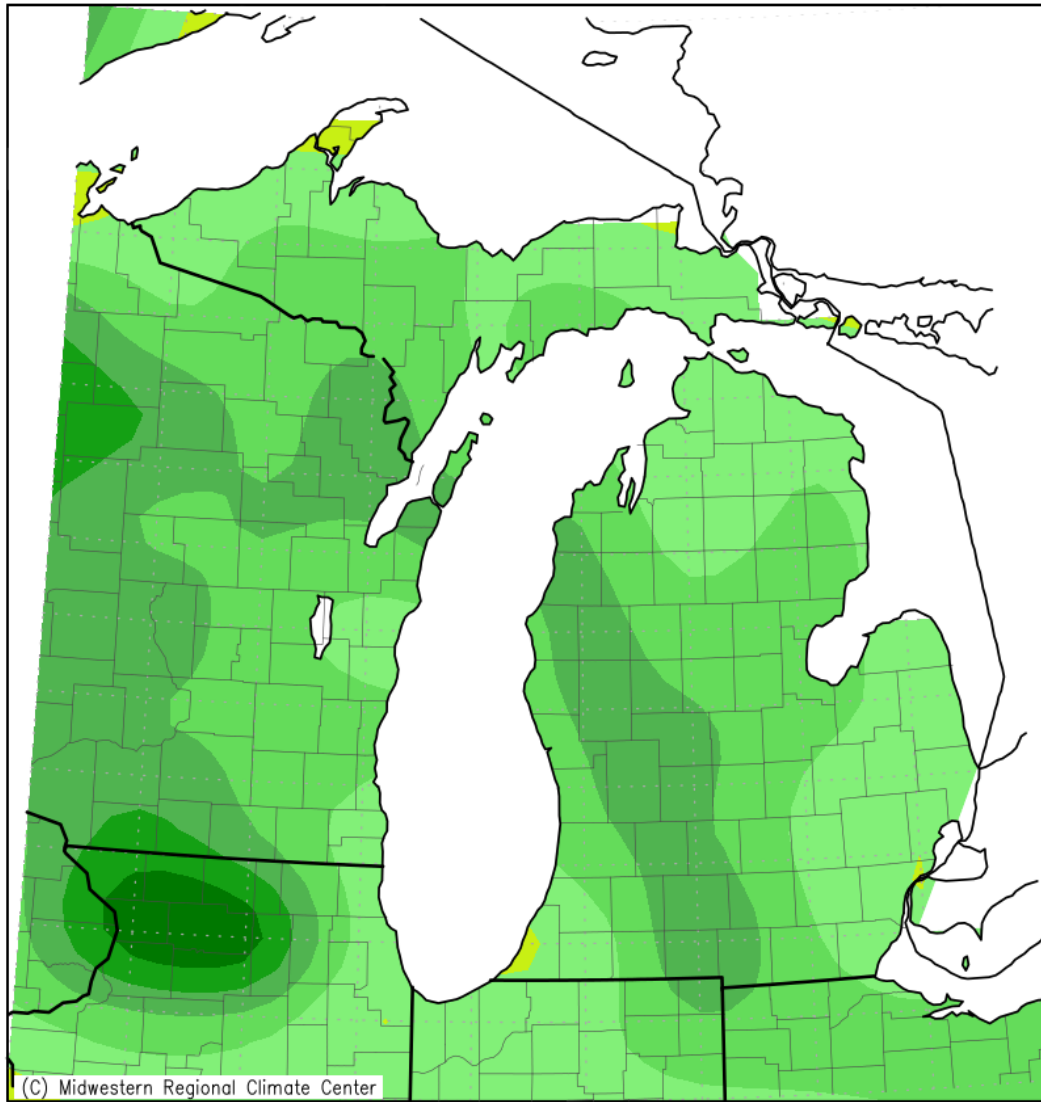
<u>Location</u>	<u>River</u>	<u>% of Normal</u>
Scottville	Pere Marquette	136
Whitehall	White	207
Ewart	Muskegon	120
Mt. Pleasant	Chippewa	222
Lansing	Grand	154
Grand Rapids	Grand	157
East Lansing	Red Cedar	124
Hastings	Thornapple	138
Battle Creek	Battle Creek	139
Battle Creek	Kalamazoo	118

General Hydrologic Information

August precipitation amounts for Grand Rapids, Lansing, and Muskegon, Michigan, were 4.98, 5.97, and 3.74 inches, respectively (Figure 1). Monthly departures were +1.43, +2.49, and +0.64 inches, respectively. Yearly departures were +1.24, +2.47 and -0.17 inches for Grand Rapids, Lansing and Muskegon, respectively. Percent of mean precipitation for August 2022 is shown in Figure 2.

Temperatures for the month of August at Grand Rapids, Lansing and Muskegon were generally warmer than normal. The monthly average temperature departures for these sites were +0.3, +2.1, and +1.9 degrees Fahrenheit, respectively.

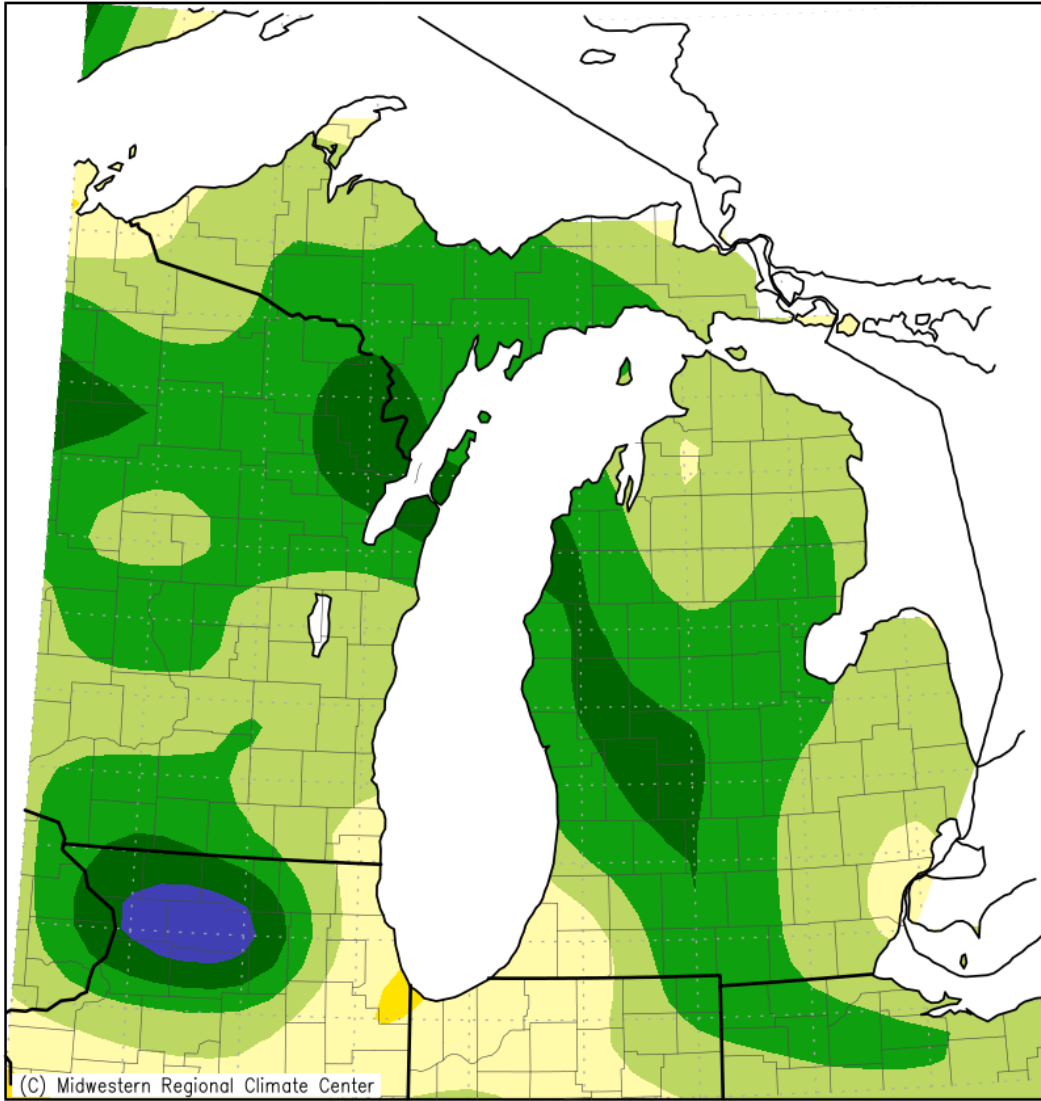
Accumulated Precipitation (in)
August 1, 2022 to August 31, 2022



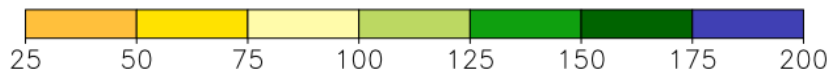
Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
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Figure 1. August 2022 Monthly Precipitation Totals.

Accumulated Precipitation: Percent of Mean
August 1, 2022 to August 31, 2022



Mean period is 1991–2020.



Midwestern Regional Climate Center

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Figure 2. August 2022 Percent of Mean of Accumulated Precipitation.

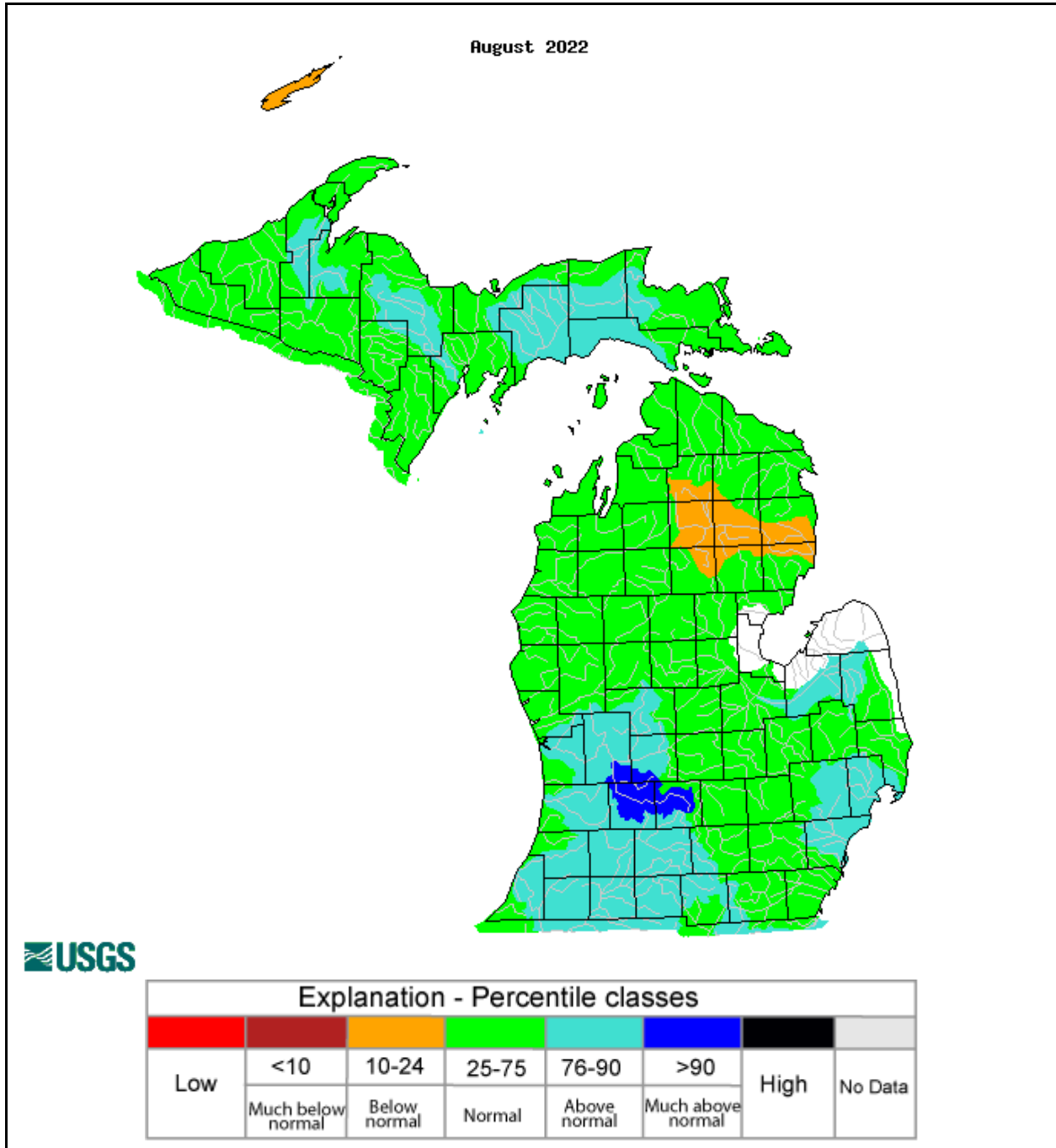


Figure 3. USGS monthly average streamflow for August, grouped by significant hydrologic units. Note streamflows within a typical range across most of Lower Michigan for this time of year, with the exception of portions of the lower Grand River Basin, where streamflows are more notably above average.

Calculated Soil Moisture Ranking Percentile
AUG, 2022

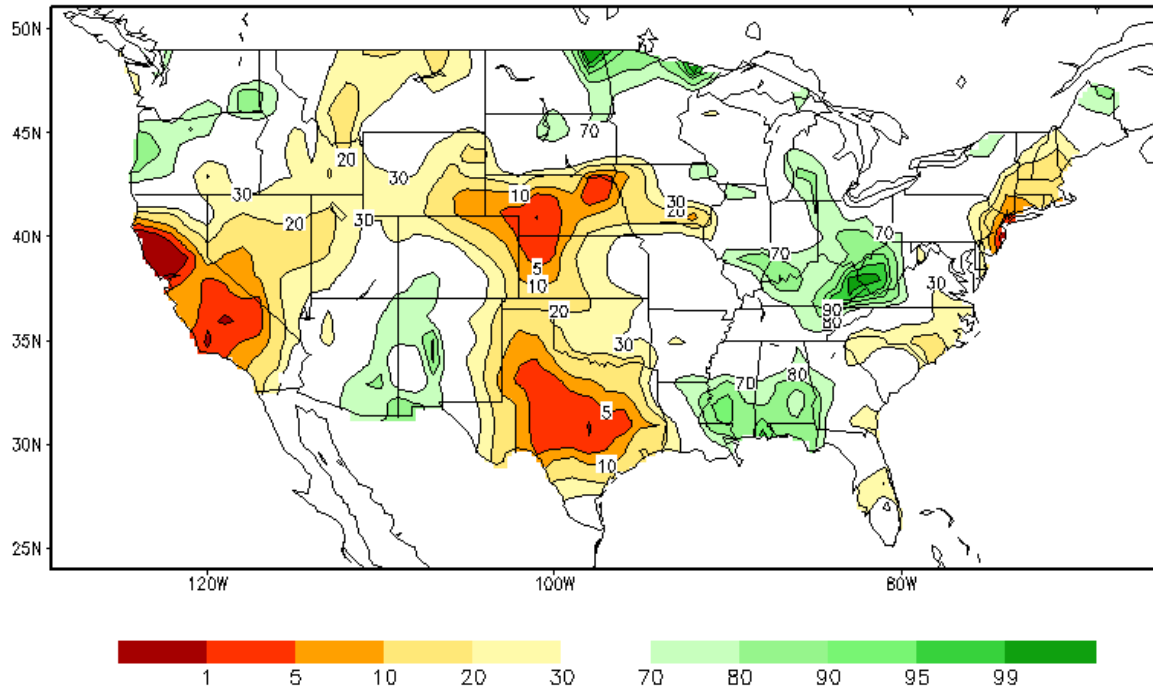
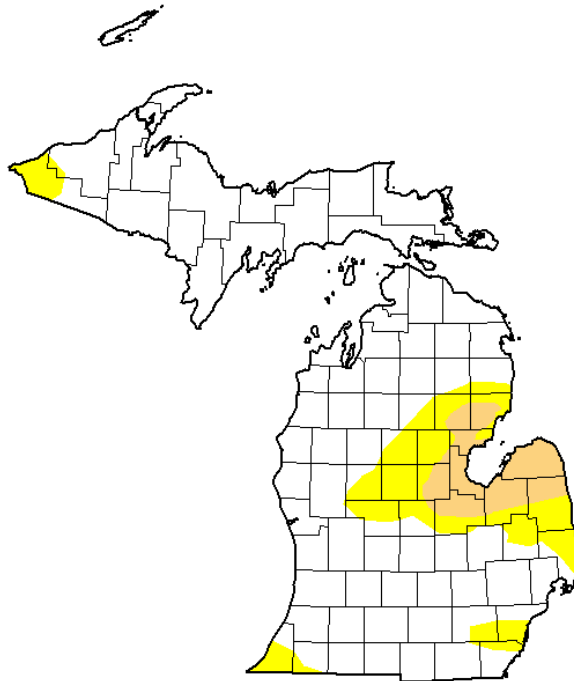


Figure 4. Chart of monthly values of soil moisture, by percentile ranking.

U.S. Drought Monitor
Michigan

August 30, 2022
(Released Thursday, Sep. 1, 2022)
Valid 8 a.m. EDT



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

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National Drought Mitigation Center



droughtmonitor.unl.edu

Figure 5. U.S. Drought Monitor showing some improved conditions over Lower Michigan, with Abnormally Dry conditions persisting over north-central Michigan, and Moderate drought confined to the thumb region as of the end of August..

Hydrologic Products issued this month

- 31 Hydrologic Summaries (ARBRVAGRR)
- 1 Probabilistic Hydrologic Outlook (ARBESFGRR)
- 0 Event-driven Hydrologic Outlook (ARBESFGRR)
- 31 Daily River Forecasts (ARBRVDGRR)
- 2 Areal Flood Advisory Statements (ARBFLSGRR)
- 0 Flood Warning Statements (ARBFLWGRR)
- 0 Flood Watch Statements (ARBFFAGRR)
- 0 River Statements (ARBRVSGRR)

News Articles and Related Documentation

None