

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):
May 2021

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

DATE:
June 15, 2021

SIGNATURE:
Daniel K. Cobb, 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

Overall it was a relatively cool and dry month across most of West Michigan. The one exception was in northern Lower Michigan where above-average rainfall actually occurred in some areas close around Houghton Lake. Meanwhile, the driest conditions were again over the far southwest portion of the state. Repeating thunderstorms over the same area did occur in parts of the Muskegon Basin on May 23, with flooded roads and parking lots occurring in the Reed City area as a result of 3-4 inches of rain. This was handled with an areal flood advisory, and the localized flooding dissipated soon after the heavy rain ended.

During the course of the month, drought continued to expand across Lower Michigan, and by the end of the month an area of D3 "Severe Drought" was being experienced across the southwest corner of the state. Drought in Michigan primarily affects the agricultural community, and many farmers were reporting having to irrigate earlier than they ever remember. For those farmers unable to irrigate, dry soils were limiting plant growth during this early season period.

The continued dry conditions also allowed Lake Michigan water levels to remain essentially unchanged since March, defying the typical increasing water levels this time of year as snowmelt and spring rains work their way through the Great Lakes waterways. Water levels are now more than 18 inches lower than this time last year, but still about 12 inches above the long-term average levels.

Flood Conditions

The major river systems continued to slip into lower and lower percentile categories with the ongoing drought. The Muskegon River fared slightly better due to rain totals closer to normal during the month, but still spent the bulk of the month below the 25th percentile of flow for this time of year. The Grand and Kalamazoo River basins spent most of the month around the 10th percentile.

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 May percentage of normal flow for selected rivers is listed below:

<u>Location</u>	<u>River</u>	<u>% of Normal</u>
Scottville	Pere Marquette	122
Whitehall	White	89
Ewart	Muskegon	63
Mt. Pleasant	Chippewa	130
Lansing	Grand	N/A
Grand Rapids	Grand	64
East Lansing	Red Cedar	55
Hastings	Thornapple	63
Battle Creek	Battle Creek	50
Battle Creek	Kalamazoo	53

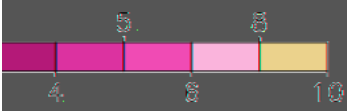
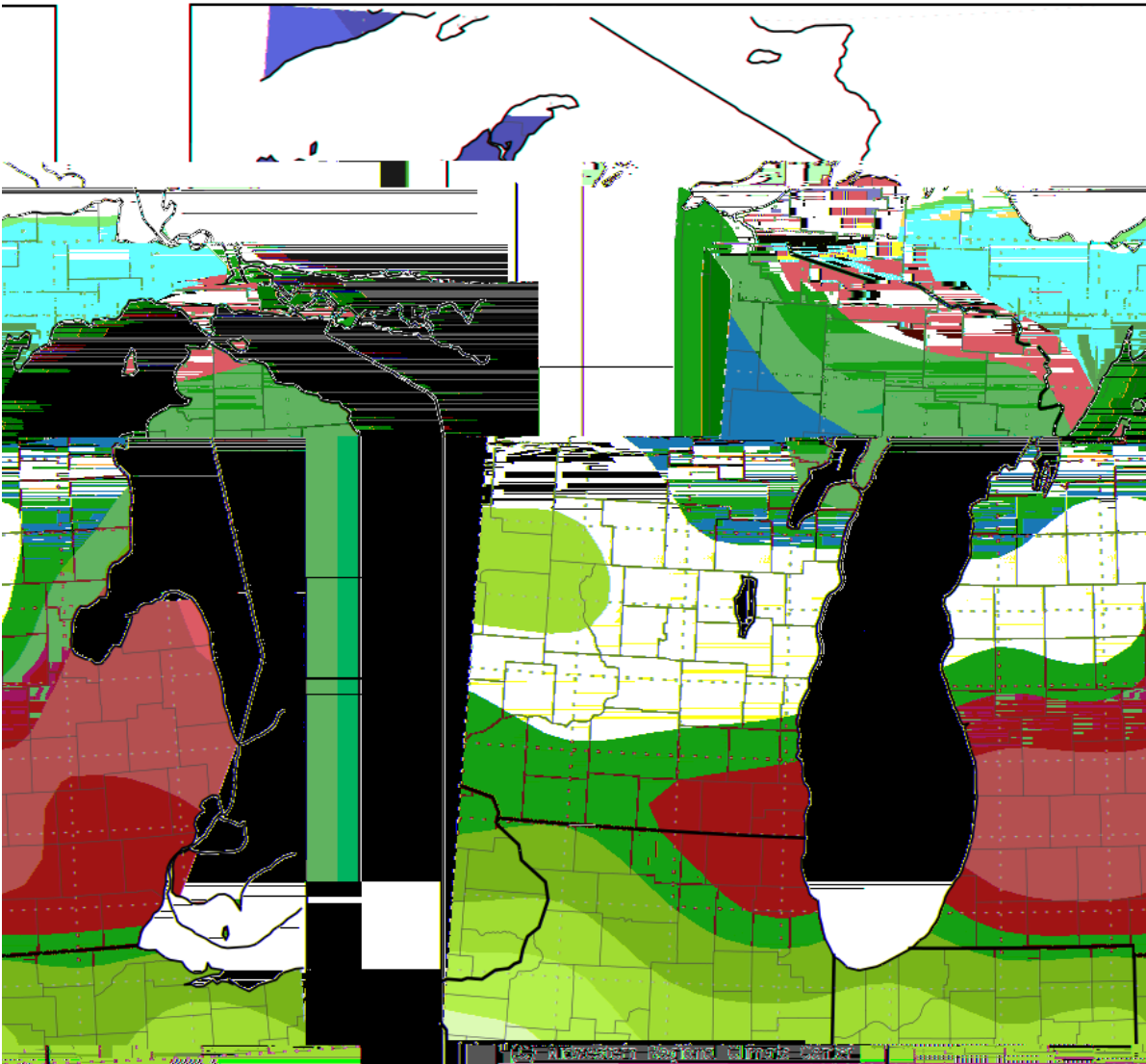
General Hydrologic Information

May precipitation amounts for Grand Rapids, Lansing, and Muskegon, Michigan, were 1.92, 1.20, and 2.05 inches, respectively (Figure 1). Monthly departures were -2.08, -2.46, and -1.33 inches, respectively. Yearly departures were -6.47, -5.48 and -6.28 inches for Grand Rapids, Lansing and Muskegon respectively. Percent of mean precipitation for May 2021 is shown in Figure 2.

Temperatures for the month of May at Grand Rapids, Lansing and Muskegon were slightly below average. The monthly average temperature departures for these sites were -1.7, -1.6, and -1.5 degrees Fahrenheit, respectively.

Accumulated Precipitation (in)

1 May 01, 2021 to 31 May 01, 2021



Center
Environment
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Midwestern Regional Climate
cli-MATE: MRCC Application Tools
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Figure 1. May 2021 Monthly Precipitation Totals.

Accumulated Precipitation: Percent of Mean
May: 1, 2021 to May: 31, 2021

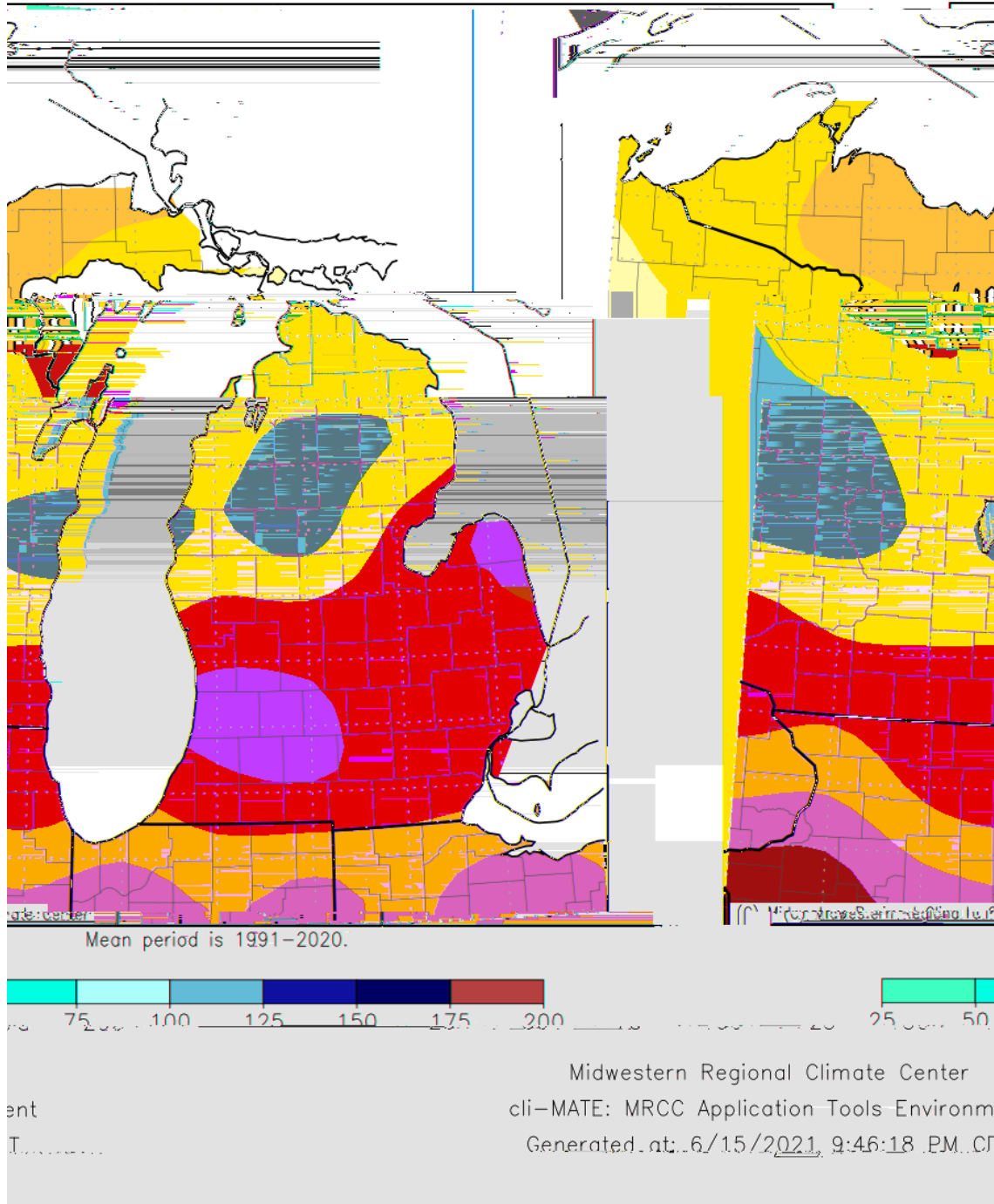


Figure 2. May 2021 Percent of Mean of Accumulated Precipitation.

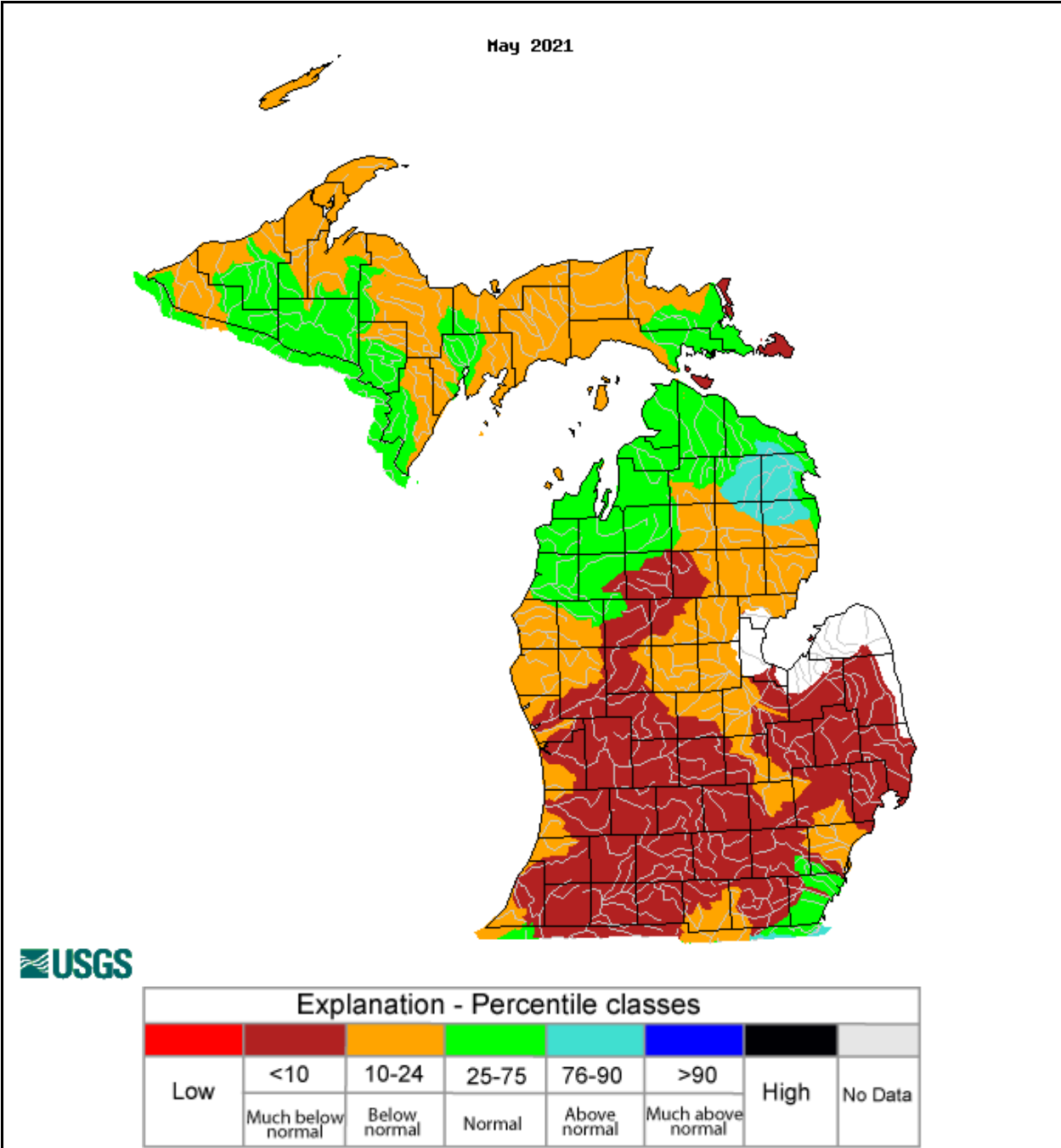


Figure 3. USGS monthly average streamflow for May, grouped by significant hydrologic units. Note streamflows across Lower Michigan significantly below-average, owing to several months of relatively dry conditions.

Calculated Soil Moisture Ranking Percentile
MAY, 2021

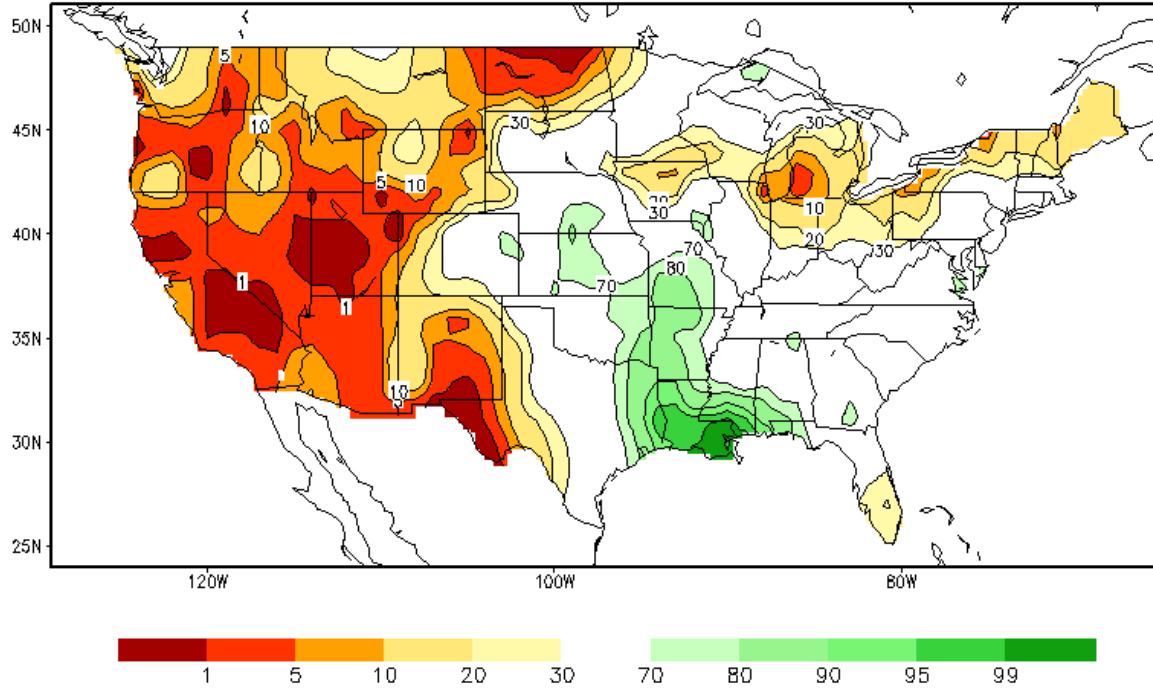
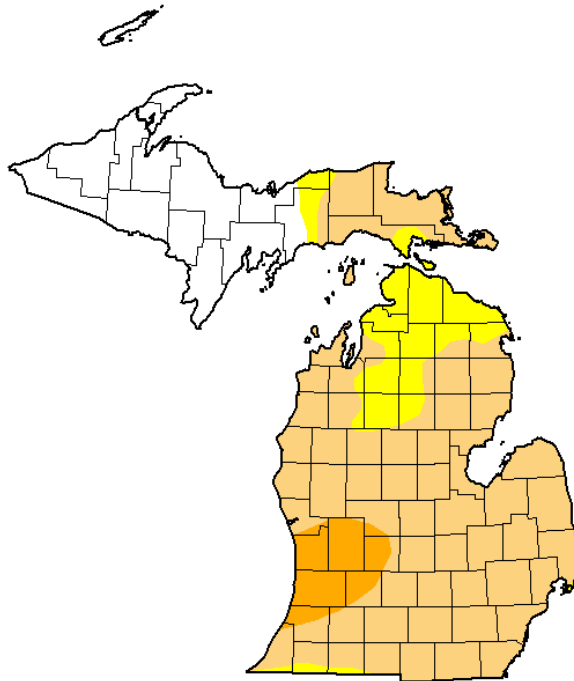


Figure 4. Chart of monthly values of soil moisture, by percentile ranking.

U.S. Drought Monitor
Michigan

May 25, 2021
(Released Thursday, May. 27, 2021)
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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NOAA/NWS/NCEP/CPC



droughtmonitor.unl.edu

Figure 5. U.S. Drought Monitor analysis valid at the end of May, 2021

Hydrologic Products issued this month

- 31 Hydrologic Summaries (ARBRVAGRR)
- 1 Probabilistic Hydrologic Outlook (ARBESFGRR)
- 0 Event-driven Hydrologic Outlook (ARBESFGRR)
- 27 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

<https://www.mlive.com/weather/2021/06/severe-drought-rapidly-expands-over-michigan-now-one-third-in-severe-drought.html>

<https://www.woodtv.com/weather/weather-news/drought-continues-now-considered-severe-in-parts-of-west-michigan/>