

**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 2023

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

DATE:
June 16th, 2023

SIGNATURE:
Bruce Smith, MIC
Joe Ceru, Meteorologist

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

May 2023 was the 2nd driest on record at Grand Rapids. What started out as a top ten wettest spring has transitioned into a top ten driest start to the summer. There was a heat wave to end the month but overall average monthly temperatures were around normal. Even with the well below normal precipitation there has been above normal precipitation for the year.

Flood Conditions

The month that started out with above normal flow. The heaviest precipitation events came on the 1st and the 7th of the month. Neither of these caused flooding of any kind. The flows along the Kalamazoo, the Grand River and the Muskegon began in the 30 percentile range through the first half of the month and steadily dropped to the 10 to 25 percentile range towards the end of May. This flow has dropped below the median but is not at record low. The hot and dry conditions have continued into June and that trend lookd to continue as we are approaching a moderate drought status.

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	80
Whitehall	White	80
Ewart	Muskegon	67
Mt. Pleasant	Chippewa	66
Lansing	Grand	41
Grand Rapids	Grand	64
East Lansing	Red Cedar	53
Hastings	Thornapple	67
Battle Creek	Battle Creek	39
Battle Creek	Kalamazoo	60

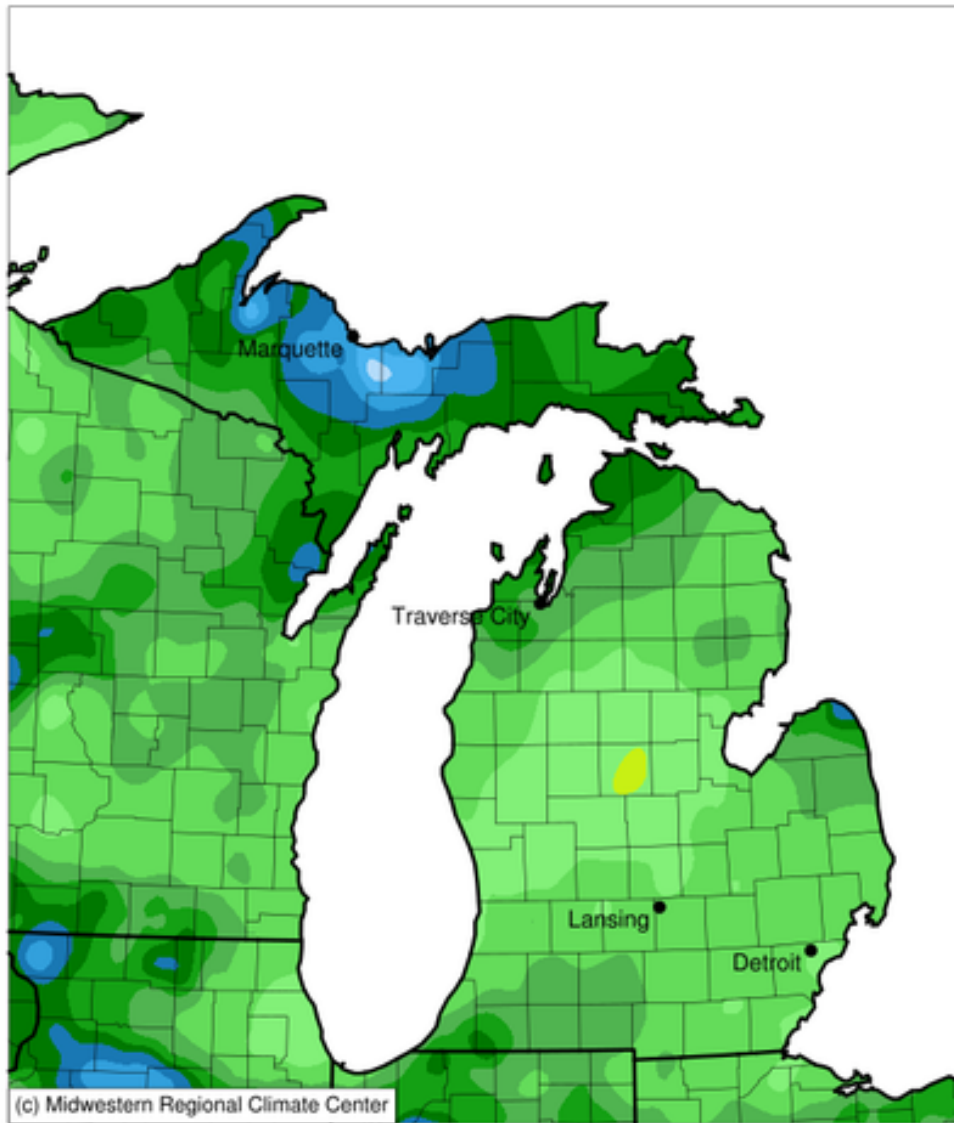
General Hydrologic Information

May precipitation amounts for Grand Rapids, Lansing, and Muskegon, Michigan, were 0.84, 0.96, and 0.86 inches, respectively (Figure 1). Monthly departures were -3.16, -2.70, and -2.52 inches, respectively. Yearly departures were +2.88, +2.39 and +1.16 inches for Grand Rapids, Lansing and Muskegon, respectively. Percent of mean precipitation for May 2023 is shown in Figure 2.

Temperatures for the month of May at Grand Rapids, Lansing and Muskegon were near or slightly warmer than average. The monthly average temperature departures for these sites were -0.3, +0.7, and +1.7 degrees Fahrenheit, respectively.

Accumulated Precipitation (in)

May 01, 2023 to May 31, 2023



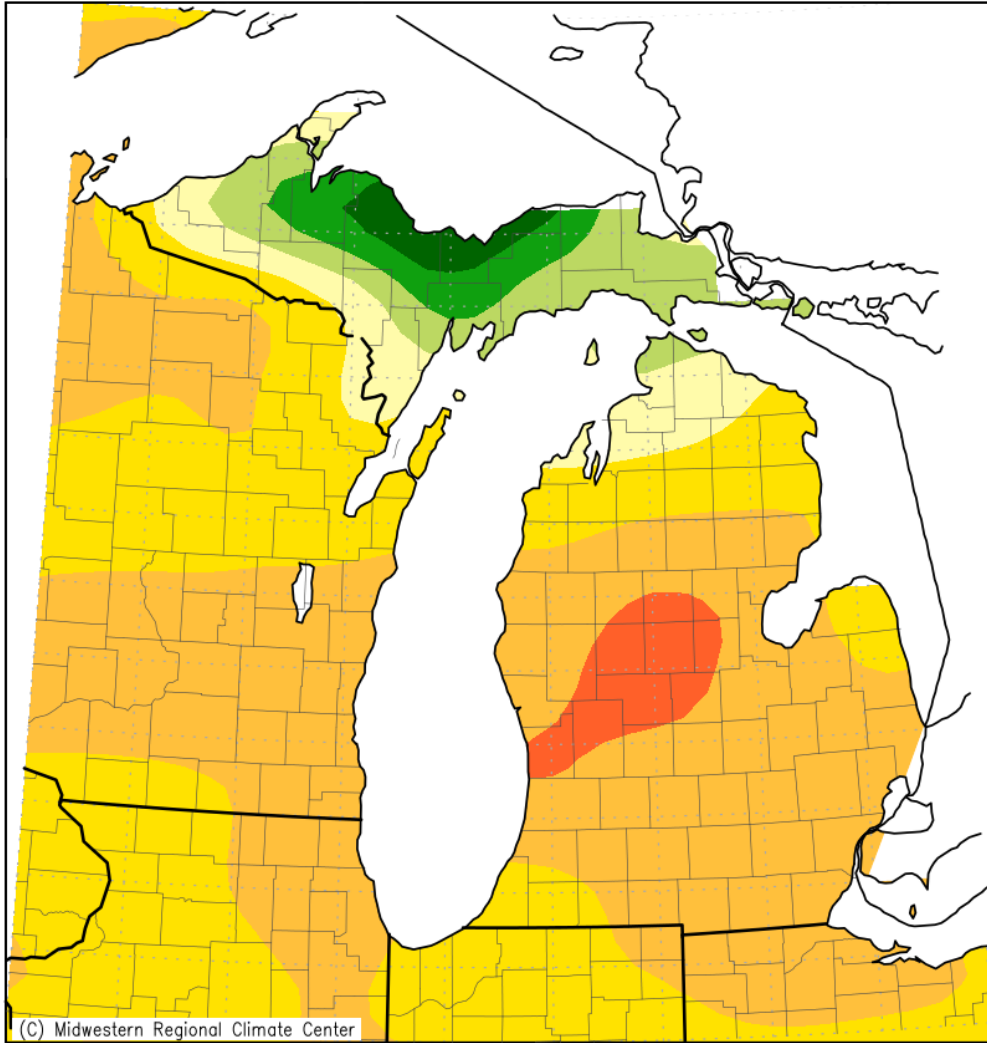
(c) Midwestern Regional Climate Center



0.01 0.1 0.25 0.5 1 1.5 2 2.5 3 4 5 6 8
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
Generated at: 6/8/2023 12:03:55 AM CDT

Figure 1. May 2023 Monthly Precipitation Totals.

Accumulated Precipitation: Percent of Mean
May 1, 2023 to May 31, 2023



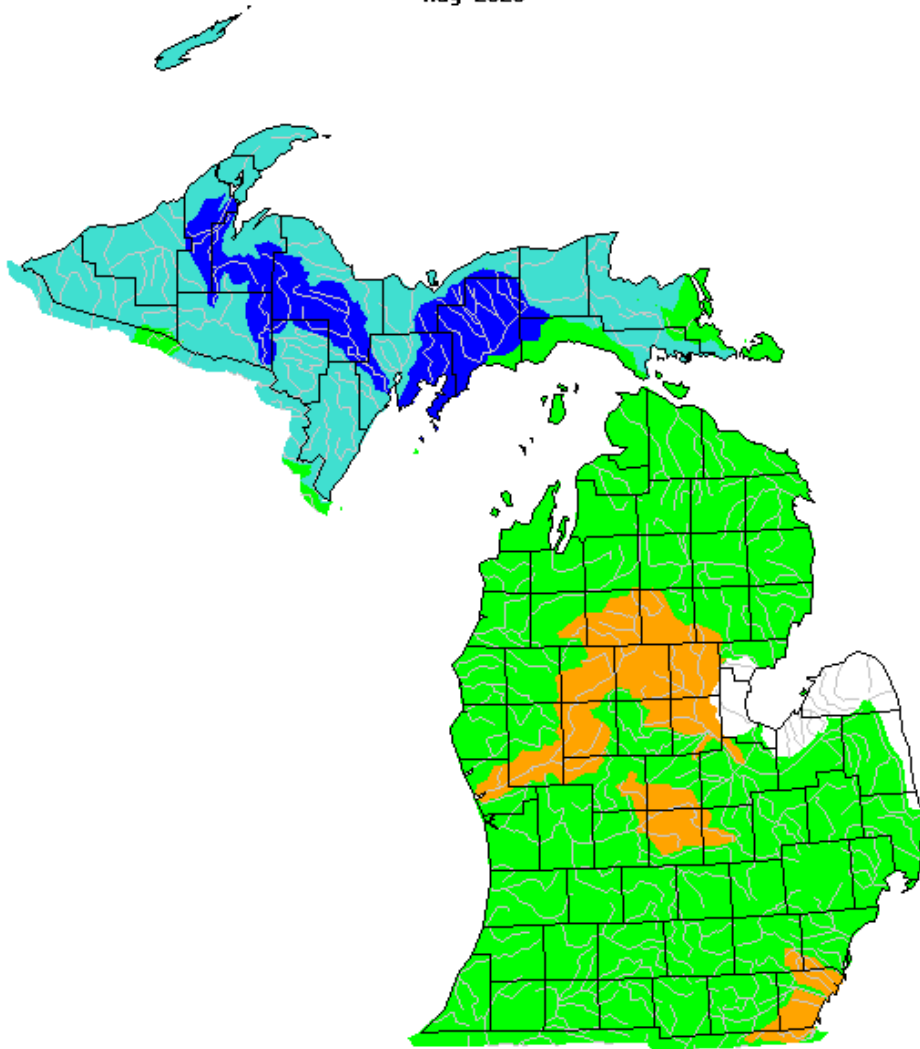
Mean period is 1991–2020.



Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 6/15/2023 5:27:10 AM CDT

Figure 2. May 2023 Percent of Mean of Accumulated Precipitation.

May 2023



Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Figure 3. USGS monthly streamflow for May, grouped by significant hydrologic units. Note streamflows for the Grand River watershed are around normal for this time of year. Much of northern lower Michigan remains around normal.

Calculated Soil Moisture Ranking Percentile
MAY, 2023

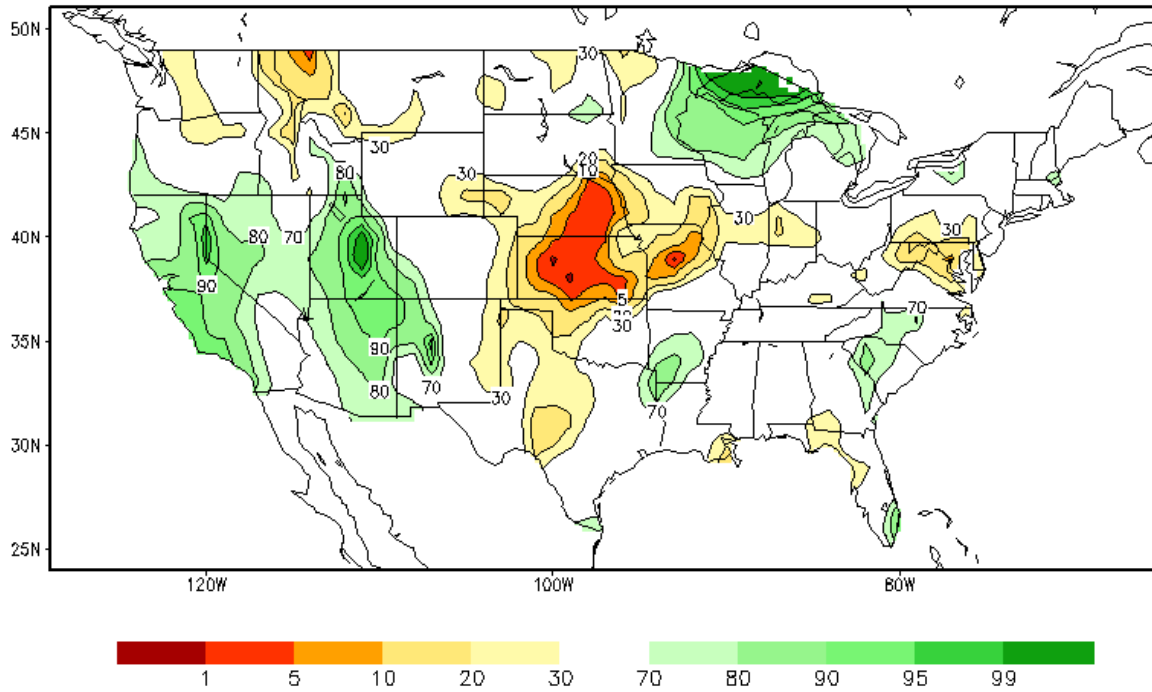


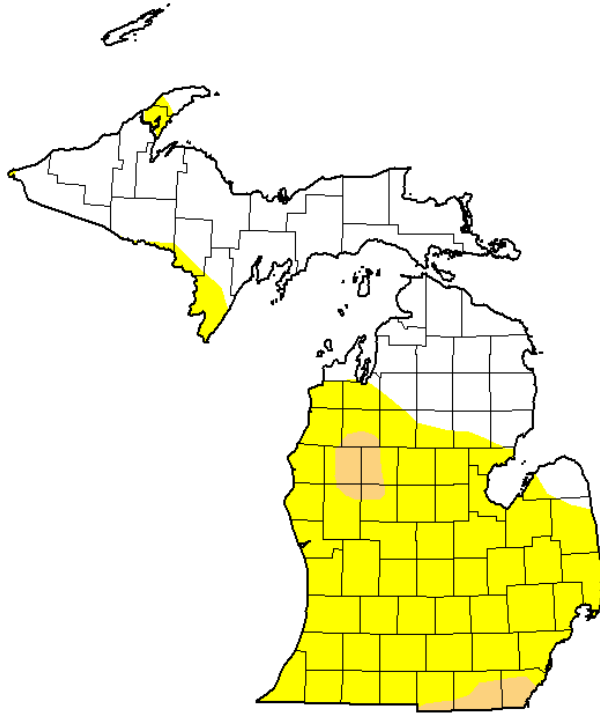
Figure 4. Calculated Soil Moisture Percentile for May, 2023. This supports the drying conditions beginning to occur through the southern half of the Lower peninsula of Michigan.

U.S. Drought Monitor
Michigan

June 6, 2023

(Released Thursday, Jun. 8, 2023)

Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	42.99	57.01	3.65	0.00	0.00	0.00
Last Week 05-30-2023	80.31	19.69	0.00	0.00	0.00	0.00
3 Months Ago 03-07-2023	83.45	16.55	10.91	0.00	0.00	0.00
Start of Calendar Year 01-03-2023	48.07	51.93	30.62	9.67	0.00	0.00
Start of Water Year 09-27-2022	59.10	40.90	5.76	0.00	0.00	0.00
One Year Ago 06-07-2022	94.36	5.64	0.00	0.00	0.00	0.00

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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droughtmonitor.unl.edu

Figure 5.U.S. Drought Monitor showing drier than normal conditions over most of Lower Michigan. Conditions are worsening as we have reached moderate drought in several locations with widespread abnormally dry conditions.

Hydrologic Products issued this month

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

News Articles and Related Documentation

- [Historic Dry May Across SW Michigan](#)
- [Drought Early Warning for Midwest](#)
- [HighTemperatures and Drought conditions possible](#)