

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

**HSA OFFICE:**  
**Grand Rapids, MI**

**MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS**

REPORT FOR  
(MONTH & YEAR):  
**September 2023**

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

DATE:  
October 9th, 2023

SIGNATURE:  
  
Joe Ceru,  
Meteorologist

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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).

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

**Summary**

September brought below normal precipitation and warmer than normal temperatures. While most of the region has no drought there remains a D0 drought along the lakeshore north of Muskegon and along the I 94 corridor between Kalamazoo and Jackson. Looking ahead the Climate Prediction Center is anticipating an El Nino through the winter. This is typically associated with a lack of river ice during the winter for Lower Michigan. For more information you can read their discussion.

[https://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/enso\\_advisory/ensodisc.shtml](https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml)

**Flood Conditions**

The month began with flows well above normal, especially on the Grand River. Flows on the Grand River at Grand Rapids began the month around 3,250 CFS which is approximately 200 percent above normal. However the flows on the Grand, as well as most of the rivers, fell through most of the month. The sole exception was a spike around the 12th of September from precipitation which occurred on the 11th. The Grand Rapids area received a little over an inch of precipitation. After this rise most rivers then continued to fall through the end of the month. So most rivers ended the month around or slightly below normal flow.

There was locally heavy rainfall on the 17th over Kalamazoo. This event saw around 2 to 4 inches which caused minor urban and small stream flooding. Conditions improved quickly. There were sharp rises on the Portage creek but no forecast points reached flood stage.

There was a round of storms that moved through central lower Michigan on the 27th. These showers and storms brought a rise in river levels on the Red Cedar river at East Lansing. None of these spikes came close to flood stage. So the Red Cedar ended the month with above normal flow.

### **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 September percentage of normal flow for selected rivers is listed below:

<u>Location</u>	<u>River</u>	<u>% of Normal</u>
Scottville	Pere Marquette	81
Whitehall	White	85
Ewart	Muskegon	62
Mt. Pleasant	Chippewa	82
Lansing	Grand	150
Grand Rapids	Grand	106
East Lansing	Red Cedar	204
Hastings	Thornapple	58
Battle Creek	Battle Creek	83
Battle Creek	Kalamazoo	90

### **General Hydrologic Information**

September precipitation amounts for Grand Rapids, Lansing, and Muskegon Michigan were 1.25, 1.92, and 1.5 inches, respectively (Figure 1). Monthly departures were -2.18, -0.89, and -1.76 inches respectively. Yearly departures are through September, 1.22, 3.41, -0.80 inches for Grand Rapids, Lansing and Muskegon, respectively.

Percent of mean precipitation for September 2023 is shown in Figure 2.

Temperatures for the month of September at Grand Rapids, Lansing and Muskegon were all warmer than normal. The monthly average temperature departures for these sites were +1.1, +2.1 and +3.3 Fahrenheit, respectively.

Accumulated Precipitation (in)  
September 1, 2023 to September 30, 2023

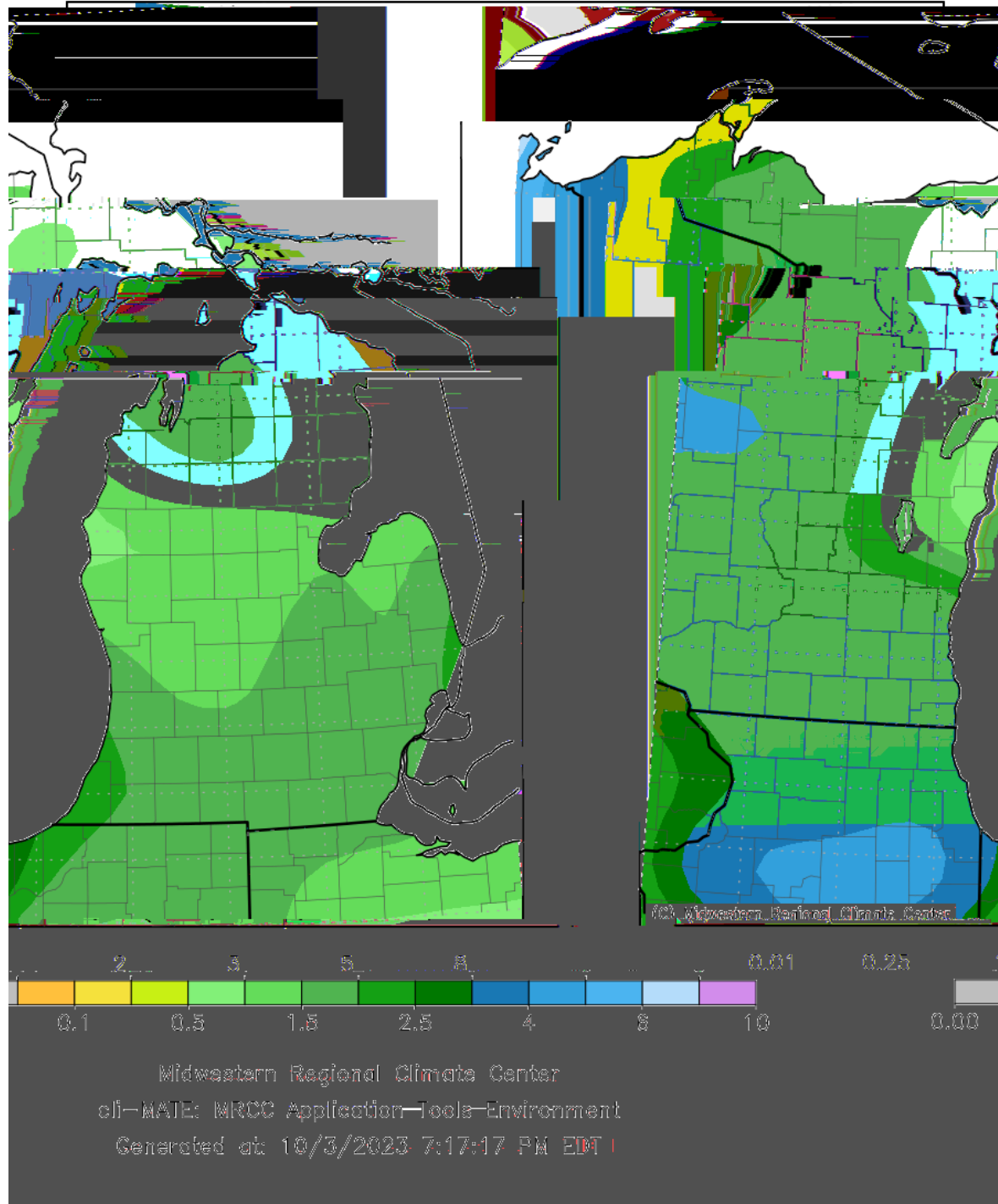


Figure 1 September 2023 Monthly Precipitation Totals.

Accumulated Precipitation: Percent of Mean  
September 1, 2023 to September 30, 2023

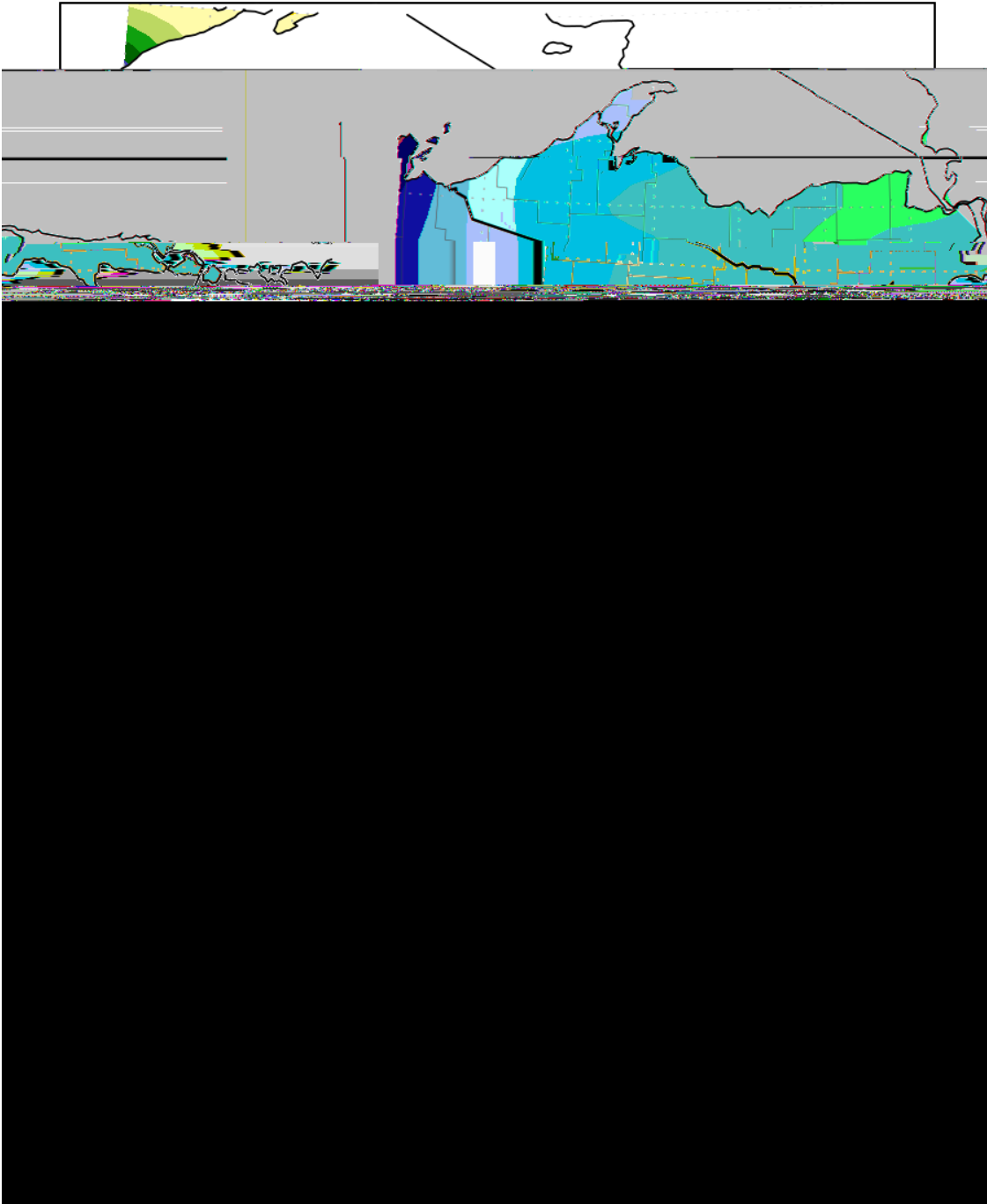
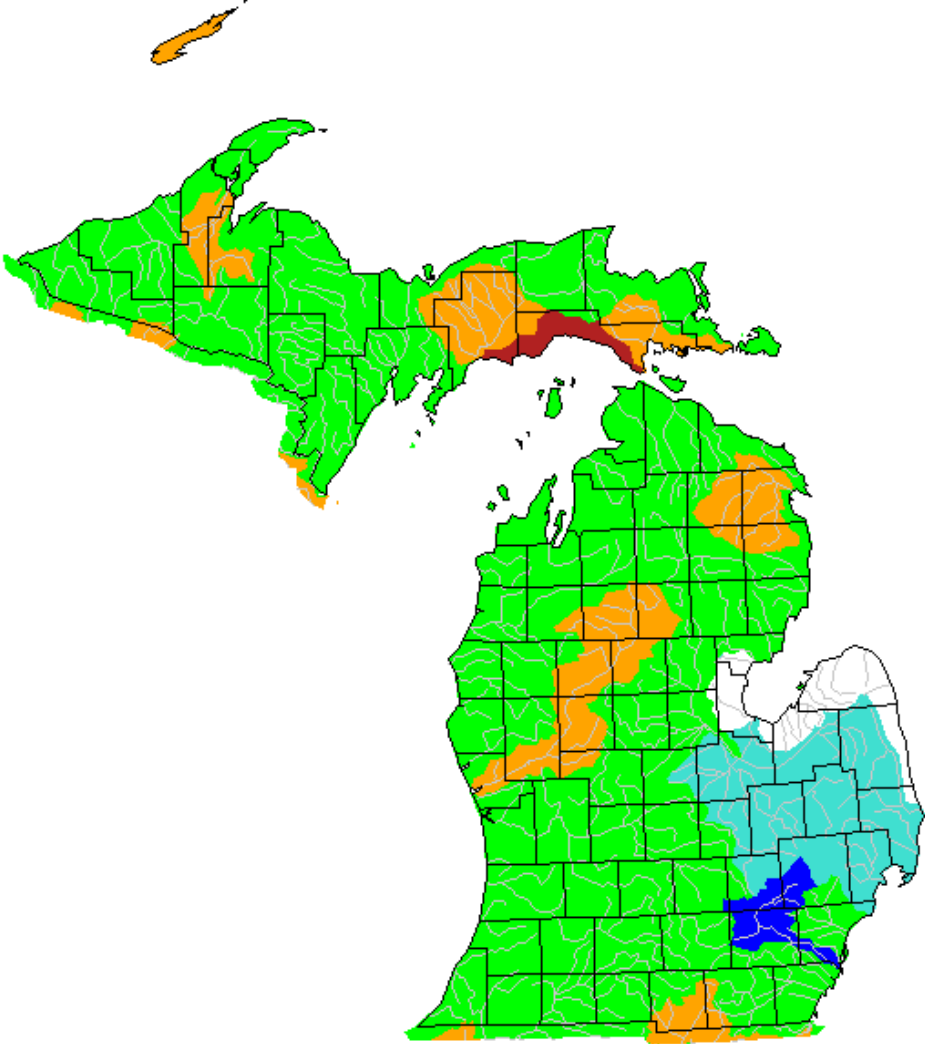


Figure 2. September 2023 Percent of Mean of Accumulated Precipitation.

September 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 September, grouped by significant hydrologic units. Note streamflows for the Grand River watershed are much above normal for this time of year. Much of northern lower Michigan remains around normal. Several basins through central and eastern Michigan are much above normal to high.

Calculated Soil Moisture Ranking Percentile  
SEP, 2023

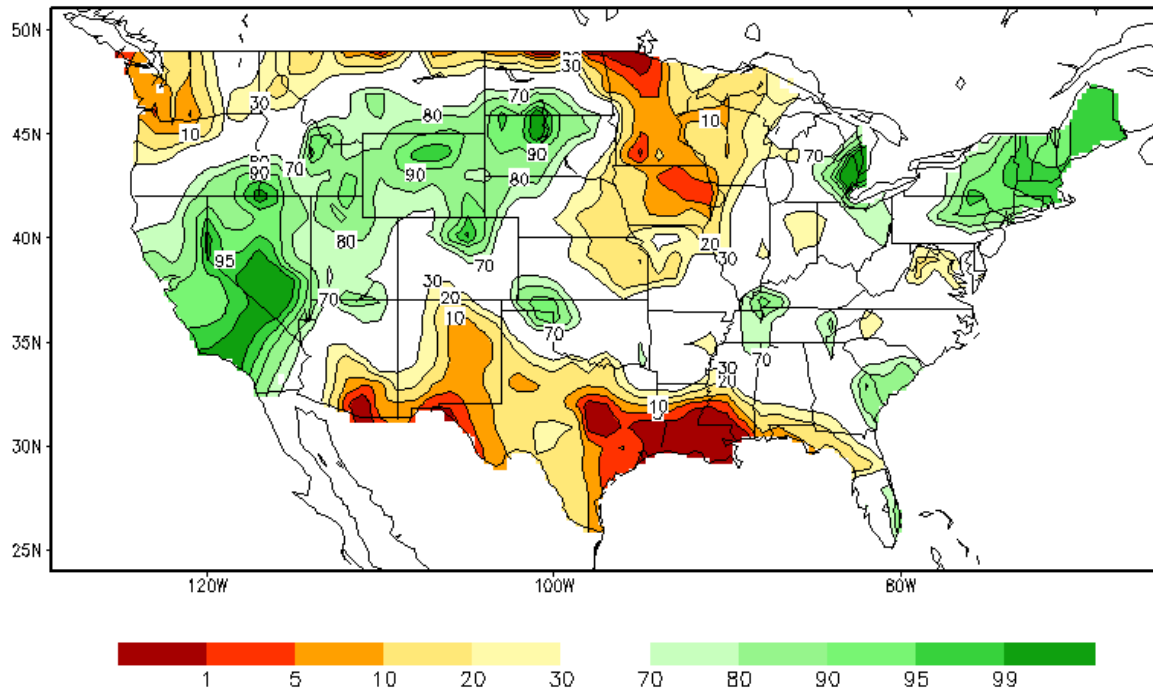
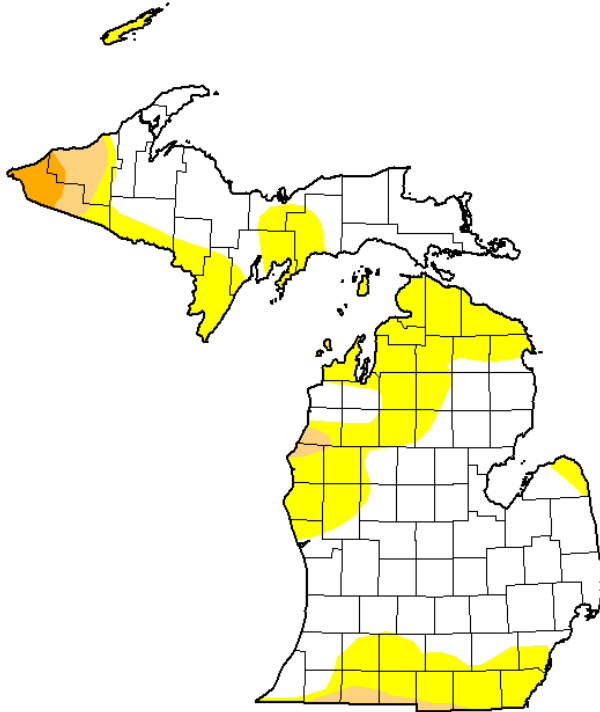


Figure 4. Calculated Soil Moisture Percentile for September, 2023. This supports conditions becoming more normal through much of lower Michigan.

## U.S. Drought Monitor Michigan

**October 3, 2023**  
(Released Thursday, Oct. 5, 2023)  
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	62.34	37.66	4.97	1.31	0.00	0.00
<b>Last Week</b> 09-26-2023	65.01	34.99	4.96	1.31	0.00	0.00
<b>3 Months Ago</b> 07-04-2023	14.71	85.29	50.79	6.92	0.00	0.00
<b>Start of Calendar Year</b> 01-03-2023	48.07	51.93	30.62	9.67	0.00	0.00
<b>Start of Water Year</b> 09-26-2023	65.01	34.99	4.96	1.31	0.00	0.00
<b>One Year Ago</b> 10-04-2022	48.72	51.28	6.91	0.00	0.00	0.00

*Intensity:*

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate 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>

*Author:*

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CPC/NOAA



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

Figure 5. U.S. Drought Monitor showing severe drought through northern lower Michigan and a reduction in the drought through southern lower Michigan.

### Hydrologic Products issued this month

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

### News Articles and Related Documentation

<https://www.mlive.com/news/kalamazoo/2023/09/flood-warning-issued-for-kalamazoo-county.html>