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): **January 2023**
TO:	NATIONAL WEATHER SERVICE (W/OS31) HYDROMETEOROLOGICAL INFO CENTER 1325 EAST-WEST HIGHWAY, RM 13468 SILVER SPRING, MD 20910	DATE: February 15, 2023
		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).

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

Summary

Overall January 2023 was incredible warm - and actually placed in the top 5 warmest January's on record at all 3 main climate sites (Grand Rapids, Lansing, and Muskegon). This meltdown began at the end of December when virtually the entire snowpack in the Lower Peninsula melted, and this pattern continued through the first 3 weeks of January. A handful of weather systems moved through, but fell primarily as rain. The final week or so of the month saw a cold snap and snow return to the area. By the end of the month there was snow on the ground in most parts of the Lower Peninsula, but was still significant less than normal for late January.

From a river ice standpoint, we had barely begun to freeze over the rivers in late December before the meltdown around New Years melted away all of that ice. The rivers remained ice-free for most of January before freezing up again (barely) during the cold snap to end the month.

Drought conditions remained largely unchanged throughout the month, with D2 "Severe Drought" continuing over southeast Lower Michigan, with near-normal conditions over Western Lower Michigan (see figure 5).

Flood Conditions

Water levels on our main river systems remained quite close to normal for most of the month. However, this is deceiving because the only thing maintaining these water levels was rainfall and snowmelt runoff - which of course is very uncharacteristic for this time of year. So, in essence, we maintained water levels by stealing from the typical spring

snowmelt ahead of time. As we progress into spring, and the “normal” numbers start climbing significantly, we may have a hard time budging a whole lot from our current levels simply because we have no snow left to melt. This, combined with the lack of ice on the rivers, is causing our spring flood risks to be notably lower than normal in the Lower Peninsula.

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

Location	River	% of Normal
Scottville	Pere Marquette	Ice-affected
Whitehall	White	Ice-affected
Evart	Muskegon	88
Mt. Pleasant	Chippewa	Ice-affected
Lansing	Grand	63
Grand Rapids	Grand	82
East Lansing	Red Cedar	59
Hastings	Thornapple	79
Battle Creek	Battle Creek	84
Battle Creek	Kalamazoo	67

General Hydrologic Information

January precipitation amounts for Grand Rapids, Lansing, and Muskegon, Michigan, were 2.54, 1.94, and 2.80 inches, respectively (Figure 1). Monthly departures were +0.02, -0.12, and +0.38 inches, respectively. Yearly departures were +0.02, -0.12, and +0.38 inches for Grand Rapids, Lansing and Muskegon, respectively. Percent of mean precipitation for January 2023 is shown in Figure 2.

Temperatures for the month of January at Grand Rapids, Lansing and Muskegon were much warmer than average. The monthly average temperature departures for these sites were +6.9, +8.3, and +7.5 degrees Fahrenheit, respectively.

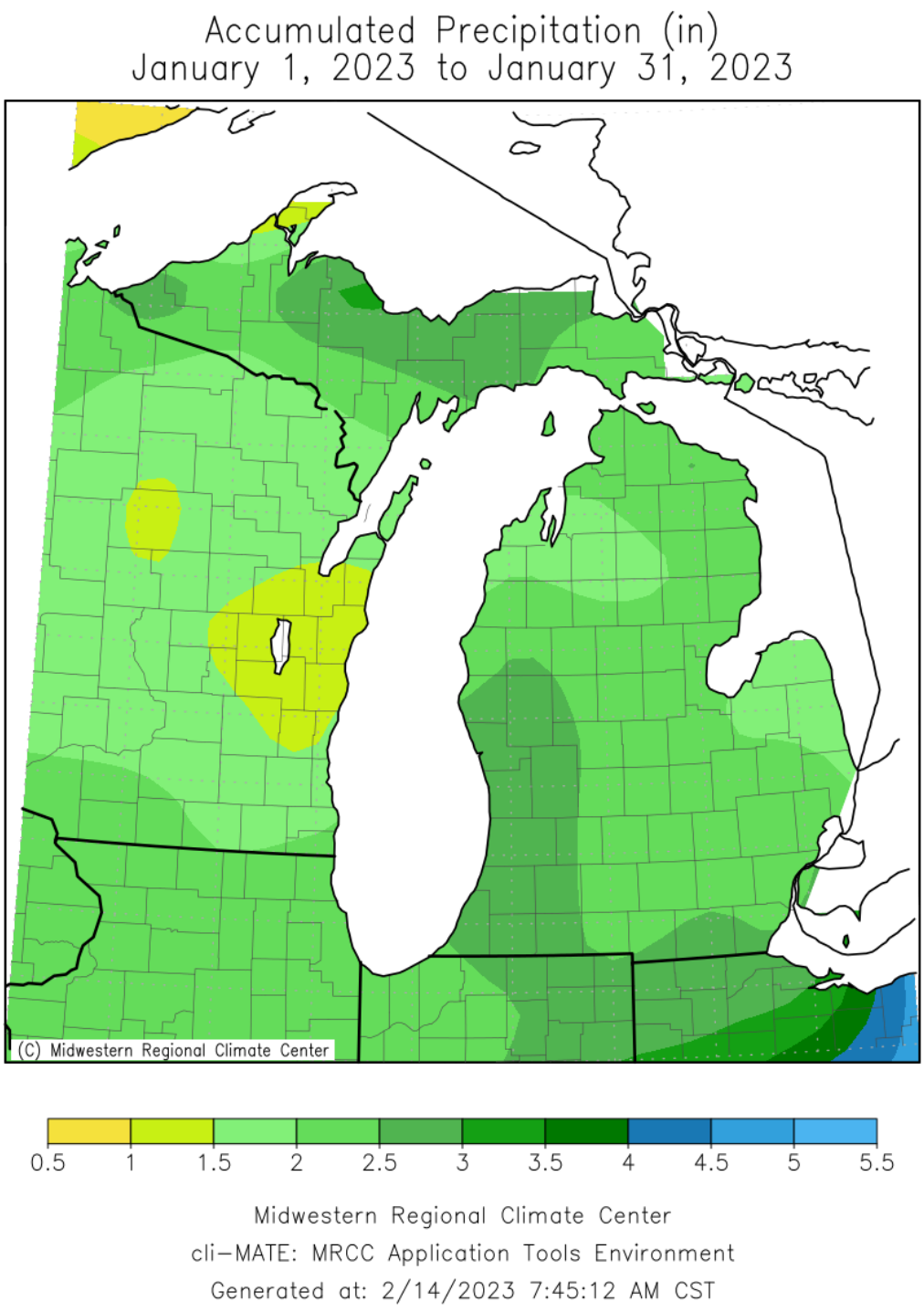

Figure 1. January 2023 Monthly Precipitation Totals.

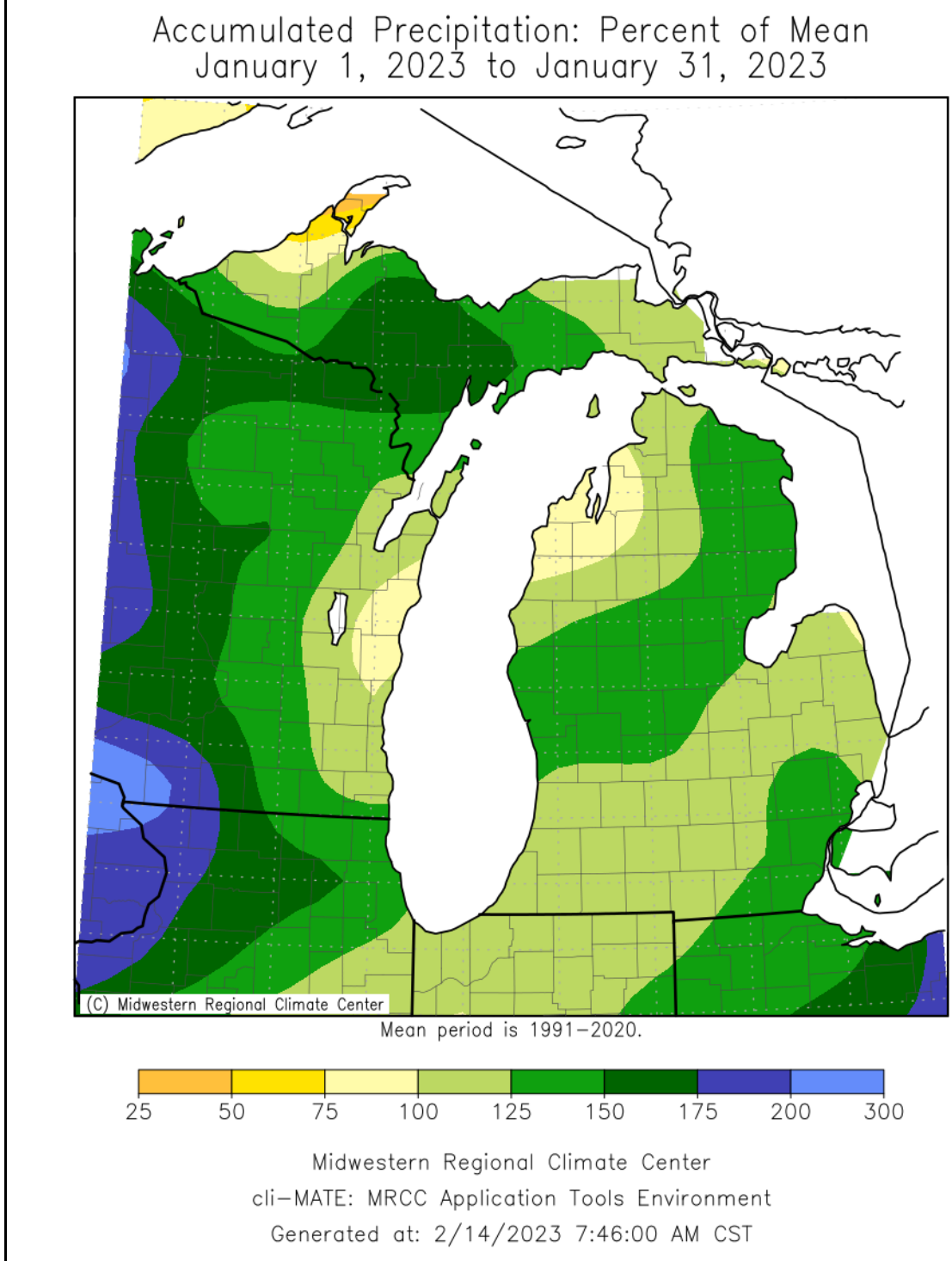

Figure 2. January 2023 Percent of Mean of Accumulated Precipitation.

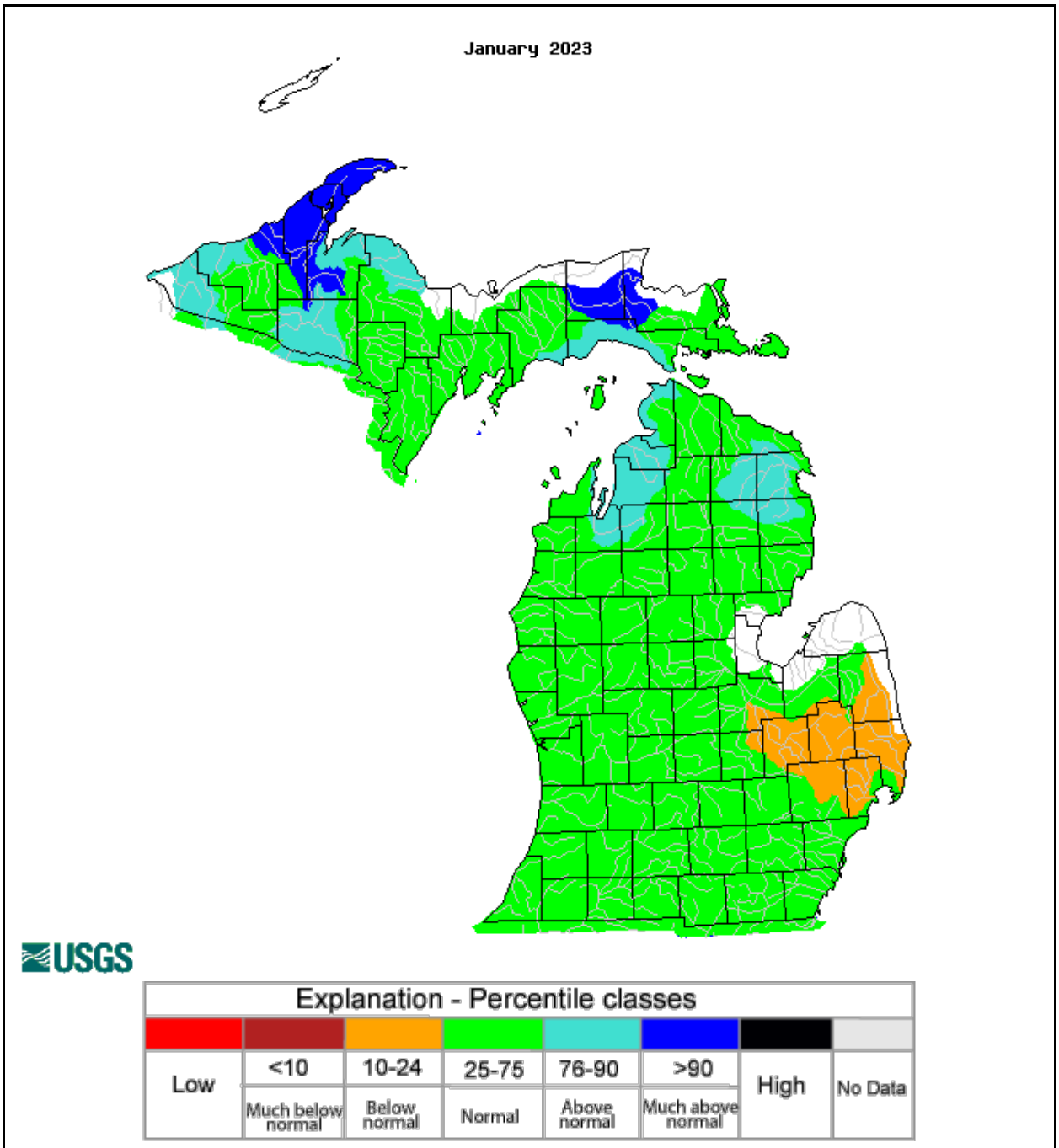

Figure 3. USGS monthly streamflow for January, grouped by significant hydrologic units. Note streamflows within a relatively normal range over western Lower Michigan, but much below normal in eastern Lower Michigan for this time of year.

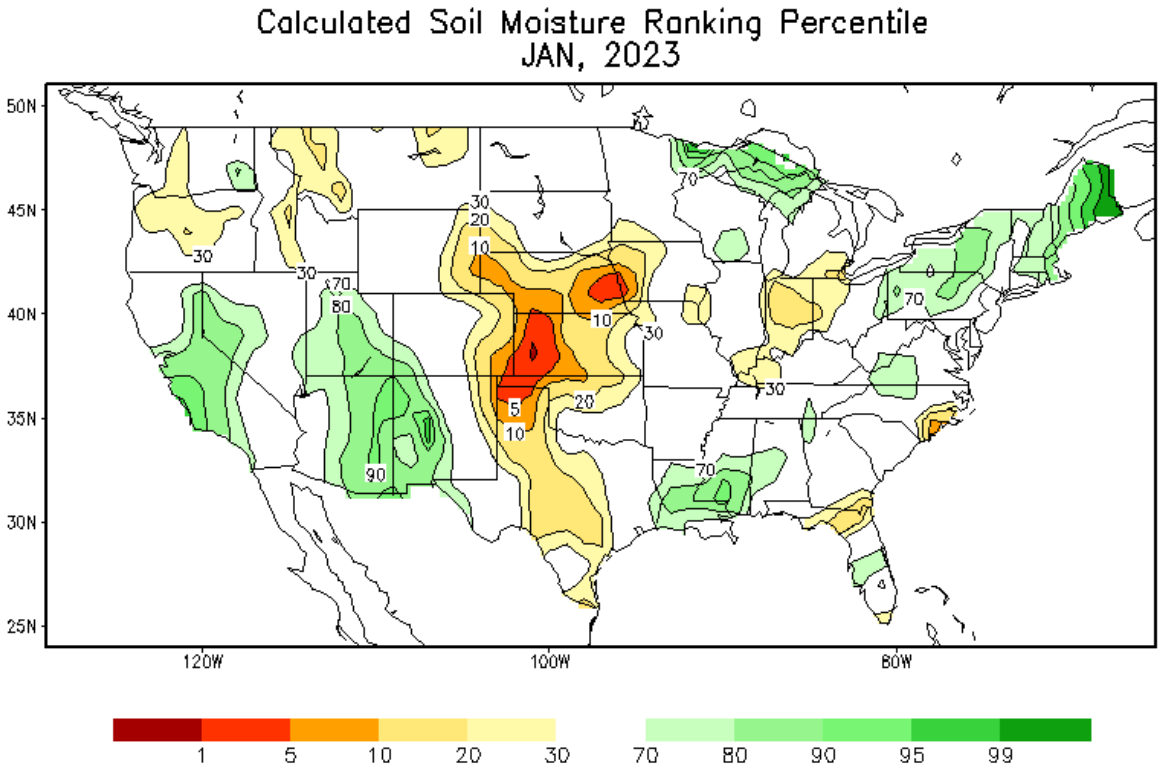

Figure 4. Chart of monthly values of soil moisture, by percentile ranking. This supports the idea that soil moisture levels are near or perhaps slightly drier than normal for this time of year, especially over Southeast Lower Michigan.

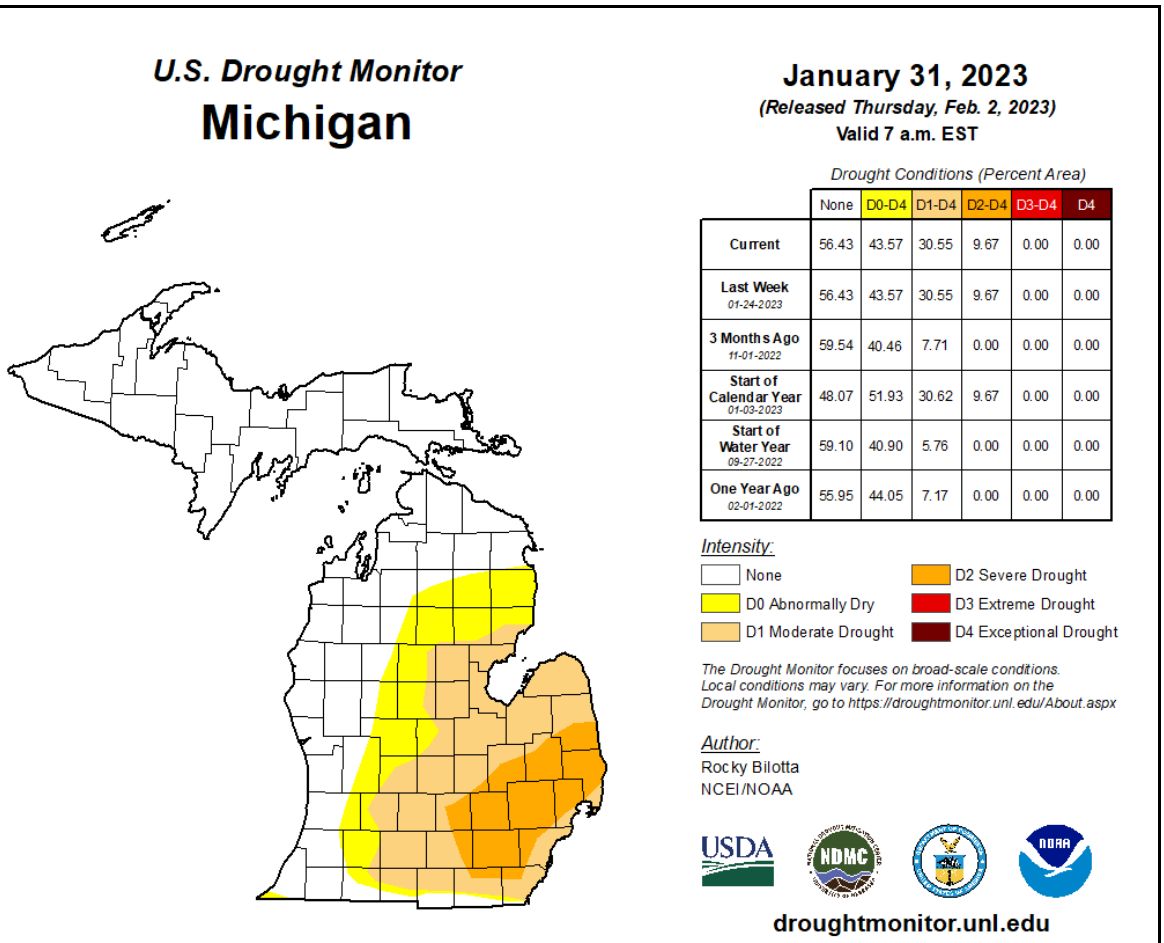

Figure 5. U.S. Drought Monitor showing drier than normal conditions over central Lower Michigan, but much drier than normal conditions over southeast Lower Michigan, including in the headwaters of the Grand and Kalamazoo River basins.

Hydrologic Products issued this month

31 Hydrologic Summaries (ARBRVAGRR)
1 Probabilistic Hydrologic Outlook (ARBESFGRR)
0 Event-driven Hydrologic Outlook (ARBESFGRR)
0 Daily River Forecasts (ARBRVDGRR)
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

None