

**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):
November 2020

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

DATE:
December 11, 2020

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

November 2020 was significantly warmer and drier than normal. No widespread heavy rain events occurred during the month. No river flooding occurred during the month, and no short-term areal flooding events occurred either.

The below-normal rainfall amounts allowed Lake Michigan to continue its seasonal decline, and by the end of the month was down nearly 14 inches from the summertime high. November was the 3rd month in a row that a new water level record was NOT set on Lake Michigan-Huron by the Army Corps of Engineers. Nevertheless, water levels remain much higher than the long term normal levels. As we continue through the fall and winter storm season, erosion and lakeshore flooding will be a continued concern.

Flood Conditions

Despite another fairly dry and uneventful month, the Grand and Muskegon river basins remained at near-normal for this time of year. Part of the explanation for this is the fact that what little precipitation did fall came as rain and ran off into the rivers, as opposed to starting to build a winter snowpack. The other piece to this puzzle is that groundwater levels are still elevated after years of wetter than normal conditions, which maintains higher baseflow in the rivers than "normal". The far southwest corner of the state was even drier than the other areas, with even less runoff happening in this area, so the Kalamazoo River was able to spend most of the month between the 25th and 50th percentile (below normal) for this time of year.

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

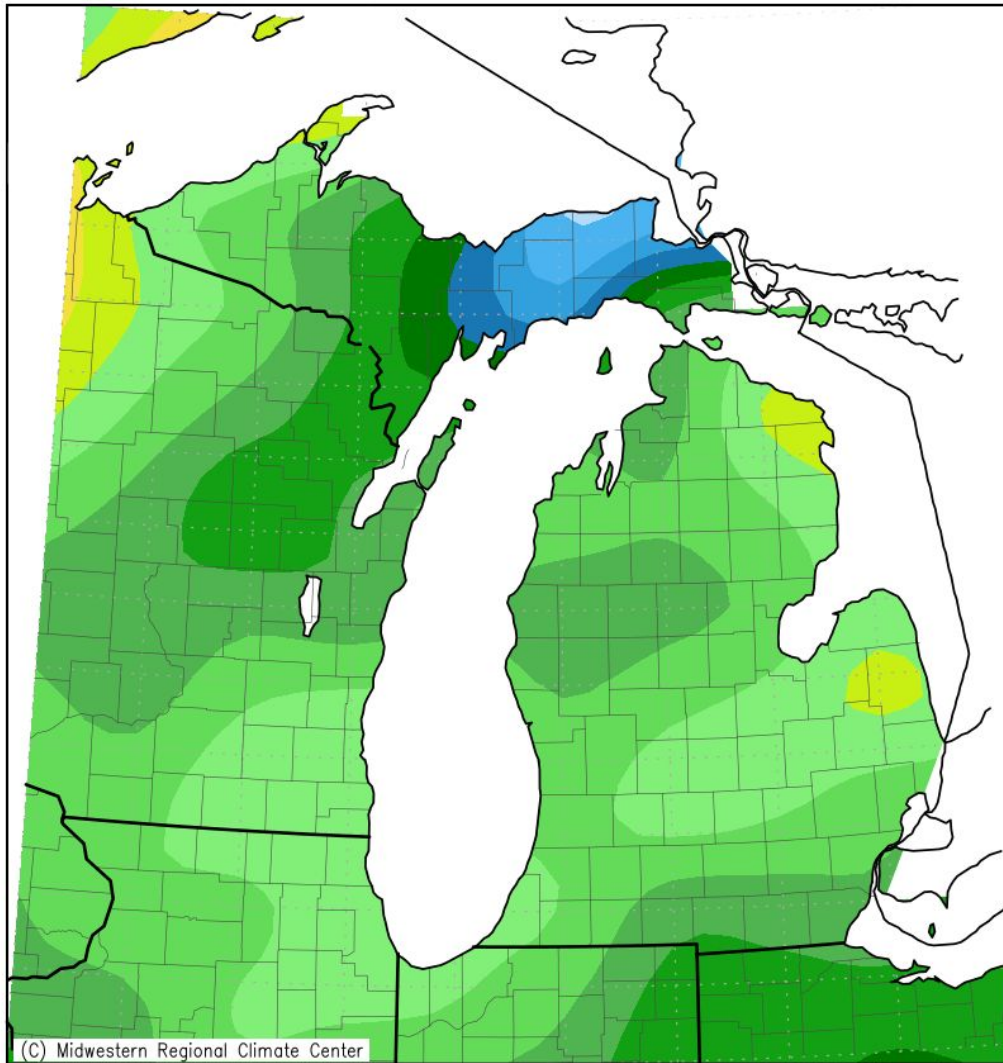
<u>Location</u>	<u>River</u>	<u>% of Normal</u>
Scottville	Pere Marquette	125
Whitehall	White	92
Evert	Muskegon	100
Mt. Pleasant	Chippewa	104
Lansing	Grand	116
Grand Rapids	Grand	110
East Lansing	Red Cedar	104
Hastings	Thornapple	109
Battle Creek	Battle Creek	141
Battle Creek	Kalamazoo	102

General Hydrologic Information

November precipitation amounts for Grand Rapids, Lansing, and Muskegon, Michigan, were 2.27, 1.83, and 1.89 inches, respectively (Figure 1). Monthly departures were -1.24, -0.95, and -1.47 inches, respectively. Yearly departures were -1.14, +4.23 and +2.91 inches for Grand Rapids, Lansing and Muskegon respectively. Percent of mean precipitation for November 2020 is shown in Figure 2.

Temperatures for the month of November at Grand Rapids, Lansing and Muskegon were well above normal. The monthly average temperature departures for these sites were +4.2, +4.5, and +5.7 degrees Fahrenheit, respectively.

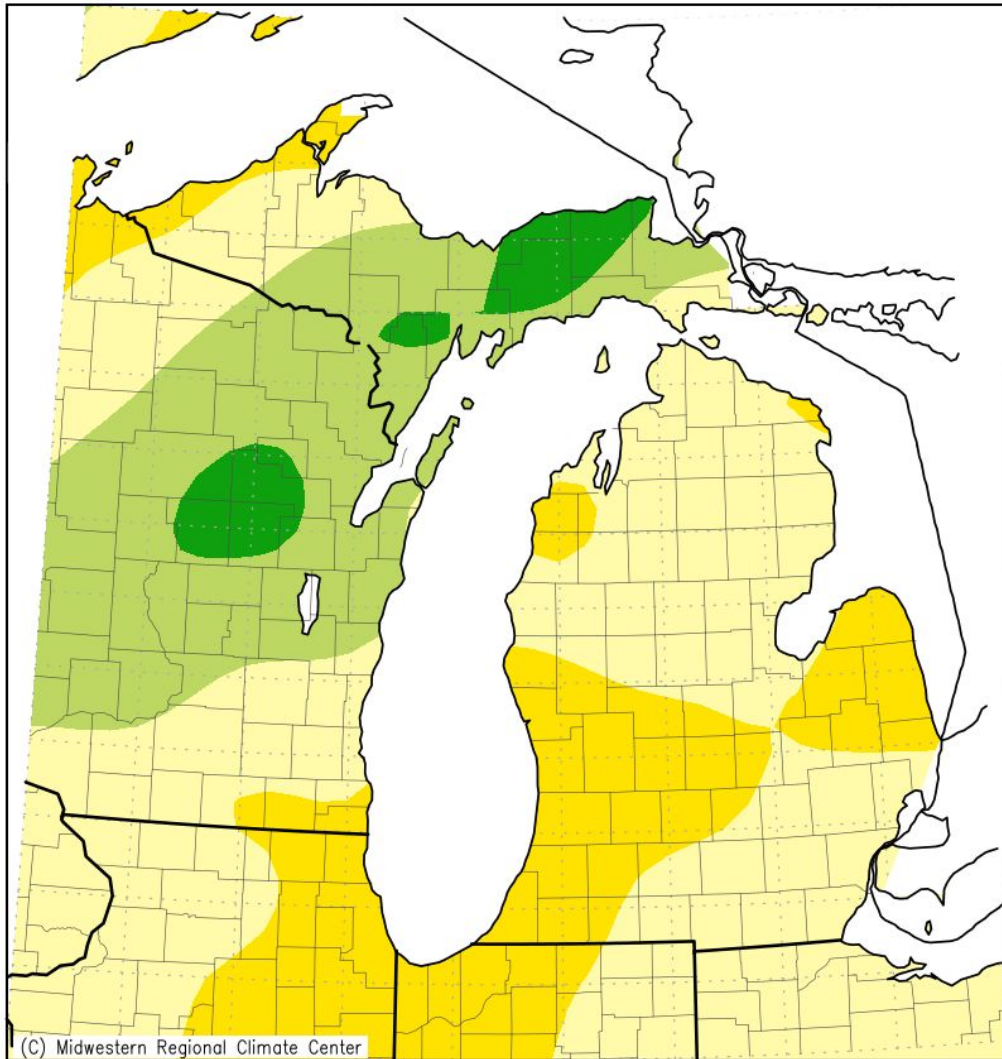
Accumulated Precipitation (in)
November 1, 2020 to November 30, 2020



Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 12/3/2020 8:57:57 AM CST

Figure 1. November 2020 Monthly Precipitation Totals.

Accumulated Precipitation: Percent of Mean
November 1, 2020 to November 30, 2020



Mean period is 1981–2010.



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Figure 2. November 2020 Percent of Mean of Accumulated Precipitation. November was a continuation of below-average monthly precipitation across virtually all of Lower Michigan.

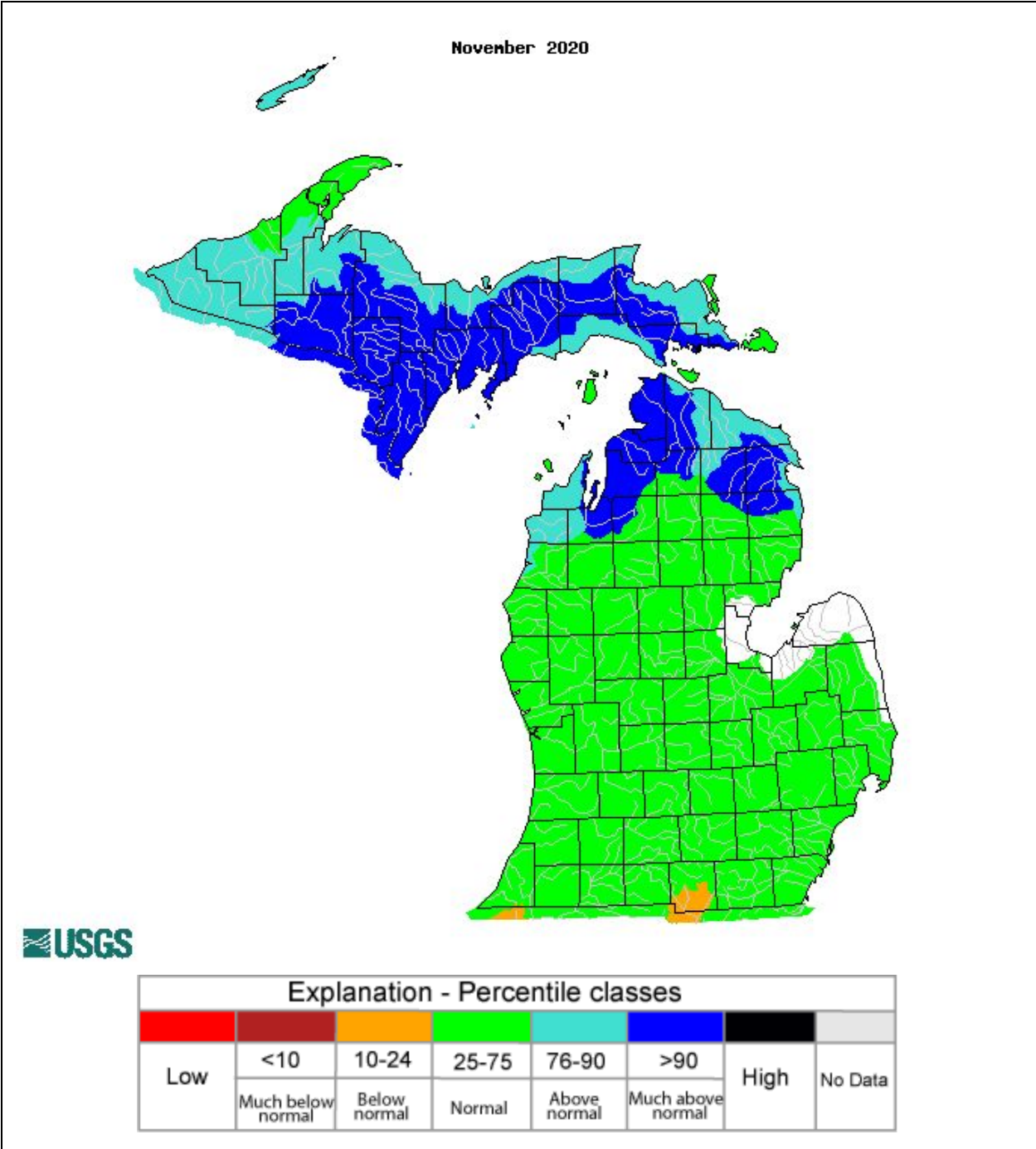


Figure 3. USGS monthly average streamflow for NOVEMBER, grouped by significant hydrologic units. Note streamflows across Lower Michigan widespread near normal for the month, despite less rainfall than normal. This is due to elevated water tables resulting in elevated base flow in the rivers.

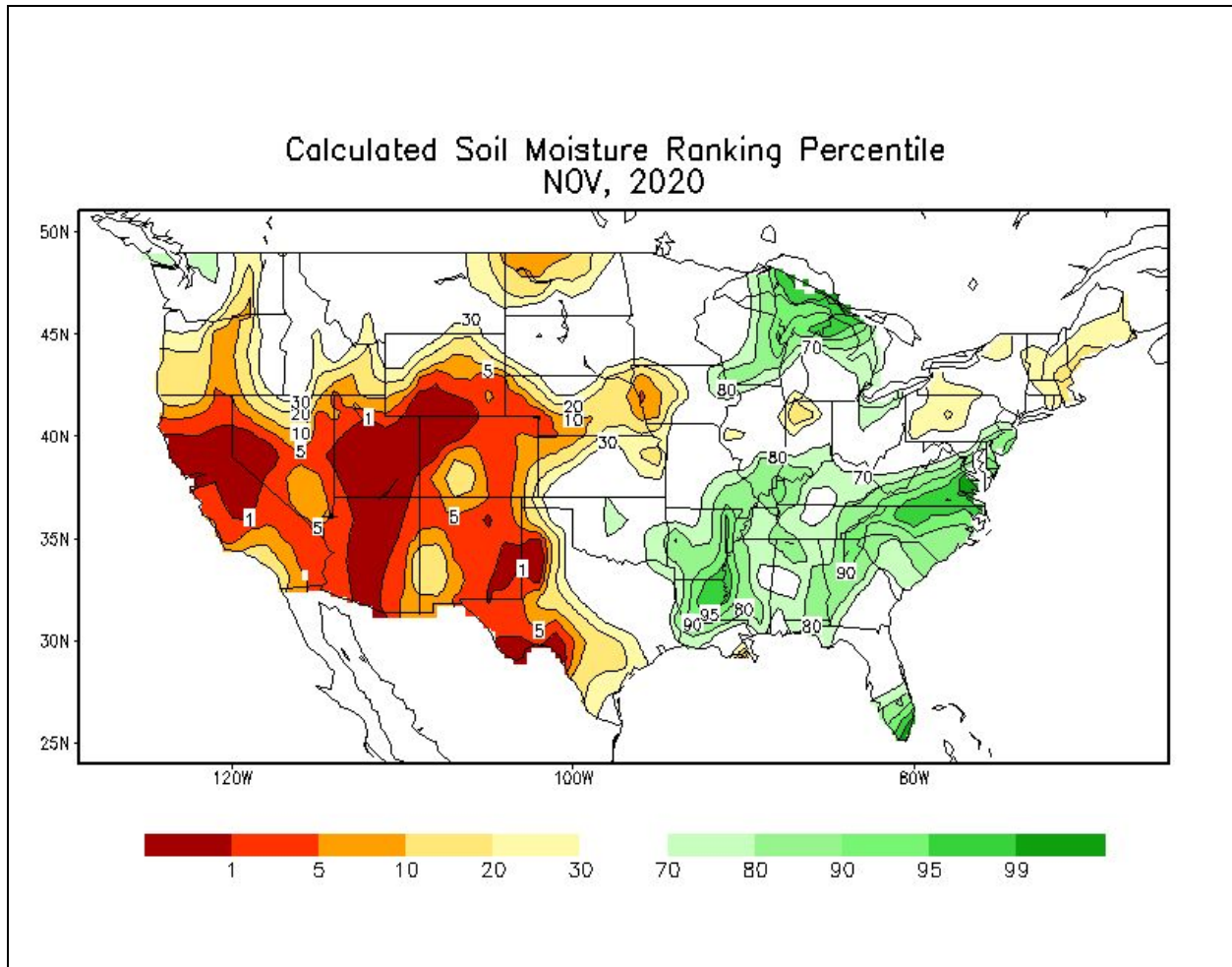


Figure 4. Chart of monthly values of soil moisture, by percentile ranking. This is the third month in a row, and only the 3rd month in the last roughly 2 years, that Western Lower Michigan is below the 80th percentile. This persistently saturated ground leads to increased runoff efficiency of rainfall into rivers and streams.

Hydrologic Products issued this month

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