

MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS

REPORT FOR (MONTH & YEAR):
September 2019

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

DATE:
October 11, 2019

SIGNATURE:
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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).

An X inside this box indicates that no significant flooding occurred within this Hydrologic Service Area.

Summary

September 2019 marked the return to wetter-than-normal conditions across virtually all of West Michigan. Three main rounds of heavy rain and thunderstorms moved through during the month, each dropping 1-3 inches of rain across much of the area. There were minor areal flooding impacts that were handled with areal flood advisories, but no significant river flooding occurred during the month. Nevertheless, most streams did return to a pronounced above-average level for this time of year. Meanwhile, Lake Michigan dropped another 2 inches or so in the first 10 days of the month, before reversing the trend and regaining nearly 3 inches by the end of September. While these were not record values, the overall effect was that water levels remained very high and lakeshore erosion continued in earnest.

Flood Conditions

The mainstem (larger) rivers spent most of the month near the 75th percentile for this time of year, which means that even after 2 months of dry conditions streamflows were still elevated even before the widespread rain began in the 2nd week of the month. The Muskegon River rose significantly after the rainstorm on Sep 11-13 dropped several inches of rain on the basin. This set a new water level record for this time of year, but because the normal values are so low, this did not result in any flooding. Meanwhile, the Grand and Kalamazoo rivers also saw general increases as the rain totals gradually added up, ending the month near the 90th percentile for this time of year. Meanwhile, soil moisture values again rose, and ended the month once again near the 90th percentile. No flooding at river forecast points occurred during the month.

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:

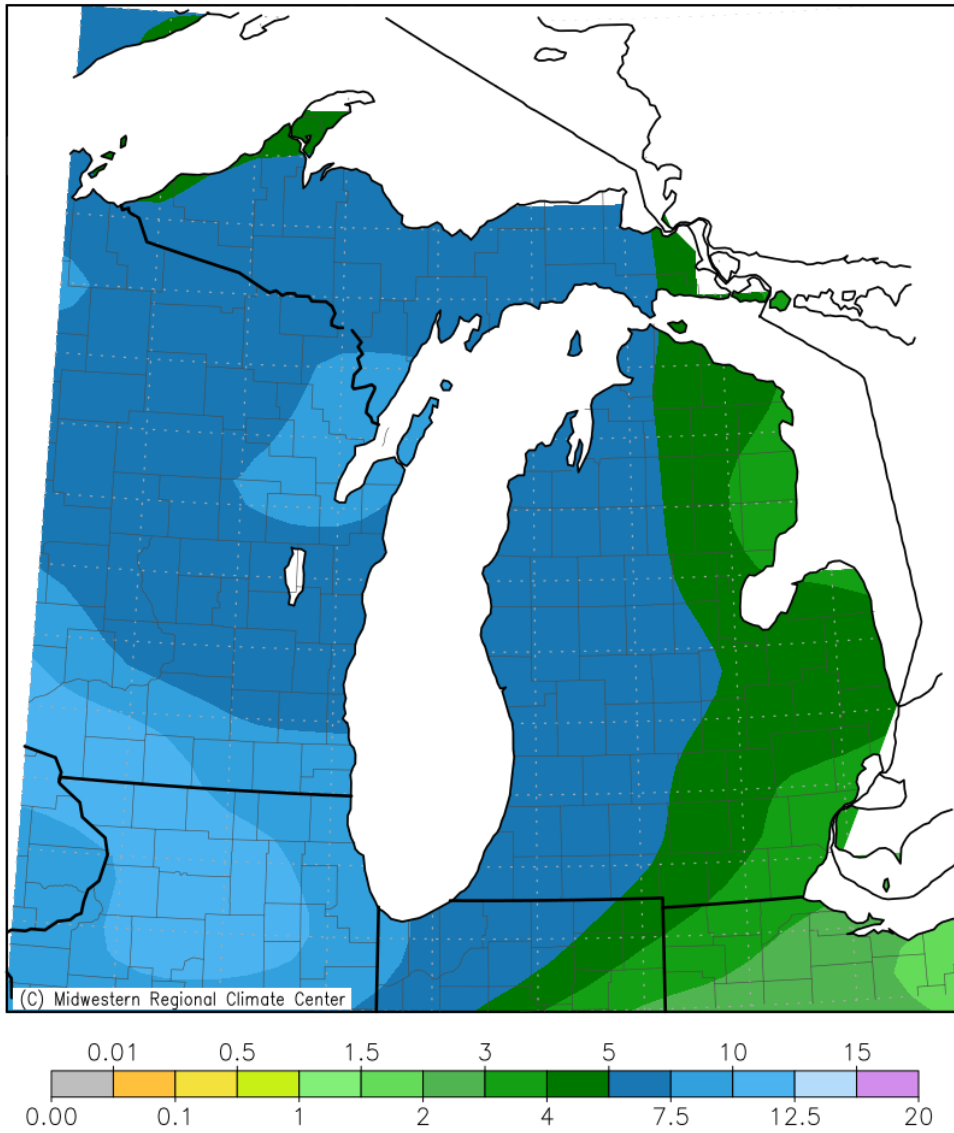
<u>Location</u>	<u>River</u>	<u>% of Normal</u>
Scottville	Pere Marquette	184
Whitehall	White	160
Ewart	Muskegon	166
Mt. Pleasant	Chippewa	163
Lansing	Grand	234
Grand Rapids	Grand	383
East Lansing	Red Cedar	278
Hastings	Thornapple	460
Battle Creek	Battle Creek	221
Battle Creek	Kalamazoo	204

General Hydrologic Information

September precipitation amounts for Grand Rapids, Lansing, and Muskegon, Michigan, were 7.32, 3.43, and 5.85 inches, respectively (Figure 1). Monthly departures were +3.04, -0.07, and +1.96 inches, respectively. Yearly departures were +8.58, +3.10 and +8.51 inches for Grand Rapids, Lansing and Muskegon respectively. Percent of mean precipitation for September 2019 is shown in Figure 2.

Temperatures for the month of September were above-average at Grand Rapids, Lansing and Muskegon. The monthly average temperature departures for these sites were +3.5, +4.1, and +4.2 degrees Fahrenheit, respectively.

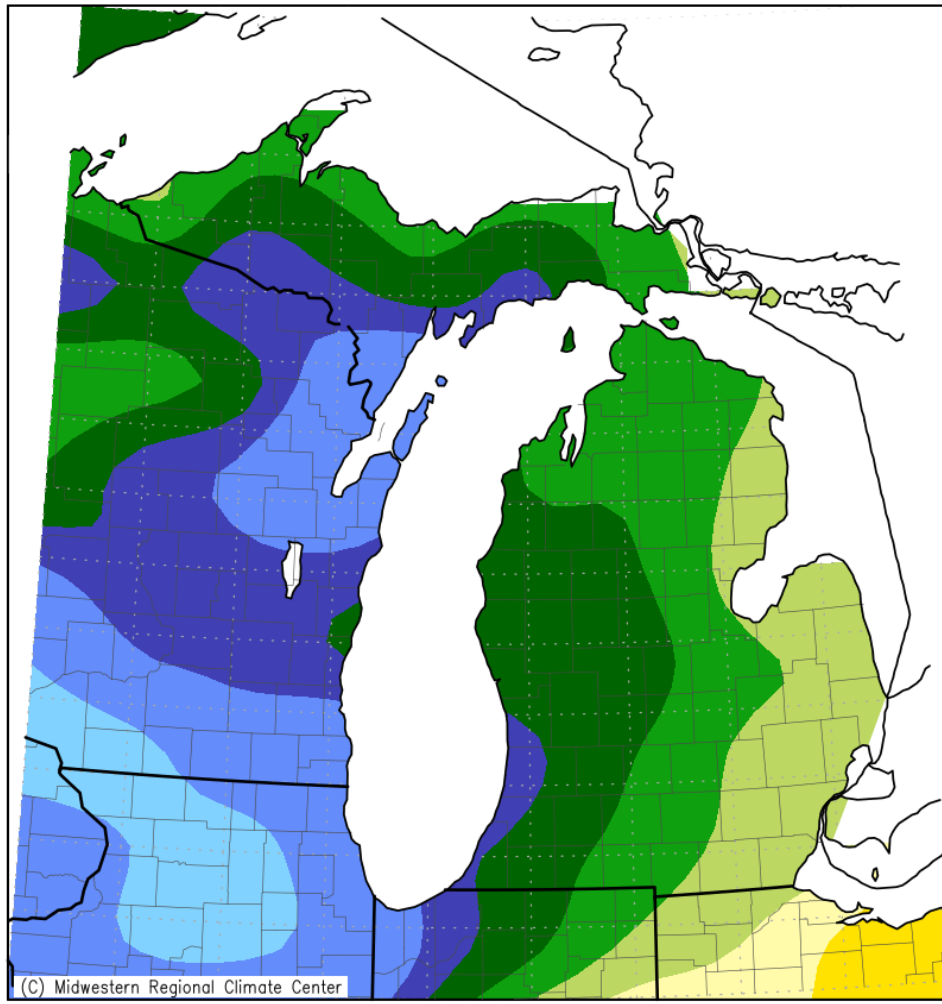
Accumulated Precipitation (in)
September 1, 2019 to September 30, 2019



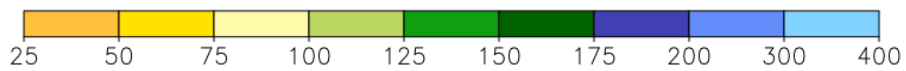
Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 10/11/2019 8:12:46 AM CDT

Figure 1. September 2019 Monthly Precipitation Totals.

Accumulated Precipitation: Percent of Mean
September 1, 2019 to September 30, 2019



Mean period is 1981–2010.



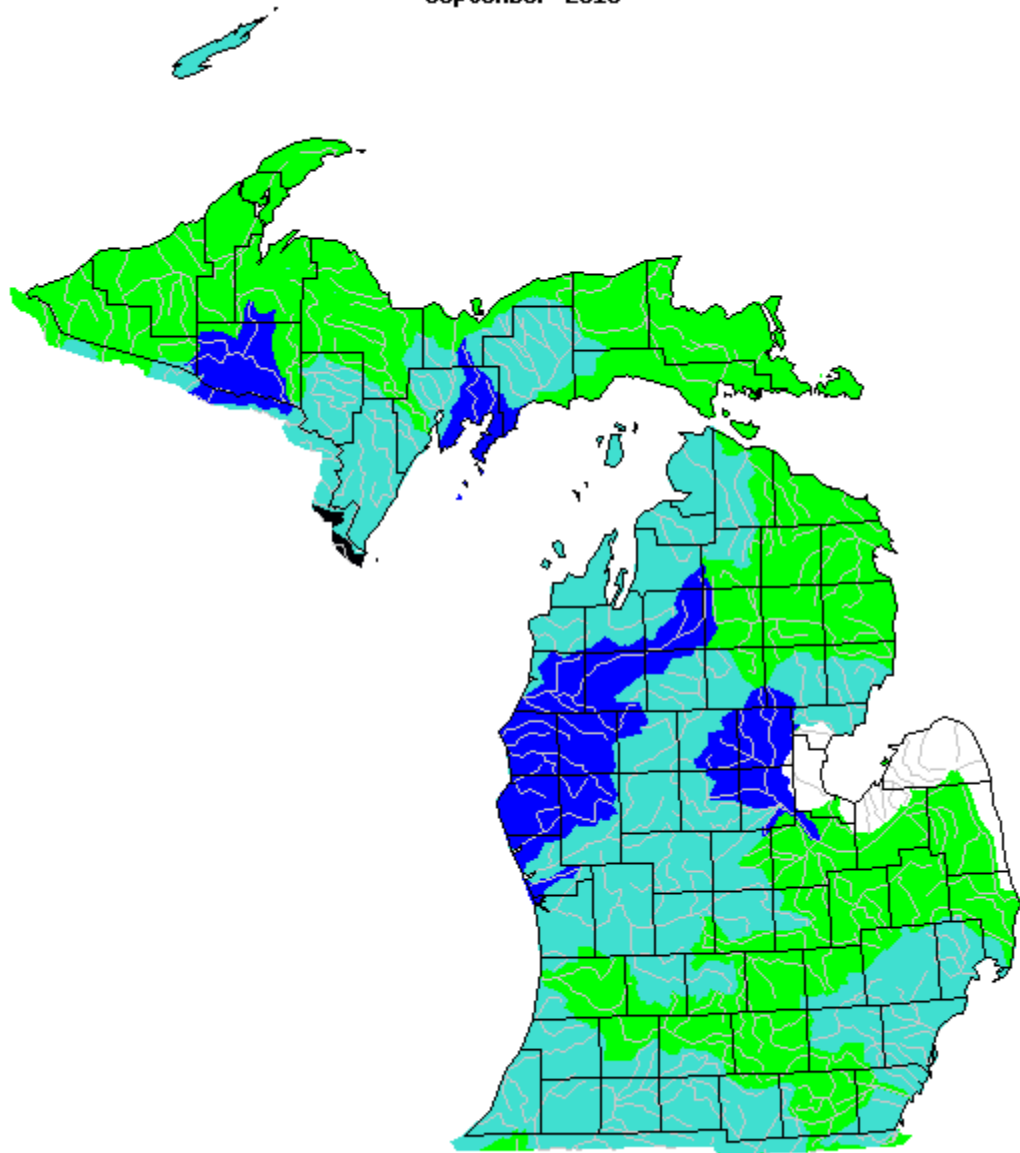
Midwestern Regional Climate Center

cli-MATE: MRCC Application Tools Environment

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Figure 2. September 2019 Percent of Mean of Accumulated Precipitation. September marks a return to higher-than-normal monthly precipitation across West Michigan.

September 2019



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 average streamflow, grouped by significant hydrologic units. Note streamflows across Lower Michigan again rising into the 75th-90th percentile.

Calculated Soil Moisture Ranking Percentile SEP, 2019

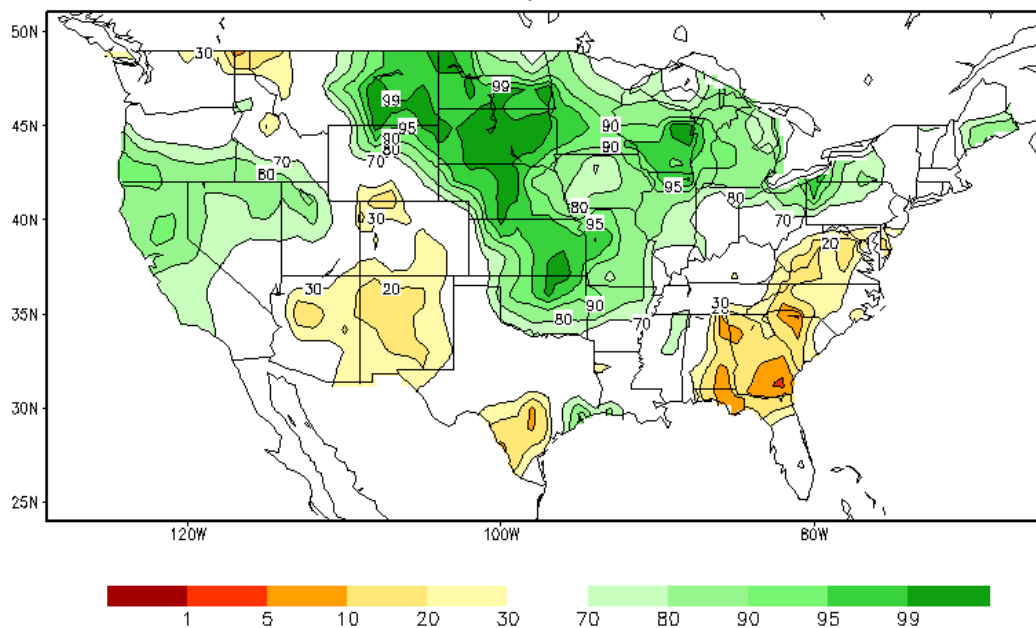


Figure 4. Chart of monthly values of soil moisture, by percentile ranking. This is the 12th consecutive month West Michigan has been at or above the 80th percentile. This saturated ground leads to increased runoff efficiency of rainfall into rivers and streams.

Hydrologic Products issued this month:

- 30 Hydrologic Summaries (ARBRVAGRR)
- 1 Probabilistic Hydrologic Outlook (ARBESFGRR)
- 5 Event-driven Hydrologic Outlook (ARBESFGRR)
- 28 Daily River Forecasts (ARBRVDGRR)
- 8 Areal Flood Advisory Statements (ARBFLSGRR)
- 0 Flood Warning Statements (ARBFLWGRR)
- 0 Flood Watch Statements (ARBFFAGRR)
- 0 River Statements (ARBRVSGRR)

News Articles and Related Documentation