

MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS

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

DATE:

August 2, 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**

July 2019 was the first month in the last 12 months to feature below-average rainfall for the majority of Southwest and Central Michigan. The notable exception to this was in west-central Michigan around Mason and Lake counties where an extreme convective rainfall event occurred on July 20, in which 8-12 inches of rain fell during a 12 hour period, resulting in widespread flooding on parts of the Little Manistee River, Big Sable River, and northern tributaries to the Pere Marquette River (including the Baldwin River). Elsewhere throughout the month, a few localized very heavy rain events occurred and resulted in short-term flooding, including near Caledonia (July 4), Jackson (July 6 and 16), Lansing (July 16), and Kentwood (July 16). Similarly, extremely high water levels on Lake Michigan continue to flirt with monthly records, and are causing localized flooding in many lakeshore communities.

**Flood Conditions**

With the prolonged wetter-than-normal conditions leading into the month, most of the larger rivers started the month well above normal (above the 90<sup>th</sup> percentile). Overall, most rivers were able to drop considerably throughout the month, with only brief upticks after the more significant local heavy rain events. After the extreme rain storm of July 20 in Mason and Lake counties, widespread areal flooding resulted, which then resulted in massive rises on the smaller streams in the area. A saving grace was that while the heaviest rain spanned a large portion of both counties, the runoff was split between several significant watersheds. This prevented the larger rivers from experiencing any catastrophic flooding, despite a recurrence interval of the rain totals upwards of 1000 years.

All other flooding events that occurred during the month were fairly minor and short-lived, and were handled by areal flood advisories. 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 July percentage of normal flow for selected rivers is listed below:

<u>Location</u>	<u>River</u>	<u>% of Normal</u>
Scottville	Pere Marquette	148
Whitehall	White	110
Evert	Muskegon	123
Mt. Pleasant	Chippewa	138
Lansing	Grand	200
Grand Rapids	Grand	59*
East Lansing	Red Cedar	269
Hastings	Thornapple	163
Battle Creek	Battle Creek	148
Battle Creek	Kalamazoo	120

\*Gage relocation affecting relation of readings to long-term statistics

## **General Hydrologic Information**

July precipitation amounts for Grand Rapids, Lansing, and Muskegon, Michigan, were 3.92, 2.73, and 2.99 inches, respectively (Figure 1). Monthly departures were +0.14, -0.11, and +0.62 inches, respectively. Yearly departures were +5.72, +4.83 and +7.78 inches for Grand Rapids, Lansing and Muskegon respectively. Percent of mean precipitation for July 2019 is shown in Figure 2.

Temperatures for the month of July were above-average at Grand Rapids, Lansing and Muskegon. The average monthly temperature departures for these sites were +2.9, +3.2, and +3.1 degrees Fahrenheit, respectively.

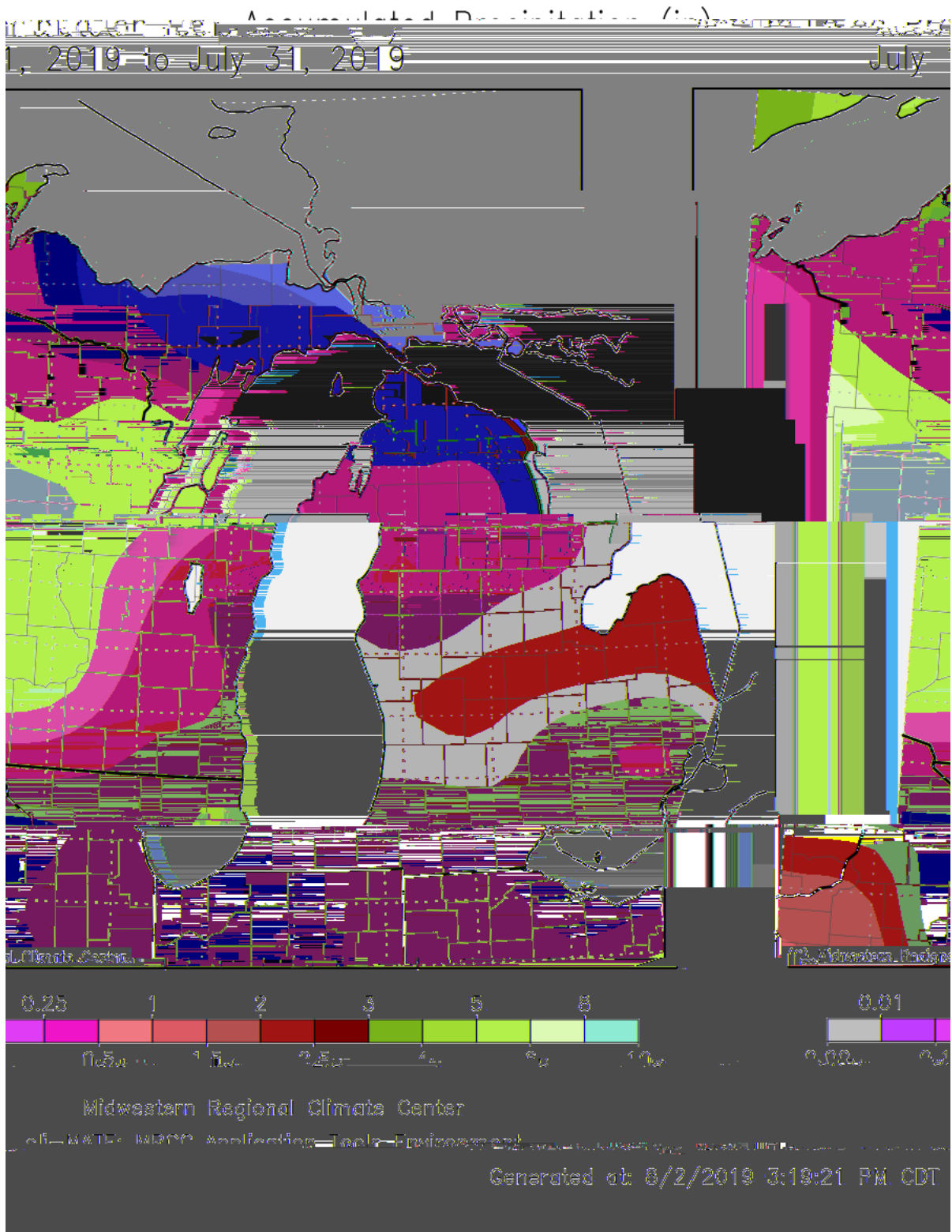


Figure 1. July 2019 Monthly Precipitation Totals.

Accumulated Precipitation: Percent of Mean  
July 1, 2019 to July 31, 2019

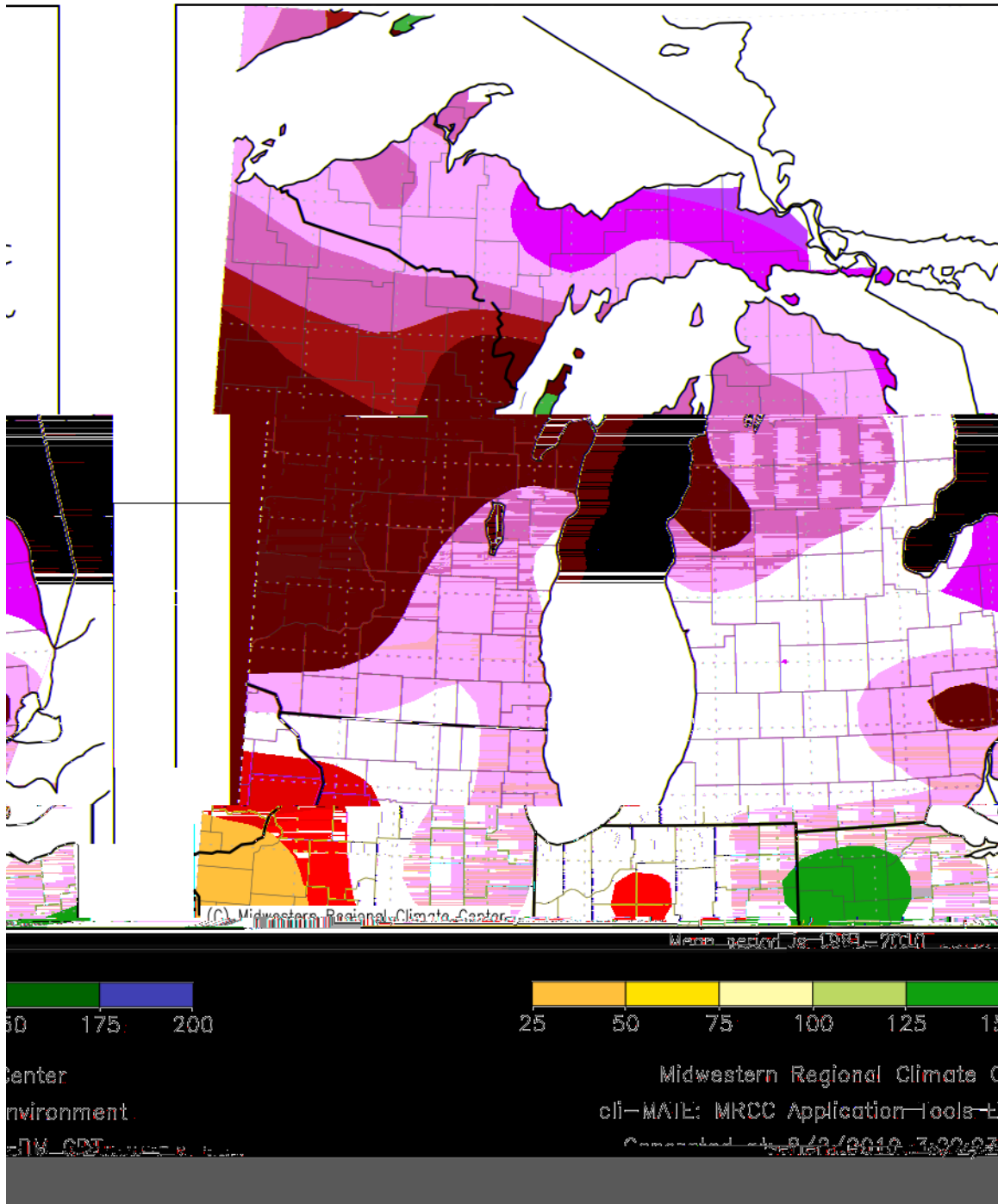
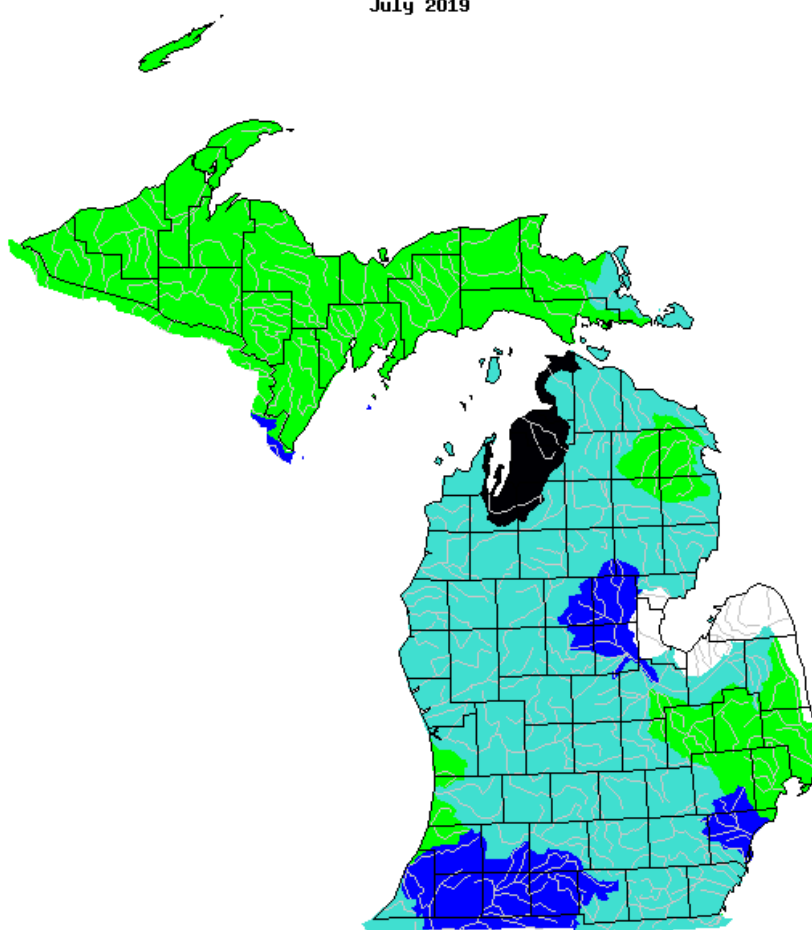


Figure 2. July 2019 Percent of Mean of Accumulated Precipitation. July represents the first month in the last 12 months to have generally below-average precipitation across West Michigan.

July 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 widespread above-average streamflows across Lower Michigan.

### Calculated Soil Moisture Ranking Percentile JUL, 2019

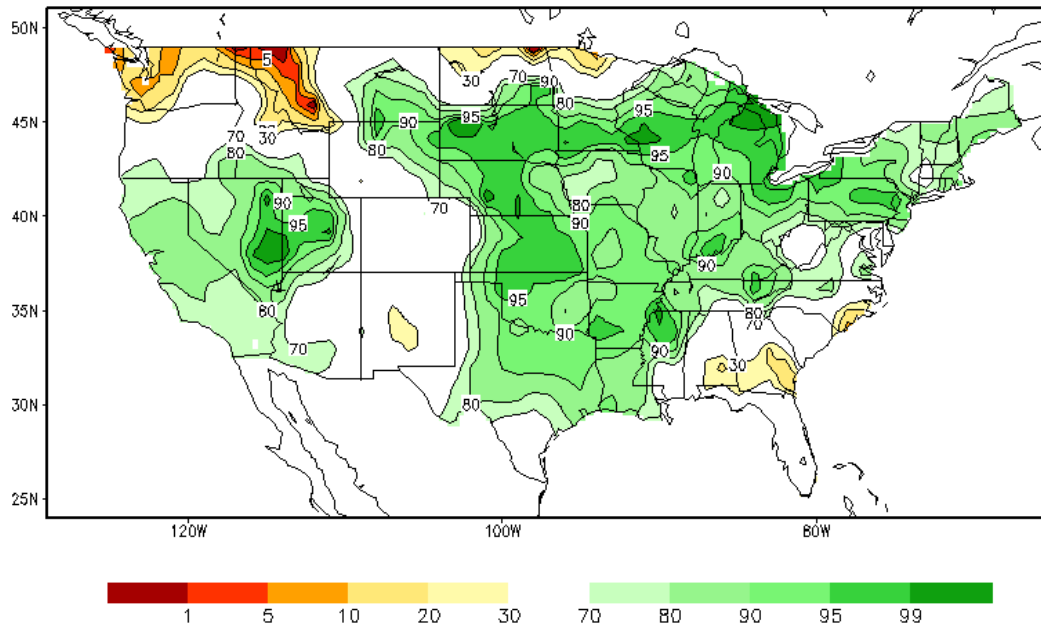


Figure 4. Chart of monthly values of soil moisture, by percentile ranking. This is the 9<sup>th</sup> consecutive month West Michigan has been at or above the 80<sup>th</sup> percentile. This saturated ground leads to increased runoff efficiency of rainfall into rivers and streams.

#### **Hydrologic Products issued this month:**

- 31 Hydrologic Summaries (ARBRVAGRR)
- 1 Probabilistic Hydrologic Outlook (ARBESFGRR)
- 1 Event-driven Hydrologic Outlook (ARBESFGRR)
- 29 Daily River Forecasts (ARBRVDGRR)
- 20 Areal Flood Advisory Statements (ARBFLSGRR)
- 3 Flood Warning Statements (ARBFLWGRR)
- 0 Flood Watch Statements (ARBFFAGRR)
- 13 River Statements (ARBRVSGRR)

#### **News Articles and Related Documentation**

<https://www.9and10news.com/2019/07/21/lake-county-homes-roads-flooded-after-heavy-rainfall/>

<http://www.masoncountypress.com/2019/07/21/several-roads-still-flooded-closed-in-mason-county/>

<https://upnorthlive.com/news/local/flooding-washout-concerns-on-mason-county-roads>

<https://fox17online.com/2019/07/22/lake-county-declares-state-of-emergency-from-weekend-flooding/>

<https://fox17online.com/2019/07/22/nearly-a-foot-of-rain-leaves-lasting-damage-in-lake-county/>