



Monthly Report of River and Flood Conditions

Report for August 2022

NWS FORM E-5	U.S. DEPARTMENT OF COMMERCE NOAA, NATIONAL WEATHER SERVICE	HSA OFFICE: Marquette, MI
MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS		REPORT FOR (MONTH / YEAR): August 2022
TO: NATIONAL WEATHER SERVICE (W/OH12x1) HYDROMETEOROLOGICAL INFO CENTER 1325 EAST-WEST HIGHWAY, RM 7116 SILVER SPRING, MD 20910		DATE: September 10th, 2022
		SIGNATURE: Evan Kutta, Asst. Hydro Program Manager Robin J. Turner, MIC
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 no flooding occurred within this Hydrologic Service Area.

Summary

August was wetter than normal across most of Upper Michigan with rainfall amounts between 135% and 150% of average at five of the seven sites with reliable long term averages. Thunderstorms were common during August, especially across south-central portions of Upper Michigan where several flood and flash flood products were issued on August 18th and 19th. Thunderstorms were most common at Iron Mountain, Stambaugh, and Manistique where rainfall observations exceeded 4 inches. In stark contrast to the remainder of the UP, the northern Keweenaw Peninsula was very dry with Copper Harbor observing just 0.37" of rain during August. Isle Royale was also dry with 1.43" during August.

Location	Precipitation	% of Normal	Snowfall
WFO Marquette	3.92	138%	0.0
Marquette City	3.36	145%	0.0
Quincy Hill	2.37	M	0.0
Ironwood	3.14	84%	0.0
Iron Mountain	4.98	147%	0.0
Manistique	4.24	137%	0.0
Munising	3.06	97%	0.0
Stambaugh	4.46	144%	0.0

NOTE: Precipitation after 8 AM EST August 31st was counted in September stats for all but the WFO Marquette site due to the reporting structure of our cooperative observers.



Monthly Report of River and Flood Conditions

Report for August 2022

Summer Season Precipitation Summary

Location	June	July	August	Summer Total
Alberta	3.80	2.89	3.56	10.25
Big Bay	1.58	2.47	3.43	7.48
Bruce Crossing	4.19	3.28	4.72	12.19
Chatham	4.18	1.50	4.03	9.71
Delta County Airport	2.83	1.3	3.12	7.25
Gwinn	3.92	2.41	5.02	11.35
Manistique	2.42	1.90	3.73	8.05
Iron Mountain - Kingsford	3.37	2.97	4.7	11.04
Ironwood WWTP	2.78	4.87	3.05	10.70
Kenton	2.78	2.40	4.38	9.56
Marquette WFO	3.61	1.86	3.60	9.07
Newberry	3.79	2.39	4.81	10.99
Ontonagon	4.05	3.66	3.74	11.45
Stambaugh	3.07	2.68	4.61	10.36
Watersmeet	3.81	3.91	2.34	10.06

Monthly total precipitation from Fisher Porter weighing rain gages during June, July, August, and the 2022 summer season total.



Flooding Conditions

Slow moving thunderstorms within a moist environment produced heavy rainfall and ponding water on roadways and poorly drained areas on August 18th and 19th. Radar estimated rainfall amounts ranged from 3 to 5 inches within the FFW on the 18th and from 1.5 to 3 inches within the FFS on the 19th. Even though heavy rain occurred, no reports of flooding were received.

River Conditions

Streamflow was near to above normal across most of Upper Michigan during August. While not shown, areas near Copper Harbor only observed 0.37” of rain during August and 2.52” for June-August. Thus, northern Keweenaw streamflow was likely more similar to Isle Royale than the remainder of the Upper Peninsula.

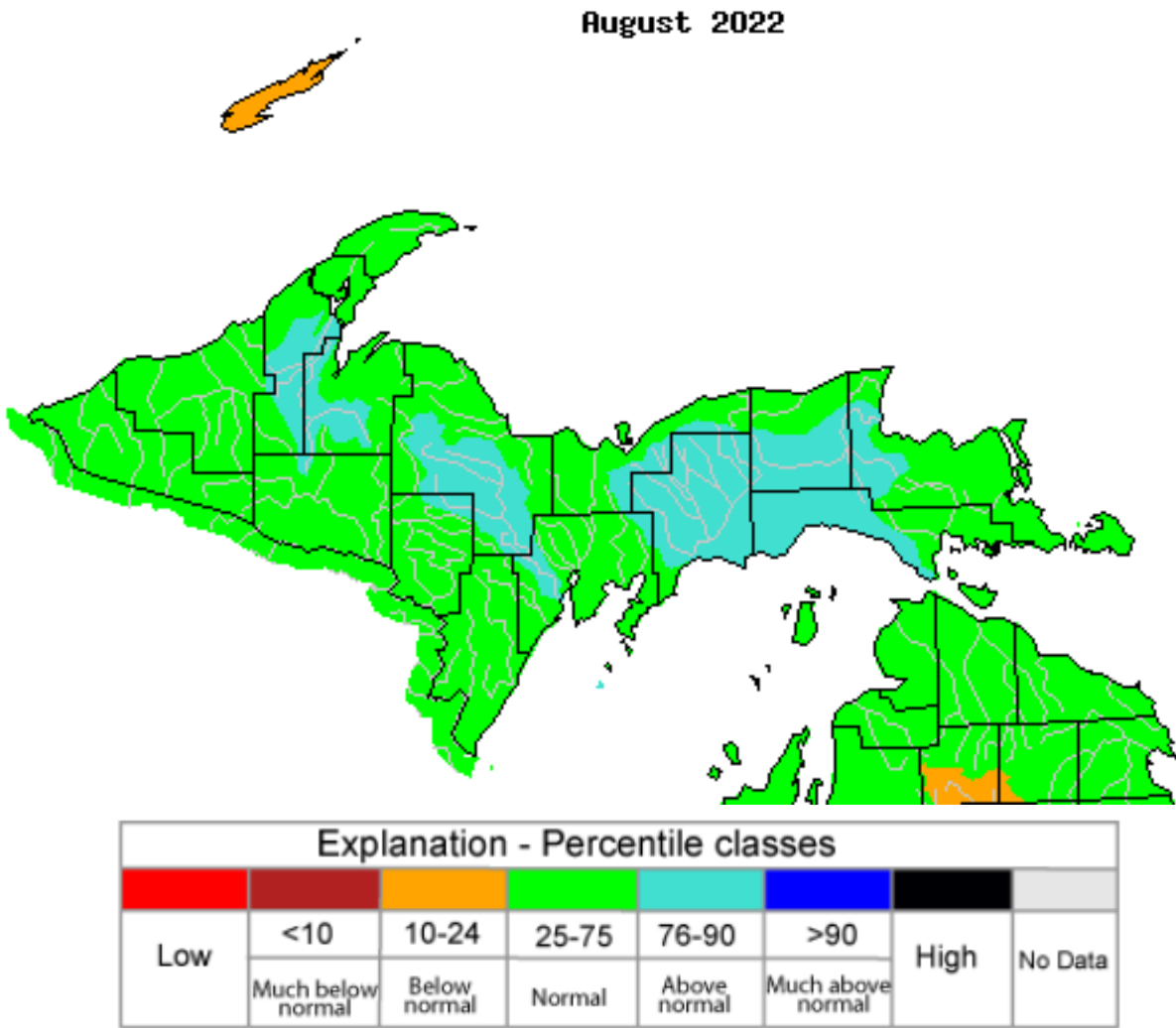


Figure 1: USGS monthly average streamflow during August 2022 across Upper Michigan



Snowpack SWE (Snow Water Equivalent) Conditions

Snowpack remains on summer vacation.

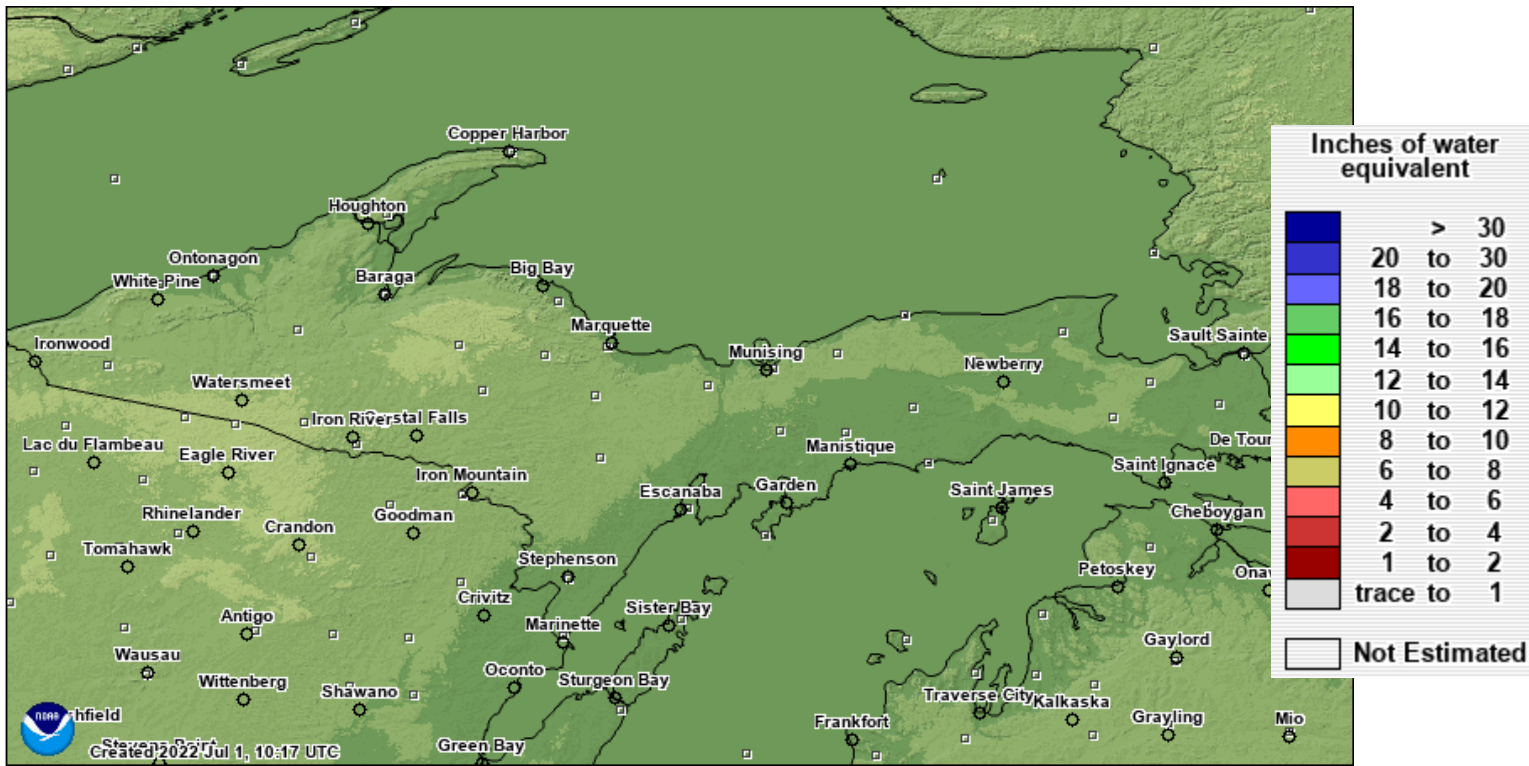


Figure 2: Current modeled snowpack snow water equivalent on September 1st.

Drought Discussion

Abnormally dry conditions were present in Ironwood during August. While not shown on this map, the northern Keweenaw may have approached moderate drought status with Copper Harbor observing just 0.37” of rain during August. For the latest drought status, please visit <http://www.drought.gov>.

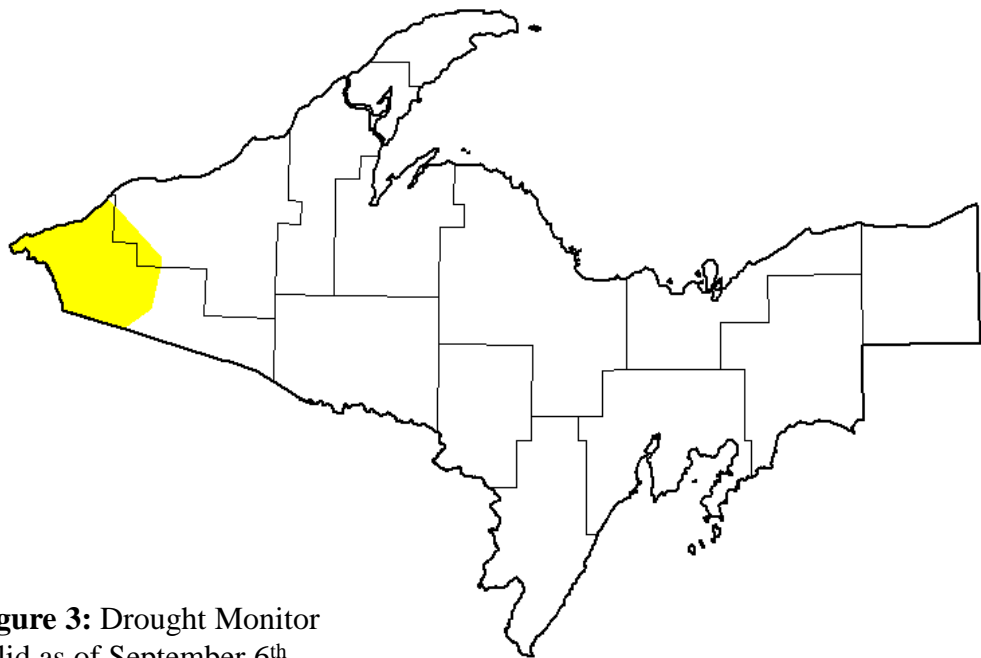


Figure 3: Drought Monitor valid as of September 6th.

September 6, 2022

(Released Thursday, Sep. 8, 2022)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	94.97	5.03	0.00	0.00	0.00	0.00
Last Week 08-30-2022	94.97	5.03	0.00	0.00	0.00	0.00
3 Months Ago 06-07-2022	94.90	5.10	0.00	0.00	0.00	0.00
Start of Calendar Year 01-04-2022	26.00	74.00	35.44	0.51	0.00	0.00
Start of Water Year 09-28-2021	51.73	48.27	6.70	0.49	0.00	0.00
One Year Ago 09-07-2021	41.19	58.81	31.69	0.51	0.00	0.00

Intensity:

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

David Simeral
Western Regional Climate Center



droughtmonitor.unl.edu



Monthly Report of River and Flood Conditions

Report for August 2022

Media Links

Impacts from locally heavy rainfall were unknown and/or limited due to the rural setting.

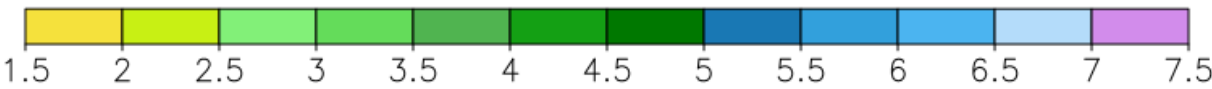
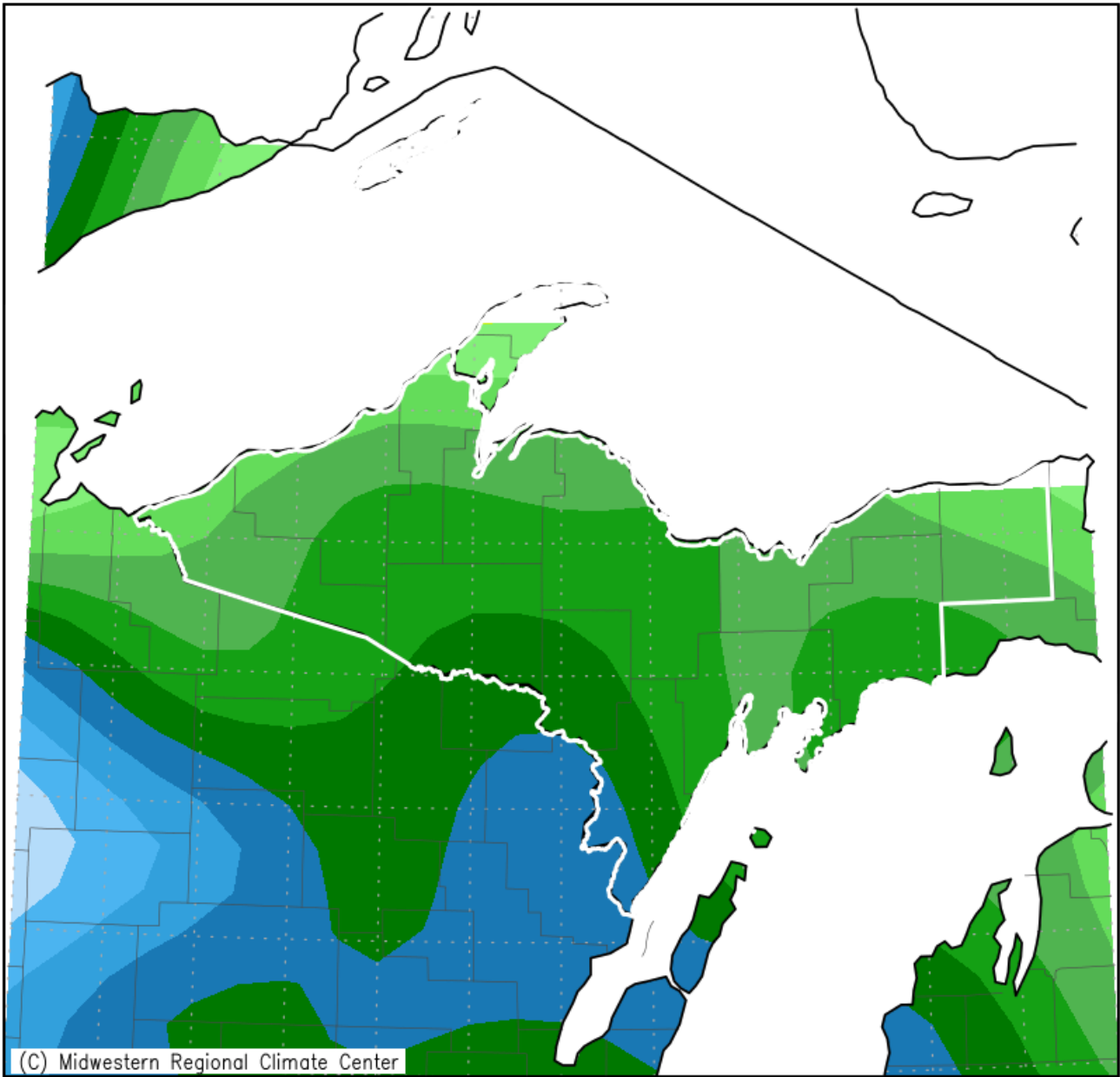
Hydro Products Issued

Product	Number
Hydrologic Outlook (ESF)	0
Flood Watch (FFA)	0
Flood Warning (FLW)	1
Flood Advisories and Statements (FLS)	5
Flash Flood Warning (FFW)	1
Flash Flood Statement (FFS)	1
Hydrologic Summary (RVA)	31
Daily River Forecasts (RVD)	31



Precipitation Summary

Accumulated Precipitation (in)
August 1, 2022 to August 31, 2022



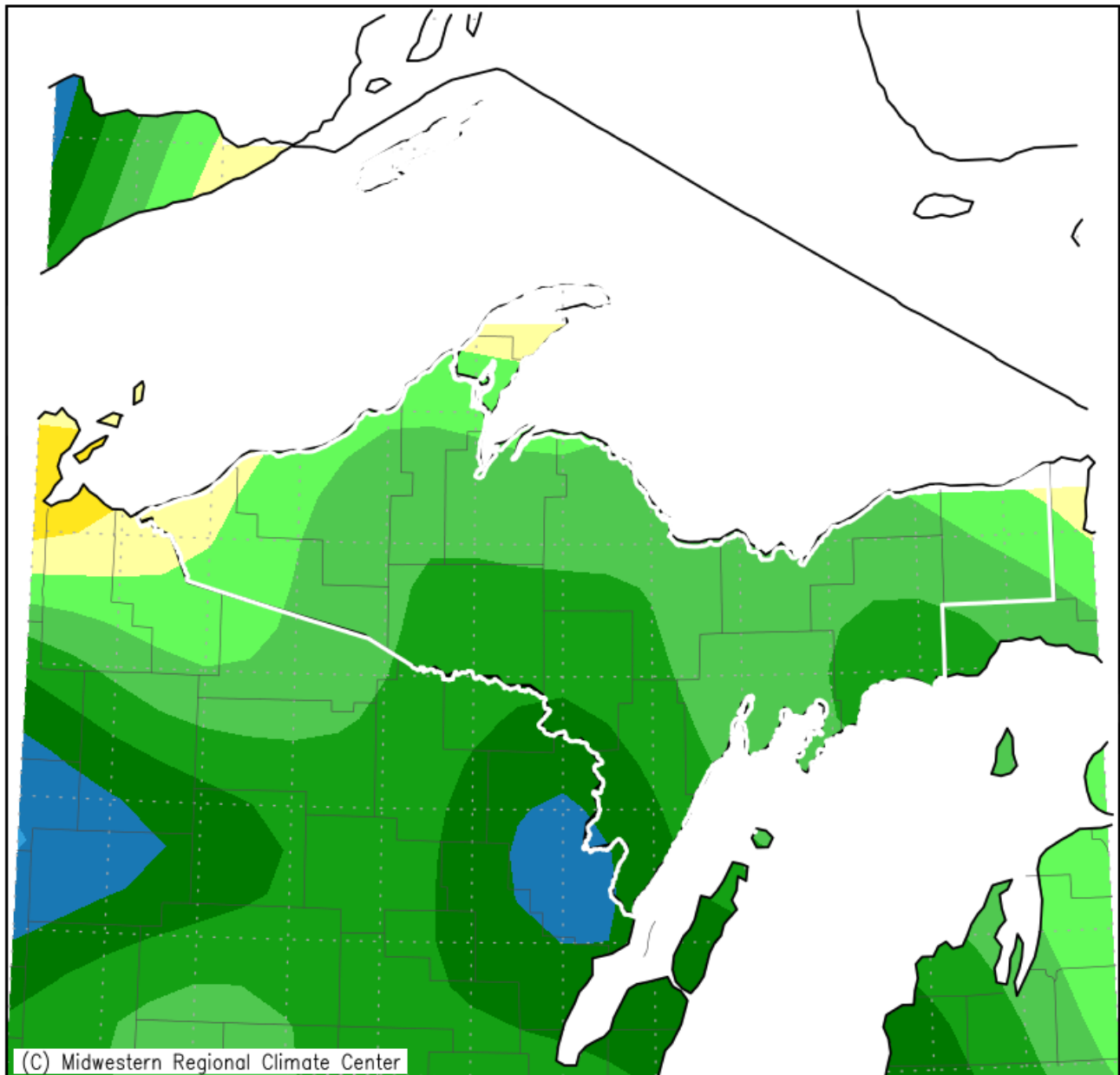
Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 9/10/2022 8:52:16 AM CDT

Figure 4: August 2022 Precipitation Totals.

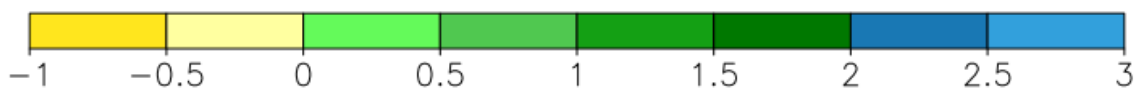


Precipitation Summary Continued

Accumulated Precipitation (in): Departure from Mean
August 1, 2022 to August 31, 2022



Mean period is 1991–2020.

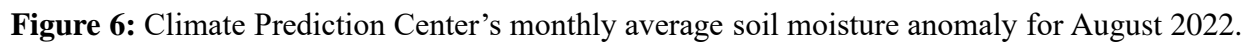


Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 9/10/2022 8:50:10 AM CDT

Figure 5: August 2022 Percent of Normal of Accumulated Precipitation.



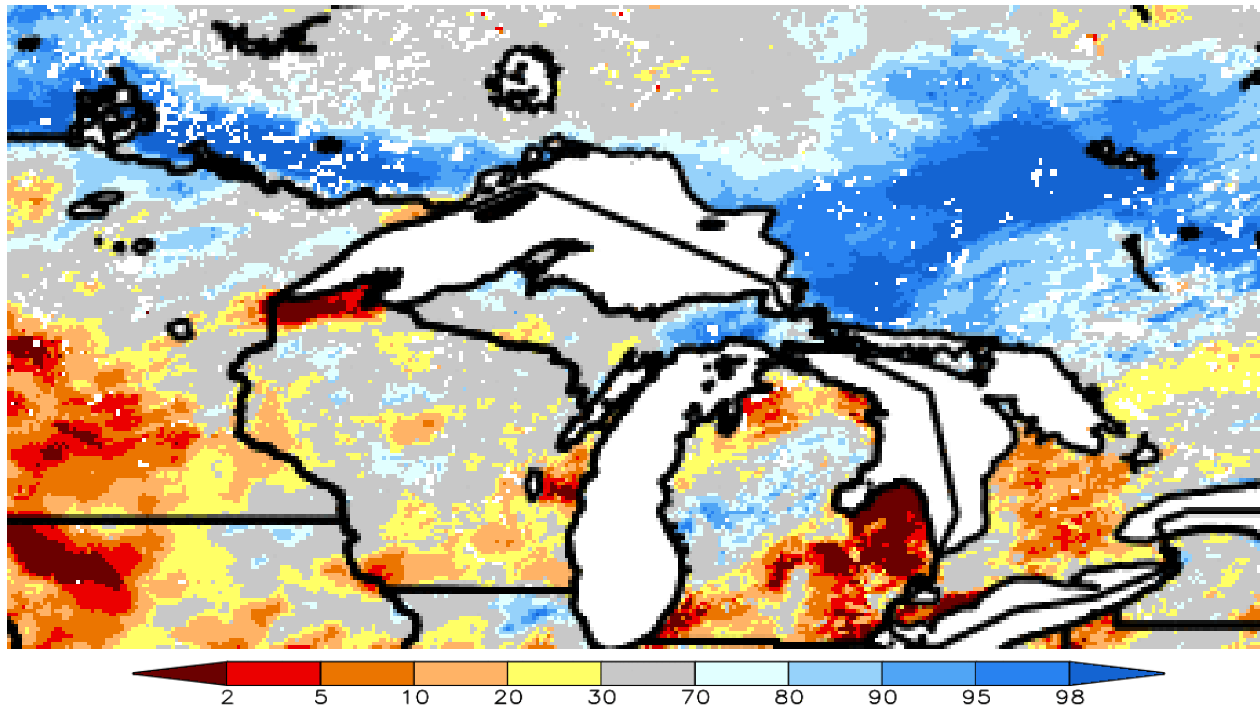
Calculated Soil Moisture Anomaly (mm)
AUG, 2022





Shallow and Deep Soil Moisture Percentiles

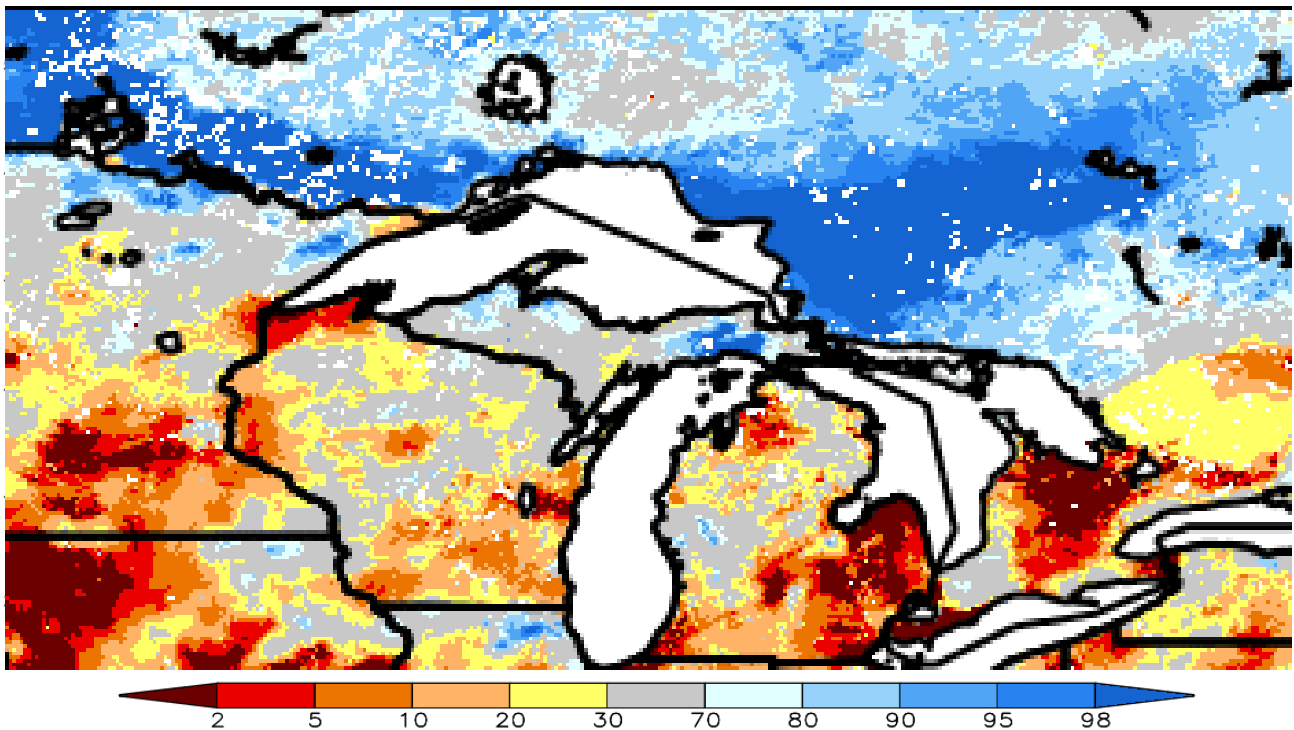
SPoRT-LIS 0-40 cm Soil Moisture percentile valid 01 Sep 2022



****NOTE****
****Experimental****

Figure 7: NASA Short-term Prediction Research and Transition (SPoRT) Center's shallow (0-40 cm) soil moisture percentile valid September 1, 2022.

SPoRT-LIS 0-200 cm Soil Moisture percentile valid 01 Sep 2022



****NOTE****
****Experimental****

Figure 8: NASA Short-term Prediction Research and Transition (SPoRT) Center's deep (0-200 cm) soil moisture percentile valid September 1, 2022.