Quarterly Climate Impacts and Outlook

Great Lakes Region

June 2025

Great Lakes Significant Events – *March - May 2025*

Northern Michigan and the area east of Lake Superior in Ontario had over 300 percent of normal precipitation for March. The month started with a record lake effect snow event on March 6 that dropped 20.8 inches (52.8 cm) of snow in Marquette, Michigan, becoming the city's 3rd snowiest March day on record. The month ended with a long duration freezing rain event that caused widespread impacts in the U.S. and Canada.

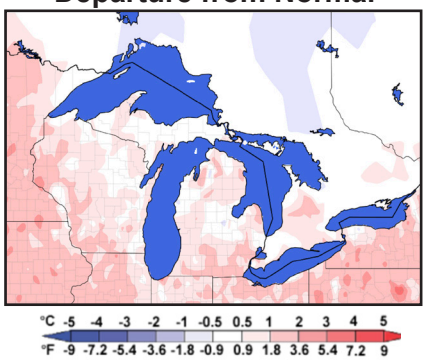
Flooding rain and severe weather, including 1.5 inch (38.1 mm) hail, traversed southern Michigan eastward through Toronto, dropping 2-3 inches (50.8-76.2 mm) of rainfall on April 2-3. Persistent wetness along Lake Superior's north shore resulted in April precipitation that was over 200 percent of normal.

Temperatures soared in the far western portion of the basin in mid-May before giving way to a severe weather outbreak that brought tornadoes, damaging winds, and large hail to the Upper Midwest and U.S. side of the Great Lakes on May 15. At least 31 tornadoes were confirmed across Minnesota, Wisconsin, and Michigan. Hail up to 3 inches (76.2 mm) in diameter fell along the southern Lake Michigan shore from Milwaukee throughout the Chicago area.

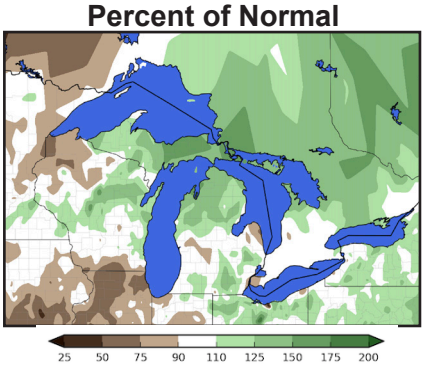
The Sault Ste. Marie area had its wettest spring on record.

Regional Climate Overview – *March - May 2025*

Spring Temperature Departure from Normal



Spring Precipitation Percent of Normal



Precipitation and temperature normals based on 1991-2020.

Air Temperature and Precipitation

March was up to 7°F (4°C) warmer than normal. April ranged from 4°F (2°C) below normal in the Superior and northern Huron basins to 2°F (1°C) above normal in the southern Erie and Ontario basins. May ranged from 4°F (2°C) below normal to near normal, except in the western Superior basin which was up to 4°F (2°C) above normal. Spring ranged from 2°F (1°C) below normal to 4°F (2°C) above normal.

In March and April, all lake basins saw near or above-average precipitation, with the overall basin at 138% of average for March and 120% of average for April. May precipitation ranged from 44% of average in the Superior basin to 161% of average in the Ontario basin, with the overall basin seeing 96% of average. Spring precipitation for the basin was 116% of average, with all basins having near or above-average precipitation.

Current Water Levels

Lake	End of May 2025 Level Compared to:		Change in Level from beg. of Mar. to end of May	
	Average for May	May 2024	2024-25 Change in Level	Average Change in Level
Sup.	-12 cm	-7 cm	+22 cm	+16 cm
Mich.-Huron	-15 cm	-23 cm	+29 cm	+24 cm
Erie	+10 cm	-17 cm	+42 cm	+31 cm
Ont.	+2 cm	+15 cm	+64 cm	+43 cm

End of May water levels were below average and below last May's levels for Lakes Superior and Michigan-Huron. For Lakes Erie and Ontario, the end of May levels were above average, however, Lake Erie was below last May's level while Lake Ontario was the only lake above its end of May 2024 level. Generally wetter conditions this spring led to greater than average water level rises from the beginning of March to the end of May on all the lakes.

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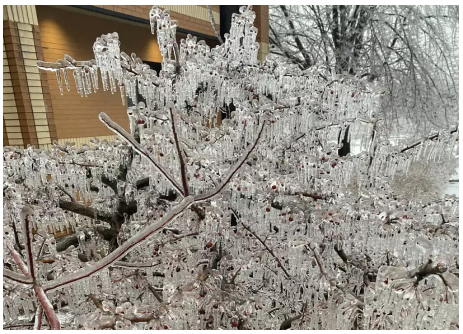
Regional Impacts – *March - May 2025*

Historic Ice Storm: A long duration freezing rain event resulted in ice accumulations up to 1 inch (25.4 mm) across the central Great Lakes. A State of Emergency was declared in Wisconsin and Michigan where about 200,000 customers were without power. Six regions across southern Ontario were in a State of Emergency with over one million customers without power. For some, the power outages lasted more than a week. The Mackinac Bridge had multiple closures due to falling ice. The heavy ice collapsed radio and news transmitter towers, snapped trees, downed power lines, and made roadways impassable.

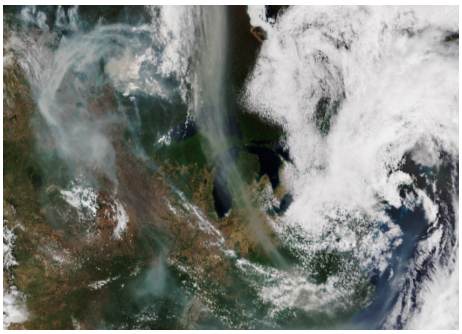
Agriculture: An estimated 30,000 gallons of Michigan's maple syrup (about one third the annual yield) was lost due to fallen trees during the March 28-30 ice storm. Berry and other specialty crop growth was delayed in Ontario and in western New York due to cool and wet spring conditions.

Natural Resources: A Lake Erie water sample collected by NOAA's Great Lakes Environmental Research Lab detected the toxin microcystin on April 28, which is the earliest the toxin has been detected in that lake. A colder-than-usual winter followed by a seasonal temperature warm-up in early May resulted in a fish kill that washed up hundreds of dead alewife (herring family) along the Canadian shores of Lake Ontario.

Hazy Skies: Canadian wildfires brought hazy skies and reduced air quality in late May, lingering into June.



Ice accumulation in northern Michigan (Credit: NOAA)



Satellite image of smoke over the Great Lakes (Credit:NASA)

Damaged red pine in Wisconsin (Credit: Levi Koski)

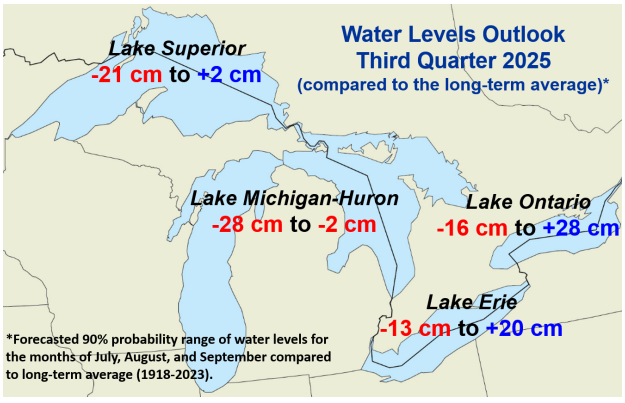
Regional Outlook – *July - September 2025*

Temperature and Precipitation

Canadian and American outlooks show chances of above-normal temperatures, with greater confidence in the eastern portion of the Great Lakes basin. Canadian outlooks are not favoring wetter or drier conditions, while American outlooks show a slight chance of above-normal precipitation in the southeast and a slight chance of below-normal precipitation in the far western basin.

Great Lakes Water Level Outlook

The June forecast indicates that during the 3rd quarter of 2025 (July, Aug, Sep), Lake Superior will be finishing its seasonal rise and reaching its peak level, Lake Michigan-Huron will be reaching its peak and beginning its seasonal decline, and Lakes Erie and Ontario will be in their period of seasonal decline. Lakes Superior, Erie, and Ontario could experience water levels above or below average depending if wetter or drier conditions are received. Water levels on Lake Michigan-Huron are likely to remain below long-term average levels in the 3rd quarter.



Harmful Algal Blooms (HABs)

A mild to moderate western Lake Erie HAB is projected. Severity depends on total bioavailable phosphorus (TBP) from March 1 - July 31. Near-normal rainfall and river discharge are expected through the remainder of the TBP season.

Partners

- Midwestern Regional Climate Center
- Environment and Climate Change Canada
- Agriculture and Agri-Food Canada
- Northeast Regional Climate Center
- Great Lakes Region State Climatologists
- NOAA
  - NCEI
  - GLERL
  - CoastWatch Great Lakes Node
  - Great Lakes and IL-IN Sea Grant Networks
  - North Central River Forecast Center
  - Ohio River Forecast Center
  - Climate Prediction Center
  - Office for Coastal Management
- GLISA
- US Army Corps of Engineers, Detroit District
- NIDIS
- USDA Midwest Climate Hub

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