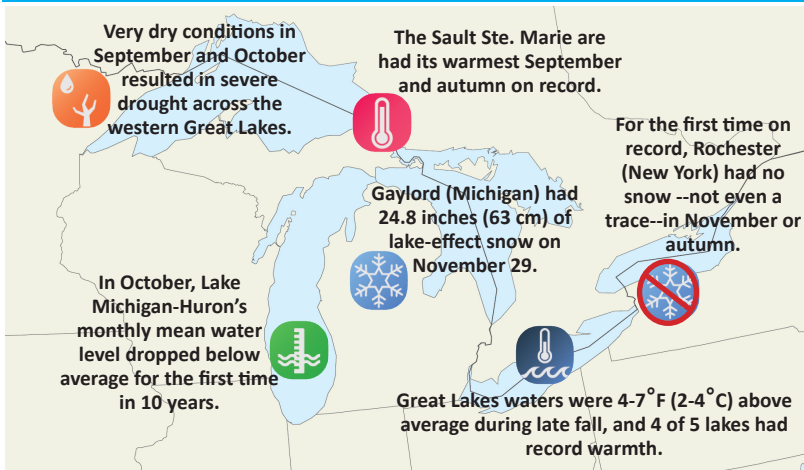


### Great Lakes Significant Events – September - November 2024



September was warm and dry, with record to near-record low cloud cover across the northern half of the basin. Detroit had a record 14 consecutive days with high temperatures above 80°F (27°C) in September. Warm, dry conditions continued, with drought extent peaking throughout the Superior basin in late October. Erie, Buffalo, and Syracuse reached over 80°F (27°C) on November 5, which is near record warm.

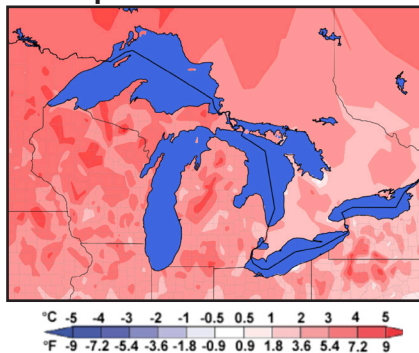
A month's worth of rain (2-4 inches / 50-101 mm) fell November 19-20 along Lake Superior's north shore from Duluth to Thunder Bay. Persistent precipitation across Michigan's Upper Peninsula resulted in Sault Ste. Marie's wettest November on

record, with 8.38 inches (212.9 mm), and nearby locations seeing a top five wettest month.

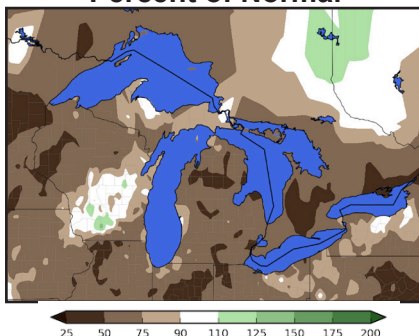
Warmth lingered basin-wide in November until Arctic air pushed in to close the month. Persistent fall warmth led to very warm open waters, which fueled a significant lake-effect snow (LES) event starting November 28. Intense LES continued for a week into December, with storm event snowfall totals topping out at 20-75 inches (50.8-190.5 cm) in Michigan, southern Ontario, New York, and northeast Ohio.

### Regional Climate Overview – September - November 2024

#### Fall Temperature Departure from Normal



#### Fall Precipitation Percent of Normal



Precipitation and temperature normals based on 1991-2020.

#### Air Temperature and Precipitation

Fall temperatures were up to 7°F (4°C) warmer than normal. September and November were up to 9°F (5°C) warmer than normal, while October was up to 7°F (4°C) warmer than normal. The Superior basin generally had the largest departures above normal. Sault Ste. Marie (Michigan and Canada) had its warmest fall on record. Duluth, Green Bay, Erie, and Syracuse all had their second warmest fall.

All basins were dry for fall, with the overall basin seeing 70% of average. In September, all basins were dry, with Superior having its driest September. The Great Lakes basin overall saw 48% of average precipitation in September and 62% of average in October. The overall basin saw 106% of average in November, with the Erie and Ontario basins being dry and the others being wet.

#### Current Water Levels

Lake	End of Nov 2024 Level Compared to:		Change in Level from beg. of Sep. to end of Nov	
	Average for Nov	Nov 2023	2024 Change in Level	Average Change in Level
Sup.	-16 cm	-11 cm	-19 cm	-10 cm
Mich.-Huron	-10 cm	-18 cm	-36 cm	-17 cm
Erie	+11 cm	-12 cm	-40 cm	-24 cm
Ont.	-16 cm	-5 cm	-49 cm	-29 cm

End of November water levels were affected by dry conditions across the Great Lakes region this fall. Superior, Michigan-Huron, and Ontario were all below their end of November average levels and all lakes were below their levels from this time last year. Also, the dry conditions led to greater-than-average water level declines on all the lakes from the beginning of September to the end of November. Lake Michigan-Huron experienced its 3rd largest decline and Lake Erie had its 8th largest decline in water levels during the fall time period.

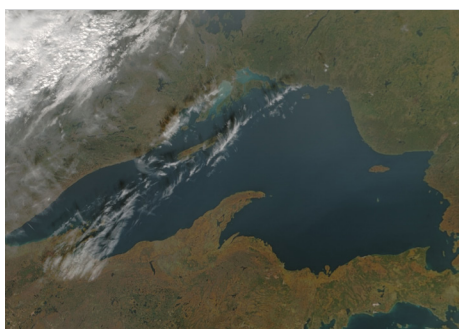
## Regional Impacts – September - November 2024

**Agriculture:** [Michigan](#) farmers anticipate record high corn and soybean yields. Wheat, corn, and soybean yields also turned out favorably in [Ontario](#). However, Michigan's [sweet cherry](#) crop was severely damaged by pests and fungi fueled by wet, humid conditions during the season, with losses of 30-70 percent. The [Oneida Nation's white corn](#) harvest had reduced yields due to damage from excessive spring rains. Wisconsin soybeans were very small at harvest.

**Lake-Effect Snow (LES):** A significant [LES event](#) affected the Great Lakes starting November 28, and continuing into early December. Erie (Pennsylvania) had its all-time snowiest day since its records began in 1893 with 22.6 inches (57.4 cm) on November 29. Heavy snow shutdown major highways and stranded motorists in [Canada](#) and the [US](#). [Roofs collapsed](#) in northern Ohio. Over 30,000 customers [lost power](#) in central Ontario. Strong winds caused a [seiche](#) that dropped water levels on the [Detroit River](#) by 3-4 feet (0.9-1.2 m), exposing the riverbank and creating hazards for docking vessels. Across northern Michigan, the snow was welcomed by [ski resorts](#), which opened late this season due to extended warmth prior to this event.

**Harmful Algal Bloom (HAB):** Lake Erie's 2024 HAB was ranked [moderately-severe](#) (6.6 on the Bloom Severity Index). The bloom established on June 24, the [earliest bloom](#) since monitoring began in 2002, and resolved in mid-October.

**Fall Foliage:** Warm temperatures [delayed the onset](#) of fall colors across Ontario. Leaf colors were also less vibrant.



Satellite images of fall colors around Lake Superior (Credit: NOAA CoastWatch)



Deep snow in North Kingsville, Ohio on Nov 29 (Credit: [J.L. Williams-Downey](#))



Brown rot on sweet cherries (Credit: Mike Reinke/MSU Extension)

## Regional Outlook – January - March 2025

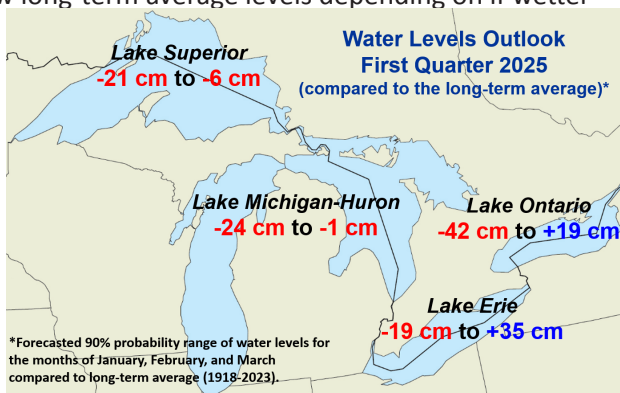
### Temperature and Precipitation

[Canadian](#) forecasts indicate above-normal temperatures basin-wide and a tendency for above-normal precipitation in the Superior Basin. In contrast, the [American](#) forecasts show slight chances of above-normal temperatures in the eastern basin and equal chances of below-, above, and near-normal temperatures in the west, with an increased chance of above-normal precipitation basin-wide.

### Great Lakes Water Level Outlook

The December forecast indicates that during the first quarter of 2025 (Jan, Feb, Mar) water levels on Lakes Superior and Michigan-Huron are likely to remain below their long-term average levels. Lakes Erie and Ontario could experience water levels above or below long-term average levels depending on if wetter or drier water supply conditions are received.

Lake Superior water levels are forecast to be in their period of seasonal decline, while the rest of the lakes will likely complete their seasonal decline and/or begin their seasonal rise during the first three months of the year.



### Ice Cover Outlook

The [U.S. National Ice Center](#) predicts slightly below-normal ice conditions on Lakes Superior, Michigan, Huron and Erie this winter. Near-normal ice conditions are predicted for Lake Ontario.

### Partners

[Midwestern Regional Climate Center](#)  
[Environment and Climate Change Canada](#)  
[Agriculture and Agri-Food Canada](#)  
[Northeast Regional Climate Center](#)  
[Great Lakes Region State Climatologists](#)  
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