

## Great Lakes – St. Lawrence River Water Levels

### All lakes except Superior remain above average, even with higher than average monthly declines

In February, the Great Lakes Basin experienced the following:

- The mean monthly water level of Lake Superior was below average, while all the other lakes remained above average.
- Lake Superior experienced drier than average (1918-2022) water supply conditions (a combination of the precipitation, evaporation, and runoff), while Lake Michigan-Huron was the only lake to have wet conditions. Lake Erie was very dry and Lake Ontario experienced average water supply conditions.
- February precipitation amounts were much less than average (1981-2010) for all the lakes, including Lake Michigan-Huron. Note that because water supply conditions are averaged over a much longer period (1918-2022) than precipitation (1981-2010), the two sometimes do not align.
- Lakes Superior and Michigan-Huron experienced greater than average lake level declines. On the other hand, while Lake Erie declined and Lake Ontario stayed the same at a time when they typically rise.

Great Lakes water level information: February 2024 monthly mean levels					
Lake	Level <sup>a</sup>	Compared to February monthly average (1918–2022)	Compared to February 2023	Compared to record high (1918-2022)	Notes
Superior	183.26 m	2 cm below	21 cm below	38 cm below	-
Michigan–Huron	176.40 m	9 cm above	1 cm below	84 cm below	-
St. Clair	175.21 m	39 cm above	4 cm above	59 cm below	-
Erie	174.43 m	41 cm above	7 cm above	47 cm below	-
Ontario	74.70 m	8 cm above	6 cm below	57 cm below	-

<sup>a</sup>Water levels are referenced to International Great Lakes (Vertical) Datum 1985 (IGLD85). For more information, please visit International Great Lakes Datum Update – Great Lakes Coordinating Committee at <https://www.greatlakescc.org/en/international-great-lakes-datum-update/>



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This is the time of year when typically only Lake Superior would still be declining under average water supplies, while all the other lakes are expected to be nearing or starting their seasonal rise in water levels.

With water levels remaining above average on some lakes, and the possibility of large storms and winds, low-lying areas are at risk for accelerated coastline erosion and flooding. For current information and forecasts, please refer to the sources listed below.

This year, the Lake Erie – Niagara River ice boom saw the earliest approval for removal in its 60 year history. Read more about it below.

Great Lakes water level information:				
February lake level changes <sup>a</sup>				
Lake	February lake level change	February monthly average change (1918-2022)	Compared to average February change (1918-2022)	Notes
Superior	6 cm decline	5 cm decline	slightly greater than average decline	-
Michigan–Huron	2 cm decline	1 cm decline	slightly greater than average decline	-
St. Clair	22 cm decline	3 cm rise	large decline instead of a rise	sixth largest fall on record
Erie	4 cm decline	2 cm rise	decline instead of a rise	-
Ontario	No change	3 cm rise	less than average rise	-

<sup>a</sup> Lake level changes are based on the differences in levels at the beginning of the months and not the monthly average levels.

Great Lakes water level information:					
Beginning-of-March level <sup>a</sup>					
Lake	Level <sup>a,b</sup>	Compared to March beginning-of-month average (1918–2022)	Compared to March 2023	Compared to record high (1918–2022)	Notes
Superior	183.22 m	3 cm below	24 cm below	40 cm below	-
Michigan–Huron	176.39 m	9 cm above	2 cm below	82 cm below	-
St. Clair	175.16 m	33 cm above	9 cm above	59 cm below	-
Erie	174.40 m	36 cm above	6 cm above	49 cm below	-
Ontario	74.70 m	6 cm above	13 cm below	58 cm below	-

<sup>a</sup> At the beginning of March, all of the Great Lakes were at least 2 cm above their chart datum level. Chart datum is a reference elevation for each lake that provides more information on the depth of water for safe boat navigation on the lakes. For more information, please visit Low Water Datum – Great Lakes Coordinating Committee at <https://www.greatlakescc.org/en/international-great-lakes-datum-update/low-water-datum/>

<sup>b</sup> Water levels are referenced to International Great Lakes (Vertical) Datum 1985 (IGLD85). For more information, please visit International Great Lakes Datum Update – Great Lakes Coordinating Committee at <https://www.greatlakescc.org/en/international-great-lakes-datum-update/>

## Water levels forecast

Lake Superior ended the month just below its average level and is expected to remain near average under typical water supply conditions. If there are very wet water supply conditions, lake levels could move above average, while very dry conditions would result in lake levels moving further below average.

Lake Michigan-Huron is expected to remain above average under either above average or average water supply conditions. Drier than average conditions could result in lake levels falling below average by early spring.

Lake Erie is expected to stay above average under most water supply scenarios, it would take very dry water supply conditions for lake levels to fall below average by early summer.

Lake Ontario water levels are expected to remain near average under typical water supply conditions. Wetter than average water supply conditions may result in the level remaining above average, while drier than average water supply conditions would result in the level moving below average.

For more information on the probable range of water levels, consult <https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data/levelnews-great-lakes-st-lawrence.html#projection>.

For a graphical representation of recent and forecasted water levels on the Great Lakes, refer to <https://www.tides.gc.ca/en/monthly-water-level-bulletin-great-lakes-and-montreal-harbour>.

February basin statistics			
Lake	Precipitation (percentage of LTA) <sup>a,b</sup>	Net basin supply (probability of exceedance) <sup>c,d</sup>	Outflows (percentage of LTA) <sup>a</sup>
Superior	62%	60% (dry)	101%
Michigan-Huron	46%	41% (wet)	123%
Erie	46%	86% (very dry)	118%
Ontario	65%	48% (average)	119%

<sup>a</sup> As a percentage of the long-term average (LTA).  
<sup>b</sup> Environment and Climate Change Canada – Canadian Precipitation Analysis System  
<sup>c</sup> <5% extremely wet; <25% very wet; <45% wet; 45-55% average; >55% dry; >75% very dry; >95% extremely dry.  
<sup>d</sup> Please refer to the LEVELnews “What is net basin supply” (<https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data/levelnews-great-lakes-st-lawrence.html#projection>) for a description of net basin supply.  
**Note:** The figures contained in this report are provisional and are subject to change. Data are calculated from the best available observations at the time of posting.

## Earliest approval for removal of the Lake Erie – Niagara River Ice Boom

Every winter since 1964, the Lake Erie-Niagara River Ice Boom has been installed near the outlet of Lake Erie to reduce the amount of ice entering the Niagara River. The ice boom accelerates the formation of the natural ice arch that forms most winters near the head of the Niagara River and stabilizes the arch once it has formed.

A reduction of ice entering the river reduces the potential for ice jams, which can result in damage to shoreline property and significantly reduce water flow for hydro-electric power production.

Lake Erie’s ice cover has remained minimal during the 2023-2024 winter season with less than one percent of ice cover on Lake Erie at the end of February. Due to the lack of ice cover on Lake Erie and the absence of ice in the Maid-of-the-Mist Pool below Niagara Falls, the removal of the Lake Erie – Niagara River Ice Boom was approved to start on Feb 27<sup>th</sup>, the earliest approval on record. However, because of high winds, the actual removal did not start until March 13th.

Get more information on the ice boom from the annual Operation of the Lake Erie – Niagara River Ice Boom Report that is available from the International Niagara Board of Control’s website here: <https://ijc.org/en/nbc/library/publications>

## Flood Information

With water levels remaining high on some lakes, there is a high risk of flooding. Great Lakes water levels are difficult to predict weeks in advance due to natural variations in weather. To stay informed about Great Lakes water levels and flooding, visit the Ontario flood forecasting and warning program website at <https://www.ontario.ca/flooding>.

Additional information can also be found at <https://www.ijc.org/en/labc>, and <https://ijc.org/en/loslrb>.

## Information on current water levels and marine forecasts

**Monthly levels:** A monthly water level bulletin, produced by Fisheries and Oceans Canada, is available at <https://www.tides.gc.ca/en/monthly-water-level-bulletin-great-lakes-and-montreal-harbour> and click on the link “[Full Monthly Water Level Bulletin for the Great Lakes and Montréal Harbour \(PDF\)](#)”. This publication is intended to complement the information provided by LEVELnews on a monthly basis.

**Daily levels:** Current daily lake-wide average levels of all the Great Lakes are available at <https://lre-wm.usace.army.mil/reports/greatLakes/greatLakesLevelsThisMonth/greatLakesLevelsThisMonth.html>.

The daily average water level is an average taken from a number of gauges across each lake and is a good indicator of the overall lake level when it is changing relatively rapidly due to recent high precipitation.

**Hourly levels:** Hourly lake levels from individual gauge sites can be found at the Government of Canada Great Lakes Water Level Gauging Stations website at <https://canada-preview.adobecqms.net/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data.html>. These levels are useful for determining real-time water levels at a given site, however, it should be noted that they are subject to local, temporary effects on water levels such as wind and waves.

**Marine forecasts:** A link to current Government of Canada marine forecasts for wave heights for each of the Great Lakes can be found at <https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data.html> under the “Wave and wind data heading”. Current marine forecasts for Lakes Superior, Huron, Erie and Ontario are available by clicking on the link of the lake in which you are interested. To view a text bulletin of recent wave height forecasts for all of the Great Lakes, click on the “Text bulletin wave height forecasts for the Great Lakes and St. Lawrence River” link.

### FOR MORE INFORMATION:

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