

## Great Lakes – St. Lawrence River Water Levels

### Lake Superior levels below average while other lakes remain above

During January, the Great Lakes Basin experienced the following:

- Lake Superior’s mean monthly level was below average, while Lakes Michigan-Huron, Erie, and Ontario were above or well above average.
- Slightly above average precipitation amounts throughout the Great Lakes Basin. Very wet water supply conditions in the Lakes Superior, Erie, and Ontario basins, with dry water supply conditions in the Michigan-Huron basin;
- Greater than average decline in Lake Michigan-Huron water levels since January;
- Lake Superior experienced its lowest outflow rate since 2011, while Lake Michigan-Huron experienced its lowest outflow since 2015.

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. Lake Superior water levels are expected to remain below average under typical water supply conditions. Wetter than average conditions could result in Lake Superior levels increasing above average, and drier than typical conditions may result in levels moving further below average. The water levels of Lakes Michigan-Huron and Erie are expected to remain above average under any water supply scenario. Lake Ontario levels are above average and are expected to remain so under average conditions. In the event of wetter than average conditions, Lake Ontario could rise well above average by spring, whereas drier than

Great Lakes Water Level Information				
Lake	February 2022 Monthly Mean Level		Beginning-of-March 2022 Level	
	Compared to Monthly Average (1918–2020)	Compared to January 2021	Compared to Beginning-of-Month Average (1918–2020)	Compared to March 2021
<b>Superior</b>	11 cm below	29 cm below	9 cm below	28 cm below
<b>Michigan–Huron</b>	23 cm above	45 cm below	23 cm above	43 cm below
<b>St. Clair</b>	24 cm above	41 cm below	43 cm above	26 cm below
<b>Erie</b>	40 cm above	15 cm below	45 cm above	5 cm below
<b>Ontario</b>	27 cm above	35 cm above	30 cm above	44 cm above

average conditions could result in lower than average levels.

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

We're conducting a LEVELnews user survey available at <https://eccc.sondage-survey.ca/f/s.aspx?s=17a3b6e7-b9f4-4853-b154-97ec89ce7060&ds=jLJFWXVAYa>.

Completing this short survey will help us tailor future editions to our reader's preferences. We appreciate all input!

### February monthly levels

Lake Superior's monthly mean level was 183.17 m (IGLD85<sup>1</sup>), 11 cm below long-term average (1918-2020) and 29 cm lower than this time last year.

Lake Michigan-Huron's monthly mean level 176.54 m (IGLD85). This was 23 cm above its

February monthly mean water level and 45 cm lower than last year.

Lake Erie had an average monthly water level of 174.42 m (IGLD85), 40 cm above average and 15 cm below last year's level.

Lake Ontario's February monthly mean level was 74.88 m (IGLD85), 27 cm above average and 35 cm higher than the level a year ago.

### Lake level changes

Lake Superior declined by 2 cm in February, close to half its typical February decline of 5 cm.

Lake Michigan-Huron declined by 3 cm, during a month when the lake level generally does not change.

Lake Erie rose by 3 cm, its typical February monthly rise.

Lake Ontario rose by 6 cm, close to double its typical rise of 3 cm.

February Basin Statistics			
Lake	Precipitation (percentage of LTA) <sup>a,b</sup>	Net Basin Supply (Probability of Exceedance) <sup>c</sup>	Outflows (Percentage of LTA) <sup>a</sup>
Great Lakes Basin	110%	-	-
Superior	94%	>22% (very wet)	81%
Michigan-Huron	103%	66% (dry)	104%
Erie (including Lake St. Clair)	125%	12% (very wet)	120%
Ontario	124%	15% (very wet)	123%

<sup>a</sup> As a percentage of the long-term average (LTA) period of record (1918-2020) for the month of January.

<sup>b</sup> United States Army Corps of Engineers (<https://lre-wm.usace.army.mil/reports/greatLakes/greatLakesPrecipitationLastMonth/greatLakesPrecipitationLastMonth.html>)

<sup>c</sup> <5% extremely wet; <25% very wet; <45% wet; 45-55% average; >55% dry; >75% very dry; >95% extremely dry.

**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. Please refer to the February 2022 edition of LEVELnews (<https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data/levelnews-great-lakes-st-lawrence/february-2022.html>) for a description of net basin supply.

<sup>1</sup>Water levels are referenced to International Great Lakes (Vertical) Datum 1985 (IGLD85). For more information, please visit <http://www.greatlakescc.org/wp36/home-2/international-great-lakes-datum-update/>.

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(Note: lake level changes are based on the levels at the beginning of the month and not the monthly average levels.)

### Beginning-of-March lake levels

Lake Superior's beginning-of-March level was 9 cm below average, which is 28 cm lower than last year.

Lake Michigan–Huron's level was 23 cm above average at the beginning of March and 43 cm lower than this time last year.

Lake Erie was 45 cm above average at the beginning of March and 5 cm lower than last year at this time.

Lake Ontario's level at the start of March was 30 cm above average and 44 cm higher than this time last year.

At the beginning of February, all of the Great Lakes except for Lake Superior were at least 53 cm above their chart datum level, while Lake Superior was 4 cm below its chart datum. 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 <http://www.greatlakescc.org/wp36/home-2/international-great-lakes-datum-update/low-water-datum/>.

### Water levels forecast

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.

Lake Superior is currently below its average level and is expected to remain so under average conditions. Drier than average conditions could result in lake levels dropping further below average in the coming months, while wetter than average conditions may result in lake levels moving above average.

The level of Lake Michigan-Huron is currently above average and expected to remain so under average and wetter than average water supply conditions. In the event of drier than average conditions, lake levels could drop below average.

Lake Erie levels are currently well above average and are expected to remain high under average and wetter than average water supply conditions. In the event of dry conditions, lake levels could approach average in the next six months.

Lake Ontario levels are above average and are expected to remain so under typical water supply conditions. Drier than average conditions could result in Lake Ontario levels falling below average, while wetter than average conditions may result in lake levels rising well above average throughout the spring and summer months.

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,

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Completing the survey should only take a few minutes of your time. To participate please visit the LEVELnews User Survey webpage at:

<https://ecc.sondage-survey.ca/f/s.aspx?s=17a3b6e7-b9f4-4853-b154-97ec89ce7060&ds=jLFWXVAYa>

refer to <https://www.tides.gc.ca/en/monthly-water-level-bulletin-great-lakes-and-montreal-harbour>.

### Information on flooding

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/lslbc>, and <https://ijc.org/en/loslrb>.

### Information on current water levels and marine forecasts

**Daily levels:** Current daily lake-wide average levels of all the Great Lakes are available at <https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data.html> by clicking on “Daily water levels for the current month”. 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.adobe.com/net/en/environment-](https://canada-preview.adobe.com/net/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data.html)

[climate-change/services/water-overview/quantity/great-lakes-levels-related-data.html](https://www.canada.ca/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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Boundary Water Issues

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