

Great Lakes – St. Lawrence River Water Levels

Lakes Superior, Michigan-Huron, and Erie start the summer with above average levels

During June, the Great Lakes Basin experienced the following:

- The mean monthly water levels of all of the Great Lakes except Lake Ontario were well above average. The level of Lake Ontario was close to average.
- Lakes Superior, Michigan-Huron, and Ontario received below average precipitation, while Lake Erie received well below average precipitation.
- Lake Superior experienced near average water supply conditions. Lake Michigan-Huron experienced drier than average water supply conditions. Lake Erie experienced much drier than average water supply conditions, while Lake Ontario experienced close to average conditions.
- Lake Superior experienced an average June rise, while Lake Michigan-Huron experienced a lower than average rise. The level of Lake Erie declined during a period when it typically increases. Lake Ontario experience its ninth largest decline for the month of June, tied with 1992 and 2007.

This is the time of year when the water levels of Lakes Superior and Michigan-Huron are typically still rising, and when both Lake Erie and Ontario have peaked and have begun their seasonal decline. Lake Superior water levels are expected to remain above average under typical and wetter than average water supply conditions, while drier than typical conditions may cause levels to drop to below average by late summer or early fall. The water levels of Lakes Michigan-Huron and Erie are expected to remain above or close to average under any water supply scenario. Lake Ontario levels are below average but would move to above average levels under wetter than average conditions. However, average or drier than average

Great Lakes Water Level Information				
Lake	June 2022 Monthly Mean Level		Beginning-of-July 2022 Level	
	Compared to Monthly Average (1918–2020)	Compared to July 2021	Compared to Beginning-of-Month Average (1918–2020)	Compared to July 2021
Superior	12 cm above	2 cm above	11 cm above	2 cm above
Michigan–Huron	24 cm above	12 cm below	23 cm above	16 cm below
St. Clair	35 cm above	7 cm below	34 cm above	19 cm below
Erie	32 cm above	3 cm below	27 cm above	10 cm below
Ontario	7 cm above	42 cm above	2 cm below	32 cm above

conditions could result in continued lower than average levels within the next few months.

With water levels remaining above average in 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.

June monthly levels

Lake Superior's monthly mean level was 183.57 m (IGLD85¹), 12 cm above the long-term average (1918-2021) and 2 cm higher than this time last year.

Lake Michigan-Huron's monthly mean level was 176.81 m (IGLD85). This was 24 cm above its June monthly mean water level and 12 cm lower than last year.

Lake Erie had an average monthly water level of 174.68 m (IGLD85), 32 cm above average and 3 cm below last year's level.

Lake Ontario's June monthly mean level was 75.13 m (IGLD85), 7 cm above average and 42 cm higher than last year.

Lake level changes

Lake Superior rose by 6 cm in June, close to its average monthly rise of 7 cm.

Lake Michigan-Huron rose by 2 cm, a third of its average increase of 6 cm for June.

Lake Erie declined by 3 cm, when it typically increases by 2 cm.

Lake Ontario declined by 11 cm, much more than its typical decline of 1 cm. This is the ninth largest decline on record for June.

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

Beginning-of-July lake levels

Lake Superior was 11 cm above average at the beginning of July, which is 2 cm higher than last year.

Lake Michigan-Huron's level was 23 cm above average at the beginning of July and 16 cm lower than this time last year. This is the lowest level for the beginning of July since 2015.

Lake Erie was 27 cm above average at the beginning of July and 10 cm lower than at this time last year. The last time the month of July started lower than this was in 2016.

Lake Ontario's level at the start of July was 2 cm below average and 32 cm higher than at this time last year.

At the beginning of July, all of the Great Lakes were at least 40 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 <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 the water levels of Lakes Superior and Michigan-Huron are typically still rising, and when both Lake Erie and Ontario have peaked and have begun their seasonal decline.

Lake Superior is currently above its average level and is expected to remain so under average water supply conditions. Drier than average conditions could result in lake levels dropping below average in the coming months, while wetter than average conditions would result in lake levels continuing to be above or well above average.

Lake Michigan-Huron is currently at an above average level and is expected to remain so under all water supply conditions. In the event of drier than average conditions, lake levels could approach average in the next six months.

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

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

June Basin Statistics			
Lake	Precipitation (percentage of LTA) ^{a,b}	Net Basin Supply (Probability of Exceedance) ^c	Outflows (Percentage of LTA) ^a
Great Lakes Basin	81%	-	-
Superior	81%	55% (average)	113%
Michigan-Huron	85%	72% (dry)	111%
Erie (including Lake St. Clair)	60%	83% (very dry)	110%
Ontario	88%	55% (average)	117%

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

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

^c <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.

levels could approach average in the next six months.

Lake Ontario levels are below average and are expected to remain below average under typical or drier than average water supply conditions within next few months. Water levels are expected to move above average under wetter than average water supply conditions.

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>.

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/labc>, 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

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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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