



LEVELnews

Great Lakes – St. Lawrence River Water Levels

Lakes Superior, Michigan-Huron, and Erie continue to stay well above average

All the lakes, apart from Lake Ontario, remain well above average and will continue to be high throughout the fall and early winter. Lake Superior’s level was the tenth highest October level ever recorded, 12 cm below last year’s level and Lake Michigan-Huron experienced its third highest level for the month at 4 cm below last year. The level of Lake Erie was also its third highest for the month of October, 2 cm lower than last year. Lake Ontario was only 8 cm above its average value and 34 cm lower than last year. Both Lakes Michigan-Huron and Erie start November at their third highest levels in the period of record (1918-2019).

Precipitation in October was above average for all the lakes except for Lake Ontario where the total precipitation was slightly below average. The outflow from Lake Michigan-Huron was the second highest October outflow on record and Lake Erie’s outflow was the third highest for the month of October.

At this time of year, all the lakes are continuing their seasonal declines. With average conditions, Lake Superior should remain above average for the next six months. Lakes Michigan-Huron and Erie will remain well above average and could approach record levels early next year if wet conditions prevail. Lake Ontario is expected to stay above average during the fall with average conditions.

Great Lakes Water Level Information				
Lake	October 2020 Monthly Mean Level		Beginning-of-November 2020 Level	
	Compared to Monthly Average (1918–2018)	Compared to One Year Ago	Compared to Beginning-of-Month Average (1918–2018)	Compared to One Year Ago
Superior	24 cm above	12 cm below	23 cm above	13 cm below
Michigan–Huron	80 cm above	4 cm below	81 cm above	6 cm below
St. Clair	73 cm above	3 cm below	74 cm above	9 cm below
Erie	64 cm above	2 cm below	64 cm above	3 cm below
Ontario	8 cm above	34 cm below	7 cm above	40 cm below

With high levels on most of the lakes, any storms and strong winds increase the risk for accelerated shoreline erosion and flooding to occur in low-lying areas. For current information and forecasts, please refer to local sources of information listed below.

October monthly levels

Lake Superior was 24 cm above its October monthly-mean water level and 12 cm lower than its level last year. This year was the tenth highest October level on record, 15 cm lower than the highest in the period of record in 1985.

Lake Michigan–Huron’s monthly-mean level in October was 80 cm above average and 4 cm below last October’s level. This was the third highest October level on record at 25 cm below the previous monthly record value in 1986.

Lake Erie’s monthly-mean level was 64 cm above average at 2 cm below its October 2019 level. This was the third highest October lake level on record 22 cm below the record high in 1986.

Lake Ontario’s October monthly-mean level was 8 cm above average, 34 cm lower than the level from a year ago, and 52 cm below the record high in 1945.

Lake level changes

The level of Lake Superior went down by 7 cm during the month of October, more than double its typical decline of only 3 cm.

Lake Michigan–Huron went down by 8 cm during the month, just a little more than its average decline of 7 cm.

The level of Lake Erie went down by 6 cm in October, less than its typical decline of 9 cm.

Lake Ontario’s decline of 12 cm was close to its average decline of 11 cm.

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

Beginning-of-November lake levels

Lake Superior’s beginning-of-October level was Lake Superior’s beginning-of-November level was 23 cm above average, which is 13 cm lower than last year, and the tenth highest on record.

October Precipitation over the Great Lakes^{1,2}			
Great Lakes Basin	109%	Lake Erie	107%
Lake Superior	108%	(including Lake St. Clair)	
Lake Michigan–Huron	114%	Lake Ontario	96%
October Outflows from the Great Lakes¹			
Lake Superior	110%	Lake Erie	124%
Lake Michigan–Huron	128%	Lake Ontario	118%
¹ As a percentage of the long-term average.			
² US Army Corps of Engineers			
NOTE: These figures are preliminary.			

Lake Michigan–Huron’s beginning-of-November level was 81 cm above average and 6 cm lower than it was last year. This is the third highest in the period of record, with a level that is 25 cm lower than the previous beginning-of-month record for November set in 1986.

Lake Erie was 64 cm above average at the beginning of November and 2 cm lower than the same time last year. This level is the third highest on record, 22 cm behind the record high in 1986.

Lake Ontario’s level at the start of November was 7 cm above average and 40 cm lower than the water level from last year.

At the beginning of November, all of the Great Lakes were at least 44 cm above their chart datum level (chart datum is a reference elevation for each lake in order to provide more information on the depth of water for safe boat navigation on the lakes).

Water levels forecast

At this time of year, all the lakes are continuing their seasonal decline.

The level of Lake Superior is expected to stay well above average if it receives average water supplies throughout the fall and the winter.

Lake Michigan-Huron looks like it will likely remain below record levels with average water supplies, but still much higher than average in the coming months. However, above average water supplies could bring the level back above record levels by the beginning of winter.

With average conditions, Lake Erie would stay well above average throughout the fall, while very wet conditions could result in the levels approaching record levels during the winter.

Lake Ontario would continue the last part of its seasonal decline with average conditions and remain above average throughout the fall and winter.

For more information on the probable range of water levels consult the July 2018 edition of LEVELnews at

<https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data/levelnews-great-lakes-st-lawrence/july-2018.html>

For a graphical representation of recent and forecasted water levels on the Great Lakes, refer to the Canadian Hydrographic Service's Monthly Water Levels Bulletin at:

<https://waterlevels.gc.ca/C&A/bulletin-eng.html>

Fall and winter waves

Watching large waves break on shore can be an awe inspiring site. The fall and winter are seasons that can bring higher waves and storm surge on the Great Lakes. Winds blowing across long open water sections, or fetch, can cause large waves and push water levels up on the downwind side of the lakes.

The largest waves occur on Lake Superior, where wave heights may approach 9 m. The largest storm surge occurs on Lake Erie, with the largest being about 2.5 m. Although waves and storm surge are usually well below these maximums, they can create rapid changes in water levels that all should be aware of when undertaking activities on the shores of the Great Lakes.

In the coming months, the above-average levels of lakes Erie, Michigan–Huron and Superior could increase the potential of erosion of some shorelines, especially steep shorelines made up of silts, sands, gravels and cobbles that are exposed to waves. Although erosion around the Great Lakes can result in significant changes to the shoreline that can impact property and activities around the lakes, it is also a naturally occurring process that helps support shoreline dynamics such as beach building and the natural ecosystem of the Great Lakes.

Do keep in mind that conditions can change quickly along the shores of the lakes and this can lead to dangerous conditions, especially if you are not prepared for them. So be sure to check the local forecasts and always keep a safe distance from the shoreline.

Information on flooding

With water levels so high, the risk of flooding is also high. Great Lakes water levels are hard to predict weeks in advance due to natural variations in weather. To stay informed on Great Lakes water levels and flooding, visit the Ontario flood forecasting and warning program web site at <https://www.ontario.ca/flooding>.

Additional information can also be found at the International Lake Superior Board of Control web site, <https://www.ijc.org/en/lisbc>, and the International Lake Ontario–St. Lawrence River Board web site, <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 on the [Great Lakes water levels and related data](#) 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 change when it is changing relatively rapidly due to the high precipitation recently experienced.

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:

<http://tides.gc.ca/eng/find/region/6>. 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 on the

[Great Lakes water level and related data web page](#) 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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