



# LEVELnews

## Great Lakes – St. Lawrence River Water Levels

### In March two of the Great Lakes were at record high levels

All the Great Lakes remained near or above record highs during March, 2020. Lake Michigan-Huron and Lake Erie both exceeded the record high monthly level for a second month in a row. Lake Superior, which has continued to fluctuate near record-highs, was tied for its second highest level at only 4 cm below its record high for March. Lake Ontario was the fifth highest in the period-of-record (1918-2019). Similarly, the level of Lakes Michigan-Huron and Erie at the start of April was the highest on record and Lake Superior was at its second highest on record while Lake Ontario began April at its seventh highest level on record.

At this time of year, all of the lakes are beginning or continuing their typical seasonal rise going into the summer. Lakes Michigan-Huron and Erie have the highest likelihood to remain above record levels in the next few months, as average conditions would still see record highs throughout the spring and into the summer. If average conditions are experienced, Lake Superior and Lake Ontario would both stay below their record values, but still well above average.

With very high levels on all of the lakes and the possibility of large spring storms and winds, there is a high 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.

Great Lakes Water Level Information				
Lake	March 2020 Monthly Mean Level		Beginning-of-April 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	33 cm above	Same as last year	36 cm above	4 cm above
Michigan–Huron	91 cm above	36 cm above	95 cm above	40 cm above
St. Clair	91 cm above	27 cm above	98 cm above	34 cm above
Erie	86 cm above	30 cm above	90 cm above	33 cm above
Ontario	49 cm above	21 cm above	47 cm above	22 cm above

## March monthly levels

Both Lakes Michigan-Huron and Erie had record high average levels for the month of March in the period-of-record (1918-2019). Lake Superior was tied for the second highest and Lake Ontario was tied for fifth highest.

Lake Superior was 33 cm above its March monthly-mean water level and the same as last year's March level. This was tied for the highest March level on record, 4 cm below the highest level set in 1986.

Lake Michigan-Huron's monthly-mean level in March was 91 cm above average, 36 cm above last March's level. This was the highest March level on record, 10 cm above the 1986 monthly record value.

Lake Erie's monthly-mean level was 86 cm above average, 30 cm above its March 2019 level. This was also the highest March lake level on record, 7 cm above the record high March values of 1986.

Lake Ontario's March monthly-mean level was 49 cm above average and 21 cm higher than a year ago. This was tied for fifth highest March on record, 19 cm below the record high year of 1952.

## Lake level changes

Lake Superior's levels went up by 2 cm in March, while it typically declines by 1 cm.

Lake Michigan-Huron went up by 6 cm during the month of March, a little more than its average rise of 5 cm.

The level of Lake Erie went up by 17 cm, while it typically rises by 13 cm at this time of year.

Lake Ontario went up by 14 cm, which is exactly the average rise for March.

## Beginning-of-April lake levels

Both Lakes Michigan-Huron and Erie started April at record high beginning-of-month levels for any April in the period of record (1918–2018).

Lake Superior's beginning-of-April level was 36 cm above average, which is 4 cm higher than April 2019. This beginning-of-April level is the second highest in the period of record, 2 cm less than the highest beginning-of-month recorded in 1986.

Lake Michigan-Huron's beginning-of-April level was 95 cm above average and 40 cm higher than its level at the same time last year. This is the highest in the period of record, with a level that is 10 cm higher than the previous beginning-of-month record for April set in 1986.

Lake Erie was 90 cm above average at the beginning of April and 33 cm higher than the same time last year. This level is the highest on record at 12 cm more than the previous beginning-of-April record set in 1985.

Lake Ontario's level at the start of April was 47 cm above average, 22 cm higher than the water levels last year and the sixth highest on record. The last time the level was this high at the start of April was in 1998.

## March Precipitation over the Great Lakes<sup>1,2</sup>

Great Lakes Basin	117%	Lake Erie	121%
Lake Superior	102%	(including Lake St. Clair)	
Lake Michigan-Huron	128%	Lake Ontario	94%

## March Outflows from the Great Lakes<sup>1</sup>

Lake Superior	126%	Lake Erie	138%
Lake Michigan-Huron	146%	Lake Ontario	140%

<sup>1</sup> As a percentage of the long-term average.

<sup>2</sup> US Army Corps of Engineers

**NOTE: These figures are preliminary.**

At the beginning of April, all of the Great Lakes were at least 40 cm above their chart datum level (Note: 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

We are at the time of year when all of the lakes are starting or continuing their typical seasonal rise going into the summer.

The level of Lake Superior would be expected to start to rise during the next month if it receives average water supplies staying below record values. However, very wet conditions would see the lake again getting close to those record values.

Lake Michigan-Huron starts the month of April very high, thus it is not surprising that it would stay above record levels with average water supplies. It would take drier than average water supplies to prevent record high levels throughout the spring.

It is a similar situation for Lake Erie, which also starts out April at a record high level. This means that even with average conditions, the lake level would stay above record values for the next couple of months.

Average water supplies would keep Lake Ontario well above average throughout the spring and into the summer, while very dry conditions could see the water levels approach the average by the summer. It would take very wet conditions to once again approach record levels.

For more information on the probable range of water levels consult the April 2019 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>

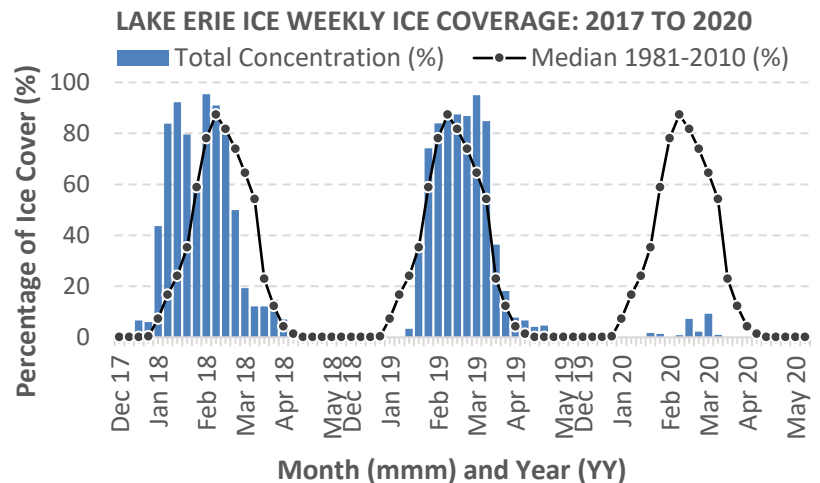
### FOR MORE INFORMATION:

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>

## The 2019-2020 Lake ice season

It was generally a warmer than average winter season for most of the Great Lakes region, with some locations around the Great Lakes experiencing their record warmest winter season. Thus it is not surprising that the amount of ice that was seen on all the Great Lakes was well below average. For instance, Lake Erie, which typically has the highest ice cover (do you know why? – see the answer at the end of this section) had a peak ice cover of 9.2% compared to its median average of 87.3%. Lake Superior, the furthest north of the lakes, has maximum median average of 49.6% while this year it saw a maximum of 14.9% ice cover.

In the accompanying figure, that shows the Lake Erie ice cover over the past three seasons, you can see just how much less ice there was in this past season. This figure uses data from the Canadian Ice Service (<https://iceweb1.cis.ec.gc.ca>).



The lack of ice cover resulted in late winter lake effect snow events off of Lakes Erie and Ontario, when typically these events would be more common in the late fall and early winter. Overall, the generally warmer temperatures resulted in few cold air episodes that resulted in few lake effect snow events throughout the season.

Around the Great Lakes there were many different environmental and economic effects of the low ice cover. With the lack of ice around the shorelines of the lakes, and higher water levels,

wind and waves caused a greater amount of erosion to occur. With lower ice cover recreational activities such as ice fishing and snowmobiling were impacted as well as the businesses that rely on them.

*(Answer to Lake Erie ice cover question - Although Lake Erie is the most southerly lake, because it very shallow, it generally has the highest ice cover of all the Great Lakes)*

### **Information on flooding**

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.

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