



LEVELnews

Great Lakes – St. Lawrence River Water Levels

Dry conditions persist in March throughout most of the Great Lakes Basin

Despite drier than average conditions in March, Lakes Erie and Ontario began their seasonal rise, but at a slower pace than is typical. The water levels of Lake Michigan-Huron continued to fall, while Lake Superior’s levels remained constant.

During the month of March, Lake Superior’s average level was 18 cm above its March average but 15 cm below last year’s level, and Lake Michigan-Huron experienced its 8th highest March level but was 27 cm lower than last year. Lake Michigan-Huron experienced its 7th largest decline on record for the month of March and its 9th highest beginning-of-April level. Lake Ontario was 20 cm below average for the month of March and 69 cm lower than last year.

At this time of year, all of the lakes are typically beginning or continuing their seasonal rise going into the summer. Lake Michigan-Huron, however, is continuing to decline due to drier than average conditions, while Lake Superior had no change in March. Lakes Superior, Michigan-Huron, and Erie are expected to remain well above average under typical water supply conditions. Lake Ontario is expected to remain at below average levels under typical conditions but could increase to above average levels under wet conditions.

Great Lakes Water Level Information				
Lake	March 2021 Monthly Mean Level		Beginning-of-April 2021 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	18 cm above	15 cm below	20 cm above	16 cm below
Michigan–Huron	63 cm above	27 cm below	60 cm above	34 cm below
St. Clair	61 cm above	29 cm below	58 cm above	39 cm below
Erie	48 cm above	37 cm below	44 cm above	45 cm below
Ontario	20 cm below	69 cm below	21 cm below	68 cm below

With water levels remaining very high on some of the lakes and the possibility of large storms and winds during spring months, there remains a high risk for accelerated coastline erosion and flooding to occur in low-lying areas. For current information and forecasts, please refer to local sources of information listed below.

March monthly levels

Lake Superior had a monthly average of 183.42 m (IGLD85¹) for March. This was 18 cm above its March monthly-mean water level and 15 cm lower than its level last year.

Lake Michigan-Huron’s monthly-mean level in March was 176.95 m (IGLD85), 63 cm above average and 27 cm below last March. This was the 8th highest March level on record.

Lake Erie’s monthly-mean level was 174.58 m (IGLD85), 48 cm above average and 37 cm below its March 2020 level.

Lake Ontario’s March monthly-mean level was 74.49 m (IGLD85), 20 cm below average, 69 cm lower than the level from a year ago. This is the lowest March level since 2015.

Lake level changes

The level of Lake Superior did not change during the month of March, although the lake has a typical decline of 1 cm.

Lake Michigan-Huron dropped by 2 cm during the month, this is in contrast to its typical rise of 5 cm. This is the 7th largest decline on record for the month.

The level of Lake Erie increased by 7 cm during the month, half of its average increase of 14 cm.

Lake Ontario increased by 6 cm in March, in a month where it generally rises by 13 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-April lake levels

Lake Superior’s beginning-of-April level was 20 cm above average, which is 16 cm lower than last year.

Lake Michigan–Huron’s beginning-of-April level was 60 cm above average and 34 cm lower than it was last year. This is the 9th highest in the period of record, with a level that is 34 cm lower than the previous beginning-of-month record for April, set in 2020.

Lake Erie was 44 cm above average at the beginning of April and 45 cm lower than the record high last year at this time.

Lake Ontario’s level at the start of April was 21 cm below average and 68 cm lower than the water level from last year.

March Precipitation over the Great Lakes^{1,2}

Great Lakes Basin	68%	Lake Erie	59%
Lake Superior	94%	(including Lake St. Clair)	
Lake Michigan–Huron	64%	Lake Ontario	54%

March Outflows from the Great Lakes¹

Lake Superior	109%	Lake Erie	121%
Lake Michigan–Huron	139%	Lake Ontario	114%

¹ As a percentage of the long-term average.

² US Army Corps of Engineers

NOTE: These figures are preliminary.

At the beginning of April, all of the Great Lakes were at least 24 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. For more information, please visit [Low Water Datum – Great Lakes Coordinating Committee \(greatlakescc.org\)](http://www.greatlakescc.org)).

¹Water 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 <http://www.greatlakescc.org/wp36/home/international-great-lakes-datum-update/>

Water levels forecast

We are at the time of year when all lakes typically would be beginning their seasonal rise under average water supplies.

Lake Superior is likely at the end of its seasonal decline and will begin its seasonal increase. It is expected to stay above average if it receives average water supplies throughout the remainder of the spring. Even with wetter than average conditions, Lake Superior is not expected to reach record breaking levels.

Lake Michigan-Huron will likely remain below record levels with average water supplies, but still much higher than average in the coming months. It is not expected to hit record high levels even with wetter than average conditions.

With average conditions, Lake Erie would stay well above average, but is not expected to hit record levels even in the event of wetter than average conditions.

Lake Ontario water levels have decreased to below average levels. Under average conditions, Lake Ontario is expected to remain below average but could surpass average levels (but not record high levels) in the event of very wet conditions.

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>

The 2020-2021 Lake ice season

There was mix of unseasonably high and low temperatures throughout the Great Lakes basin over the winter months. January experienced some of the highest temperatures on record, while February saw temperatures drop well below average, with March being warmer than

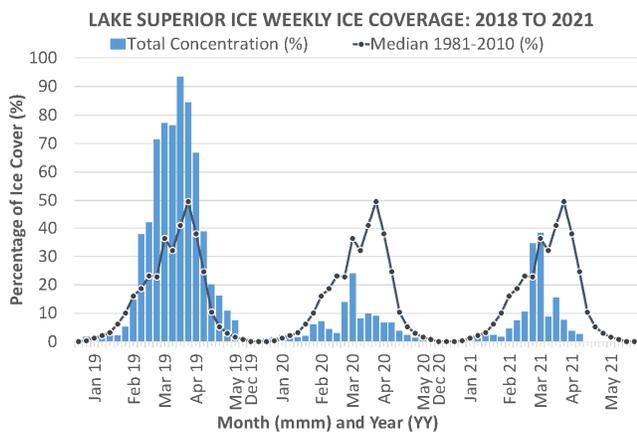
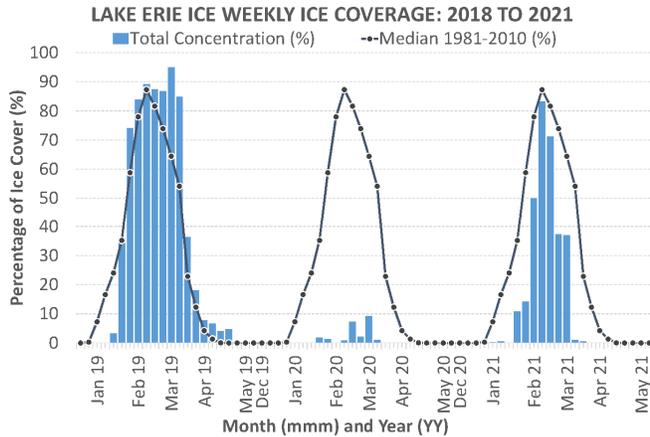
average. As one would expect, these variable weather conditions are reflected in overall below average ice amounts with the cold weather in February bringing about a spike in ice formation over most of the Great Lakes.

Each of the Great Lakes is unique in its typical annual ice coverage. Lake Erie, typically has the highest ice coverage due to its shallow depth and Lake Ontario generally has the lowest ice cover as it is very deep. Lake Ontario's depth allows the lake to retain more heat and resist ice formation throughout the winter months. Lake Superior is the deepest of all the Great Lakes but has a much greater average ice cover due to colder average water temperatures. For example, Lake Erie had a peak ice cover this past season of 95%, Lake Ontario's peak ice coverage was 25%, while Lake Superior had a peak ice cover of 93%.

The accompanying figures demonstrate Lake Erie and Lake Superior's ice cover over the past three seasons, and show how much less ice there was in this past season with the exception of February. This ice season saw comparatively more ice cover than the 2019-2020 season, which had very low ice coverage over all the Great Lakes. This figure uses data from the Canadian Ice Service (<https://iceweb1.cis.ec.gc.ca>).

The lack of ice cover resulted in mid to 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.

Around the Great Lakes, there were many different environmental and economic effects of the low ice cover. With lower ice cover, recreational activities such as ice fishing and snowmobiling were impacted, as well as the businesses that rely on them.



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/page/floods>.

Additional information can also be found at the International Lake Superior Board of Control web site, <https://www.ijc.org/en/lsbc>, 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 at <https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/great-lakes-levels-related-data.html> and 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 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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