



# LEVELnews

## Great Lakes – St. Lawrence River Water Levels

### Two lakes once again at record levels while the others remain above average

All the Great Lakes were above average during May 2020, with both Lakes Michigan-Huron and Erie exceeding their record high monthly level for a fourth month in a row. Lake Michigan-Huron and Lake Erie were 10 cm and 3 cm above their record values, respectively. Lake Superior was at its fourth highest level, 13 cm below its record high for May, while the Lake Ontario level was 33 cm above its average for the period-of-record and 44 cm lower than the record-high level for May set in 2017. (1918-2019).

Both Lakes Michigan-Huron and Erie started June at their highest level on record. Lake Superior was at its fifth highest on record while Lake Ontario began the month 27 cm above average and 55 cm below the record-high set one year ago in June 2019. Precipitation in May was much less than average for both Lake Superior and Lake Ontario and above average for Lakes Michigan-Huron and Erie. The outflow from Lake Michigan-Huron was the highest for any month during the period of record and Lake Erie’s outflow was the highest for the month of May.

| Great Lakes Water Level Information |                                         |                          |                                                    |                          |
|-------------------------------------|-----------------------------------------|--------------------------|----------------------------------------------------|--------------------------|
| Lake                                | May 2020 Monthly Mean Level             |                          | Beginning-of-June 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                            | 27 cm above                             | 13 cm below              | 26 cm above                                        | 15 cm below              |
| Michigan–Huron                      | 89 cm above                             | 21 cm above              | 92 cm above                                        | 18 cm above              |
| St. Clair                           | 84 cm above                             | 9 cm above               | 85 cm above                                        | 8 cm above               |
| Erie                                | 76 cm above                             | 3 cm above               | 79 cm above                                        | 5 cm above               |
| Ontario                             | 33 cm above                             | 34 cm below              | 27 cm above                                        | 55 cm below              |

At this time of year, all of the lakes are generally continuing their typical seasonal rise going into the summer. Lake Michigan-Huron has the highest likelihood to remain above record levels over the next few months, as even average conditions would result in record highs to continue throughout the summer. If average conditions are experienced in the next few months, Lake Superior, Lake Erie, and Lake Ontario would all 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.

(Ever wonder why we refer to Lake Michigan and Lake Huron as one lake? See the explanation below)

### May monthly levels

Lake Superior was 27 cm above its May monthly-mean water level and 13 cm lower than level last year. This was the fourth highest May level on record, 13 cm below the highest level set last year.

Lake Michigan–Huron’s monthly-mean level in May was 89 cm above average, 21 cm above last May’s level. This was the highest May level on record, 10 cm above the 1986 monthly record value.

Lake Erie’s monthly-mean level was 76 cm above average, 3 cm above its May 2019 level. This was also the highest May lake level on record, 3 cm above the record high May value set last year.

Lake Ontario’s May monthly-mean level was 33 cm above average and 34 cm lower than a year ago. This was the thirteenth highest May on record, 44 cm below the record high year of 2017.

### Lake level changes

Lake Superior’s levels went up by 5 cm in May, half of its typical rise of 10 cm.

Lake Michigan–Huron went up by 10 cm during the month of May, a little more than its average rise of 8 cm.

The level of Lake Erie went up by 7 cm in May, this is a little more than the 5 cm we typically see between May and June.

Lake Ontario went down by 3 cm, which is much less than its average rise of 9 cm.

### Beginning-of-June lake levels

Lake Superior’s beginning-of-June level was 26 cm above average, which is 15 cm lower than June 2019. This beginning-of-June level is the fifth highest in the period of record (1918–2018), 15 cm less than the highest beginning-of-month recorded in 1986.

Lake Michigan–Huron’s beginning-of-June level was 92 cm above average and 18 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 13 cm higher than the previous beginning-of-month record for June set in 1986.

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

|                     |      |                            |      |
|---------------------|------|----------------------------|------|
| Great Lakes Basin   | 92%  | Lake Erie                  | 114% |
| Lake Superior       | 51%  | (including Lake St. Clair) |      |
| Lake Michigan–Huron | 113% | Lake Ontario               | 70%  |

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

|                     |      |              |      |
|---------------------|------|--------------|------|
| Lake Superior       | 109% | Lake Erie    | 129% |
| Lake Michigan–Huron | 136% | Lake Ontario | 131% |

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

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

NOTE: These figures are preliminary.

Lake Erie was 79 cm above average at the beginning of June and 5 cm higher than the same time last year. This level is the highest on record at 5 cm more than the previous beginning-of-June record set in 2019.

Lake Ontario's level at the start of June was 27 cm above average, 55 cm lower than the water levels last year. This is the seventeenth highest on record, 55 cm less than last year's record high.

At the beginning of June, all of the Great Lakes were at least 47 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 typically continuing their seasonal rise going into the summer.

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

As Lake Michigan-Huron starts the month of June well above its record high value, it would be expected to stay above record levels throughout the summer with average water supplies.

Although, Lake Erie also starts out June at a record high level, if it experiences average conditions, the lake level would start to go below record values during the month. Nevertheless, it will remain well above average conditions throughout the summer even with very dry conditions.

There are some indications that Lake Ontario may have peaked in May, a number of weeks earlier than its typical peak. Average water supplies would keep Lake Ontario above average throughout the rest of the spring and into the summer, while very dry conditions could see the water levels approach average levels by end of the summer.

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>

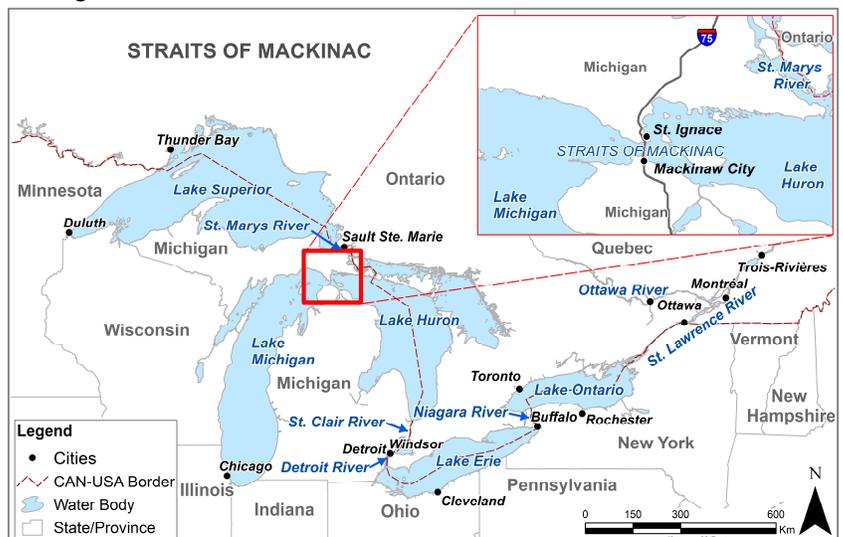
### FOR MORE INFORMATION:

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>

### Why do we call it Lake Michigan-Huron?

When you look at the Great Lakes on most maps, you see labels for both Lake Michigan and Lake Huron. However, when looking at the actual body of water, both of these lakes are really two lobes of the same lake as they are connected by the Straits of Mackinac (see the figure below) and consequently the elevation of their lake surfaces will be the same.



The Straits are large enough (8 km wide and 37 m deep) that enough water can flow through to keep the water level between the two lobes the same. Although in general the flow in the Straits goes towards the east, measurements show that the flow can also be towards the west under certain conditions. Thus, any water level difference on either end of the Straits will be quickly equalized. Note that although the other

lakes are also connected by water bodies, the flow between them occurs in rivers so there is a drop in elevation between lakes and water does not flow back.

This leads to an interesting debate as to which is the largest of the Great Lakes. Lake Superior has the largest surface area of about 82,100 square kilometers when compared to Lake Michigan (57,800 sq. km) and Lake Huron (59,600 sq. km). However, if you consider Lakes Michigan and Huron as one lake, it now not only becomes the largest of the Great Lakes, but also the largest freshwater lake in the world.

Regardless, there is no debate here as this newsletter deals with water levels, so it only makes sense to refer to this body of water as Lake Michigan-Huron.

### **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.

**Frank Seglenieks (Editor)**  
Boundary Water Issues  
National Hydrological Services  
Meteorological Service Canada  
Environment and Climate Change Canada  
Burlington ON L7S 1A1  
Tel.: 905-336-4947  
Email: [ec.levelnews-infoniveau.ec@canada.ca](mailto:ec.levelnews-infoniveau.ec@canada.ca)

**Rob Caldwell**  
Great Lakes–St. Lawrence Regulation Office  
Meteorological Service Canada  
Environment and Climate Change Canada  
111 Water Street East  
Cornwall ON K6H 6S2  
Tel.: 613-938-5864

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