



# LEVELnews

## Great Lakes — St. Lawrence River Water Levels

### Lakes Michigan-Huron and Erie lakes remain at or near record levels

All the Great Lakes remained above average during June 2020, with Lake Michigan-Huron exceeding its record high monthly level for a sixth month in a row, 12 cm higher than the previous record. Lake Superior's level was the seventh highest June level on record, 13 cm lower than its record high and Lake Erie was at its second highest level, 4 cm below last year's record level. Lake Ontario was 23 cm above average and 62 cm below the record level of last year.

Lake Michigan-Huron started July at its highest level on record and Lake Erie was at its second highest. Lake Superior was at its ninth highest on record while Lake Ontario began the month 16 cm above average, but well below its record. Precipitation in June was close to average for both Lake Superior and Lakes Michigan-Huron and below average for Lake Erie and Lake Ontario. The outflow from Lake Michigan-Huron was the highest June outflow during the period of record and Lake Erie's outflow was the second highest for the month of June.

Great Lakes Water Level Information				
Lake	June 2020 Monthly Mean Level		Beginning-of-July 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	25 cm above	14 cm below	24 cm above	12 cm below
Michigan–Huron	89 cm above	13 cm above	88 cm above	10 cm above
St. Clair	83 cm above	3 cm above	85 cm above	Same
Erie	75 cm above	4 cm below	72 cm above	10 cm above
Ontario	23 cm above	62 cm below	16 cm above	68 cm below

Both Lakes Superior and Michigan-Huron typically continue to rise at this time of year while Lakes Erie and Ontario have both typically started their seasonal declines. With average conditions, Lake Superior is expected to remain above average for the next few months while Lake Michigan-Huron would stay above record values for July and fall below them by the end of the summer. Lake Erie would approach record levels only if it experiences wet conditions, while Lake Ontario is expected to stay above average for the rest of the summer.

With high levels on all 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.

### June monthly levels

Lake Superior was 25 cm above its June monthly-mean water level and 14 cm lower than its level last year (which was the highest in the period of record). This year was the seventh highest June level on record.

Lake Michigan-Huron's monthly-mean level in June was 89 cm above average, 13 cm above last June's level. This was the highest June level on record, 12 cm above the previous monthly record value in 1986.

Lake Erie's monthly-mean level was 75 cm above average, 4 cm below its June 2019 level. This was the second highest June lake level on record behind only last year's level.

Lake Ontario's June monthly-mean level was 23 cm above average and 62 cm lower than the record high from a year ago.

### Lake level changes

Lake Superior's levels went up by 6 cm in June, a little less than its typical rise of 8 cm.

Lake Michigan-Huron went up by only 2 cm during the month of June, less than its average rise of 6 cm.

The level of Lake Erie went down by 5 cm in June, while it typically rises by 2 cm between June and July.

Lake Ontario went down by 12 cm, much more than its average decline of only 1 cm.

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

<b>Great Lakes Basin</b>	<b>93%</b>	<b>Lake Erie</b>	<b>68%</b>
<b>Lake Superior</b>	<b>105%</b>	<b>(including Lake St. Clair)</b>	
<b>Lake Michigan-Huron</b>	<b>102%</b>	<b>Lake Ontario</b>	<b>56%</b>

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

<b>Lake Superior</b>	<b>104%</b>	<b>Lake Erie</b>	<b>127%</b>
<b>Lake Michigan-Huron</b>	<b>133%</b>	<b>Lake Ontario</b>	<b>125%</b>

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

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

**NOTE: These figures are preliminary.**

### Beginning-of-July lake levels

Lake Superior's beginning-of-July level was 24 cm above average, which is 12 cm lower than the highest beginning-of-month in the period of record (1918–2018) from last year, and the ninth highest on record.

Lake Michigan-Huron's beginning-of-July level was 88 cm above average and 10 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 July set both last year and in 1986.

Lake Erie was 72 cm above average at the beginning of July and 10 cm lower than the same time last year. This level is the second highest on record behind only last year.

Lake Ontario's level at the start of July was 16 cm above average, 68 cm lower than the record high water levels last year.

At the beginning of July, all of the Great Lakes were at least 53 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 the two most northern lakes typically are still rising and the southern two have started their seasonal decline, for more on when the lakes experience their annual peak see the section below.

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

Lake Michigan-Huron will most likely continue to stay above record levels for the month of July. However, depending on water supplies, the lake may fall back below these records by the end of the summer.

If Lake Erie experiences average conditions, the lake would continue to see levels just below the record levels, but well above average throughout the summer.

Lake Ontario would continue its seasonal decline with average conditions, but still be expected to remain above average going into the fall.

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>

### When do the lake see their highest levels each year?

All of the lakes experience their highest water levels at different times of year, with Lake Ontario typically the first to peak and Lake Superior the last. These differences can be attributed to a combination of colder temperatures to the north delaying the spring snowmelt as well as seasonal differences in precipitation and evaporation.

However, for each lake this peak doesn't always happen during the same month each year. The table below shows the percentage of time that the peak for each lake happens for each month.

Table of percentage of time the peak annual lake level occurs within a specific month during the period of record (1918-2018):

Lakes	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Superior	0%	0%	2%	19%	28%	24%	18%	7%
Michigan-Huron	0%	3%	19%	48%	18%	3%	3%	3%
Erie	7%	22%	35%	29%	4%	0%	1%	0%
Ontario	6%	31%	41%	19%	0%	0%	0%	0%

For example on Lake Michigan-Huron, although the lake most commonly peaks in July, that only happens about half of the time. There is also almost a 20% chance of it happening in June or August and a smaller chance outside of those three months.

So at this time of year when we say that typically Lake Michigan-Huron goes up between June and July, we have to recognize that there is chance the lake may have already peaked. It depends on the weather conditions and the flow between the upstream and downstream lakes in any particular year. Similarly, Lake Erie has typically peaked by this time of the year, but if a series of large storms comes over the basin during the summer, the peak could still come later in the year.

Keep this in mind when we say that a particular lake may have started its seasonal decline, as this is based on the average behaviour of the lakes, it can always be different from what really happens depending on the forces of nature.

### 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/lsrc>, 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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