Environment and Climate Change Canada | Environnement et Changement climatique Canada

Volume 28, Number 5
May 2020

LEVELnews

Great Lakes — St. Lawrence River Water Levels

Great Lakes water levels remain high

All the Great Lakes except for Lake Ontario remained near or above record highs during April 2020. This is despite all of the lakes rising much less than they typically do at this point in the season. Lake Michigan-Huron and Lake Erie both exceeded their record high monthly level for a third month in a row. Lake Superior was at its second highest level, 6 cm below its record high for April, while the Lake Ontario level was the tenth highest in the period-of-record (1918-2019).

Similarly, for the last three months, the level of both Lakes Michigan-Huron and Erie started the month at their highest on record. Lake Superior was at its fourth highest on record while Lake Ontario began May at its eleventh highest level on record.

Although precipitation was only two-thirds of average for Lakes Superior and Erie in April and close to average for Lakes Michigan-Huron and Ontario, the high lake levels have resulted in the flow between the lakes remaining very high. In fact, the average April outflow from Lake Erie was the highest for any month during the period of record. The outflow from Lake Michigan-Huron was tied with November 2019 for its highest outflow on record.

Great Lakes Water Level Information

Lake	April 2020 Monthly Mean Level		Beginning-of-May 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	36 cm above	1 cm above	31 cm above	7 cm below
Michigan–Huron	91 cm above	34 cm above	90 cm above	26 cm above
St. Clair	85 cm above	21 cm above	84 cm above	5 cm above
Erie	81 cm above	22 cm above	77 cm above	8 cm above
Ontario	43 cm above	17 cm above	39 cm above	4 cm below

Canada

At this time of year, all of the lakes are continuing their typical seasonal rise going into the summer. Lakes Michigan-Huron and Erie have the highest likelihood to remain above record levels over the next few months, as average conditions could still see record highs throughout the spring. 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.

April monthly levels

Lake Superior was 31 cm above its April monthly-mean water level and 1 cm higher than level last year. This was the second highest April level on record, 6 cm below the highest level set in 1986.

Lake Michigan–Huron's monthly-mean level in April was 91 cm above average, 34 cm above last April's level. This was the highest April level on record, 10 cm above the 1986 monthly record value.

Lake Erie's monthly-mean level was 81 cm above average, 22 cm above its April 2019 level. This was also the highest April lake level on record, 7 cm above the record high April values of 1985.

Lake Ontario's April monthly-mean level was 61 cm above average and 3 cm higher than a year ago. This was tied for the tenth highest April on record, 33 cm below the record high year of 1973.

Lake level changes

Lake Superior's levels went up by 2 cm in April, less than its typical rise of 7 cm.

Lake Michigan–Huron went up by 6 cm during the month of April, a little more than half its average rise of 11 cm.

The level of Lake Erie was the same in April as it was in March, this is much less than the 13 cm we typically see between these two months.

Lake Ontario went up by 13 cm, which is again much less than its average rise of 21 cm.

Beginning-of-May lake levels

Lake Superior's beginning-of-May level was 31 cm above average, which is 7 cm lower than May 2019. This beginning-of-May level is the fourth highest in the period of record (1918–2018), 12 cm less than the highest beginning-of-month recorded in 1986.

Lake Michigan–Huron's beginning-of-May level was 90 cm above average and 26 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 9 cm higher than the previous beginning-of-month record for May set in 1986.

Lake Erie was 77 cm above average at the beginning of May and 8 cm higher than the same time last year. This level is the highest on record at 8 cm more than the previous beginning-of-May record set last year in 2019.

Lake Ontario's level at the start of May was 39 cm above average, 4 cm lower than the water levels last year. This is the eleventh highest on record, 34 cm less than the record in 1978.

At the beginning of May, all of the Great Lakes were at least 42 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).

April Precipitation over the Great Lakes[1,2]

Great Lakes Basin	**87%**	**Lake Erie (including Lake St. Clair)**	**68%**
Lake Superior	**67%**		
Lake Michigan–Huron	**99%**	**Lake Ontario**	**100%**

April Outflows from the Great Lakes[1]

Lake Superior	**117%**	**Lake Erie**	**137%**
Lake Michigan–Huron	**139%**	**Lake Ontario**	**125%**

[1] As a percentage of the long-term average.
[2] US Army Corps of Engineers
NOTE: These figures are preliminary.

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 May well above its record high value, it is expected to stay above record levels until the start of the summer with average water supplies.

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

Average water supplies would keep Lake Ontario well 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

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/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 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

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

ISSN 1925-5713
Aussi disponible en français