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LEVELnews

Great Lakes — St. Lawrence River Water Levels

Three of Great Lakes start February at record high levels

All the Great Lakes, except for Lake Ontario, are starting February at their highest level for the period of record (1918-2018). Additionally, Lakes Superior and Michigan-Huron had record high average levels for the month of January, while Lake Erie recorded its second highest all-time January level. As for Lake Ontario, it was the fourth highest for both the average January lake level and the beginning-of-February level.

With these high levels as a starting point for February, even if the next few months brought average condtions to the Great Lakes basin, all the lakes but Ontario would stay above their record levels. In particular, Lake Michigan-Huron could stay above its record level all the way into the start of the summer unless we get very dry contions over the next 6 months.

We are now at the time of year when both Lakes Erie and Michigan-Huron have reached their seasonal minimum levels. From this point on, they would be expected to hold steady and then start to rise over the next few months. Typically Lake Superior should continue its seasonal decline for a few more months before starting to rise again, while Lake Ontario will generally start it seasonal rise at this point in the year.

Great Lakes Water Level Information

Lake	January 2020 Monthly Mean Level		Beginning-of-February 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	38 cm above	9 cm above	38 cm above	10 cm above
Michigan–Huron	96 cm above	45 cm above	99 cm above	48 cm above
St. Clair	95 cm above	39 cm above	106 cm above	67 cm above
Erie	79 cm above	17 cm above	89 cm above	29 cm above
Ontario	48 cm above	22 cm above	55 cm above	26 cm above

Canada

With very high levels on all of the lakes and the possibility of large storms and winds during winter months there is 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.

January monthly levels

Lakes Superior and Michigan-Huron had record high average levels for the month of January with Lake Erie at it second highest. As for Lake Ontario, it was the fourth highest average January lake level in the period-of-record (1918-2018).

Lake Superior was 38 cm above its January monthly-mean water level and 9 cm above last year's January level. This is the highest January level on record, 1 cm above the previous highest level seen in 1986.

Lake Michigan–Huron's monthly-mean level in January was 96 cm above average, 45 cm above last January's level. This also puts it at the highest January level, a full 8 cm above the 1987 monthly record value.

Lake Erie's monthly-mean level was 79 cm above average, 17 cm above its January 2018 level. This was the second highest January lake level on record, 6 cm below the record high January value in 1987.

Lake Ontario's January monthly-mean level was 48 cm above average and 22 cm higher than a year ago. This made it the fourth highest January on record, 11 cm below the record high year of 1946.

Lake level changes

Lake Superior's levels went down by 6 cm in January, very close to its typical decline of 7 cm between the beginning of January and February.

Lake Michigan–Huron rose 2 cm during the month of January, while it typically declines by 2 cm.

The level of Lake Erie went up by 23 cm from January to February, while it typically declines 1 cm at this time of year, this represents the fourth largest rise on record for this month.

Lake Ontario went up by 13 cm, a lot more than its average 5 cm rise from January to February.

Beginning-of-February lake levels

All the lakes except for Lake Ontario started February at record high beginning-of-month levels for any February in the period of record (1918–2018).

Lake Superior's beginning-of-February level was 38 cm above average and 10 cm higher than February 2019. This beginning-of-February level is the highest in the period of record, 1 cm more than the highest beginning-of-month recorded in 1986.

January Precipitation over the Great Lakes[1,2]

Great Lakes Basin	**90%**	**Lake Erie**	**112%**
Lake Superior	**90%**	**(including Lake St. Clair)**	
Lake Michigan–Huron	**86%**	**Lake Ontario**	**81%**

January Outflows from the Great Lakes[1]

Lake Superior	**127%**	**Lake Erie**	**136%**
Lake Michigan–Huron	**155%**	**Lake Ontario**	**146%**

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

Lake Michigan–Huron's beginning-of-February level was 99 cm above average and 48 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 15 cm higher than the previous beginning-of-month record for February set in 1987.

Lake Erie was 89 cm above average at the beginning of February and 29 cm higher than the same time last year. This level is the highest on record at 8 cm more than the previous beginning-of-February record set in 1987.

Lake Ontario's level at the start of February was 55 cm above average; 26 cm higher than the water levels last year and the fourth highest on record. The last time the level was this high at the start of February was in 1993 when the level was 1 cm higher.

At the beginning of February, all of the Great Lakes were at least 48 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 only Lakes Superior would typically still be declining under average water supplies, Lake Michigan-Huron and Lake Erie would be generally holding steady, and finally Lake Ontario would be starting to go up.

As mentioned above, the level of Lake Superior is expected to decline during the next few months. However, as the lake is starting out this month at a record high level, an average decline would still see the lake level above record values for the next couple of months and then staying well above average throughout the spring.

Lake Michigan-Huron would stay above record levels with average water supplies, in fact, it would take drier than average water supplies to prevent a record high levels throughout the winter and spring.

It is a similar situation for Lake Erie which also starts out February at a record high level. Again this means that even with average conditions the lake level would stay above record values into the spring season.

Lake Ontario would only see record values with wet conditions for the next few months. But average water supplies would still keep Lake Ontario well above average while very dry conditions would once again put the lake level back towards the average.

For more information on the probable range of water levels consult the February 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/february-2019.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 Llevels Bulletin at: https://waterlevels.gc.ca/C&A/bulletin-eng.html

Major storm hit parts of the Great Lakes in mid-January

The lower Great Lakes region experienced a significant storm starting on January 11th and continuing into the 12th. Coming from Texas, this very wet low-pressure system caused severe weather including tornadoes in the central part of the United States.

For the Great Lakes, it dumped a significant amount of precipitation from central Ontario all the way to Illinois. In Ontario, Toronto set a daily record of 59 mm of rain on the 11th, while the 80 mm in Waterloo was the highest single day's precipitation for January in a region where records go back over 100 years. Many locations in Southern Ontario had more precipitation that day then they would in an average month of January.

Flood messages were issued by many conservation authorities, including the Grand River Conservation Authority, which saw flooding reported in New Hamburg. In Toronto, the southbound lanes of the Don Valley Parkway had to be closed due to the Don River overflowing.

The Dundalk Highlands and other areas northwest of the Greater Toronto Area experienced a heavy amount of freezing rain. Further north in Wiarton, a mix of rain, freezing rain, ice pellets and snow produced a total of 67 mm of precipitation, 43 cm falling as solid precipitation.

Thousands of flights were cancelled at Chicago area airports, as well waves up to 6 m in height caused flooding along the shores of Lake Michigan. Further east, the town of Lapeer in Michigan reported 69 mm of precipitation and many rivers in southern Michigan reported levels above their flood stage closing many roads.

The effects of this storm were seen in the water levels of both Lake Erie and Ontario, with Lake Erie rising 9 cm in the days following the storm while Lake Ontario gained 6 cm.

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.

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