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LEVELnews

Great Lakes — St. Lawrence River Water Levels

Dryer-than-average conditions for all Great Lakes in June

The combination of water supplies (or inflows) and outflows resulted in dryer-than-average conditions for all the Great Lakes in June. However, all lake levels remained above average, with Lakes Michigan–Huron and Erie being the highest they have been since 1997 at this time of year, while both Lakes Superior and Ontario had lower levels than seen the same time last year. Water levels in the St. Lawrence River were above average due to above-average outflow from Lake Ontario offsetting declining outflow from the Ottawa River.

Lake level changes

Dryer-than-average June conditions resulted in levels of Lakes Superior and Michigan–Huron rising less than average, Lake Erie's level falling when on average it rises and Lake Ontario's level falling much more than average for this time of year. Lake Superior's near average water supplies combined with above average outflows resulted in continued dry conditions for the fourth month in a row, with its level rising 6 cm through the month of June when on average (1918–2017) it rises 8 cm. Lake Michigan–Huron also received near average water supplies but with higher than average outflows rose 4 cm through June, slightly less than its average rise of 5 cm. Lake

Great Lakes Water Level Information

Lake	June 2018 Monthly Mean Level		Beginning-of-July 2018 Level	
	Compared to Monthly Average (1918–2017)	Compared to One Year Ago	Compared to Beginning-of-Month Average (1918–2017)	Compared to One Year Ago
Superior	11 cm above	11 cm below	11 cm above	14 cm below
Michigan–Huron	43 cm above	10 cm above	45 cm above	4 cm above
St. Clair	54 cm above	8 cm above	56 cm above	7 cm above
Erie	55 cm above	6 cm above	54 cm above	8 cm above
Ontario	17 cm above	59 cm below	11 cm above	62 cm below

Canada

Erie's water supplies were above average, but the higher than average outflow from the lake resulted in its levels dropping 2 cm when on average it rises 1 cm in June. Above average water supplies to Lake Ontario were more than offset by above average outflows resulting in its level falling 10 cm, ten times its average 1cm fall for the month, and the 10th largest June fall on record for the lake.

June monthly lake levels

All the Great Lakes had above average monthly mean water levels in June, but all were also closer to average than they were last month. Lake Erie continued to be the highest above average of the Great Lakes and Lake Superior continued to be the closest to average. Lake Superior was 11 cm above its period-of-record (1918–2017) June monthly mean water level and 11 cm below its value in June 2017. Lake Michigan–Huron's monthly mean level in June was 43 cm above average, 10 cm higher than last June's level and the highest it has been since 1997. Lake Erie's monthly mean level was 55 cm above average, 6 cm above the level of the previous June and the highest it has been since 1997. Lake Ontario's June monthly mean level was 17 cm above average, but 59 cm lower than June 2017 when the highest recorded mean monthly level of all months was reached since reliable records began in 1918.

Beginning-of-July lake levels

Lakes Michigan–Huron and Erie both had beginning-of-July levels higher than those of last year, but had moved closer to average values than at the beginning of June. Lakes Superior and Ontario both had levels lower than those of last July. Lake Superior's beginning-of-July level was 11 cm above average (1918–2017), but 14 cm below the level at this time last year. Lake Michigan–Huron's beginning-of-July level was 45 cm above average, 4 cm higher than last year and the highest it has been at this time of year since 1997. Lake Erie was 54 cm above average at the beginning of July and 8 cm higher than its level this time last year. Lake Erie was the highest it has been since 1997 but the gap between its level and the record high set for July in 1986 widened to 16 cm compared to it being only 8 cm below its June record last month. Lake Ontario's level at the start of July was 11 cm above average but 62 cm lower than last year when the lake set a record high beginning-of-July level. At the beginning of July, all of the lakes were at least 40 cm above their chart datum level.

Lake level forecasting

Predicting future lake levels can be a benefit for many that live around and use the Great Lakes. In order to estimate where lake levels may be in a few months, water resources engineers look to measurements of the Great Lakes made in the past. Based on the record of Great Lakes levels (1918–Present), changes to lake levels can be predicted for a range of wet and dry conditions. If you look at the water levels graphs in the

June Precipitation over the Great Lakes[1,2]

Great Lakes Basin	**85%**	**Lake Erie**	**99%**
Lake Superior	**99%**	**(including Lake St. Clair)**	
Lake Michigan–Huron	**72%**	**Lake Ontario**	**84%**

June Outflows from the Great Lakes[1]

Lake Superior	**117%**	**Lake Erie**	**118%**
Lake Michigan–Huron	**113%**	**Lake Ontario**	**122%**

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

Canadian Hydrographic Service's monthly water levels bulletin at: http://tides-marees.gc.ca/C&A/bulletin-eng.html you will note a "Probable Range of Future Levels" depicted by dashed lines. The red dashed line is a prediction of water levels if relatively wet conditions are encountered and lake levels are expected to be above these values 5% of the time. The blue dashed line is a prediction of lake levels if relatively dry conditions are encountered and lake levels are expected to be below these values 5% of the time. The levels between these two lines is the "Probable Range of Future Levels",and based on the recorded history of the lakes, is the range that we would expect lake levels to be in 90% of the time.

Water levels forecast

Both Lakes Superior and Michigan–Huron are expected to rise through the month of July relative to their beginning-of-month levels, and assuming average water supply conditions, while Lake Erie and Ontario are expected to continue their seasonal decline. Based on past conditions on the lakes (1918–2017), and their beginning-of-July water levels, all the Great Lakes are likely to remain above average through the summer. Lakes Michigan–Huron and Erie are expected to stay above average even if very dry conditions are encountered, with the probable range of future levels for Lake Michigan–Huron being between 27 cm and 53 cm above average and Lake Erie's range being between 26 cm and 59 cm above average through to September. Levels of Lakes Superior and Ontario could fall below average before the end of summer if very dry conditions occur. Lake Superior's probable range of future levels is estimated to be between 4 cm below average to 22 cm above average and Lake Ontario's is estimated to be between 12 cm below average to 30 cm above average. Even if very wet conditions are encountered, it is unlikely that any of the lakes will hit their record high levels this summer. Everyone around the Great Lakes should remain prepared for higher water levels, however all the lakes in the coming months will likely begin their seasonal declines typical for the late summer and fall period. 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: http://tides-marees.gc.ca/C&A/bulletin-eng.html.

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