



# LEVELnews

## Great Lakes – St. Lawrence River Water Levels

### All Great Lakes above average levels

Above-average water supplies to all the Great Lakes left all the lakes with above average November monthly mean and beginning-of-December levels. Levels of all the lakes on average decline through the month of November, but only Lake Superior’s level fell slightly more than average. Lake Michigan–Huron’s level fell less than average, and both lakes Erie and Ontario rose. At the beginning of December, lakes

Superior, Michigan–Huron and Erie all had levels that have not been higher since the mid-1980’s. Water levels in the lower St. Lawrence River were also above average as Lake Ontario and Ottawa River outflows remained above average.

#### November monthly lake levels

All the Great Lakes had above average monthly mean water

levels in November. Lake Erie was the highest above average, while Lake Ontario was the closest to average for the month. Lake Superior was 29 cm above its period-of-record (1918–2017) November monthly mean water level, only 2 cm below its value in November 2017 and tied for the 5<sup>th</sup> highest November level on record. Lake Michigan–Huron’s monthly mean level in November was 48 cm above

Great Lakes Water Level Information				
Lake	November 2018 Monthly Mean Level		Beginning-of-December 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	29 cm above	2 cm below	28 cm above	Same
Michigan–Huron	48 cm above	1 cm above	49 cm above	2 cm above
St. Clair	59 cm above	6 cm above	65 cm above	10 cm above
Erie	58 cm above	12 cm above	62 cm above	11 cm above
Ontario	8 cm above	24 cm below	14 cm above	17 cm below

average, 1 cm above last November's level and the highest it has been since 1997. Lake Erie's monthly mean level was 58 cm above average and

12 cm above the level of the previous November. Lake Erie's November level was tied for 3<sup>rd</sup> highest on record and the highest it has been for the month since 1986. Lake Ontario's November monthly mean level was 8 cm above average but 24 cm lower than November 2017.

### Lake level changes

All the lakes had above average water supplies for November, but the combination of above average outflows and seasonally high evaporation rates resulted in variable level changes over the month. High water supplies in Lake Superior were offset by above-average outflows and the seasonally higher evaporation rates, resulting in its levels falling by 6 cm, slightly more than its average fall of 5 cm. Lake Michigan–Huron's above average water supplies were only partially offset by the above average outflows and evaporation for the month, resulting in its level falling 4 cm over November, when on average it falls by 5 cm. Lake Erie's high water supplies resulted in its level rising 7 cm, the 8<sup>th</sup> highest November rise on record, when its average fall is 4 cm. Lake Ontario had its

4<sup>th</sup> highest November rise on record, rising 9 cm over the month, when its average fall is 4 cm.

### Beginning-of-December lake levels

All the Great Lakes beginning-of-December levels were at least 14 cm above average and all lakes, except Lake Ontario, were at or above levels seen at the beginning of December 2017. Lake Superior's beginning-of-December level was 28 cm above average (1918–2017), and the same level seen at the same time in 2017. Higher beginning-of-December levels have been seen in only four other years on Lake Superior since 1918, with the most recent higher level in 1985. Lake Michigan–Huron's beginning-of-December level was 49 cm above average, 2 cm higher than its level at the same time last year and the highest it has been since 1986. Lake Erie was 62 cm above average at the beginning of December and 11 cm higher than the same

time last year. Lake Erie's beginning-of-December levels have only been higher in two other years since 1918, the most recent in 1986. Lake Ontario's level at the start of December was 14 cm above average but 17 cm lower than the water levels last year. At the beginning of December, all of the lakes were at least 47 cm above their chart datum level.

### Winter Lake Evaporation

Lake evaporation, or the process of water moving from the lakes into the atmosphere as the lake water is cooled, is a complex process that contributes, along with precipitation, inflow and outflow, to level fluctuations of the Great Lakes. Evaporation from the Great Lakes generally peaks in the fall to early winter months, when the air temperature above the lakes drops, but the water remains relatively warmer and ice free. The rate of evaporation from the lakes is dependent on a number of factors

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

Great Lakes Basin	93%	Lake Erie	122%
Lake Superior	72%	(including Lake St. Clair)	
Lake Michigan–Huron	84%	Lake Ontario	131%

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

Lake Superior	135%	Lake Erie	122%
Lake Michigan–Huron	116%	Lake Ontario	117%

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

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

**NOTE:** These figures are preliminary.

including wind speed, air temperature, water temperature and ice cover. Significant evaporation occurs when dry cold air blows over warmer lake water; conditions encountered when air temperatures drop rapidly from above- to below-freezing. When air temperatures drop quickly, and the lake is ice free, watch for the mist above the surface of the lake as evidence that evaporation is occurring.

### **Water levels forecast**

Relative to their beginning-of-December levels and

assuming average water supply conditions, lakes Superior, Michigan–Huron and Erie fall through the month of December while Lake Ontario levels rise on average. 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](https://waterlevels.gc.ca/C&A/bulletin-eng.html) at: <https://waterlevels.gc.ca/C&A/bulletin-eng.html>.

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