



LEVELnews

Great Lakes – St. Lawrence River Water Levels

All Great Lakes at or above average levels in October

Continued above-average water supplies to all the Great Lakes resulted in all lake levels at or above average by the end of October. The October monthly mean levels ranged from 1 cm to 50 cm above their period-of-record monthly averages (1918–2017), and beginning-of-November levels ranging from the same to 52 cm above their period-of-record averages. However only Lake Erie had a beginning-of-November level above its level at the same time in 2017.

Montreal Harbour levels

generally trended upward and remained above average as Lake Ontario flows varied and Ottawa River flows rose, then stabilized. However, levels at Montreal dipped below average over the first two weekends of October following Lake Ontario outflow decreases, which raised water levels in Lake St. Lawrence upstream, to aid boat haul out for the winter.

October monthly lake levels

All the Great Lakes had above average monthly mean water

levels in October. Lake Erie continued to be well above average and the most above average of the Great Lakes, Lake Ontario continued to be the closest to average for the month of October, but after falling below average in September was back above average for the month of October. Lake Superior was 26 cm above its period-of-record (1918–2017) October monthly mean water level, only 4 cm below its value in October 2017 and tied for the 7th highest October level on record. Lake

Great Lakes Water Level Information				
Lake	October 2018 Monthly Mean Level		Beginning-of-November 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	26 cm above	4 cm below	29 cm above	4 cm below
Michigan–Huron	46 cm above	3 cm above	46 cm above	2 cm below
St. Clair	52 cm above	6 cm above	57 cm above	14 cm above
Erie	50 cm above	9 cm above	52 cm above	15 cm above
Ontario	1 cm above	24 cm below	Same	25 cm below

Michigan–Huron’s monthly mean level in October was 46 cm above average, 3 cm above last October’s level and the highest it has been since 1997. Lake Erie’s monthly mean level was 50 cm above average and 9 cm above the level of the previous October. Lake Erie’s October level was tied for 3rd highest on record and the highest it has been for the month since 1997. Lake Ontario’s October monthly mean level was 1 cm above average but 24 cm lower than October 2017.

Lake level changes

Above average water supplies across the Great Lakes for October, due to above average precipitation, contributed to keeping all lake levels higher than average level changes would have left them at the end of the month. Very high water supplies in Lake Superior where not offset by higher than average outflows and the seasonally higher evaporation rates, resulting in its levels rising by 8 cm, the second highest October rise on record (1918–2017), when on average it falls 4 cm. Lake Michigan–Huron experienced above average water supplies that were not completely offset by the above average outflows for the month, resulting in its level falling 2 cm over October when on average it falls by 7 cm. Lake Erie’s level also fell less than average, falling 7 cm when

its average fall is 9 cm during the month. Inflow to Lake Ontario was above average in October, which it has been for the last 25 consecutive months. The above average inflow along with higher than average precipitation contributed to above average water supplies to the lake which also were not offset by above average outflows resulting in its level falling only 7 cm, compared to its average fall of 14 cm.

Beginning-of-November lake levels

All the Great Lakes beginning-of-November levels were at or above average but only Lake Erie was above its level seen at the beginning of November 2017. Lake Superior’s beginning-of-November level was 29 cm above average (1918–2017), but only 4 cm below the level at the same time in 2017. Beginning-of-November levels have only been higher in 4 other years on Lake Superior since 1918. Lake Michigan–Huron’s beginning-of-

November level was 46 cm above average, and only 2 cm below its level at the same time last year. Lake Erie was 52 cm above average at the beginning of November, 15 cm higher than the same time last year and has only been higher in one year (1986) since 1918. Lake Ontario’s level at the start of November was at average and 25 cm lower than the water levels last year. At the beginning of November, all of the lakes were at least 37 cm above their chart datum level.

Fall and winter waves

Watching large waves break on shore can be an awe inspiring and beautiful site. The fall and winter are seasons that can bring higher waves and storm surge on the Great Lakes. Winds blowing across long open water sections, or fetch, can cause large waves and push water levels up on the downwind side of the lakes. The largest waves occur on Lake Superior, where the largest may

October Precipitation over the Great Lakes^{1,2}			
Great Lakes Basin	141%	Lake Erie	116%
Lake Superior	147%	(including Lake St. Clair)	
Lake Michigan–Huron	153%	Lake Ontario	109%
October Outflows from the Great Lakes¹			
Lake Superior	118%	Lake Erie	118%
Lake Michigan–Huron	115%	Lake Ontario	112%
¹ As a percentage of the long-term October average.			
² US Army Corps of Engineers			
NOTE: These figures are preliminary.			

approach 9 m, and the largest storm surge occurs on Lake Erie, with the largest being about 2.5 m. Although waves and storm surge are usually well below these maximums, they can create rapid changes in water levels that all should be aware of when undertaking activities on the shores of the Great Lakes. As well in the coming months, the above-average levels of lakes Erie, Michigan–Huron and Superior could increase the potential of erosion of some shorelines, especially steep shorelines exposed to waves that are made up of

silts, sands, gravels and cobbles. Although erosion around the Great Lakes can result in significant changes to the shoreline that can impact property and activities around the lakes, it is also a naturally occurring process that helps support the ecosystem of the Great Lakes.

Water levels forecast

Relative to their beginning-of-November levels and assuming average water supply conditions, lakes Superior, Michigan–Huron and Erie fall through the month of November while Lake Ontario is expected to stay steady. 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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