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LEVELnews

Great Lakes — St. Lawrence River Water Levels

Above average water supplies continue

Above-average water supplies to all the Great Lakes in December continued a general trend that has been occurring across the Great Lakes basin since January 2013. The 14 year period prior to 2013 (1999 to 2012) saw all of the Great Lakes at or below average for much of this time. Lake Michigan–Huron set its period-of-record (1918-2018) monthly mean low level in January 2013 and all the Great Lakes were at least 17 cm below their January-monthly-mean level in 2013. However, since January 2013, generally above average water supplies to the Great Lakes basin, due mainly to above average precipitation, have left all of the lakes at least 20 cm above average levels to start 2019.

December monthly lake levels

All the Great Lakes had above average monthly mean water levels in December. Lake Erie was the highest above average while Lake Ontario was the closest to average for the month. Lake Superior was 27 cm above its period-of-record (1918–2017) December monthly mean water level, 5 cm below its value in December 2017 and tied for the 6th highest December level on record. Lake Michigan–Huron's monthly mean level in December was 50 cm above average, 4 cm above last December's level, the 10th highest December

Great Lakes Water Level Information

Lake	December 2018 Monthly Mean Level		Beginning-of-January 2019 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	27 cm above	5 cm below	29 cm above	5 cm below
Michigan–Huron	50 cm above	4 cm above	52 cm above	8 cm above
St. Clair	56 cm above	11 cm above	61 cm above	12 cm above
Erie	60 cm above	15 cm above	62 cm above	20 cm above
Ontario	20 cm above	5 cm below	24 cm above	2 cm above

Canada

mean level on record and the highest it has been since 1986. Lake Erie's monthly mean level was 60 cm above average, 15 cm above the level of the previous December, the 4th highest December mean level on record and the highest it has been for the month since 1986. Lake Ontario's December monthly mean level was 20 cm above average but 5 cm lower than December 2017. Water levels in the St. Lawrence River at Montreal were 30 cm above their December monthly average (1967-2017), and daily values ranged from 5 cm below to 70 cm above the monthly average.

Lake level changes

Above average water supplies to the lakes for December with 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 almost offset by above-average outflows and the seasonally higher evaporation rates, resulting in its levels falling by 7 cm, slightly less than the average fall of 8 cm. Lake Michigan–Huron's above average water supplies were not completely offset by the above average outflows and evaporation for the month, resulting in its level falling 2 cm over December when on average it falls by 5 cm. After a very high rise in levels last month, Lake Erie's high water supplies were offset by outflow and evaporation, resulting in its level rising the average 1 cm over December. Lake Ontario followed its high rise last month with another high rise over December of 11 cm, significantly more than its average rise of 1 cm, and the 13th highest December rise on record.

Beginning-of-January lake levels

All the Great Lakes beginning-of-January levels were at least 24 cm above average and all lakes, except Lake Superior, were at or above levels seen at the beginning of January 2018. Lake Superior's beginning-of-January level was 29 cm above average (1918–2017), but 5 cm below its level in January 2018. Higher beginning-of-January levels have been seen in only three other years on Lake Superior since 1918, but its beginning-of-month level was still 11 cm below the record set in 1986. Lake Michigan–Huron's beginning-of-January level was 52 cm above average, 8 cm higher than its level at the same time last year. Lake Michigan–Huron is the highest it has been since 1987 but is still 40 cm below its record high. Lake Erie was 62 cm above average at the beginning of January and 20 cm higher than the same time last year. Lake Erie has only been higher in three years since 1918 and is the highest it has been since 1987 but is still 27 cm below its record high. Lake Ontario's level at the start of January was 24 cm above average and 2 cm higher than the water levels last year. At the beginning of January, all of the lakes were at least 45 cm above their chart datum level.

Ice conditions on lakes

The ice cover on the Great Lakes was below average to begin January 2019. The Great Lakes basin on average has about 16% ice

December Precipitation over the Great Lakes[1,2]

Great Lakes Basin	**83%**	**Lake Erie (including Lake St. Clair)**	**90%**
Lake Superior	**64%**		
Lake Michigan–Huron	**83%**	**Lake Ontario**	**101%**

December Outflows from the Great Lakes[1]

Lake Superior	**112%**	**Lake Erie**	**121%**
Lake Michigan–Huron	**116%**	**Lake Ontario**	**124%**

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

cover on its lakes for of the week of January 15 but this year had only a little bit more than 10% cover. More information on Great Lakes ice conditions can be found on the Canadian Ice Service Great Lakes web site at: https://iceweb1.cis.ec.gc.ca/Prod/page2.xhtml?CanID=11080&lang=en&title=Great+Lakes. With below average ice conditions and colder winter temperatures the potential for above average evaporation in coming months is possible.

Water levels forecast

Relative to their beginning-of-January levels and with average water supply conditions, levels of lakes Superior, Michigan–Huron and Erie fall through the month of January and Lake Ontario rises. Based on past conditions on the lakes (1918–2017), all the Great Lakes are likely to remain above average into the spring. Lakes Superior, Michigan–Huron and Erie are expected to stay above average for the next four months, even if very dry conditions are encountered. The probable range of future levels looking forward to April for Lake Superior are between 16 cm and 34 cm above average, for Lake Michigan–Huron are between 35 cm and 62 cm above average and for Lake Erie are between 27 cm and 77 cm above average. Levels of Lake Ontario could fall below average by March, if dry conditions occur. Lake Ontario is estimated to be between 12 cm below average to 57 cm above average by April. For more information on how the probable range of water levels is forecasted see the July 2018 edition of LEVELnews. 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.

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