LEVEL news

Great Lakes - St. Lawrence River Water Levels

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February Brings Two Significant Warm-Weather Episodes

Levels on Lower Lakes Rise in Response to Rain and Runoff

February weather conditions over much of Ontario were dominated by two episodes of exceptionally warm weather followed by more seasonal temperatures. Water levels on Lakes St. Clair, Erie and Ontario increased during the month in response to the associated rain and runoff.

The first episode was on the 8th and 9th from Windsor to the eastern end of Lake Ontario, and only on the 9th elsewhere in the Province. Temperatures at Windsor hit 9°C on the 8th and 12°C on the 9th. On the 9th, the warm air extended a little to the north of Lake Nipissing. Temperatures hit 5°C at North Bay; however, they stayed below the freezing mark at Sudbury. To the east, Ottawa hit 7°C on both the 9th and early on the 10th. Temperatures, however, fell rapidly to well below zero as a cold front moved across the Province. Rainfall amounts were fairly substantial, anywhere from 10 to 40 mm. Several areas also had a good snowfall before the warm air made its way in. Snowfall amounts of 20 to 25 cm were common along the north shore of Lake Ontario on the 8th. Most of that snow melted in the rain and warm temperatures that followed. This warm spell also melted any snow that was on the ground in the western Lake Erie area.

The second episode occurred on the 24th and 25th of the month. The warm weather extended somewhat farther north and west. Timmins managed to hit 4°C, and had five hours of rain with snow and freezing rain shortly beforehand, and snow directly afterward. Sault Ste. Marie also hit 4°C, and Chapleau got up to 3°C. At the Sault, the rain lasted for almost ten hours and was preceded and followed by freezing rain and snow. In the south it was somewhat warmer, but preceded by some significant freezing rain during the evening of the 24th and the morning of the 25th. Temperatures hit double digits at many locations on the 25th. Highs of 11.3°C at Windsor, 13.1°C at Mount Hope, 13.8°C at Pearson Airport and 14.4°C at St. Catharines we reported. Even Wiarton and Muskoka reached 9°C. The 1 or 2 cm of snow that was still on the ground at the eastern end of Lake Erie finally disappeared on the 25th.

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Please be Cautious

Although the shore ice that extends along much of the Great Lakes shoreline can be an awe inspiring site, readers are reminded that walking out on this ice can pose a significant danger. Although the ice the may look solid, and in fact may be fairly thick, large voids and eroded pockets may exist, particularly near the water's edge. Large areas may collapse under your weight or due to wave activity causing you to fall into freezing cold water with a limited chance of rescue. Please resist the temptation to venture too far out on the icy shores of the Great Lakes.

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Water Level Response

Water levels on the lakes responded to the warm weather episodes to varying degrees. Lake Superior water levels were relatively unaffected by the first episode, but did increase slightly after the second one. Lake Michigan-Huron levels increased slightly after both. As a result, Lake Superior began March about 4 cm lower than it was at the beginning of February. Lake Michigan-Huron levels began March about 4 cm high than it was one month earlier. At the beginning of March, Lakes Superior and Michigan-Huron were about 35 and 53 cm below their long-term averages, respectively.

The rain, melting snow and frozen ground all contributed to increased runoff to Lakes St. Clair, Erie and Ontario.

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February Precipitation Over the Great Lakes

As a percentage of the long-term February average:

Great Lakes Basin	**136%**	**Lake Erie (including Lake St. Clair)**	**108%**
Lake Superior	**133%**		
Lakes Michigan-Huron	**157%**	**Lake Ontario**	**111%**

NOTE: These figures are preliminary

Lake St. Clair showed the strongest response. The lake rose by 27 cm from the 8th to the 10th. By the 23rd, however, the lake's level had fallen by 24 cm returning the lake to near pre-event conditions. Lakes Erie and Ontario levels responded more gradually, increasing by 11 and 8 cm, respectively, during the week following the event. The lower lakes did not respond as significantly to the second warm-weather episode. The earlier loss of snow cover combined with evaporation caused by the strong, warm winds likely limited runoff.

Overall, daily water levels on Lakes St. Clair, Erie and Ontario rose 12, 14 and 10 cm, respectively, from the beginning to the end of February. At the beginning of March, the three lakes were 9, 11 and 1 cm below average, respectively.

Snow Cover

At the beginning of March, there were still a few places in southern Ontario with some significant snow still on the ground. London had a trace, Sarnia had 2 cm and Waterloo had 4 cm of snow. Locations with higher values were Wiarton with 16 cm, Peterborough with 20 cm, Cornwall with 22 cm, Mount Forest with 36 cm, Huntsville with 45 cm, Muskoka with 49 cm and Shanty Bay with 73 cm. Further north, North Bay had 89 cm, Sudbury had 39 cm, Thunder Bay had 52 cm and Sault Ste. Marie had 70 cm of snow on the ground.

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February Outflows From the Great Lakes

As a percentage of the long-term February average:

Lake Superior	**80%**	**Lake Erie**	**96%**
Lake Huron	**94%**	**Lake Ontario**	**93%**

NOTE: These figures are preliminary