



# OUTLOOK FOR BREAK-UP OF ICE ON THE ST.LAWRENCE SEAWAY & LAKE ERIE ISSUED BY THE CANADIAN ICE SERVICE

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## CURRENT CONDITIONS

Average temperatures over Lake Erie, Lake Ontario, and the Seaway have been well above normal values consistently since December. Other than the last half of November there have been few time periods with significantly below normal temperatures.

Temperatures have been especially higher than normal in January. The table below indicates the departure from normal temperatures at specific locations, on a bi-weekly basis, for the period from mid-November to the end of January:

	November 16-30	December		January		16 Nov. – 31 Jan
		01-15	16-31	01-15	16-31	
Montreal	-1.7 °C	+0.9°C	+2.7°C	+5.8°C	+3.3°C	+2.3°C
Kingston	-1.1°C	-0.2°C	+2.5°C	+6.3°C	+2.3°C	+1.9°C
Windsor	-0.4°C	-0.1°C	-0.5°C	+5.7°C	+3.3°C	+2.7°C

Table 1: Departure from normal temperatures

Unlike the previous two years, unusually cold temperatures in mid-November did not see early development of ice across the southern Great Lakes (Erie and Ontario). The first ice seen in the southern Lakes was in the Bay of Quinte in the second week of December. Some bays in eastern Lake Ontario saw some coastal ice form. After the midpoint of the month temperatures flipped, became well above normal, and remained so through January. The fast ice in the Bay of Quinte rotted and diminished through the second half of December. All small bits of ice that formed in the inlets of western Lake Erie melted away.

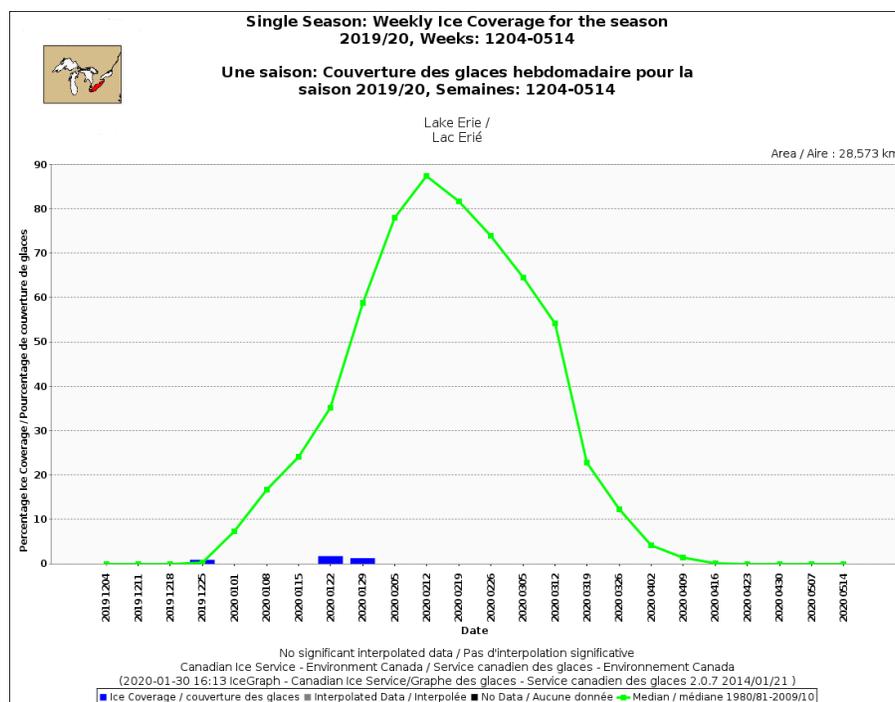


Chart 1: Season ice coverage Lake Erie

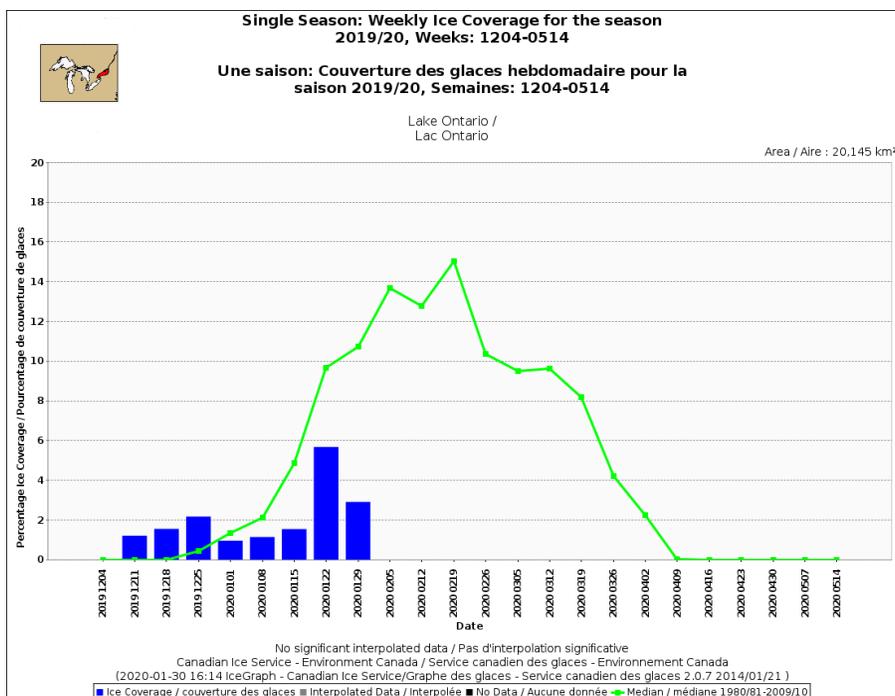


Chart 2: Season ice coverage Lake Ontario

No significant ice formed through the month of January in Lake Erie as temperatures remained above normal and a series of storms maintained strong winds across the region. The seasonal ice extent chart (1) for Lake Erie shows the extent of how little ice has been present on the lake this year.

Ice in the seaway formed in early December with some new and thin ice. Much like the ice in eastern Lake Ontario ice completely melted out by the end of December. Through the month of January some small areas between Kingston to Montreal saw slight ice formation, mainly when calm cold conditions occurred in the region. Generally, the ice formed on those calm nights and melted later in the day when stronger winds and warmer temperatures were present.

The table below indicates the monthly average temperatures at three locations along the Seaway and in western Lake Erie. (January covers 1-30).

	Average temperatures	
	December 2019	January 2020
Montreal	-4.3°C	-5.6°C
Kingston	-2.4°C	-3.3°C
Windsor	+1.0°C	+0.1°C

The table below indicates the accumulated freezing degree days (FDD), the normal accumulated FDD and the percentage (%) of accumulated FDDs at various locations as of January 30, 2020.

	Accumulated FDDs (2019-20)	Normal accumulated FDD	% of normal accumulated FDD
Montreal	395	547	72%
Kingston	257	380	67%
Windsor	31	219	14%

Ice conditions in the St Lawrence Seaway are described based on Radarsat-2 and Sentinel-1 images from January 29-30, 2020 and MODIS images January 29-30, 2020. From Kingston through to Cornwall conditions are mainly ice free. There are a few patches of mainly new ice present in concentrations of up to 7 tenths and small areas of coastal fast ice. From

Cornwall to the Beauharnois Canal, conditions continue to be mainly ice free. Near the western entrance of the Beauharnois Canal there is 9 tenths of thin lake ice. To the east of the canal there is thin and medium coastal fast ice and an area of 9 tenths ice north of Ile Perot. Further east, through the Montreal area and to the St.Lambert lock there is little ice.

Average surface air temperatures will be above normal for the first week of February then likely near to slightly below normal for the second week. The second half of February should see temperatures near normal. For March and April temperatures are forecast to remain near normal to slightly above normal through the southern Great Lakes and the Seaway. Due to the fact that there is little ice present in the Seaway at forecast time and the forecast is not for significant cold, there is no expectation of significant ice formation in the seaway.

## **GENERAL OUTLOOK**

Lake Ontario to Cornwall – Areas of 1-3 tenths of new and thin lake ice will likely remain in place through the next month in the region. On calm and clear nights it is likely new ice will form over the region, however sustained thickening is not expected, mainly due to the forecast of near normal to slightly lower temperatures in the second half of February. By mid-March the ice should be mainly melted.

Cornwall to Montreal – Predominantly ice free conditions are forecast to continue through the month of February. Near normal to slightly lower temperatures forecast in the second half of February may see some new and thin lake ice form within the region, however by March the forecast calls for any of that ice to melt.

Lake Erie – Ice cover will likely rise slightly, especially in the western Basin of Lake Erie during the month of February. Some transient ice (formed on cold and clear nights) will likely form from time to time, however significant ice development is not forecast. With above normal temperatures forecast, combined with the current lack of ice, there is no expectation of significant development or thickening of ice in Lake Erie.

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