Environment and Climate Change Canada
Environnement et Changement climatique Canada

OUTLOOK FOR BREAK-UP OF ICE

ON THE ST. LAWRENCE SEAWAY & LAKE ERIE

Issued by Canadian Ice Service
Environment and Climate Change Canada

February 1, 2024

Prepared for:

The Saint-Lawrence Seaway Management Corporation

Canada

CURRENT CONDITIONS

Average temperatures over Lake Erie, Lake Ontario, and the Seaway have been well above normal values consistently in December. There were no time periods with significantly below normal temperatures during December.

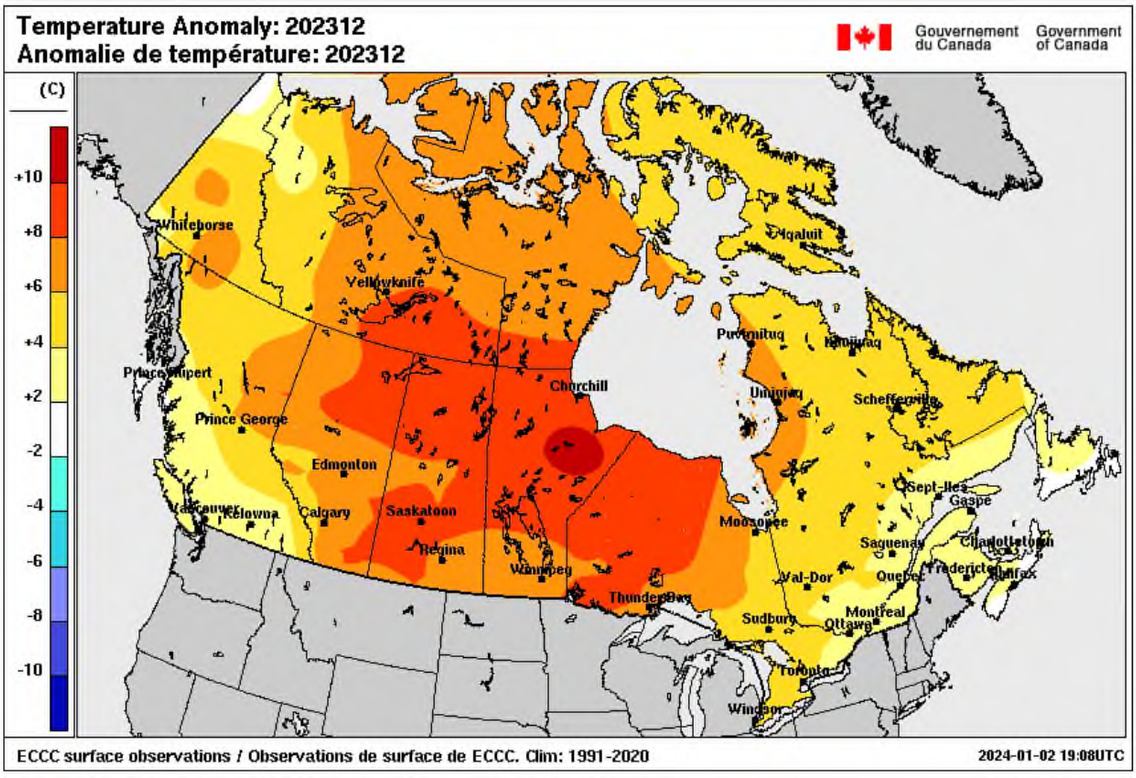


Figure 1: Temperature anomaly over southern Great Lakes was 3-5°C in December.

Average temperatures over Lake Erie, Lake Ontario, and the Seaway have been well above normal values consistently in January. However, there was a period with significantly below normal temperatures from about January 11th to the 23rd.

The table below indicates the monthly average temperatures at three locations along the Seaway and in western Lake Erie. (January 1-31).

	January Temperatures		
	Mean air Temperature	Normal Mean air Temperature	Temperature Anomaly For January
Montreal	-5.2 ºC	-10.2 ºC	+5.0 ºC
Kingston	-3.3 ºC	-7.6 ºC	+4.3 ºC
Windsor	-2.5 ºC	-4.5 ºC	+2.0 ºC

Table 1: January Temperatures

The first ice was not seen in the southern Lakes until December 22nd. On the evening of December 22nd ice formed in the Bay of Quinte and the St. Lawrence east of Kingston. By the end of December that ice had melted and there was no ice on the Lakes as the new year approached.

The first week in January saw ice reform along the northeast shores of Lake Ontario in the Bay of Quinte and near Kingston. With a cold period from January 10th until January 22nd ice started to form in the Western Basin of Lake Erie and in Lake St Clair covering most of the shores in those areas by the morning of January 14th. The ice then quickly spread covering the Western Basin and Lake St Clair on January 16th. Ice also formed along the shores of the remainder of Lake Erie and along the shores of Lake Ontario on the 19th of January. As the cold period ended and warmer air temperatures slowly returned much of the ice along the shores would melt so that by the end of January ice remained only in the Western Basin, Lake St Clair and in Bays and inlets along the northeastern shores of Lake Ontario.

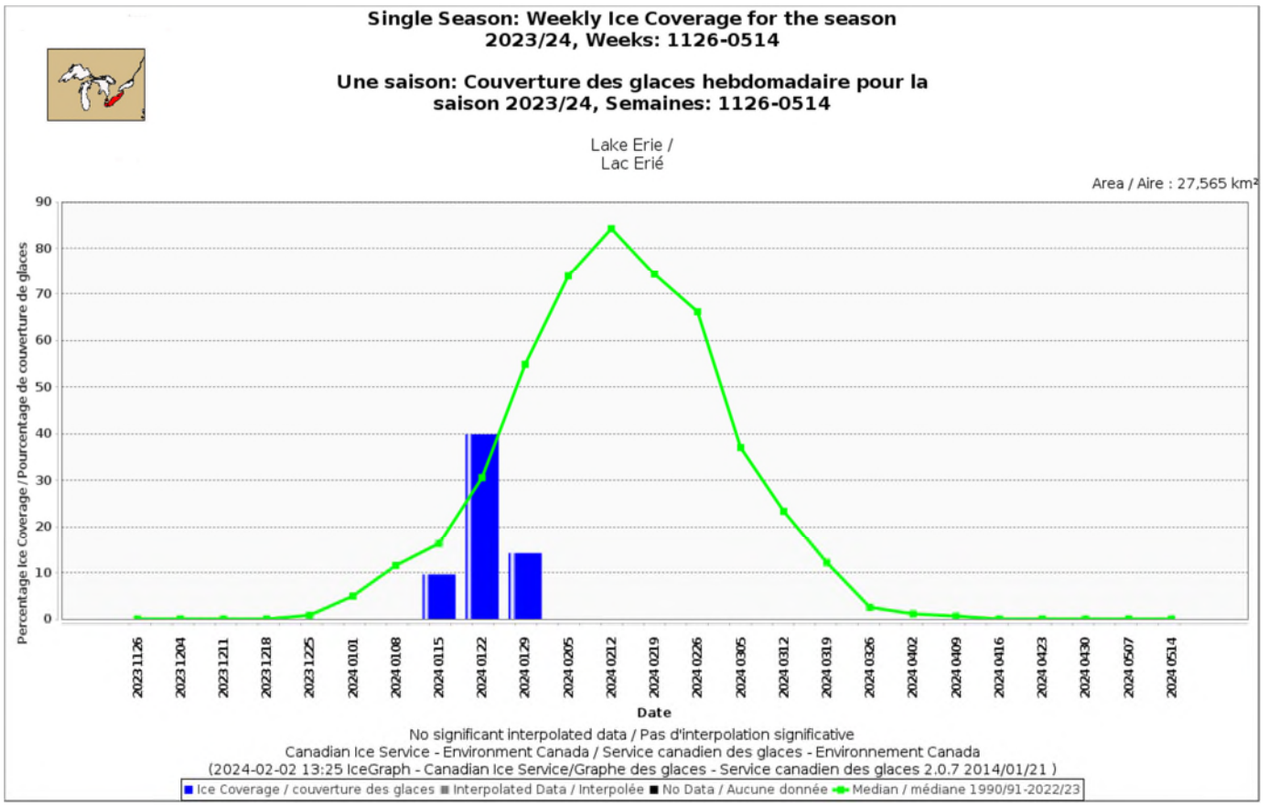


Chart 1: Season ice coverage Lake Erie to January 29th

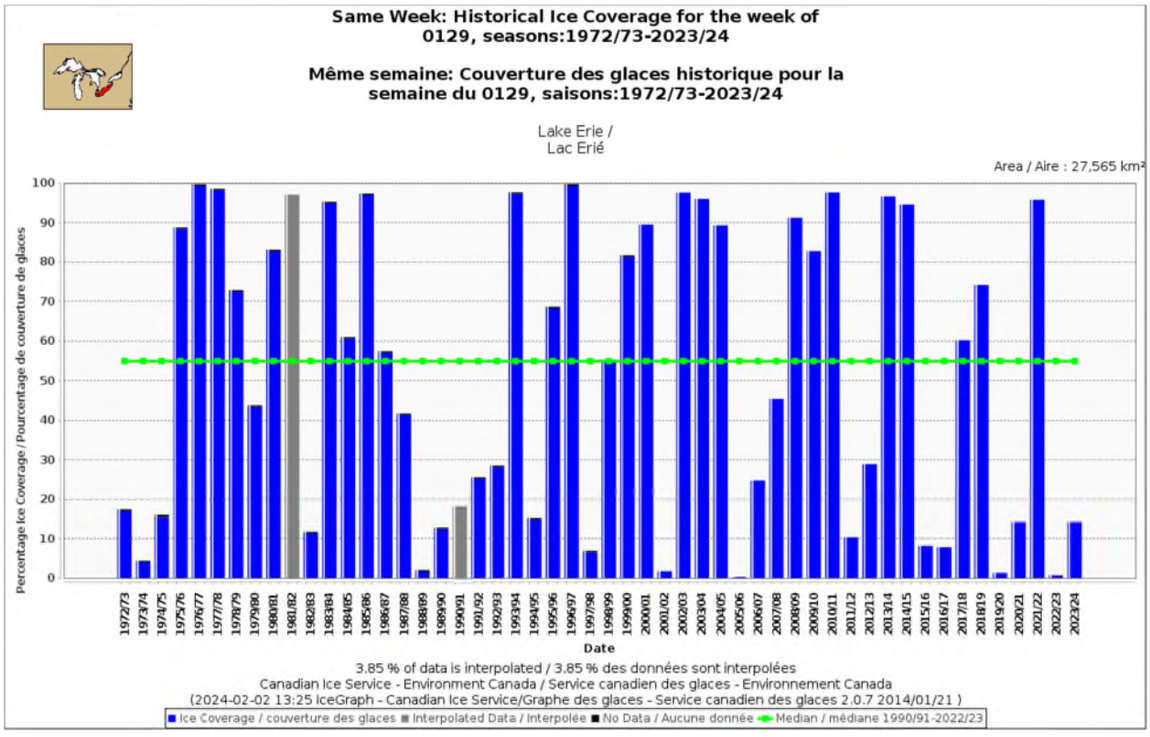


Chart 2: Historical Same Week Ice coverage for Lake Erie on January 29th.

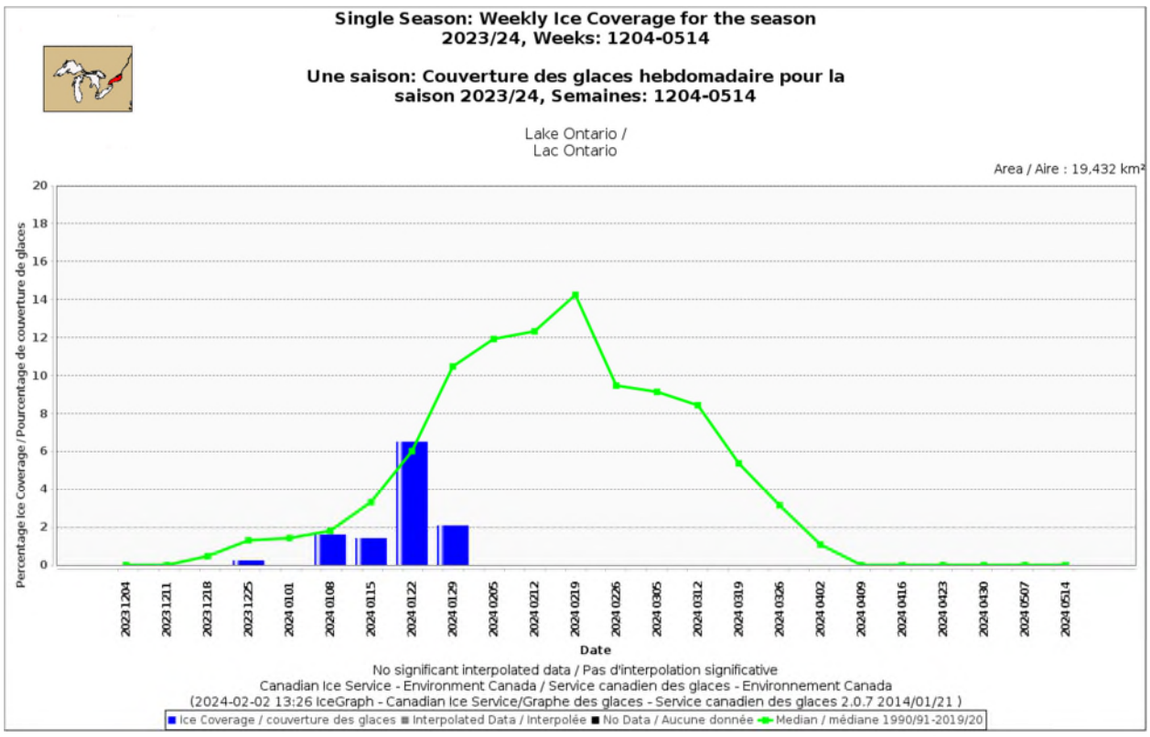


Chart 3: Season ice coverage Lake Ontario to January 29th.

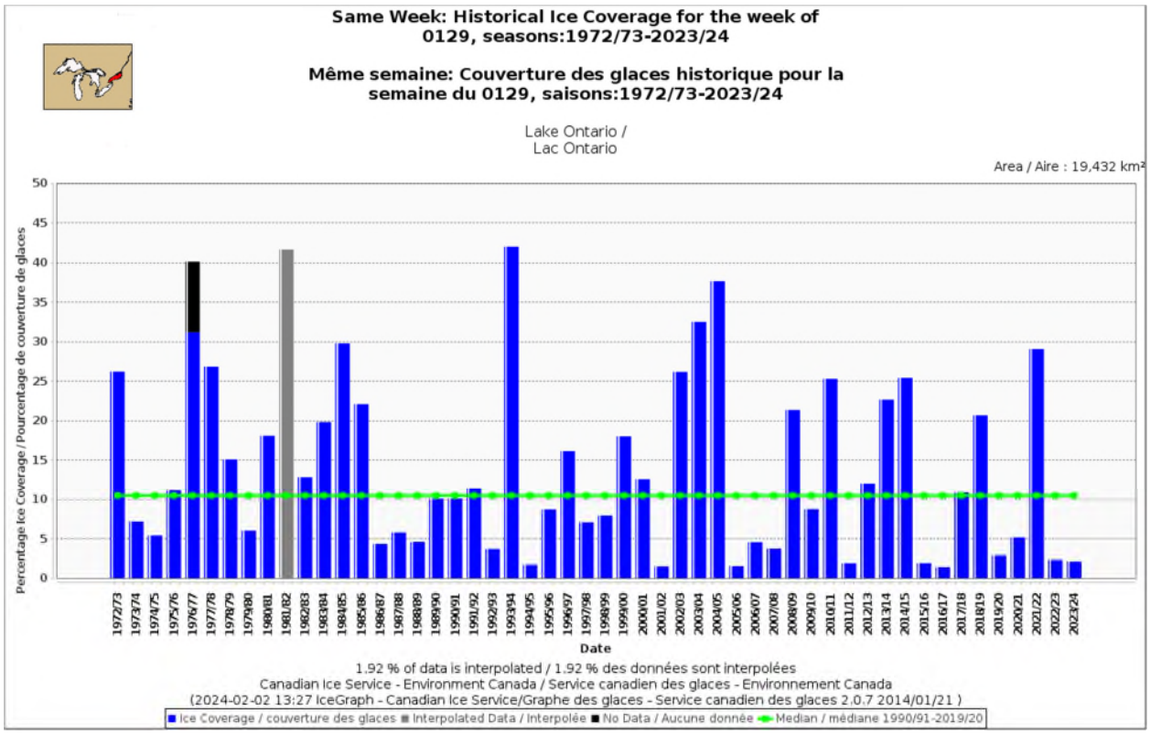


Chart 4: Historical Same Week Ice coverage for Lake Ontario on January 29th.

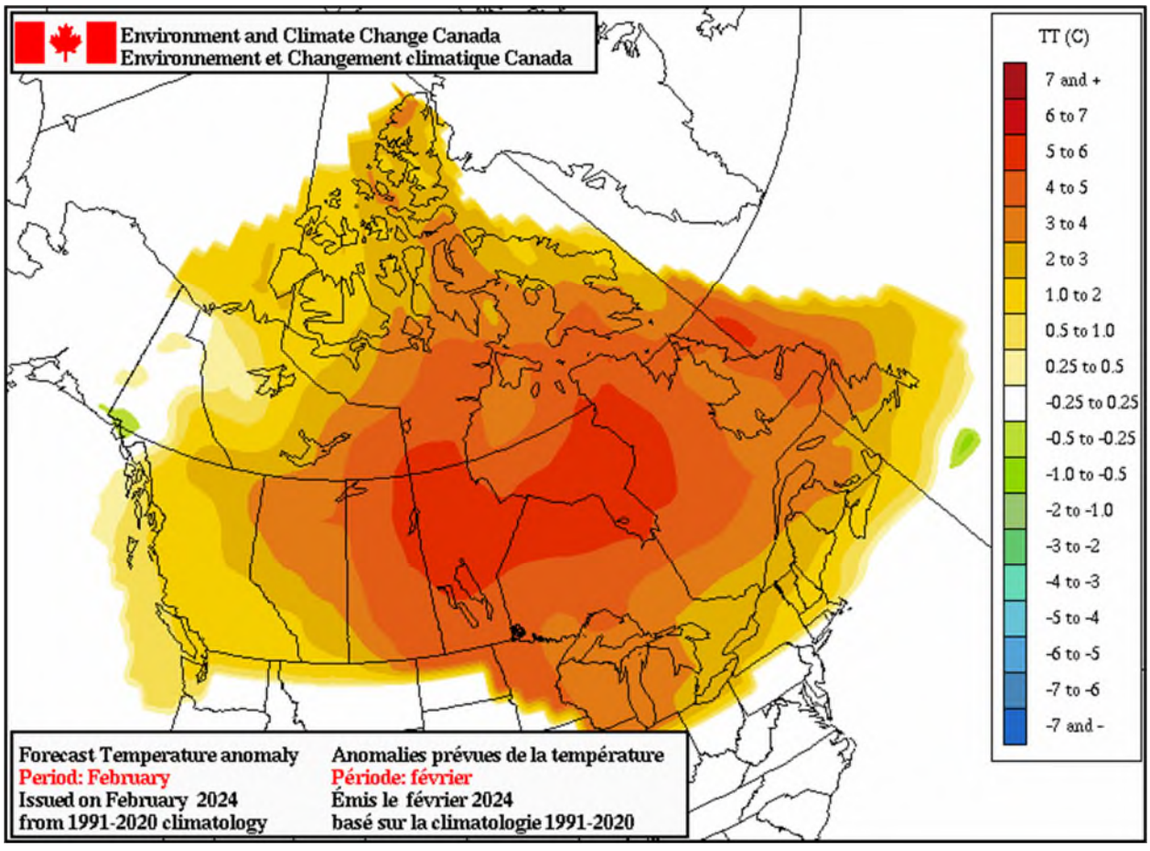
Ice in the seaway formed in late December with some new and thin ice. Much of this thin newly formed ice melted by years end. After the first 10 days of January colder temperatures allowed for ice to form consisting mainly of patches of new and thin ice. By the third week of January after this cold spell the St Lawrence had a mix of thin and new ice with between 7-9 tenths of coverage in places.

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, 2024.

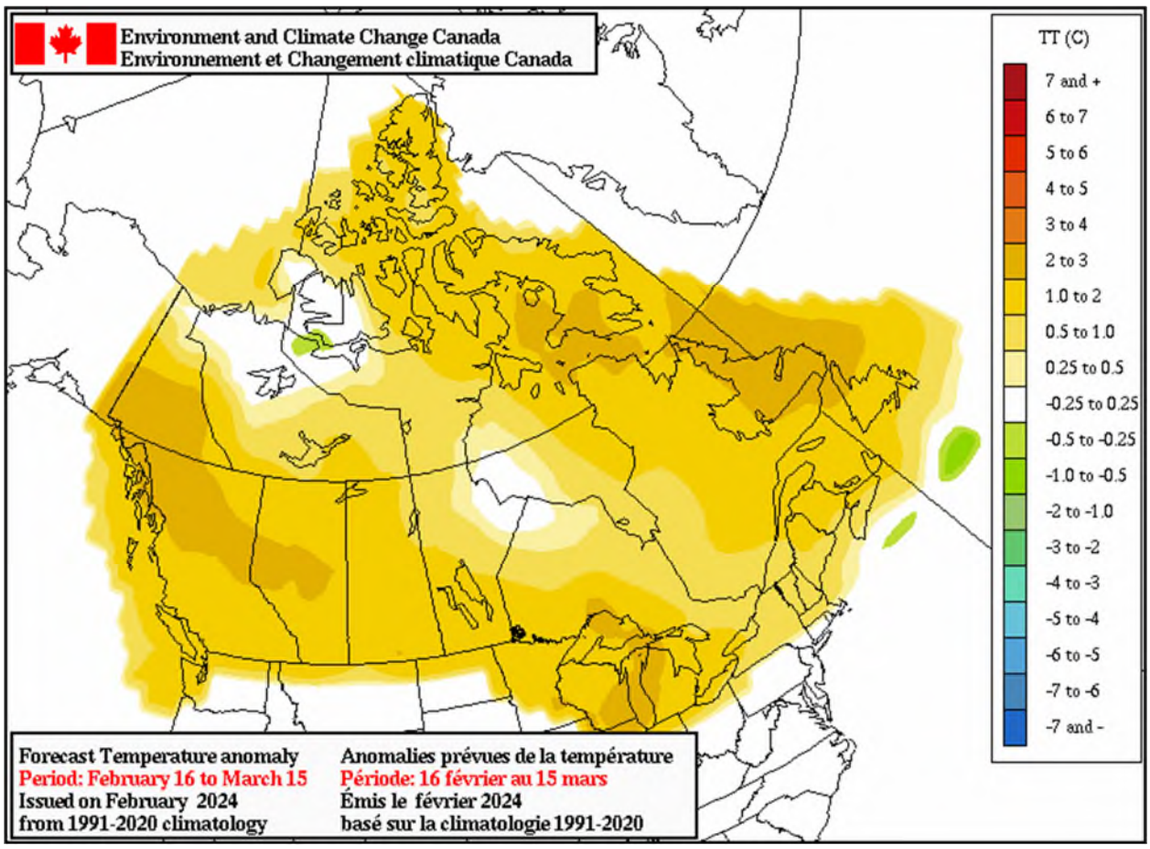
	Accumulated FDDs (2022-23)	Normal accumulated FDD	% of normal accumulated FDD
Montreal	221	558	40%
Kingston	160	389	41%
Windsor	81	224	36%

Table 2: Freezing Degree Days

Average surface air temperatures will be above normal for February with the warmest anomalies being during the first two weeks of February.



More seasonal temperatures are expected during second half of February with temperatures near normal for the southern Great Lakes and the St Lawrence at that time.



March is expected to see near to slightly above normal temperatures.

GENERAL OUTLOOK

Lake Ontario to Cornwall – Currently there are a few areas of fasted thin and medium lake ice in sheltered bays in the northeast part of the lake. The Bay of Quinte is mainly fasted thin and medium lake ice. The remainder of the lake is open water. With the forecast of warm air temperatures, no change or slight reduction in the ice is expected in this area. Most of the new and thin lake ice east of Kingston and into the St Lawrence may disappear with the medium and thin ice in protected areas remaining. There is only generally no ice to 2-4 tenths of ice in the St Lawrence west of Cornwall. With a return to normal temperatures for the second half of February and a forecast for a warm March the ice should be mainly melted before the third week in March.

Cornwall to Montreal – The current conditions consist of areas of 6-8 tenths of ice mainly along the shores near Cornwall and eastwards becoming areas of thin and medium ice of 8-9 tenths of coverage as you near Montreal. Warmer than normal temperatures forecast will see slower to no new ice growth until some slow ice growth returns after mid-February. March is expected to see a return to above normal temperatures with the ice expected to start to melt.

Lake Erie – Ice cover will likely shrink in the first half of February with warm temperatures. The second half of February may see some expansion in the ice cover in the Western Basin and Lake St Clair with near normal temperatures but with above normal temperatures forecast in March expect ice coverage in Lake Erie to start quickly melting in March as the ice that had formed earlier is still thin.

Contact:

Canadian Ice Service

Telephone: 1-877-789-7733

Email: cisclients-scgclients@ec.gc.ca