Environment and Climate Change Canada
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OUTLOOK FOR BREAK-UP OF ICE

ON THE ST. LAWRENCE SEAWAY & LAKE ERIE

Issued by Canadian Ice Service
Environment and Climate Change Canada

January 29, 2025

Prepared for:

The Saint-Lawrence Seaway Management Corporation

Canada

CURRENT CONDITIONS

Average air temperatures over the Seaway east of Toronto have been near normal from mid-December to the end of January and 2-4ºC below normal for areas west of Toronto ranging from 2ºC below norma near the Welland Canal to 4ºC below normal near Windsor and Lake St Claire.

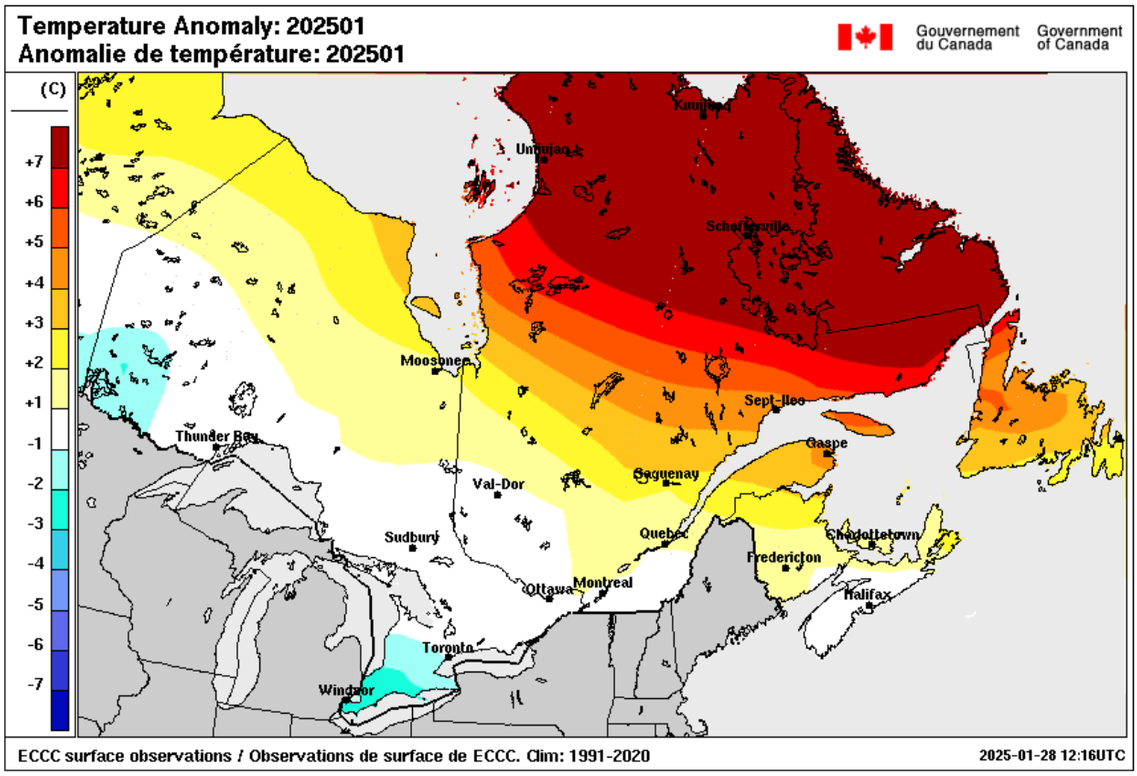

Figure 1: Shows the mean temperature anomaly for January 2025. Near normal average temperatures were experienced over the eastern Seaway while temperatures along the western Seaway were 2-4º C colder than normal values.

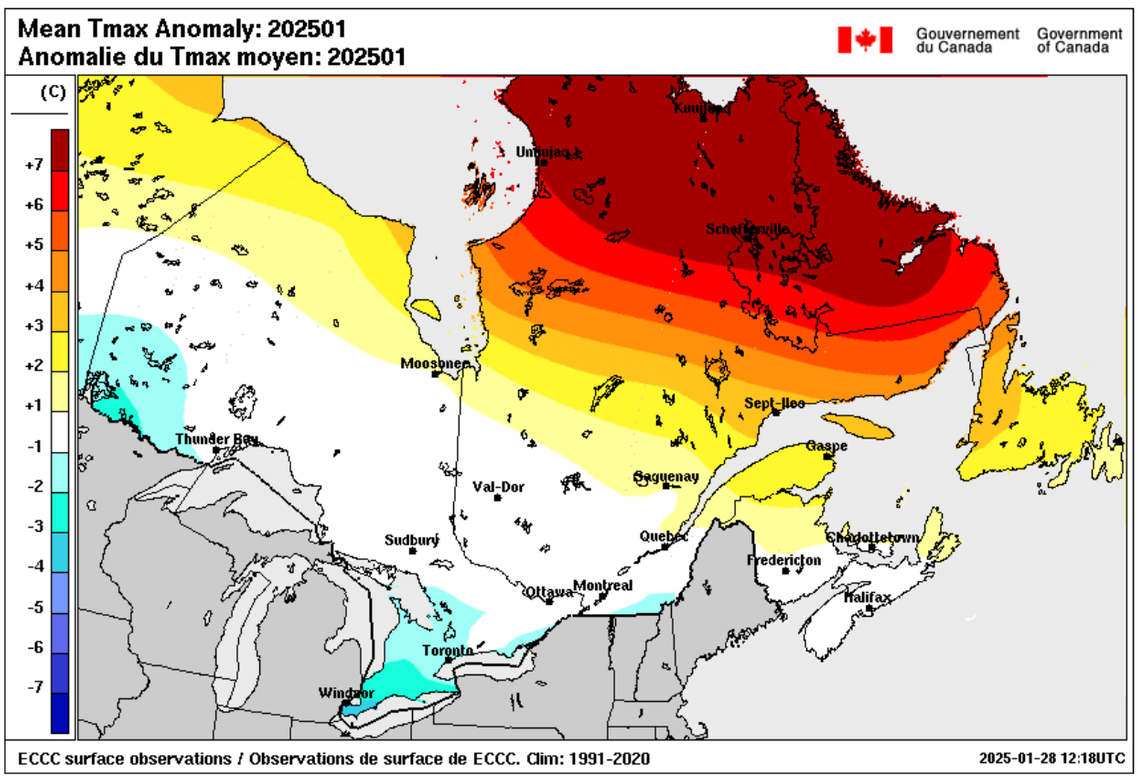

Figure 2: The anomaly in the mean maximum temperature was 3-4 ºC colder than normal in January showing that the daytime highs were cooler than normal over much of the Seaway.

Average temperatures over Lake Erie, Lake Ontario, and the Seaway have been near normal over the eastern Seaway and were 2-4º C colder than normal over the western Seaway during January.

The table below indicates the monthly average temperatures at various locations along the Seaway and in western Lake Erie from December 1st to January 29th.

	Temperatures Dec 1st to January 28th		
	Mean Air Temperature	Normal Mean Air Temperature	Departure in Mean Air Temperature
Montreal	-6.0 ºC	-6.0 ºC	0.0 ºC
Massena	-6.3 ºC	-5.8 ºC	-0.5 ºC
Trenton	-3.9 ºC	-3.8 ºC	-0.1 ºC
Kingston	-4.1 ºC	-3.7 ºC	-0.4 ºC
St Catharines	-1.8 ºC	-0.9 ºC	-0.9 ºC
Cleveland	-1.6 ºC	-0.2 ºC	-1.4 ºC
Windsor	-2.5 ºC	-1.5 ºC	-1.0 ºC

Table 1: Winter Temperatures, Dec 1st to Jan 28th

Current Conditions

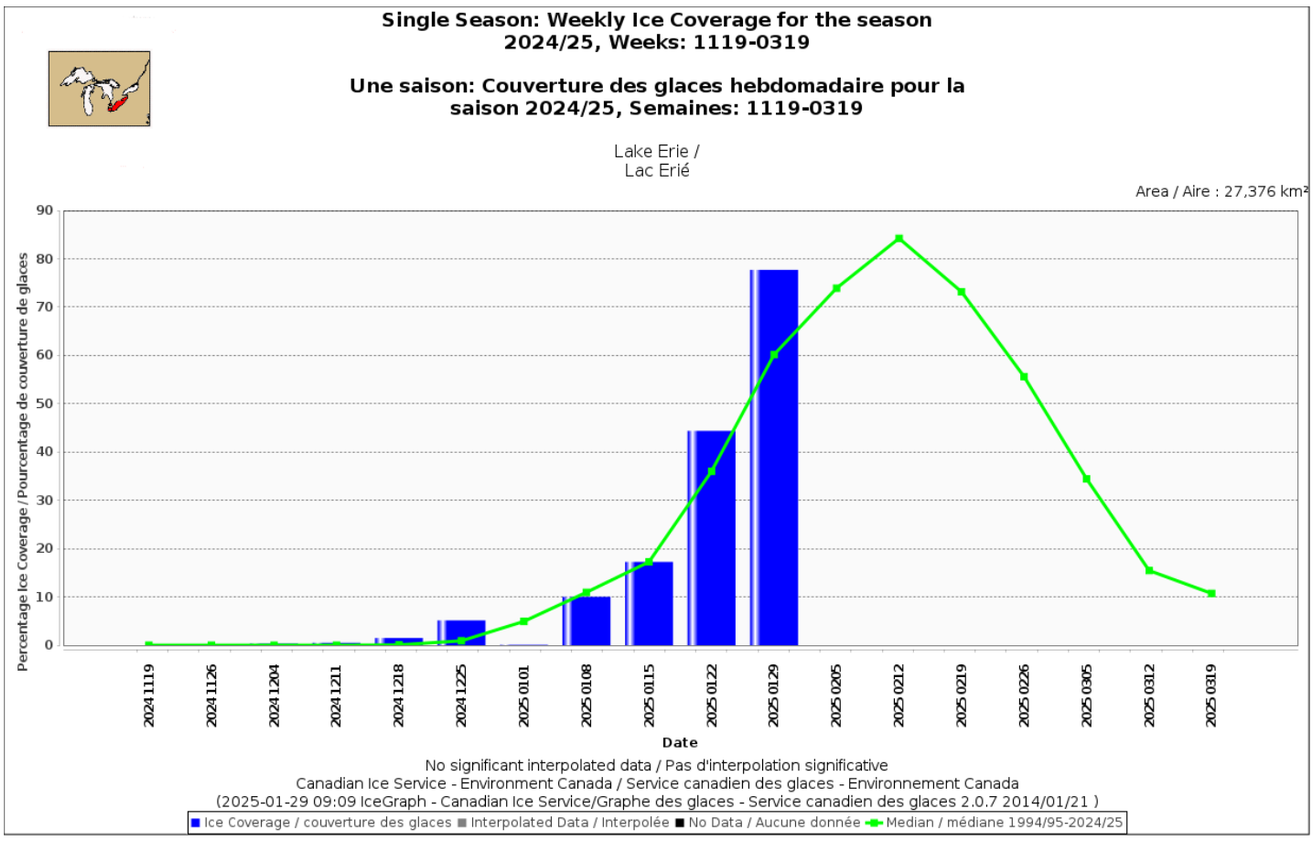

Chart 1: Season ice coverage Lake Erie to January 29th.

The green line indicates the climatological median ice coverage over Lake Erie and this season's weekly ice coverage amounts are shown as blue bars

Currently over Lake Erie and Lake St Claire there is complete ice cover of 15-30 cm thick ice in the Western Basin and in Lake St Claire. The rest of Lake Erie is 80-90% covered with ice between 10-25 cm thickness. In the extreme eastern corner of Lake Erie because of persistent westerly winds there currently is ice of 20-50 cm and ice of 30-55 cm along the eastern shore of Lake Erie.

The ice cover over Lake Erie and Lake St Claire is expected to thicken slightly in February. Though temperatures will be warmer than is normal for February, see figure 3, the temperature will still be below freezing allowing ice thickening to occur.

The ice cover in Lake Erie will start to shrink after the third week of February, however Lake St Claire will remain relatively unchanged until March. After the first week in March eastern Lake St Claire will probably still be ice covered with ice of 15-35 cm but other than ice along the shores the remainder of Lake Erie should be only 20-40% ice covered after the first week in March. By After the second week in March ice cover in both Lake Erie and Lake St Claire should be below 10%.

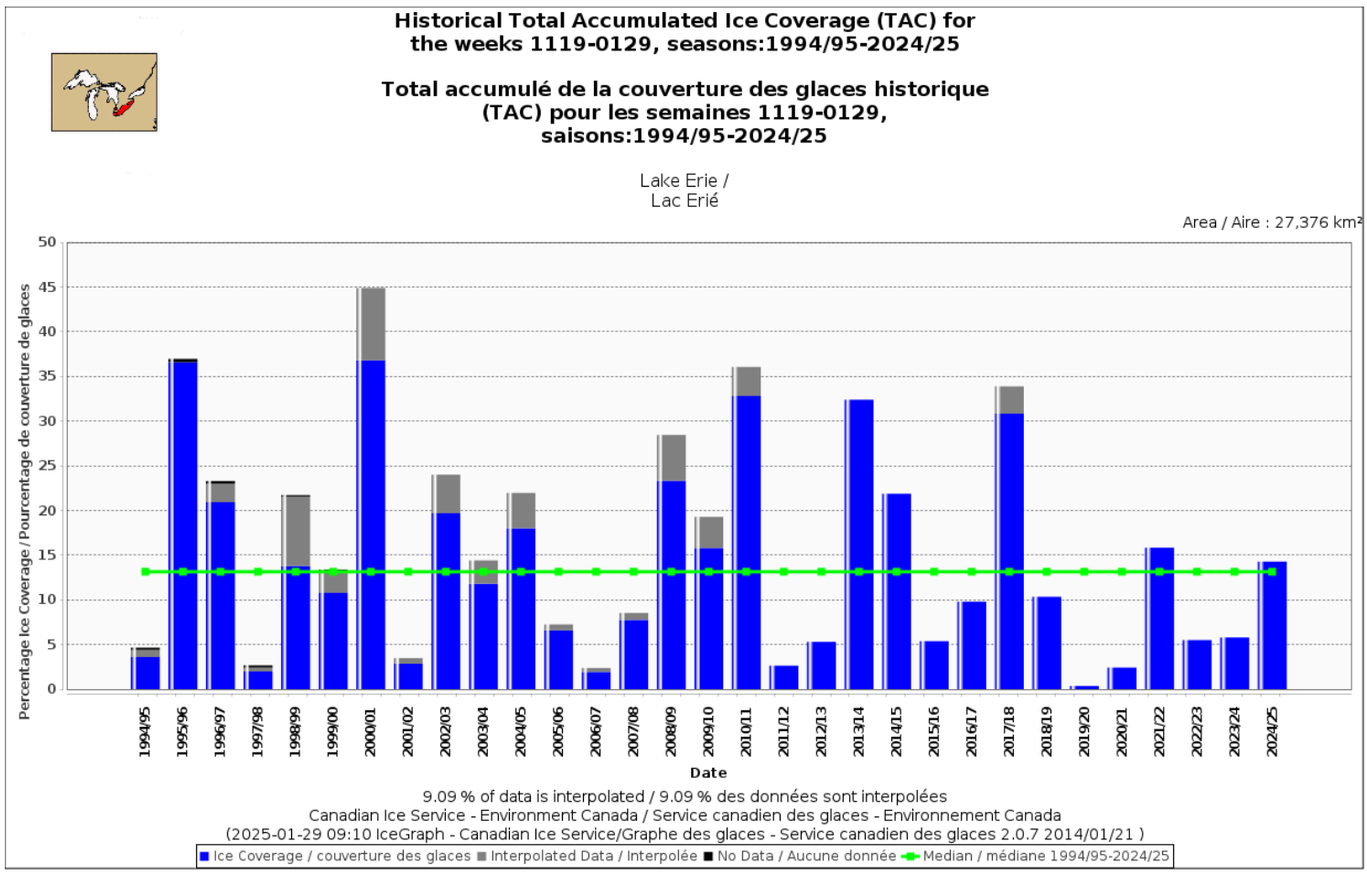

Chart 2: Historical Same Week Ice coverage for Lake Erie on January 29th.

Looking at chart 2 above can see that the average ice cover on Lake Erie is currently just above the normal value which is indicated with the green horizontal line. So far this year is very similar to the 2021/22 season which is the only other year since 2017/18 that had near or above normal ice cover on Lake Erie to January 29th.

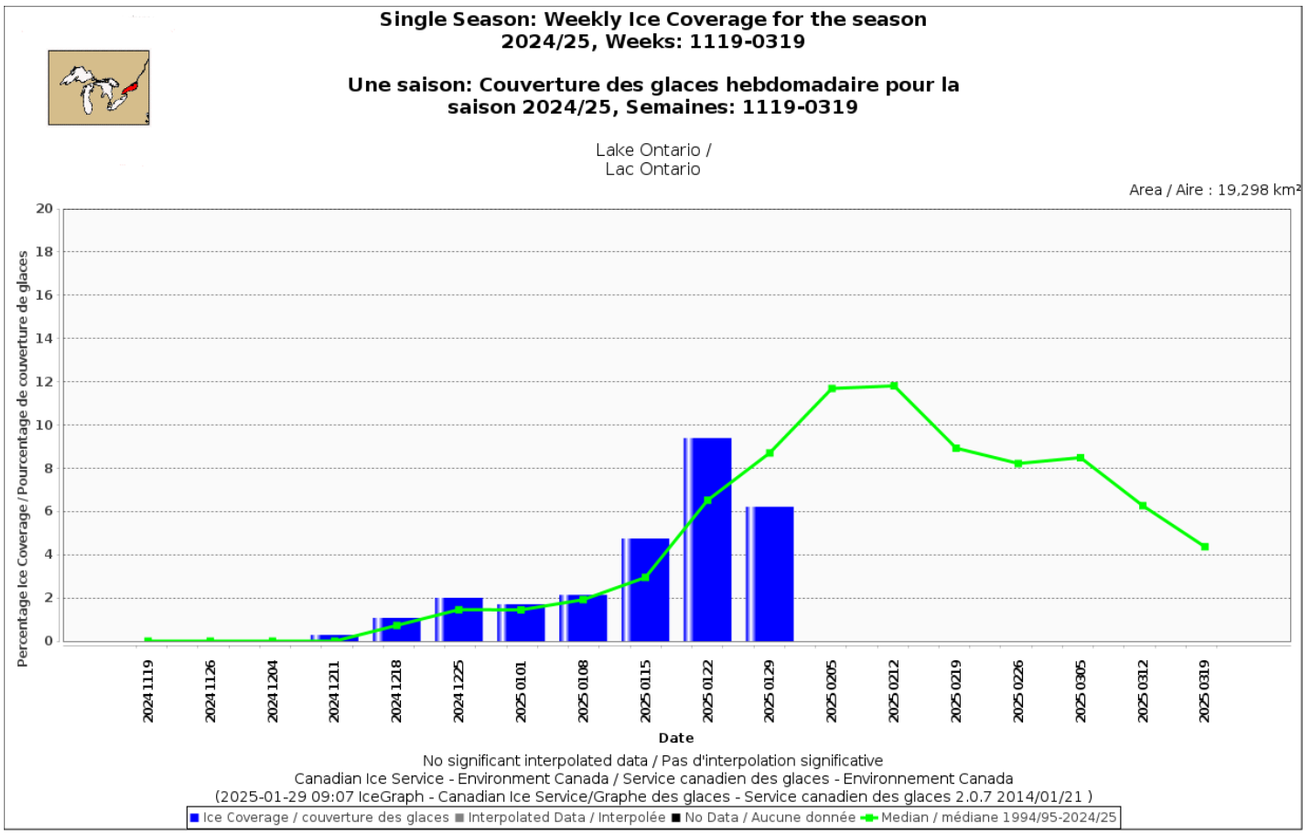

Chart 3: Season ice coverage Lake Ontario to January 29th.

The green line indicates the climatological median ice coverage over Lake Ontario and this season's weekly ice coverage amounts are shown as blue bars.

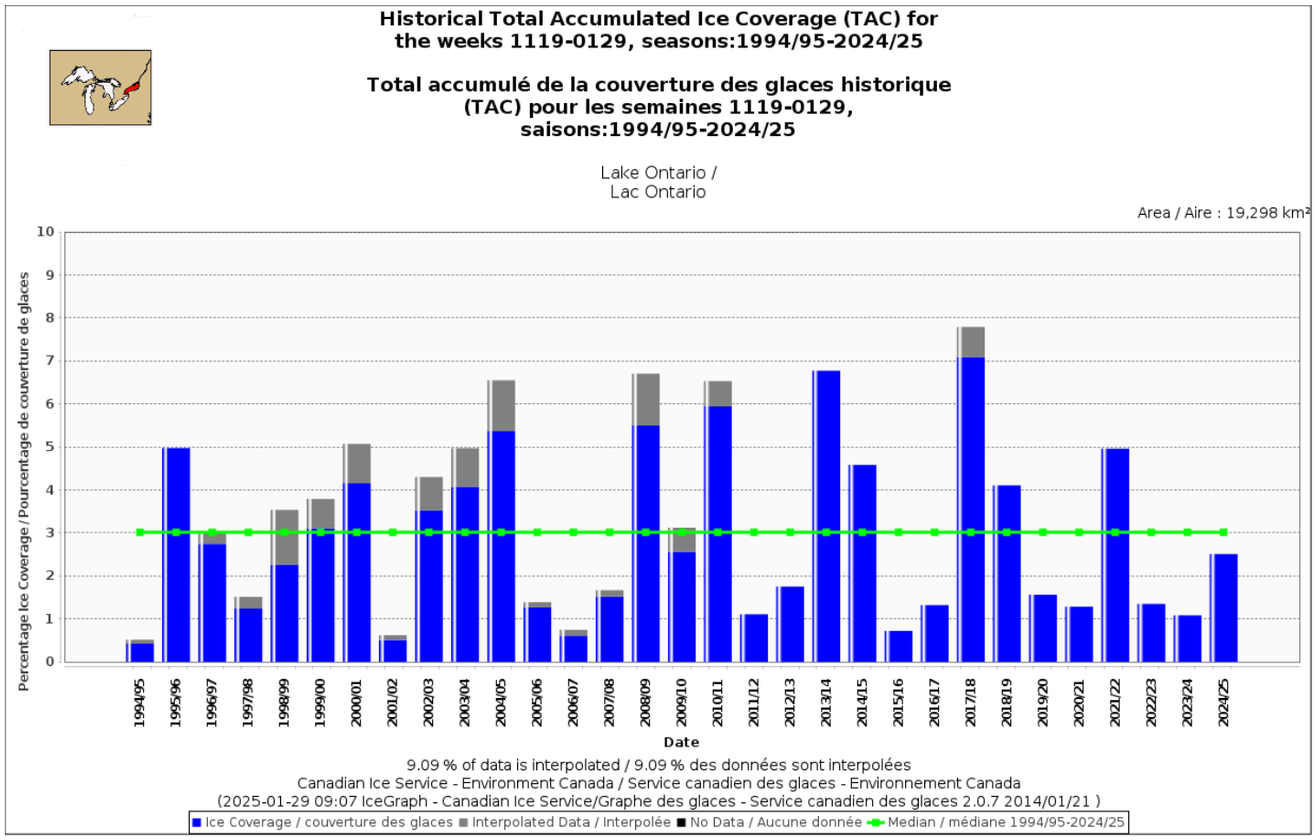

Chart 4: Historical Same Week Ice coverage for Lake Ontario on January 29th.

Looking at chart 4 above can see that the average ice cover on Lake Ontario is currently just below the normal value which is indicated with the green horizontal line.

Currently in Lake Ontario eastwards to Trenton there is medium lake ice (10-25 cm) in the Bay of Quinte and along parts of the shore in the northeastern section of the lake. In addition, much of the shore of Lake Ontario has thin lake ice of 5-15 cm thickness. The remainder of the lake is open water.

With the forecast of warmer than normal air temperatures in February expect little change in most areas except for gradual thickening of the ice in the northeastern corner as mean temperatures remain below freezing. By the end of February expect only the northeastern part of the lake to continue to have ice cover and melting is not expected in this area until after the first week of March. Warm temperatures in March will allow this melting of the ice in northeastern Lake Ontario to begin to melt so that after the second week in March though there will remain areas of 15-25 cm thick ice these areas will be in sheltered bays. By the end of March only patches of ice will remain in the northeast corner of Lake Ontario eastwards to Cornwall and most ice should have disappeared by the start of April.

The current conditions from Cornwall to Montreal consist of areas of 8-10 tenths of ice cover of between 15-30 cm. Though warmer than normal temperatures forecast in February expect some thickening of the ice as temperatures will remain below freezing. March is also forecast to have above normal air temperatures, and the ice cover is expected to start to melt quickly during this time with ice cover away from the shores to be 5-7 tenths in the first half of March and only 1-3 tenths of ice cover after mid-March.

These warmer than normal temperatures in March will allow for an accelerated melting of the ice cover by the third week in March though there will remain areas of 10-20 cm thick ice in sheltered bays.

The table below indicates the accumulated freezing degree days (FDD) this season, the historical normal accumulated FDD, the difference from this years FDD from the normal value. A negative departure in FDD indicates fewer cold days than normal while a positive value in departure in FDD indicates more cold days than normal.

Freezing degree days are corelated to the ice thickness and the corresponding ice thickness is indicated in the final column.

	Accumulated FDD	Normal accumulated FDD	Departure in FDD	Corresponding ice thickness (cm)
Montreal	-375.5	-402.6	**-27.1**	33.6
Massena	-375.5	-388.9	**-13.4**	33.6
Trenton	-234.0	-277.0	**-43.0**	22.9
Kingston	-248.0	-273.9	**-25.9**	22.0
St Catharines	-131.5	-128.7	**+2.8**	10.7
Cleveland	-158.0	-121.1	**+36.9**	16.1
Windsor	-163.0	-153.5	**+9.5**	16.6

Table 2: Freezing Degree Days

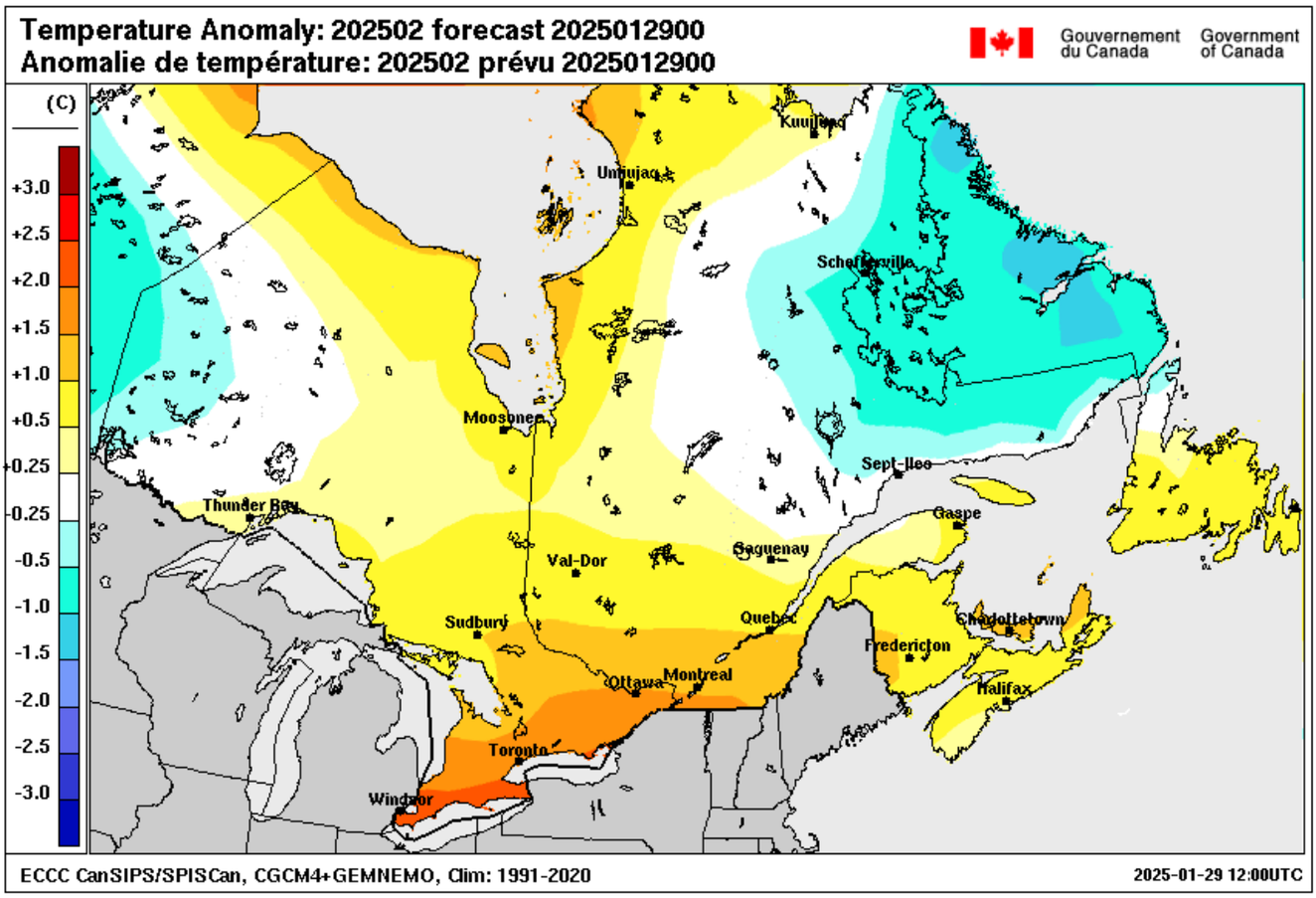

Figure 3: The forecasted mean temperature anomaly for February is 1.5-2.5 °C warmer than normal from Windsor to Montreal.

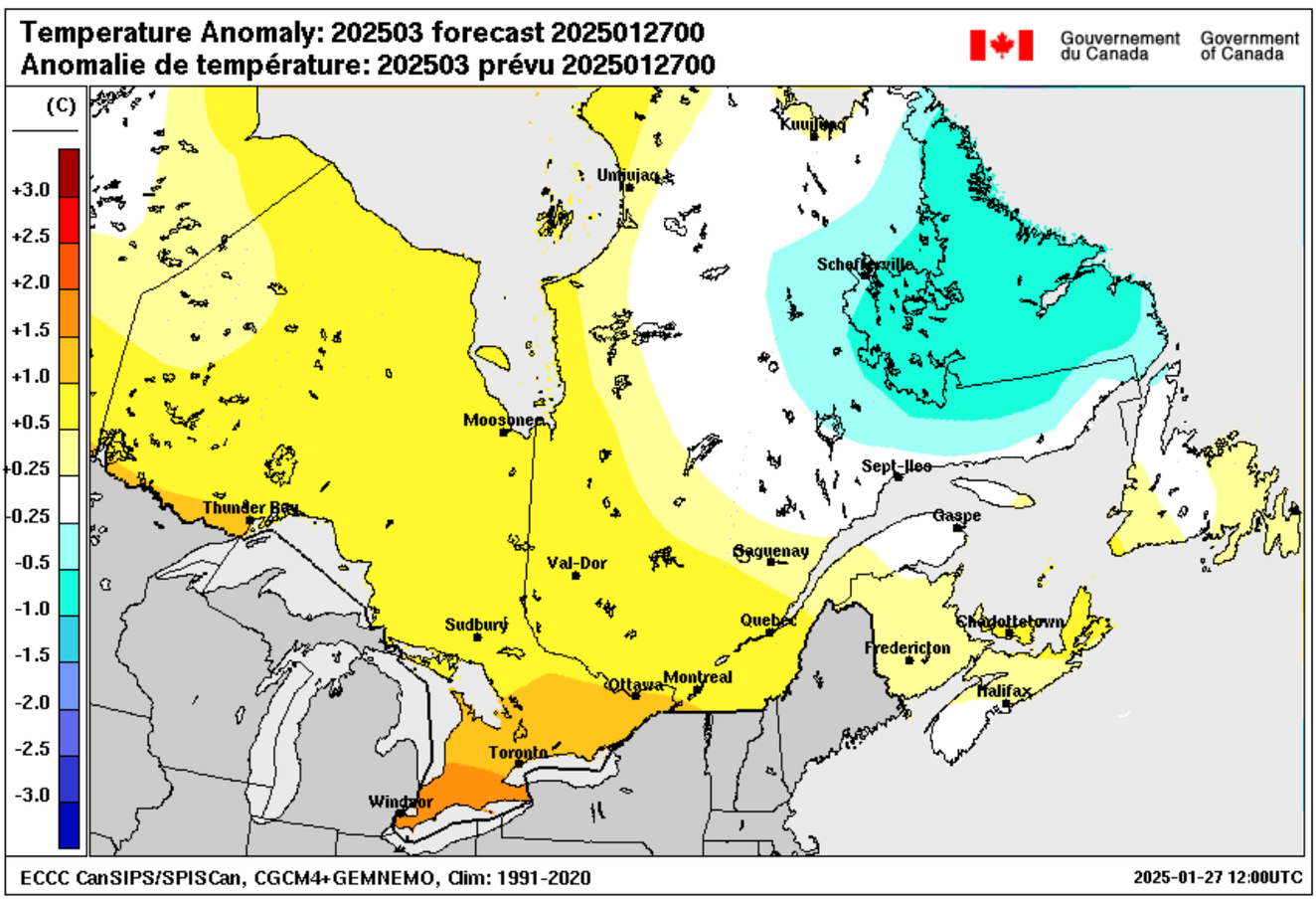

Figure 4: The forecasted mean temperature anomaly for March is near 1.5°C warmer than normal from Windsor to Montreal.

GENERAL OUTLOOK

Cornwall to Montreal – The current conditions consist of areas of 8-10 tenths of ice cover of between 15-30 cm. Though warmer than normal temperatures forecast in February expect some thickening of the ice as temperatures will remain below freezing. March is also forecast to have above normal air temperatures, and the ice cover is expected to start to melt quickly during this time with ice cover away from the shores to be 5-7 tenths in the first half of March and only 1-3 tenths of ice cover after mid-March.

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Lake Ontario to Cornwall – Currently there is this and medium lake ice (10-25 cm) in the Bay of Quinte and along parts of the shore in the northeastern section of the lake. In addition, much of the shore of Lake Ontario has thin lake ice of 5-15 cm thickness. The remainder of the lake is open water.

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The ice cover over Lake Erie and Lake St Claire is expected to thicken slightly in February though temperatures will be warmer than is normal for February after the first week of the month. The ice cover in Lake Erie will start to shrink after the third week of February, however Lake St Claire will remain relatively unchanged until March. After the first week in March eastern Lake St Claire will probably still be ice covered with ice of 15-35 cm but other than ice along the shores the remainder of Lake Erie should be only 20-40% ice covered after the first week in March. By After the second week in March ice cover in both Lake Erie and Lake St Claire should be below 10%.

Contact:

Canadian Ice Service

Telephone: 1-877-789-7733

Email: cisclients-scgclients@ec.gc.ca