



# International Lake Ontario – St. Lawrence River Board

## Danger of Ice Jams

Ice jams can occur in many northern rivers when large chunks of ice lump together and block the flow of water. Flooding caused by an ice jam is unpredictable and can occur without warning. Ice jams can be especially dangerous for people living nearby, as the cold, rushing water and ice has nowhere to go, causing rapid flooding and damages in areas that do not typically flood.

To reduce the risk of ice jams in the St. Lawrence River, Lake Ontario outflow needs to be temporarily reduced as ice begins to form. This slows down the current and reduces forces acting on the new, fragile ice cover. It also helps prevent tiny ice particles (frazil ice) from forming below the surface in the flowing water, as this can also increase risk of ice jams and can clog municipal water intakes. Slower flow keeps the ice particles at the surface, and with weather conditions permitting, these particles form into large pans, combine and solidify into a stable ice cover. Once established, outflows can be safely be increased to flow under the ice.

Ideal conditions for stable ice formation are sustained periods of cold winter weather. On the other hand, periods of cooling followed by warming or strong winds can disrupt the ice cover, requiring outflows to be frequently adjusted to reduce the risk of ice jams.

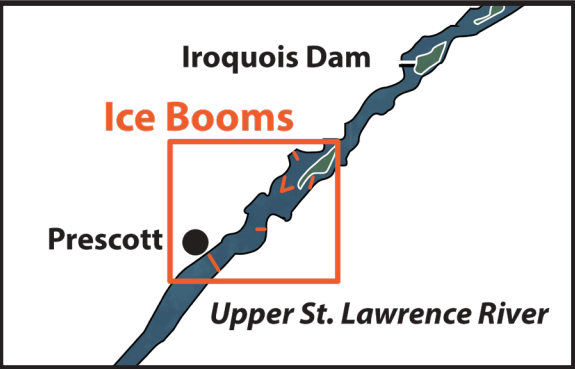
Since 1960, outflow regulation has helped to ensure that ice jams in the upper St. Lawrence River have rarely occurred and that water can continue to be released from Lake Ontario through the winter months.

## Quarterly Newsletter: Winter 2019



## Ice formation

The ice limit (I-limit) in Plan 2014 was adapted from operations under the previous plan (1958DD) and refers to the maximum flow that will allow a stable ice cover to form, both downstream on the Beauharnois Canal and on the critical portions of the International Section of the St.



Lawrence River. Once a complete ice cover has formed in these areas, outflows can be safely increased. As they do, the I-limit also prevents outflows from being so high that the river water level at Long Sault Dam would fall lower than 71.8 m. This protects municipal water intakes on Lake St. Lawrence and also helps to maintain stability of the ice cover. The reductions to the outflow necessary to manage the formation of an ice cover are likely to cause large temporary increases to the water level of Lake St. Lawrence. Its shoreline property owners are encouraged to remove boats and equipment to higher ground, and take measures to reduce the damage to permanent structures from fluctuating ice-covered water levels.

In addition to regulating outflows, the installing on ice booms in the St. Lawrence River by the New York Power Authority and Ontario Power Generation help reduce the risk of ice jams.

## WELCOME!

The International Lake Ontario St. Lawrence River Board is pleased to welcome our two newest members Suzie Miron and Bill Reilich to the Board. Each of them bring a wealth of experience and knowledge regarding the Lake Ontario and St. Lawrence system, and have a unique perspective as the communities they serve have been impacted by the high water events of 2017 and 2019.

“Managing the water levels of Lake Ontario and the St. Lawrence River is a complex, but an essential exercise that we need to pay close attention to. Balancing the interests of upstream and downstream populations, protecting people and property, and improving the ecological conditions of this vast system are all issues to consider,” said Suzie Miron.

Currently the Board is preparing for ice season, while looking forward to opportunities to remove as much water off Lake Ontario before the spring freshest. To assist the Board the International Joint Commission has granted the Board extended deviation authority once water levels drop below the upper criterion H14 limit. The Board has been reviewing data from the past three years to better understand when potential opportunities to deviate from Plan 2014 might be available over the next several months, and what the effects of such deviations might be on water levels and interests throughout the Lake Ontario - St. Lawrence River system.



# History of Ice Jam

Ice jams occurred often prior to regulation, but very rare since.....



**FLOOD** This photograph supplied by A.N. Martel of Cornwall was taken in 1929 and shows a huge block of ice sitting in front of a house at the foot of Louisa Street after the St. Lawrence River overflowed its banks, pouring water and ice into the residential area south of Montreal Road and turning homes into islands. The flood was caused by an ice dam farther upstream.



Men walking on a St. Lawrence River ice-jam, in front of Cornwall, circa 1920.



# Contact Us

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The Board's website  
([www.ijc.org/loslrb](http://www.ijc.org/loslrb))

Facebook page (<https://www.facebook.com/InternationalLakeOntarioStLawrenceRiverBoard>).

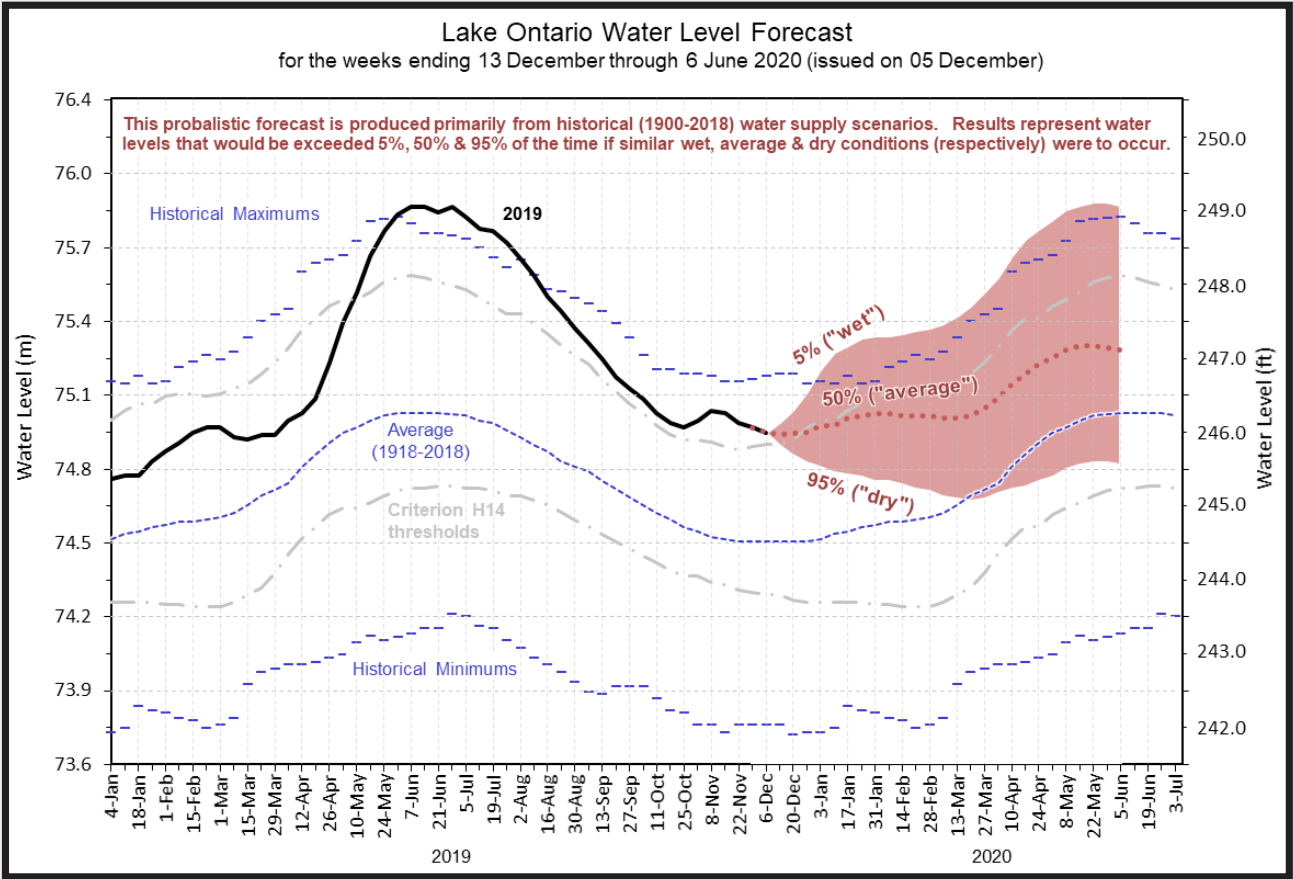
# Forecast and Outlook

Water levels fluctuate naturally on the Great Lakes, with periods of high and low water levels occurring throughout recorded history and depending primarily on water supplies. Water level forecasts provide an estimate of future conditions based on a combination of weather predictions, historically observed water supply conditions, current levels and predicted flows of all the Great Lakes, as well as the effects that these will have on regulated outflows from Lake Ontario. Accuracy of weather predictions declines rapidly beyond a few weeks and has proven unreliable for long-term water management. Forecasting based on historical conditions provides a range of possible water level scenarios, but can miss extreme conditions when weather and water supplies exceed or develop more suddenly than those observed during past events. These events are unpredictable, especially several weeks or months in advance.

There remains considerable uncertainty in long-term forecasts for Lake Ontario, especially at this time of year when the effects of winter and spring weather are highly variable and unpredictable. Lake Ontario is the only one of the five Great Lakes that has the potential to approach long-term average levels by next spring. While this possibility will largely depend on water supplies, it is also in part linked to the influence of water regulation, and the ability to release more water and recover more quickly after an extreme event. Outflows for the foreseeable future will continue to be set at the maximum possible rates, deviating above Plan 2014 outflows when possible in consideration of the high levels of Lake Ontario and the upper Great Lakes, and also given constraints of river currents, ice formation, water intakes on Lake St. Lawrence and downstream flooding. The Board will continue to assess every possible opportunity to safely lower Lake Ontario water level in consideration of all interests.

Levels in the lower St. Lawrence River are also expected to remain above long-term average unless very dry water supplies prevail.

## Lake Ontario Water Level Forecast



For the most up to date forecast information visit:  
<https://ijc.org/en/loslrb/watershed/forecasts>