



The Peel Climate Change Partnership (PCCP) is working together to help reduce greenhouse gas emissions and adapt to the changing climate.

THE PARTNERSHIP INCLUDES:

- The Region of Peel
- The City of Brampton
- The Town of Caledon
- The City of Mississauga
- Credit Valley Conservation
- Toronto and Region Conservation Authority

www.trca.ca/flood

@TRCA_Flood

flood.message@trca.ca

www.cvc.ca

@CVC_CA

cvcflood@cvc.ca

ICE JAM INFORMATION GUIDE

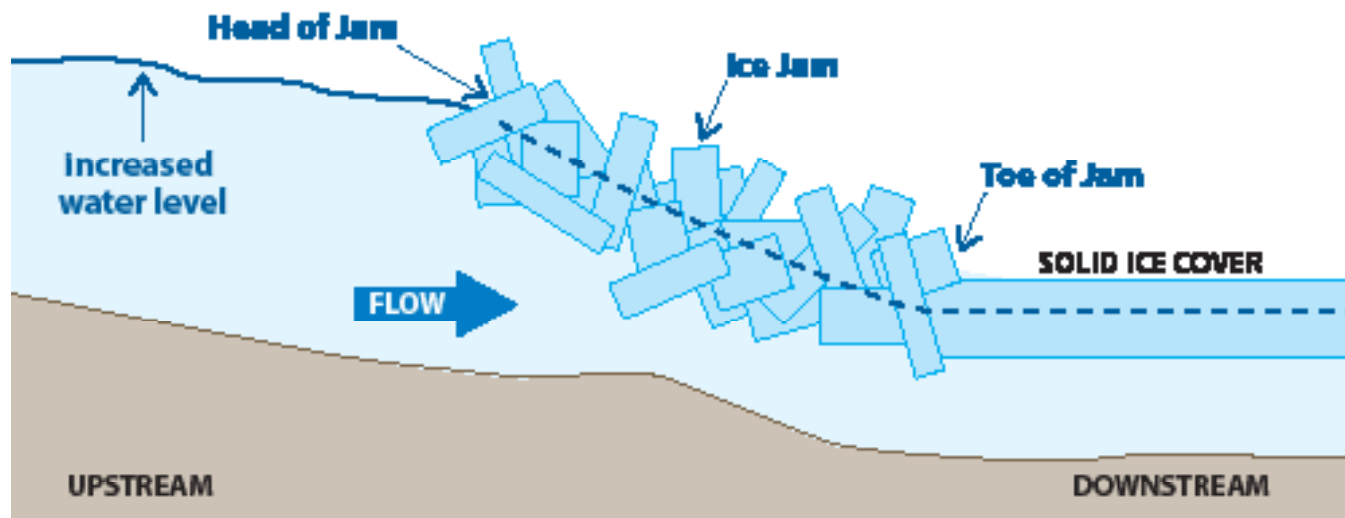




Conservation authorities monitor and assess weather forecasts and watershed conditions, such as water levels, streamflow and rainfall, and communicate the potential for flooding to the public, municipalities and media. Ice jams are one of several factors that can cause flooding along a watercourse.

What is an ice jam?

River ice can form along a watercourse during long cold spells. This ice can gradually melt with steadily increasing air temperatures. Warmer temperatures can also melt the nearby snowpack, resulting in increased runoff entering the watercourse, which can break up the ice. In the absence of any snowpack, a moderate amount of rain can have the same effect. An ice jam occurs when ice pieces are carried downstream and become stuck, blocking the flow of water and potentially causing flooding upstream.



How an ice jam occurs.



Ice jam at Glen Williams in the 1940s. Photo credit : Credit Valley Conservation Authority

- bends, meanders, and mouths of rivers, where water may slow down;
- shallow riverbeds, narrow channels or tight bends, where ice may get stuck;
- areas where anchor ice (river ice freezing to the bottom of the river channel) can occur, which can block the flow of ice and redirect water to other areas; and,
- man-made structures such as bridges, culverts, dams, reservoir entrances, fencing, construction materials, etc., that can block the passage of ice.

CAN ICE JAMS BE PREDICTED?

No, ice jams cannot be predicted accurately. Many factors, such as weather, river channel characteristics and streamflow contribute to ice jam formation. Current river ice science cannot predict when or where an ice jam will form.

WHERE DO ICE JAMS OCCUR?

Ice jams occur naturally and there are many historical examples within Toronto and Region Conservation Authority (TRCA) and Credit Valley Conservation (CVC) jurisdictions. Some natural characteristics of creeks and rivers may increase the risk of ice piling up in certain locations. These include:

WHY DO ICE JAMS CAUSE FLOODING?

Ice jams can sometimes block water flow and cause water levels to rise (sometimes suddenly) behind the jam, increasing the risk of flooding upstream. The speed at which water in the channel will rise depends on how much water is flowing in the river or stream and how much the ice is blocking flow. Sometimes multiple ice jams can form and release, causing new jams downstream (similar to a car pile-up on the highway). Flooding can impact areas near the watercourse further downstream, as ice pieces continue to move past or release from the existing ice jam.

WHO IS RESPONSIBLE FOR DEALING WITH ICE JAMS?

Everyone has a role to play. Conservation authorities, municipal staff and emergency responders continue to coordinate, advise, and share information. Residents play an important role by staying informed, sharing information with neighbours and reporting ice jams and flooding.

While conservation authorities (TRCA and CVC) operate river ice monitoring programs and can provide advice to municipal staff of ice jam risk, municipalities have the primary responsibility for the welfare of the residents.

FLOODS: EMERGENCY PREPAREDNESS AND RESPONSE

WHAT CAN CONSERVATION AUTHORITIES (CAs) AND MUNICIPALITIES DO?	WHAT CAN THE PUBLIC DO?	HOW CAN THE PUBLIC PREPARE?	REMEMBER WHAT NATURE CAN DO!
<ul style="list-style-type: none"> • Monitor • Coordinate • React/Address • Advise • Educate 	<ul style="list-style-type: none"> • For emergencies call 911 • Notify neighbours • Report and take pictures • Stay safe (evacuate as needed) • Track alerts 	<ul style="list-style-type: none"> • Make a plan • Know who to call • Know your neighbours • Call your insurance provider • Protect your property in advance 	<p>There will be storms and there will be ice jams.</p> <p>We cannot predict nature, but we can:</p> <ul style="list-style-type: none"> • WORK TOGETHER • PREPARE • PLAN AHEAD

WINTER SAFETY INFORMATION

Ice in and around watercourses and dam reservoirs is unpredictable and unstable. Warm weather and rainfall can raise water levels making ice conditions even more unstable. Always stay away from frozen water bodies and ice around dams and channels. Remember to keep a safe distance from ice jams because water levels can fluctuate very quickly and riverbanks can become unstable. Chunks of ice can jam up and release without warning, often in a very short period of time.

ICE JAM RESPONSE

Ice jams can form and dissipate on their own without causing any significant flooding. All risks need to be considered before attempting to remove an ice jam that poses a risk to public safety. Conservation authorities and municipal staff work together to address the specific flood risk due to an ice jam. Conservation authorities can provide enhanced monitoring by using tools such as drones, remote cameras and stream gauges, to help monitor current conditions and provide technical advice to emergency responders, if necessary.

If an ice jam does form along a watercourse and there is a risk of flooding to nearby areas, options of removing the already formed ice jam are limited and is carried out by the local municipality and emergency responders.

ICE JAM MITIGATION MEASURES

Ice jam intervention should only be considered and executed if it will successfully resolve the risk and not create another risk elsewhere. Ice jams can be mechanically removed using heavy equipment such as excavators to clear the jam. Other methods, such as channel straightening, ice control structures and blasting are not recommended.

WHAT IS A CONSERVATION AUTHORITY'S ROLE IN FLOODING?

The goal of Ontario's Flood Forecasting and Warning program is to reduce the risk to life and damage to property caused by flooding from river systems. Working with the Province, Ontario's conservation authorities maintain flood forecasting and warning systems. Flood Duty Officers monitor weather and flows using a network of rainfall and stream gauges. TRCA and CVC provide notice, information and advice on how to respond during severe rainfall events with the potential for flooding to member municipalities, police, emergency services, school boards and media, among other organizations. Conservation authority flood messages can also be sent to anyone who signs up to receive them.

Toronto and Region Conservation Authority

[Sign up](#) for flood messages

[Flood Monitoring Gauging Website](#)

Contact TRCA Flood staff by email or phone at

Flood.Message@trca.ca or 416-661-6514

[View current flood message](#)

Credit Valley Conservation Authority

[Learn more about flood warning and forecasting, and sign up for flood messages.](#)

[View water levels and precipitation in real-time.](#)



Mechanical Ice removal at an ice jam in the Humber River, downtown Bolton, March 16, 2019. Photo credit : Toronto and Region Conservation Authority

Frequently Asked Question: Is ice jam flooding covered by insurance?

Overland flood insurance is not part of most standard policies. Residents are encouraged to talk to their insurance representative to confirm their coverage and options. Learn more from the [Insurance Bureau of Canada](#).