

Trees and Carbon

Did you know:

Trees draw carbon dioxide from the atmosphere through a process called photosynthesis?



CARBON CAPTURE

Plants use photosynthesis to produce carbon-based sugar. This process pulls carbon from the air and releases oxygen.



STORING CARBON

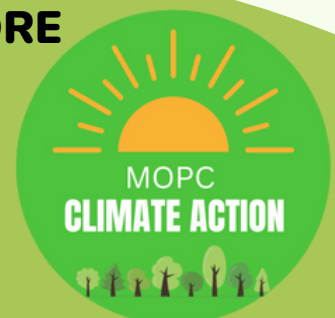
Every part of a tree stores carbon, from the trunks, branches, leaves, and roots.



CARBON RELEASE

When some or all parts of a tree decompose after death or burn during fire, the carbon is released back to the atmosphere. If the wood is used in a house or furniture, it is stored even longer.

SINCE 2022, THE MOPC HAS PLANTED MORE THAN 15,000 TREES!



Coastal Erosion and Flooding

Did you know?

A Nova Scotia Environment and Climate Change Report in 2022 advises that Pictou County will be one of the most vulnerable Nova Scotian communities to coastal and river flooding in the 2030s.

In the Northumberland Strait, erosion happens at different speeds depending on land type.

Cliffs erode at 0.26 metres per year, while beaches erode at 1 metre per year.

WHAT IS COASTAL EROSION?

Coastal erosion occurs when the land along the coast wears away because of waves, currents and tides.

IMPACTS

Erosion and flooding can damage roads, bridges and homes. This can lead to job losses, problems with drinking water and less recreational space.

TACKLING THE PROBLEM

The MOPC plans to:

- Make a database to track floods, coastal changes and river flows
- Create an easy-to-use tool for property owners to check erosion and flooding risks.
- Change or add new rules to guide building in high-risk areas.
- Encourage people to take steps to protect their properties from flooding



Wildfire Risk

One of the biggest risks associated with climate change is an increased risk of wildfires.

Wildfire season in Nova Scotia is March 15 to October 15.

WHAT IS A WILDFIRE

A wildfire is a fire that spreads quickly over woodland or brush.

IMPACTS

The wildfire in Tantallon, Nova Scotia, that lasted from May 28 to June 4, 2023, is estimated to have caused over \$165 million in insured damage, highlighting the impact wildfires can have.

TACKLING THE PROBLEM

The MOPC plans to:

- Create a map of forested areas most prone to wildfires near homes
- Develop an easy-to-use online tool for emergency responders and landowners to track fire movements based on fuel, terrain and weather.
- Encourage homeowners to clean up dead vegetation on their properties.
- Improve notifications to people at risk of wildfires through phones, texts, emails and social media.
- Identify and sign safe evacuation routes from high-risk areas.
- Enhance evacuation facilities and provide advance warning of wildfires.



CLIMATE CHANGE IMPACT

Severe Wind Damage

WINDS OF CHANGE

Homeowners near hardwood forests or with large hardwood trees close to their buildings should not be too relaxed about their safety.

Strong windstorms associated with climate change are expected to increasingly impact our region.

STORM IMPACTS

Severe windstorms like Fiona, which hit Pictou County with hurricane force winds in 2022, can topple massive hardwood and softwood trees, leading to higher wildfire risks and costly cleanup.

QUESTIONS

Climate change raises questions about the future of our forests. What tree species can withstand stronger winds, more rain, and higher temperatures? How should we adapt our housing?

PLANNING AHEAD

To address these issues, the MOPC plans to:

- Expand the annual MOPC Tree Planting Program by planting more seedlings, involving more volunteers and partners, and hiring planting contractors.
- Consider replacing existing boreal tree species with those better suited to the changing climate.



CLIMATE CHANGE IMPACT

Property insurance

POP QUIZ!

Who decides where it is safe to live and work?

1. Nobody's the boss of me; it's a free country, right?
2. The Government of Nova Scotia.
3. Actually, the Province has passed this responsibility to Municipalities.
4. Mother Nature.
5. The Canadian property insurance industry.

Ultimately, Mother Nature and the insurance industry will likely determine where it's safe to live and work.

As climate change affects which parts of the County may flood or burn, insurance costs will impact future property values and locations.

Owners of properties in floodplains, on eroding coastlines, or near woodlands may face higher insurance rates or lose coverage entirely.



COVERAGE DENIED

North American insurers in places like California and Florida have already stopped covering high-risk areas due to hurricanes, wildfires, and floods. Nova Scotia had the highest insured losses in Canada in 2023 and the second highest in 2022. The Insurance Bureau of Canada reported payouts of \$581 million in 2022 and \$611 million in 2023.

THE MOPC CAN ADDRESS THESE ISSUES BY:

Developing new by-laws to discourage building in floodplains and erosion-prone areas and add these bylaws to the Municipal Planning Strategy.

Got food?

Pictou County, like the rest of Nova Scotia, doesn't grow enough food to meet all its needs.

If we lose transportation links with the rest of Canada, such as from hurricane flooding the Trans-Canada highway and railway at the NS-NB border, Nova Scotia could face food shortages quickly.



Weather effect



Even if the Tantramar connection remains open, bad weather can still ruin crops and affect our food supply. For example, long droughts on the prairies can reduce our grain and meat supplies.

Nova Scotia grows a lot of fruits and vegetables, but unpredictable weather has caused problems recently.

In June 2018, frosts hurt the fruit sector, and hurricanes in September have damaged crops. The polar vortex in winter 2023 also harmed fruit trees.

Taking action

To reduce the risk of food shortages, Pictou County could use its underutilized farmland to grow more fruits, vegetables and raise more livestock.

To address these issues, MOPC proposes to consider offering incentives to boost local agriculture.



Rising Sea Levels

Sea levels are rising because glaciers and ice sheets are melting, and sea water is expanding as it warms. From 1880 until about the early 21st Century, global sea levels have risen a total of about 20-24 cm (8-9 inches).

From 1900 to 2009, sea levels rose an average of about 1.7 mm per year, but from 1993 to 2009, this rate increased to 2.8-3.2 mm per year.

Predictions suggest sea levels could rise more than 25 mm per year by 2100, about ten times the current rate.



For Pictou County, the sea is rising faster because the southern parts of maritime Canada are sinking. By 2100, sea levels in our area could rise by a total of 80-100 cm (31-39 inches) relative to 1985-2006.

Ocean Warming

Warmer ocean temperatures also affect our region. Negative impacts include

- Fish leaving the area
- Reduced nutrients
- Risk of invasive species
- Higher acidity which harms shellfish like lobsters, mussels, clams, and oysters
- More intense hurricanes

Taking action

The MOPC plans to prepare for higher sea levels and warming impacts on local industries and recreational areas.



Drought in Pictou County?

Dry weather is expected

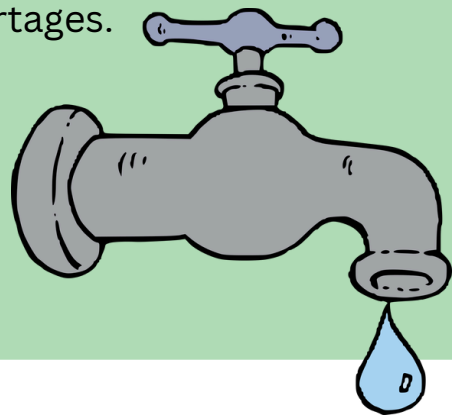
Even though droughts are often linked to places like the Prairies, Pictou County can experience dry weather too. As the climate warms, we might see more wildfires and heatwaves affecting agriculture by the 2080s, suggesting more droughts.

Historical droughts

Pictou County has had droughts before, like in 1975 and 1997. In 1975, water had to be pumped from a nearby watershed to supply Stellarton. In 1997, a lack of rain harmed livestock farmers, forcing them to buy expensive feed and, in some cases, sell their herds.

What can be done

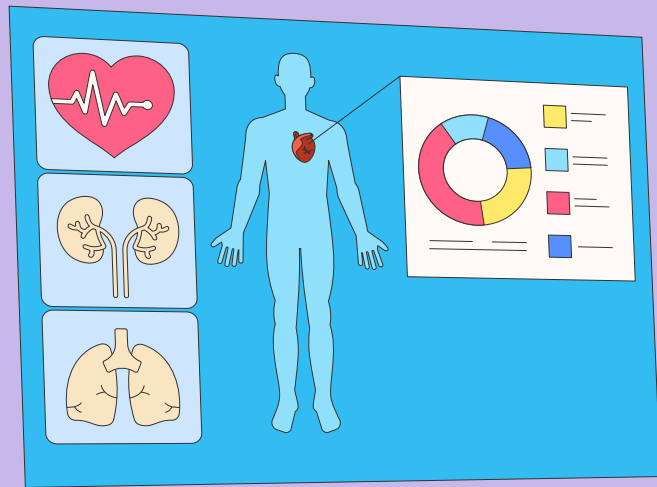
Be aware of the risks of drought and prepare for possible water shortages.



An unhealthy change

Climate change makes natural hazards like storms, floods, and heatwaves worse, leading to injuries and health problems like heart and lung diseases.

Vulnerable groups, including Indigenous peoples and rural residents, face greater risks due to less infrastructure and existing challenges.



Water and health

Water quality and quantity are affected by changes in precipitation and temperature. This can threaten drinking water, increase waterborne diseases, and cause injuries from heavy rainfall.

Mental health

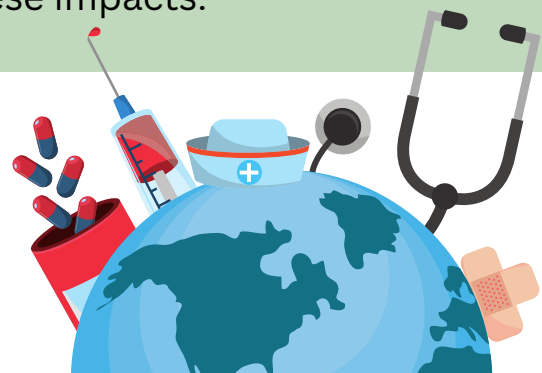
Mental health can suffer from both short-term events like hurricanes and long-term changes like sea-level rise. These disruptions can cause fear, grief, anxiety, and weaken community bonds..

Air pollution

Air pollution also worsens due to climate change, with wildfires and more pollen contributing to poorer air quality. This affects people with conditions like asthma or heart disease, especially the elderly and children. Extreme weather events like floods can also harm indoor air quality.

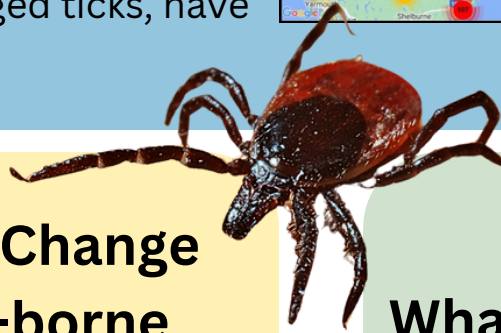
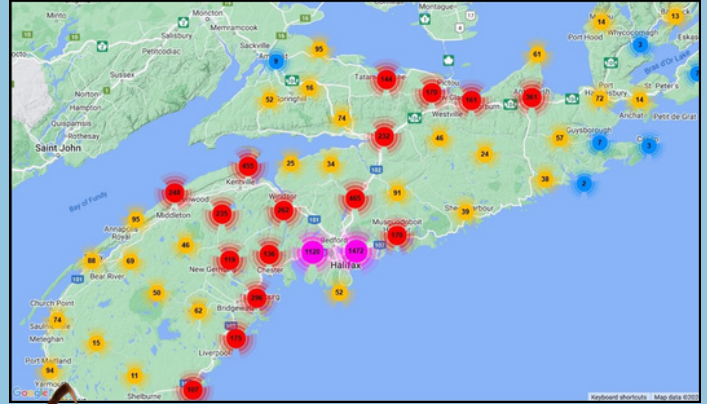
What can be done?

Improve health services and safety measures to protect people from these impacts.



Tick Talk

Nova Scotia's climate is ideal for ticks and there are more ticks per person here than in other parts of Canada (see map illustrating the number of reported tick encounters in the past five years). In Pictou County, ticks that can carry Lyme Disease, like blacklegged ticks, have been found.



How Climate Change Affects Tick-borne Disease Spread:

Warmer weather allows ticks to live longer and spread to new areas. Higher temperatures and more rain help ticks and the diseases they carry spread faster.

New diseases like Anaplasmosis, Babesiosis, Powassan virus, and *Borrelia miyamotoi* disease are becoming more common. Warmer weather helps ticks survive and spread these diseases.

What can be done?

Monitor and control tick populations to reduce the risk of tick-borne diseases.



Climate refugees

What is a climate refugee?

"Climate refugees" are people forced to leave their homes because of major environmental problems.

Some people are displaced directly by disasters like floods and mudslides, while others face droughts that destroy crops and force them to move. These migrations can lead to job losses, poverty, and conflicts over resources.



How many?

From 2008 to 2016, 21.5 million people had to relocate each year due to climate-related events like floods and storms. In 2019, about 24.9 million people were displaced in 140 countries due to weather-related hazards. Without strong climate action, the number of people needing help could reach over 200 million annually by 2050.

Who is affected?

Island nations in the southwestern Pacific are particularly at risk from rising sea levels and warming oceans. These small islands, where most people live close to the coast, may face severe impacts.

Sea levels are rising faster than in the past 3000 years, and some islands might even disappear.

What can be done?

Be prepared to support newcomers and manage the impacts of climate-related migration.