

Natural. Valued. Protected.

Climate Change



What are "Greenhouse Gases"?

Greenhouse gases occur naturally, but we have been increasing concentrations of them in our atmosphere since the Industrial Revolution.

Examples of greenhouse gases include:

- Carbon dioxide
- Methane
- Nitrous oxide
- Human made compounds such as chlorofluorocarbons (CFCs).

These gases are released by activities such as:

- Burning fossil fuels
- Industrial and agricultural practices
- Land use practices (i.e. deforestation, and converting forests and wetlands to urban areas).

What is Climate Change?

Climate refers to long term patterns in our weather – things such as temperature, rainfall, snowfall, sunshine and wind. While there are seasonal (or even daily) changes in weather, the average *climate* is much more constant.

Climate does change naturally, usually happening slowly over thousands of years. However, in the last 100 years, we have seen some dramatic changes in the global climate; rising temperatures, more extreme weather and water shortages.

These changes are due to the rapid growth in industrialization and other activities that have increased the amount of "greenhouse gases" in the atmosphere. These gases got their name because they act as a "greenhouse", trapping heat in the Earth's atmosphere. This "greenhouse effect" leads to global warming. Once global warming affects our weather patterns and climate conditions, it is referred to as *climate change*.

Climate Change and Ontario

Climate change is a global concern, but the effects of it are being felt right here in Ontario. During the last 100 years, the average annual temperature in the province has increased by 0.7 degrees Celsius. By the end of the century, average temperatures in Ontario could increase by up to 6 degrees Celsius.

At first, these numbers may not sound like cause for concern, but even small changes in temperatures can have large impacts. During the last ice age, for example, the average global temperature was just 5°C cooler than it is today.

Small increases in temperature can result in milder winters, changes in ecosystems, and more severe weather events such as storms, floods, droughts and heat waves. These changes can impact all of Ontario, our natural areas, wildlife, fish and plants as well as our towns and cities, health, transportation and recreation.

www.ontario.ca/climatechange

What is a "Carbon Sink?"

Carbon sinks are natural or human made reservoirs that store greenhouse gases such as carbon dioxide. Natural sinks include oceans, wetlands, trees, wood products and soil.

The process of storing carbon is called "carbon sequestration".

What is the Ministry of Natural Resources Doing About Climate Change?

In 2007, Ontario launched the *Go Green Action Plan on Climate Change*. The plan outlines Ontario's commitment to reduce greenhouse gases and help the people of Ontario adapt to the effects of a changing climate.

Climate change impacts the province's natural resources — its forests, water, fish and wildlife. As the agency responsible for managing natural resources and for emergency response, Ontario's Ministry of Natural Resources plays an important role in helping the province meet its commitments under the *Action Plan*.

The ministry is addressing climate change by helping Ontarians understand, mitigate the impacts of, and adapt to climate change.

Understanding

The first step in dealing with climate change is understanding the potential changes it may bring to our province. Due to their work in the field, Ministry of Natural Resources' staff are some of the first to observe changes in the environment. In the face of a changing climate, the ministry's roles in observing, mapping and monitoring our natural resources are more important than ever.

Examples of the ministry's work towards a better understanding of climate change issues include:

- Creating an online interactive map that demonstrates potential changes to Ontario's climate (<http://www.web2.mnr.gov.on.ca/mnr/ccmapbrowser/climate.html>)
- Studying the impacts of a changing climate on polar bears in Ontario's Far North, (follow the bears online at <http://polarbears.wwf.ca/tracker.html>)
- Researching potential impacts of changes in temperature and precipitation on forests, fisheries, wildlife, invasive species and species at risk
- Improving our forecasting of floods, low water and forest fires.

This type of research allows the ministry to understand and plan for the impacts of climate change on our natural resources and emergency management programs.

Mitigating

The Ministry of Natural Resources' is taking action to reduce further greenhouse gas emissions through a number of mitigation activities that centre on:

- Reducing greenhouse gas emissions from its own vehicles and buildings
- Assisting the people and industries of Ontario with tree planting and forest management (e.g. the ministry is helping the province meet its commitment to plant 50 million trees in Southern Ontario)
- Restoring damaged forests and protecting wetlands and other ecosystems
- Providing opportunities to generate electricity from renewable energy (for example, wind power, waterpower and energy from biomass).

Adapting

Due to the greenhouse gases already in our atmosphere Ontario's climate is changing. That's why the Ministry of Natural Resources is committed to helping Ontarians adapt to current and predicted impacts of climate change in several ways. These include:

- Protecting the public from natural hazards by providing emergency planning and response (i.e. forest fire fighting, flood monitoring and response, and low water response)
- Adapting forest, wildlife and fisheries management plans to reflect a changing climate
- Communicating climate change issues and impacts to the public, and helping Ontarians participate in decision-making on climate change issues.

How you can get involved

Climate change is the most significant issue of our time. There are many ways that you can reduce your own impacts on the climate. Visit www.ontario.ca/climatechange to learn:

- How your own actions can add up to a big difference.
- More about the impact of climate change.
- About the Ministry of the Environment's *Go Green Action Plan*
- How you can green your own home.

