

# Background: Adaptation

## THE CHALLENGE

### *Climate Trends*

Temperature, sea level, storm surge return periods (a measure in part of storms' frequency and intensity) and rainfall in Nova Scotia are on the rise. We can expect an increase in the overall weather variability and the frequency and intensity of extreme weather events.

- *In the 20th century:*
  - average temperature in Nova Scotia increased by 0.5°C
  - sea levels around Nova Scotia's coastline rose by 25 cm
  - an extreme rainfall event (considered to be 80 mm of rain in one day) occurred once in every 50 years
  - a storm so severe that it created surges and coastal inundation happened once in every 100 years
- *In the 21st century:*
  - average temperature in Nova Scotia could reach anywhere from 2°C (low-emission scenario) to 4°C (high-emission scenario)
  - sea levels are expected to rise by a further 60 cm (medium-emission scenario) (conservative estimate)
  - extreme rainfall events are likely to occur every 10 years
  - storm surges are likely to happen once in every 10-year period

### *Projected Impacts*

- Warming trends could undermine water quality (increase in parasites and waterborne disease) and availability (water tables dropping from increased evaporation).
- Freshwater supplies are now at greater risk of being contaminated by salt water (from sea-level rise), pollution (from runoff during heavy precipitation) and parasites (from warmer water temperatures). Demand for water and competition over water allocation are also expected to increase.
- Warmer weather could present some opportunities for agriculture (longer growing seasons) and tourism (longer warm season for vacations), but these industries will also have challenges (e.g., increases in agricultural pests and impact of extreme weather on crops; decreases in winter tourism).

- Warmer and wetter weather conditions increase the prevalence of vector-borne diseases and other effects of parasites, which put population health at risk.
- The poor, the elderly and young children are particularly vulnerable to climate change. New climate conditions can affect air quality and put residents at greater risk of heat-related illness, as well as accidents, injuries or deaths related to extreme weather.
- Some flora and fauna may not survive under new climate conditions; salmon, capelin and cod, for instance, are most likely to suffer as a result of temperature changes, increase in competitors and parasitism.
- Sea-level rise and increasing ocean energy will increase the rate of erosion along the coast.
- Much of our infrastructure is located in vulnerable areas and wasn't engineered to withstand new climate conditions. Public and private infrastructure is now more vulnerable to damage and is likely to deteriorate more quickly.
- Heavier bouts of precipitation are likely to lead to more frequent and severe flooding—more will come as rain and less as snow—and precipitation patterns will be more variable.
- There is some potential for increases in lightning storms and wind speeds (leading to fires and property damage).
- Habitat changes will affect wildlife; for example, potential loss of wetlands, which are home to migratory birds and species at risk.
- Nova Scotia depends on climate-sensitive industries. There could be big social and economic repercussions if these industries do not adapt.

## THE PATH

Nova Scotians are particularly vulnerable to coastal impacts of climate change. Protecting natural features such as beaches and wetlands is critical to adaptation. That is why we are developing a coastal management strategy and a natural resource strategy and have put in place a “no net loss” of wetlands policy to start to set policy direction on these issues. We will also take the impact of sea-level rise into consideration when developing the wetlands policy.

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## THE PATH (CONTINUED)

In addition, Nova Scotia is working with our Atlantic partners to encourage Natural Resources Canada's assistance for the most vulnerable communities across Atlantic Canada, to help them adapt to potential coastal and inland flooding hazards.

The Climate Change Action Plan sets adaptation goals that will assist the province in meeting a number of targets in the Environmental Goals and Sustainable Prosperity Act. New money for adaptation research and a new web database on climate impacts and adaptation tools will assist the province in developing proper adaptation responses to climate impacts in the coastal management, water and natural resources strategies and in developing the no net loss of wetlands policy. The web database, to be developed this year, will give decision makers the information they need to adapt to climate change. The website will provide detailed information on climate trends, relevant research, maps and tools that will help municipalities, communities, individuals and businesses to prepare for climate change.

The 2009 Energy Strategy is looking at the impact of extreme weather events on energy reliability in the province.