

Climate Change and Natural Areas Fact Sheet #1

What New Brunswick Can Expect From A Changing Climate

The Intergovernmental Panel on Climate Change, created by the United Nations, has determined that climate change is happening and needs to be a matter of concern for all governments. In their publication, *Climate Change 2007: Synthesis Report*, they note:

- The past decade has seen some of the warmest temperatures in the past century, sea level has risen and there is every indication that this trend will continue.
- Eleven of the last twelve years (1995-2006) rank among the twelve warmest years in the instrumental record of global surface temperature (since 1850).
- Projections are that greenhouse gas emissions (GHG) will increase 25-90% by 2030. Warming is expected to be 0.2° per decade for the next two decades and greater than that afterwards.



Analyses performed by Natural Resources Canada provide us with the following picture of what New Brunswick can likely expect in the future:

- By 2050, temperatures will rise by 2-4° C in summer, 1.5-6° C in winter. Temperatures inland will be higher, with the coastal temperatures still moderated by oceans.
- Seasonal and yearly variation in precipitation will increase. Summers inland will be drier.
- Seasonal weather patterns may be more dramatic, including winter cyclonic storms, summer heat and drought, early or late frost, winter rain/thaw, river ice jams and flooding.
- Sea levels will rise by 50-70 cm over the next century, with increased soil erosion and instability of coastal sand dunes and beaches. Storm surges on the eastern coast are expected to increase in severity, posing a risk of damage to its communities and buildings.
- An increased need for irrigation and fertilizer inland, just to help crops grow, may lead to greater runoff into streams.
- Changes in ecosystems and species dominance will occur, through conversion or migration. Existing wildlife and habitats may gradually move northward and to higher altitudes where possible. Some wildlife and plants that cannot move to more suitable climates may be lost from the province.
- Nesting and migration patterns of birds will be affected, and other pollinators of food plants, like butterflies and bees, could lose their habitats.
- Decreased rain inland could result in diminished river flows, leading to greater salinity in estuaries, and warmer temperatures in all inland rivers, streams and lakes.
 - Salmon and trout, which need cold rivers, will likely be found in fewer rivers and lakes, or be lost from the province.
 - Drought combined with development may dry up wetlands, vital for moderating water flow into rivers and maintaining water supplies.



- More rain and less snow in the winter can result in more rapid runoff and less water retention in forests.
- Changes in precipitation patterns may ultimately result in lower water tables throughout the province, possibly reducing drinking water quantity and quality. This could also lead to greater potential for sea-water intrusion into coastal water tables.
- Increased growing season, higher temperatures and rising CO₂ levels may not result in increased productivity in the forests. Droughts may affect trees with shallow root systems like hemlock and spruce. Increased ice storms, windstorms, fires, insects, invasive species and diseases may mean trees won't grow as fast as they have in the past.

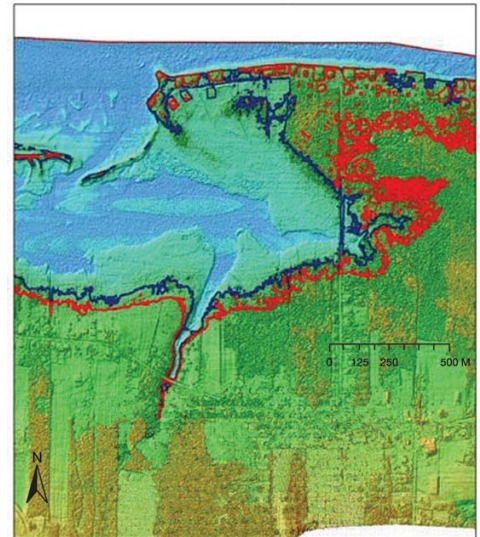
To Implement a Climate Change Adaptation Action Plan in New Brunswick:

- Strategies and plans to conserve coastal areas, forests, watersheds, biodiversity and species at risk, to allow our ecological safety net to respond well to climate impacts, will need to be implemented across government departments and involve the public in taking action.
- Community and transportation route planning and development will need to incorporate the predicted trends of sea level rise, increased risk of floods and soil erosion into plans and decisions about where development is permitted to happen.
- We are all in this together. Strengthening public engagement and increasing capacity for non-government organizations and the public to assist in monitoring the effects of climate change and promoting solutions should be a priority for New Brunswick.

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Mitigation or Adaptation?

Mitigation refers to actions which will slow down or reverse climate change, such as energy efficiency. Adaptation means actions which will help us respond to and live with the effects of a changing climate. For example, conserving forests, rivers and wetlands that help buffer us from temperature fluctuations and flooding is an adaptation action. A successful climate change strategy will include a combination of both types of actions.



Map showing flooding extents with present sea levels (blue line) and with a 60 cm sea-level-rise scenario (red line) for a 10-year return period, Pointe aux Bouleaux, NB (map by Bernier et al., 2006, taken from Vasseur et al, 2008, p.133).

Useful references:

Vasseur, L., N. Catto et al. 2008. Chapter 4 - Atlantic Canada. In: *From Impacts to Adaptation: Canada in a Changing Climate 2007*; Lemmen, Warren, Lacroix and Bush, Editors. Government of Canada (Natural Resources Canada), Ottawa, ON

Environment Canada. 2006. *Impacts of Sea Level Rise and Climate Change on the Coastal Zone of Southeastern New Brunswick*. Government of Canada (Environment Canada), Ottawa, ON.

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