

Climate Change Impacts to Marine Tourism



Precipitation

- Average daily precipitation is expected to increase throughout the province. In Newfoundland, widespread increases are expected by late century, whereas changes in Labrador are typically smaller.
- Precipitation intensity is expected to increase in all seasons, with smaller changes Labrador.
- Freezing rain will increase by mid-century (2050) over most of the province, but rising air temperatures will lead to a decrease in freezing rain towards the end of the century (near 2100).

Key Potential Impacts

- Increased number of cancellations
- Quality of services (e.g., operating in rain)
- Health and safety
- Road closures/washout
- Facility damage (structural/aesthetic)
- Flooding
- Deposited sediment and debris
- Power and communication outages
- Increased repair and maintenance

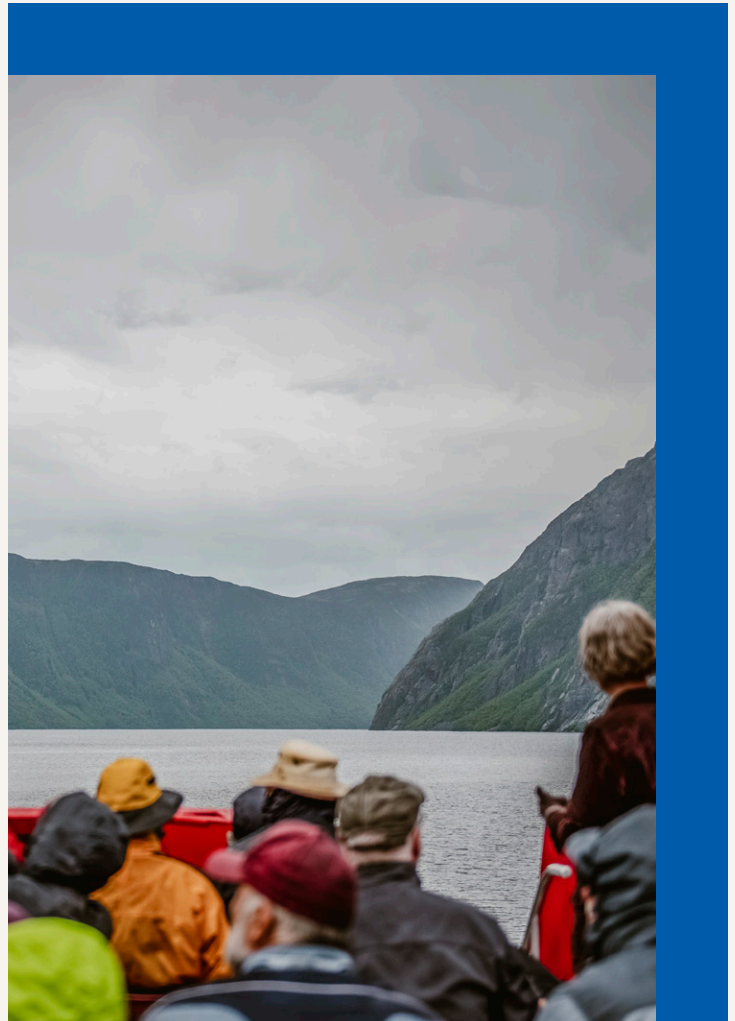


Photo Credit: Discovering Destinations



Temperature

- While the entire province is projected to get warmer in the future, the rate of warming will be relatively higher at high latitudes (e.g., Northern Labrador).
- Number of days with frost are expected to decrease, while thaw events and freeze-thaw may increase in winter.

Key Potential Impacts

- Exposure to extreme heat and heat waves
- Increased operating costs for cooling facilities
- Shifting species, introduction of invasive species
- Possible shifting operating season or location



Photo Credit: Newfoundland and Labrador Tourism



Wind and Storms

- A possible increase in the intensities of tropical (e.g., hurricanes) and extra-tropical storms (e.g., nor'easters).
- Possible future increase in wind speeds.

Key Potential Impacts

- Increased tour cancellations or delays
- Unpredictable schedule
- Travel disruptions
- Damages to roads, power outages
- Infrastructure damage
- Increased maintenance and repairs
- Health and Safety of tourists and workers



Sea-Level Rise

- The IPCC projects a global mean sea-level rise of 84 centimetres by 2100.
- Relative sea-level change in NL will significantly vary across the province due to vertical land motion.
 - Land is subsiding (sinking) in the south, which will increase local relative sea-level rise (projected 71 cm SLR in south Newfoundland).
 - Land is rebounding (rising) in the north, which will decrease relative sea-level rise (projected 10 cm SLR in central/north Labrador).

Key Potential Impacts

- Increased flooding in low-lying areas
- Infrastructure damage (structural and aesthetic)
- Undermining of infrastructure
- Long term suitability of infrastructure (e.g., wharves becoming unusable because of sea-level rise)
- Damage to docked boats during a storm surge



Coastal Erosion

- Existing rates of coastal erosion are highly variable across the province. Most change will occur in unconsolidated cliffs and beaches.
- Erosion rates are dependant on changing wind, waves, groundwater, and surface water. Sea level rise will allow waves to get closer to cliffs, and increases in precipitation intensity will accelerate erosion from runoff.

Key Potential Impacts

- Undermining of infrastructure
- Aesthetic damage to coastal infrastructure and facilities
- Increased maintenance and repair costs
- Damage to coastal trails
- Increased damage or loss of coastal protection (e.g., breakwaters)
- Damage to coastal habitats (e.g., bird nests)
- Human health and safety



Oceanographic and Terrestrial Environment

- Sea surface temperatures are expected to increase throughout the region, in all seasons.
- Due to increases in precipitation over the ocean and ice melt, coastal salinity is expected to decrease (except some deep-ocean areas in the south where it may increase).
- Changes to ocean currents potentially affecting species distribution patterns.
- Decreases expected in pH and dissolved oxygen.
- Reduced occurrence of icebergs in the long term.

Key Potential Impacts

- Changes in species migration patterns, shifting to new regions
- Increased pests and disease
- Changes in water temperature and quality, health impacts
- Habitat and nutrient loss
- Changes in prey distribution and food competition
- Possible loss/reduction of natural attractions (e.g., icebergs, whales)

Photo Credit: Stein Egil Liland



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