

Municipal Climate Change Sustainability: Coastal Vulnerability

Municipalities can adapt their policies and infrastructure to prevent loss of roadways and structures to erosion, and sea level rise. Though many coastal communities are of high enough elevation to not be directly impacted by sea level rise, an increased erosion of cliff faces and damage to wharfs and marine infrastructure could still affect communities. A loss or reduction of sea ice can also increase coastal erosion.

Due to the variability of coastal environments in Newfoundland and Labrador, adaptation options will depend on the shoreline type, which could vary even within small communities.

Sandy Systems

- Concerns: Erosion, sea level rise, flooding and storm surges
- Allow mobility of sand through the system, particular important for dunes
- Reduce development near the coast especially in a dune system
- Limit ATV and vehicle access, as frequent use compacts sand grains and increase erosion further back on the beach
- Limit structures which impede sediment flow
- Living shoreline/wetland
- Dune building
- Plant stabilization
- Beach nourishment
- Buried revetment

Cobble Beaches

- Common on the Northern Peninsula
- Concerns: sea level rise, storm surges
- Flood management for nearby infrastructure

Banks

- Concerns: Sea level rise, erosion, storm surge, Cliff face failure (undercutting)
- Restricting land use
- Cliff and bluff stabilization
- While rock walls may be effective at protective shorelines, in promotes shoreline squeeze and natural options would be more ideal to protect the natural ecosystem

Cliffs and Bluffs

- Concerns: erosion, sea level rise, storm surge, cliff face failure. High erosion in the gypsum cliff shorelines of Southwest Newfoundland
- Restricting land use
- Cliff or bluff stabilization through rock armouring or planting vegetation
- Engineered revetment
- Scour protection
- Artificial reefs

Rocky Shores

- Concerns: sea level rise. Storm surge (increased erosion)
- Land use planning tools
- Restricting development or land use changes

Salt marshes and intertidal habitats

- Example: coastline of Placentia Bay
- Associated with mesotidal estuaries on the West coast of Newfoundland
- Concerns: Sea level rise, erosion, sea level squeeze
- Allow for salt marsh growth (protect areas around it; as sea levels rise, salt marsh will move further inland, protection these areas will act as a flood management strategy)
- Protect vegetation