
Monitoring coastal areas in Newfoundland and Labrador

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Most communities in Newfoundland and Labrador are built adjacent to or along the coast, with the majority of the population living and working in coastal areas. Storm surge and wave run-up, rising sea levels, slope movement, and human activities are coastal hazards. There have been at least thirty recorded deaths since 1863 in the province, and costly economic damage to individuals and communities as a result of coastal flooding and landslides. Sea level is projected to rise during the next century, which will increase the vulnerability of areas to coastal flooding and erosion. Climate change projections show an increase in the magnitude of mid-latitude storms, heavy precipitation events, and freeze-thaw cycles, which would further increase the risk of flooding or erosion. There is a need to assess rates of coastal recession and the vulnerability of coastal areas towards flooding, so that this information would be available for developing long-term planning and policy decisions.

The Geological Survey of Newfoundland and Labrador initiated a coastal monitoring program in 2011. This project aims to increase the understanding of shoreline migration rates, beach dynamics, delineate areas of high vulnerability to coastal flooding and/or erosion, and to assess the connectivity between coastal stability and anthropogenic,

climatic, oceanographic, and geographical factors. During the first field season, forty-five monitoring sites were established on the island of Newfoundland and surveyed using Real Time Kinematics (RTK). Future work will involve yearly monitoring at additional sites, established on the island of Newfoundland, and the expansion of the program into Labrador. Discussions will occur with municipalities, community groups, and other interested stakeholders to identify new areas of concern or of cultural, social or environmental importance, and these sites may be included in the program. A database will be created for the project, which will be maintained by the Geological Survey Branch and available through the on-line Resources Atlas.