

Developing coastal management initiatives in Newfoundland

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This presentation outlines the coastal monitoring project of the Geological Survey of Newfoundland and Labrador, and its impact on coastal management decisions.

The Newfoundland coast is vulnerable to environmental change. Historical incidences of coastal flooding are common, and ongoing recession of unconsolidated cliffs has been reported at many sites. The coastal monitoring program provides baseline data on which to plan development in the coastal fringe. Coastal monitoring has been ongoing since 1993, following on from a Federal initiative that began in 1981. Monitoring sites were established in Conception Bay, Placentia Bay, St. George's Bay, and the southern shore of the Avalon Peninsula. They were designed to define the rates of coastal cliff recession, describe the seasonal variations in beach morphology, and gain an understanding of the coastal environment in Newfoundland.

Results are preliminary, but indicate rates of cliff recession of between 0.0 and 1.25 metres per year (5- to 12-year mean). Erosion is episodic, commonly triggered by a single storm event. Rates are dependent on shoreline orientation, wave climate, slope vegetation, and human interference. Beach morphology shows seasonal changes, from net erosion in the winter to net accretion of sediment in

the summer. Seasonal variations in beach morphology and size were noted, to some degree, in all beach systems monitored.

The implications for coastal management strategies are demonstrated by two examples, one from Conception Bay and the other from Placentia Bay. In Conception Bay, cliffs of unconsolidated sediment started to erode following a major storm event in October 1992, with current recession rates of about 0.5 m per year. Relocating storage sheds and construction of gabions near Chamberlains following the storm cost the Provincial Government in excess of \$30,000, and loss of shorefront property near Topsail resulted in a new landowner being prevented from house construction. At Point Verde, Placentia Bay, coastal erosion rates of up to 1.0 m per year (5-year mean) have been recorded in an area of active aggregate removal. Point Verde is at the western end of Placentia Road, and provides natural protection for Placentia from westerly storm waves. Shoreline protection for the community of Placentia has already cost in excess of \$3,000,000, and the long-term effects of the accelerated removal of Point Verde on Placentia are uncertain. Finding a balance between resource development and their impacts on coastal environments is one of the challenges of any coastal management strategy to be developed for the Province.