

Assessing the Potential for Coastal Flooding and Erosion in Nova Scotia: Case Studies

Daniel Utting and Philip Finck¹

The Geological Services Division (GSD) of DNR has undertaken a number of coastal assessment projects to complement existing mapping capacity. These projects provide information to local decision makers (including home owners) on areas at risk in the coastal zone. They provide data required to address public safety issues, and for locating infrastructure to minimize expenditures from storm repair and coastal erosion. GSD has also partnered with the Wildlife Division to identify areas of ecological significance. This information is within a context of past sea-level rise, expected increased sea-level rise, and more frequent storm events resulting from climate change.

Carters Beach, on the Nova Scotia's South Shore, is a sandy beach and dune system. The white sand for the beach is derived from till, which itself is derived from the local granite bedrock. High sediment supply is present in the near shore and back shore, making this beach relatively stable in the short term (decades) in the context of an almost continuous transgression (rising sea level) since deglaciation. A significant disturbance in this area, possibly a fire, may have initiated the dune-forming event in the back shore area (radiocarbon dating and stratigraphic work in progress).

Blue Beach, near Hantsport on the Avon River, has a coastline characterized by coastal cliffs of Horton Bluff Formation. The area is macrotidal (~16 m tidal range), although the base of the cliffs is above the tidal range for much of the year. Several recent (last century) mass movement features were identified, as well as indicators of potential future events.

Surficial and coastal geomorphic mapping in the Yarmouth area is part of the Regional Adaptation Collaborative (RAC). For this project, LiDAR base data are used to create detailed maps, and archival aerial photographs are used to determine coastal change. This information can be used by local decision makers to develop climate change adaptation plans. Similar projects are under way in the Lunenburg, Pugwash and Antigonish areas.

¹Nova Scotia Department of Natural Resources, 1701 Hollis Street, Halifax, NS B3J 2T9