

Results are presented here for the surficial and subsurface Quaternary geology of Maces Bay using 3.5 kHz seismic sub-bottom, backscatter, and multibeam bathymetry. High-resolution seismic profiles provide information on both glaciation and deglaciation and its effect on the offshore geology. These results demonstrate that the Wisconsinan glaciofluvial deposits extend offshore into Maces Bay. There are two major depositional sequences characterized by the seismic data; glacial and glacial marine sequence and Holocene sequence. Within these units there are at least 5 distinct seismic facies. The glacial and glacial marine facies are till, sand and gravel, and glacial marine sediments. The glacial marine sediments were likely deposited by a proximal glacier, as they contain ice-rafted debris and incised channels. These were deposited by a melting glacier after retreating inland to the position of the Pocologan delta complex. Evidence of the low-stand of sea level, glacial fed channels, an esker, and other glacial landforms occur along the bottom and subsurface of Maces Bay underlying Holocene marine muds.

Surficial sediments and Quaternary stratigraphy of Maces Bay, Bay of Fundy

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Maces Bay is a large triangular-shaped bay on the northwestern coast of the Bay of Fundy. Surrounding the bay onshore are extensive meltwater complexes deposited along coastal areas of New Brunswick during the Late Wisconsinan deglaciation (~14–12 ka B.P.). The Pennfield-Pocologan delta complex occurs along the coast in the Maces Bay area and grades eastward into a series of unnamed kame moraines and the Sheldon Point moraine at Saint John.

In the spring of 2008 the Ocean Mapping Group launch, CSL Heron, collected high-resolution geophysical data for Maces Bay. Sub-bottom profiler and multibeam bathymetry data were collected simultaneously to provide 28 km² area of Maces Bay seafloor at depths ranging from 4 to 70 m. The offshore study area data consists of 371 km of seismic data, totaling 66 sub-bottom lines east-west and north-south orientation, providing information on the character and thickness of the subglacial features and overlying sediments on the sea floor.