
**Acoustic mapping of the Bay of Fundy between
Maces Bay and Passamaquoddy Bay**

C.L. LEGERE¹, B.B. BROSTER¹, J.E. HUGHES CLARKE²,
AND R.D. PARROTT³

*1. Department of Geology, University of New Brunswick,
Fredericton, NB, Canada E3B 5A3 <christine.legere@unb.ca>*

*¶ 2. Ocean Mapping Group, Department of Geodesy and
Geomatics Engineering, University of New Brunswick, Fredericton,
NB, Canada E3B 5A3 ¶ 3. Geological Survey of Canada*

*(Atlantic), Bedford Institute of Oceanography, Dartmouth,
NS, Canada B2Y 4A2*

Extensive melt-water complexes were 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 of the Bay of Fundy in the Maces Bay and Passamaquoddy Bay area. These deltas may extend into the Maces and Passamaquoddy bays. The area exhibits geomorphological features formed during the Wisconsinan glaciation and deglaciation. High-resolution seismic profiles provide information on the deglaciation and its effect on the offshore geology.

In 2006 the Geological Survey of Canada (Atlantic) (GSCA), in conjunction with the Canadian Hydrographic Services and the Ocean Mapping Group (OMG) at University of New Brunswick, commenced a three year program to map the Bay of Fundy. Sub-bottom profiler and multibeam bathymetry data were collected simultaneously to provide information on the character and thickness of the subglacial features and overlying sediments on the sea floor.

Several marine shore surveys conducted by GSC and the OMG examined near-shore geology of the Bay of Fundy. High-resolution seismic sub-bottom and multibeam bathymetry were collected from 1992 to 2008 aboard various platforms including the CCGS Frederick G. Creed, CCGS Matthew, and the CSL Heron. The acoustic mapping instruments used in this study include a 3.5 kHz Knudsen 320M Marine Echosounder, Kongsberg EM1000, Kongsberg EM1002, Kongsberg EM3002 multibeam, and Kongsberg EM 710 bathymetric survey systems.

Preliminary results will be presented here for the surficial geology between Saint John and Grand Manan using 3.5 kHz seismic sub-bottom and multibeam bathymetry. Evidence of the low-stand of sea level, deltas, and other glacial landforms are expected to occur along the bottom of the Bay of Fundy underlying marine muds. In some areas pockmarks from gas-escape features confuse the data and make interpretation difficult.