



**Surficial geology and features
 Clam Bay to Moosehead,
 offshore the eastern shore of Nova Scotia
 a multi-resolution mosaic
 including some bedrock structure**

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<p>Surficial Geology; Detailed area</p> <p>7 Mud</p> <p>6 Channel Sand; generally thin, over thick mud</p> <p>3 to 5 Glacimarine mud; locally thin sandy cover</p> <p>2 Moraine; diamict-gravelly/cobbly surface</p> <p>1 Bedrock; generally with patchy sand and gravel, can include local till</p>	<p>Surficial Geology; Broad area</p> <p>Mud up to metres thickness in local basins</p> <p>Sand thin, overthick glacial mud</p> <p>Sand thin, over bedrock, till and glacial mud</p> <p>Bedrock generally with patchy sand and gravel, can include local till</p>
<p>Bedrock Features</p> <p>— strike direction; no dip measure</p> <p>- - - fault</p> <p>- - - joint</p> <p>- - - joint or glacial flute</p> <p>— undifferentiated plunging fold axis</p> <p>— anticline</p> <p>— syncline</p>	<p>Along-track character</p> <p>● sand, some gravel</p> <p>● glacialine mud overlying dots signify thin sand over glacial mud</p> <p>◇ moraine, from profiler</p> <p>○ pockmark</p> <p>○ shallow gas</p> <p>○ tidal channel; mainly in mud</p>
<p>Geophysical Transect</p> <p>— Expedition ID</p> <p>— individual expeditions</p> <p>— labelled</p>	<p>Bottom type from CHS</p> <p>● mud</p> <p>● sand</p> <p>● cobble or gravel</p> <p>● boulder</p> <p>● bedrock or no sample</p>

Profile & detailed map locations

percent	
SAND	GRAVEL
SILT	CLAY
GSC-ATLANTIC GRAB SAMPLE	

Mud
 Holocene age marine mud. Occurs primarily as contiguous and thick (>10 m) deposit in the offshore and as isolated basins in inner harbours and protected coastal basins. Deposited mainly during post-glacial transgression as the low energy facies derived from coastally reworked glacial sediments transported both seaward and landward. Deposition continues to present, derived mainly from eroding coastal drumlins. Locally sculpted into tidal channels. Locally includes buried disseminated methane.

Sand
 Late glacial and Holocene age sand. Occurs primarily as patchy and thin (<2 m) deposits overlying bedrock and glacialine mud. Contains gravel and locally some mud in variable amounts. A Channel Sand facies, locally up to 4 m thick, occurs overlying glacialine mud (with disseminated gravel) in glacially excavated valleys cut in bedrock. Deposited mainly during post-glacial transgression as the high energy facies in a transgressive systems tract. Generally confined to areas above the ~70 m sea-level low-stand (~12 ka) derived from coastally reworked glacialine sediments transported mainly landward. Likely periodically reworked during storms on its upper surface.

Glacimarine mud
 Pro-glacial marine silt and clay with minor ice-rafted debris (gravel), mainly sedimented from ice marginal meltwater plumes in a proximal (Unit 3), followed by a distal (Unit 4) low-energy environment. A later return to cooler and stormier conditions is designated Unit 5. Up to 40 m thickness. Occurs as a thick, draped and contiguous blanket over till and bedrock in the offshore (beyond ~130 m water depth), as a thin, sandier facies between moraines in the 60-80 m depth, and as broad channel fill reaching 10s m thickness shoreward of this. Modified at its top to form a sand and gravel lag in less than 120 m by shallow water and transgressive systems tract processes.

Till
 Occurs as ground moraine up to several metres thick, lying on bedrock, as broad and thick end moraines (farthest offshore), and drumlins and small ribbed moraines preserved below the low-stand. Erosional remnants occur above the low-stand but only identified on seismic transects. Ground moraine is thin and patchy except below the low-stand in the western map area. Identified by its acoustic character, gravel surface and deposit geometry but unsampled in the map area except for its surficial gravel lag. Till is not mapped in the nearshore where it commonly cannot be differentiated from the bedrock morphology without multibeam or LIDAR coverage.

Bedrock
 Meta-sediments including slate and quartzite of the lower Paleozoic age Meguma Supergroup identified by its jagged topography with long ridges and valleys, plunging fold pattern, faulting and acoustic basement on profiles.

Figure 3. GSC Open File 8375