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DESCRIPTIVE NOTES

THE STUDY AREA

The Bay of Fundy (Figs. 1, 2) is a southwest–northeast trending funnel-shaped bay 155 km long that tapers from 75 km wide in the southwest to 48 km wide at its northeastern end where it bifurcates into Chignecto Bay and Minas Basin. The floor of the bay, although hummocky in detail, presents a gently dipping profile along its axis from northeast to southwest. Much of the bay is less than 100 m in depth. Grand Manan Island and its adjacent southeastern shoals occupy nearly half the entrance to the bay, and divide it into two channels.

Geological processes have shaped the geomorphology of the bay. First, glaciation has left the bay with suites of glacial landforms formed under the ice sheet or at the ice sheet margin, together with an overlying layer of glaciomarine sandy mud deposited by meltwater plumes after recession of the glacier. Relative sea-level dropped to a postglacial low of -25 m, creating (relatively limited) emergent areas and coastal landforms such as spits. During the Holocene Epoch tidal amplitude increased in the bay (Shaw et al., 2010), bringing about an increase in energy that continues to this day. The resulting strong currents (Fig. 3) have created extensive fields of bedforms in the mid- to upper-bay and deep scours troughs at topographic constrictions.

GEOLOGICAL CONSTRAINTS AND GEOHAZARDS

The Bay of Fundy contains a series of geological constraints that must be considered should seabed infrastructure be emplaced in the future. The bay contains broad areas of active bedforms that can, for example, expose buried transmission cables. Sea floor erosion such as happens in scour troughs can cause loss of bearing support, or can reduce the holding capacity of anchors. However, seafloor erosion can remove all surficial sediments, revealing underling bedrock that is favourable for emplacement of structures. The TISEC device test site in Minas Passage is located in this type of terrain. Irregular seafloor such as in outcropping bedrock is a constraint for bottom-founded structures sensitive to tilt. While transmission cables can be laid across an irregular seafloor, they require slack. Large areas of the sea floor are characterized by cobbles and boulders that can be an impediment to pile driving, trenching, ploughing, and suction dredging.

SEASCAPES

We define seascapes as underwater landscapes with recurring patters of geomorphology, texture, and biota.

GEOMORPHOLOGY

The various geomorphologic classes are prime drivers for the seascape classification, since they integrate geological processes over time and tend to control the distribution of textures and biota. The essential method of delineating topographic units is the analysis of shaded-relief elevation models derived from gridded multibeam sonar bathymetry data. Data treated in this manner reveal relief characteristics with a vertical accuracy of ± 0.1 m, and permits delineation areas with similar slope characteristics. An important aspect of this analysis is the application of shading from varying azimuths, resulting in the delineation of subtle features on the sea floor. In an integrated seascape approach it is necessary to understand the genesis of the geomorphic classes, and towards this end we use sub-bottom seismic reflection profiling (both high- and low-resolution) to determine the acoustic characteristics of sediment with depth, and hence delineate the surficial geology classes, which are broadly those described by Fader et al. (1977).

The large range of morphologic features in the map area extends from high-relief bedrock topography, through moderate relief areas characterized by glacial ridges (moraines, streamlined landforms, and eskers) to widespread very low-relief sea floor. Extensive areas of the mid– upper–bay contain mobile sandy bedforms of various types. Unique to the bay are the deep scour troughs at its head and in constricted tidal channels.

TEXTURE AND MOBILITY

While texture conventionally refers to sediment grain size at the seafloor, we also expand the definition to describe sediment properties at depth and sediment mobility at the sea floor. A critical component of delineating sediment texture is backscatter strength map (Fig. 2), a proxy for sea floor texture. In the map area this parameter is broadly bi-modal: areas of high backscatter strength correspond to bedrock and gravel at the sea floor, while areas of low backscatter strength correspond to sand, muddy sand, and mud. Sidescan sonar was used in the study to ascertain the presence or absence of bedforms such as megaripples, which are below the resolution of the multibeam sonar data. Inferences about mobility were made using bedform characteristics as a guide. However, the modeled sediment mobility index (Fig. 4) was also a guide.

BIOTA

Biota were observed on sea floor photographs (Figs. 5–10) and video collected in areas considered representative of the geomorphic and textural classes. In general, hard substrates have attached biota, in contrast to sandy and muddy seafloors that may contain infauna. The long, linear, horse mussel reefs constitute a unique seascape unit, and host horse mussels (Modiolus modiolus) in association with the bryozoan Flustra foliacea, and Polymastia sp. in sponge gardens. Generally the analysis of biota was not systematic, and we have taken the approach that geomorphology and texture are important determinants.

CLASSIFICATION

We distinguish eight types of seascape terrain (see legend) and further sub-divide, so that, for example, there are seven types of sandy seascape. In this instance we recognize that there exists awide range of bedform types, each with characteristics of morphology and mobility. We also add information on the distribution of gas masking on seismic reflection profiles, pockmarks, and also areas of irregular terrain in the muddy seascapes. Two of the many seismic profiles in the bay are shown (Figs. 11,12).

ACKNOWLEDGMENTS

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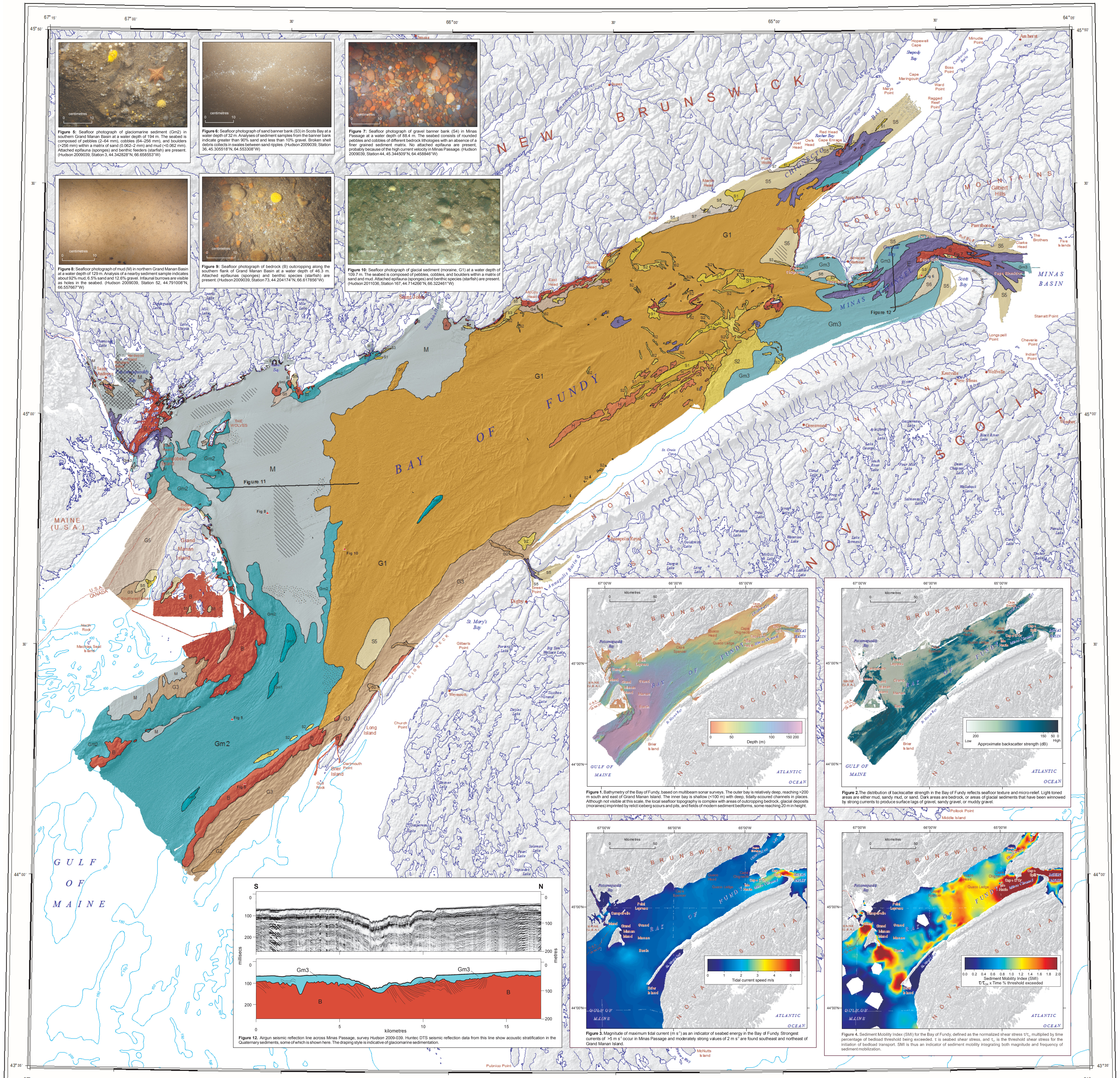

Figure 5: Seafloor photograph of glaciomarine sediment (Gm2) in southern Grand Manan Basin at a water depth of 194 m. The seabed is composed of pebbles (2–64 mm), cobbles (64–256 mm), and boulders (>256 mm) within a matrix of sand (0.062–2 mm) and mud (<0.062 mm). Attached epifauna (sponges) and benthic feeders (starfish) are present. (Hudson 2009039, Station 3, 44.342828°N, 66.658553°W)

Figure 6: Seafloor photograph of sand banner bank (S3) in Scots Bay at a water depth of 32 m. Analyses of sediment samples from the banner bank indicate greater than 90% sand and less than 10% gravel. Broken shell debris collects in swales between sand ripples. (Hudson 2009039, Station 36, 45.305518°N, 64.553308°W)

Figure 7: Seafloor photograph of gravel banner bank (S4) in Minas Passage at a water depth of 88.4 m. The seabed consists of rounded pebbles and cobbles of different bedrock lithologies with an absence of a finer grained sediment matrix. No attached epifauna are present, probably because of the high current velocity in Minas Passage. (Hudson 2009039, Station 44, 45.344509°N, 64.458846°W)

Figure 8: Seafloor photograph of mud (M) in northern Grand Manan Basin at a water depth of 129 m. Analysis of a nearby sediment sample indicates about 92% mud, 6.5% sand and 12.6% gravel. Infaunal burrows are visible as holes in the seabed. (Hudson 2009039, Station 52, 44.791008°N, 66.557667°W)

Figure 9: Seafloor photograph of bedrock (B) outcropping along the southern flank of Grand Manan Basin at a water depth of 46.3 m. Attached epifaunas (sponges) and benthic species (starfish) are present. (Hudson 2009039, Station 73, 44.204174°N, 66.617856°W)

Figure 10: Seafloor photograph of glacial sediment (moraine, G1) at a water depth of 109.7 m. The seabed is composed of pebbles, cobbles, and boulders within a matrix of sand and mud. Attached epifauna (sponges) and benthic species (starfish) are present. (Hudson 2011036, Station 167, 44.714266°N, 66.322461°W)

Figure 1. Bathymetry of the Bay of Fundy, based on multibeam sonar surveys. The outer bay is relatively deep, reaching >200 m south and east of Grand Manan Island. The inner bay is shallow (<100 m) with deep, tidally-scoured channels in places. Although not visible at this scale, the local seafloor topography is complex with areas of outcropping bedrock, glacial deposits (moraines) imprinted by relict iceberg scours and pits, and fields of modern sediment bedforms, some reaching 20 m in height.

Figure 2. The distribution of backscatter strength in the Bay of Fundy reflects seafloor texture and micro-relief. Light-toned areas are either mud, sandy mud, or sand. Dark areas are bedrock, or areas of glacial sediments that have been winnowed by strong currents to produce surface lags of gravel, sandy gravel, or muddy gravel.

Figure 3. Magnitude of maximum tidal current (m s^{-1}) as an indicator of seabed energy in the Bay of Fundy. Strongest currents of >5 m s^{-1} occur in Minas Passage and moderately strong values of 2 m s^{-1} are found southeast and northeast of Grand Manan Island.

Figure 4. Sediment Mobility Index (SMI) for the Bay of Fundy, defined as the normalized shear stress τ/τ_{cr} multiplied by time percentage of bedload threshold being exceeded. τ is seabed shear stress, and τ_{cr} is the threshold shear stress for the initiation of bedload transport. SMI is thus an indicator of sediment mobility integrating both magnitude and frequency of sediment mobilization.

Figure 12. Airgun seismic reflection line across Minas Passage, survey *Hudson* 2009-039. Huntec DTS seismic reflection data from this line show acoustic stratification in the Quaternary sediments, some of which is shown here. The draping style is indicative of glaciomarine sedimentation.

LEGEND

Bedrock Seascapes

Bedrock is exposed at or near the seafloor in several settings: 1) extensive areas off Passamaquoddy Bay and Grand Manan Island; 2) in coastal fringes; and 3) in scour troughs, where intense tidal currents have removed overlying sediments. Several lithologies are present, but are grouped together in this map.

B — **Bedrock**
Morphology: Irregular terrain with knolls, and ridges up to 20 m high and tens of kilometres long.
Texture: Rock outcrops with veneers of gravel and sand; high backscatter strength. The gravel and sand may be mobilized by tidal currents, especially in scour troughs.
Biota: Attached fauna including coralline algae and algae in shallow areas, sponges, anemones.
Outcrops are rare, and bedrock commonly has a veneer of sand and gravel, with thicker sediments in pockets. Topography may be very irregular, with large areas of smooth sea floor between bedrock highs (e.g., off Passmaquoddy Bay). Most exposed rock is in shallow water, and the percentage cover of surficial sediments increases with depth.

Glacial Seascapes

Accumulations of sediment up to many tens of metres thick, organized into ridges and mounds of varying shapes and dimensions. Glacial seascapes formed under advancing glacial ice (parallel to ice-flow direction), at the margins of retreating ice (transverse to ice margins), or were created by meltwater under ice. They are generally composed of glacial diamict (stiff bouldery sandy mud), or sand and gravel. Reworking by tidal currents and waves has formed immobile surface lags of gravel. Commonly overlain by a thin (~5 m) drape of glaciomarine mud that has been winnowed to form a gravel veneer.

G1 — **Moraines**
Morphology: Arcuate ridges of glacial diamict up to 8 m high and 10 kilometres long, separated by smooth seafloor.
Texture and mobility: Generally has a thin drape of glaciomarine mud that has been winnowed to form an immobile sandy gravel lag with high backscatter strength.
Biota: Attached fauna including sponges, anemones, Asteriidae (sea stars), and hydroids.
Moraines were deposited transverse to ice-flow directions during the retreat of glaciers from the bay c. 14,000 years ago. They consist of glacial diamict (bouldery gravel in a matrix of sandy mud). Moraines near Grand Manan have a thick cover of glaciomarine mud and are mapped as that unit.

G2 — **Eskers**
Morphology: Curvilinear ridges up to 8 m high and tens of kilometres long that commonly occur as sets (beaded eskers).
Texture and mobility: Bouldery gravel, gravel, sandy gravel, all with high backscatter strength. The gravels are immobile but sand patches may be mobilized by tidal currents and by waves in shallow water.
Biota: Attached fauna including sponges, hydrozoans, anemones, with scallops in sandy areas.
Eskers were deposited by meltwater streams during deglaciation and are found off the south coast, located at gaps in North Mountain (e.g., at Digby).

G3 — **Drumlins, craig-and-tail ridges**
Morphology: Rounded, smooth, elongate ridges up to tens of metres high and 7 km long. Crag-and-tail ridges comprise bedrock crags and glacial diamict tails.
Texture and mobility: Glacial diamict -(bouldery gravel in a matrix of sandy mud); immobile boulder gravel lags at the seafloor; high backscatter strength.
Biota: Attached fauna including sponges, anemones, Asteriidae (sea stars), and hydroids.
Eskers and crag-and-tail ridges were deposited under moving glaciers, parallel to the ice-flow. They may be many tens of metres thick and may be covered by a veneer of glaciomarine mud (which also has a surface lag veneer of sand or gravelly sand).

G4 — **Mega scale glacial lineations (MSGL)**
Morphology: Elongate ridges of glacial material up to tens of metres high and tens of kilometres long,
Texture and mobility: Composed of glacial diamict; surface lags of Immobile bouldery gravel; high backscatter strength.
Biota: Attached fauna including sponges, anemones, Asteriidae (sea stars), and hydroids.
MSGL were deposited under very fast-flowing glaciers (ice streams), parallel to ce-flow directions. They are commonly many tens of metres thick and may be draped by glaciomarine mud (which also has a surface lag veneer of sand or gravelly sand).

G5 — **Complex glaciated terrain**
Morphology: Drumlins and MSGL, mainly oriented north-south, with numerous superimposed, east-west oriented small morainal ridges 1-2 m high (De Geer moraines)
Texture and mobility: The landforms consist of glacial diamict; immobile bouldery gravel at the sea floor; high backscatter strength..
Biota: Attached fauna including sponges, anemones, Asteriidae (sea stars), and hydroids.
Swarms of De Geer moraines created during retreat of the ice margins are superimposed on drumlins and MSGL formed during glacial advance.

Glaciomarine seascapes

Acoustically stratified sheets of gravelly sandy mud derived from melting glaciers, draped over underlying terrains. Where exposed at seafloor these sediments have been winnowed by currents, with no subsequent deposition of postglacial mud or sand. Terrain may be imprinted by iceberg furrows and pits many kilometres long and up to 4 m deep.

Gm1 — **Mid Wisconsinan residual ridges**
Morphology: Streamlined ridges up to 7 km long and 30 m above the surrounding seafloor; heavily furrowed by iceberg keels.
Texture and mobility: Acoustically stratified on seismic reflection records; surface lag of immobile muddy gravel; high backscatter strength.
Biota: Attached fauna.
Large residual ridges created when Late Wisconsinan ice advancing southwest out of the Bay of Fundy overran thick Mid-Wisconsinan glaciomarine deposits. One of the largest ridges is overlain by Late Wisconsinan morainal deposits and is not mapped under this unit. May be tens of metres thick in places.

Gm2 — **Late Wisconsinan Glaciomarine sediments**
Morphology: Generally smooth, low-relief seafloor imprinted by iceberg furrows and pits.
Texture and mobility: Acoustically stratified glaciomarine mud with dropstones, commonly 5 m thick except up to 20 m in the basin north of Grand Manan; an immobile veneer of muddy sandy gravel at the sea floor; high backscatter strength.
Biota: Bottom photographs show brittle stars (*Ophiopholis aculeata*), encrusting tunicates and sponges on gravel clasts, polychaete worms, anemones, brachiopods, sea urchins, and sea cucumbers.
The sea floor is a 14,000 year-old surface that was mapped by Fader et al. (1986) as the Emerald Silt Formation.

Gm3 — **Winnowed Late Wisconsinan Glaciomarine sediments**
Morphology: Generally smooth, low-relief sea floor.
Texture and mobility: Acoustically stratified deposits of sandy mud with dropstones; veneer of boulder-cobble gravel at the sea floor; patches of sand in places; high backscatter strength; immobile except where it being eroded by scour troughs, as at Minas Passage, or where sand patches are activated by strong tidal currents.
Biota: Attached fauna.
This unit differs from the glaciomarine sediments of the outer bay in that iceberg furrows and pits have been effaced by strong tidal currents, giving a smooth sea floor.

Muddy seascapes

Fine-grained sediment was deposited in postglacial time as a result of erosion of glacial sediments caused by changing sea levels and expanding tidal range. Equivalent to the LaHave Clay formation of Fader et al. (1977).

M — **Postglacial mud, sandy mud**
Morphology: Generally a smooth, low-relief sea floor except where fields of pockmarks occur (mainly in Passmaquoddy Bay); also includes several areas of irregular seafloor morphology indicative of erosion.
Texture and mobility: Mud and sandy mud with weak acoustic stratification except where the stratigraphy is masked by gas; up to 20 m-thick off Saint John; surface layer is active and compact substrate is immobile under present tidal conditions; surface may be heavily bioturbated; surface veneer of muddy sand in some areas; low backscatter strength;
Biota: Infauna of polychaete worms and amphipods; basket stars, sponges, anemones attached to scattered clasts, brittle stars, bivalves, and gastropods.
Radiocarbon dating shows that deposition of mud occurred primarily in the early postglacial period, before development of high tidal range, and that sedimentation rates have been low for the past 8000 years. Some areas have been winnowed, resulting in a 0.25 m veneer of muddy sand at the sea floor. Seabed photos in some stations show fresh seabed and current ripples. Sediment transport model using observed grain size predicts moderate to strong transport rates under peak tidal current conditions.

Scoured seascapes

Created by strong tidal flow, and erosion of glaciomarine and other sediments, giving surface lags. Occur on a range of scales, including the Minas Passage Scour Trough (170 m below sea level), the trough in Chignecto Bay (100 m); troughs in the central bay located near obstacles (e.g., Wolf Rock); troughs in narrow channels leading to coastal embayments (e.g., Digby Gut, Passmaquoddy Bay).

E — **Tidal scour troughs**
Morphology: Troughs incised into smooth sea floors; sharp boundaries; variable roughness.
Texture and mobility : Boulder-cobble gravel, sandy gravel, and bedrock occur at the sea floor; high backscatter. All sediments are mobile in these regions of strong tidal flow; glaciomarine sediments are experiencing active erosion.
Biota: Cobbles and boulders have encrusting sponges, anemones, bryozoans including *Flustra foilacea*, hydroids.
Areas within scour troughs where all unconsolidated sediment has been removed are classified as bedrock. Scour troughs may contain large bedforms which are not mapped separately, except for the gravel bank in Minas Passage

Sandy seascapes

In the postglacial period (after c. 14,000 radiocarbon years BP) glacial materials were reworked by waves and currents. About 9000 yrs BP, relative sea level dropped to ~-25 m, and large spits and spit platforms formed off the New Brunswick coast. With rising sea levels and expanding tidal amplitude, a range of sandy bedforms were created, oriented according to tidal current directions. Most mobile bedforms overlie a thin lag gravel developed on top of glaciomarine sediments. Because the sediment source is dominantly from the erosional channels in the upper bay and the sediment confinement by the overall net transport is to the top of the bay, most of the sandy seascapes occur in the upper Bay of Fundy.

S1 — **Dunes**
Morphology: Flow-transverse ridges up to 10 m high and 4 km across, commonly with superimposed megaripples, organized into trains up to 20 km long.
Texture and mobility: Well-sorted medium sand with shell beds and gravel in troughs between bedforms; low backscatter strength; mobile under tidal currents.
Biota: Sand dollars, bivalves (e.g., *Clinocardium* sp.), gastropods, sand dollars, surf clams, starfish, scallops, anemones and sponges on shell beds, the bryozoan *Flustra foliacea* (hornwrack) on boulders and cobbles; some bottom images show presence of horse mussels *(Modiolus modiolus).*
Derived from glacial materials reworked by strong tidal currents.

S2 — **Trapped dunes**
Morphology: Solitary dunes can be up to 20 m high and 5 km long, commonly incised into otherwise flat sea floor; occurring as large fields or in long ribbons extending across the bay.
Texture and mobility: Well-sorted, mobile medium sand; may be mobile but movement can be oscillatory and hence low net migration; low backscatter strength.
Biota: Sand dollars, bivalves (e.g., *Clinocardium* sp.), gastropods, sand dollars, surf clams, starfish, scallops; anemones, and sponges on shell beds.
These dunes are generally considered as trapped because they have become incised into the underlying glaciomarine sediments.

S3 — **Banner Bank dune complexes**
Morphology: Trains of dune ridges of varying size, up to 8 m high off Cape Split; organized into twin banks either side of headlands; a set also occurs either side of a rocky shoal (exposed at low tide) in the middle of the bay.
Texture and mobility: Well-sorted shelly medium to coarse sand, highly mobile; the banks themselves are fixed in position; low backscatter strength.
Biota: Sand dollars, bivalves (e.g., *Clinocardium sp*.), gastropods, sand dollars, surf clams, starfish, scallops; anemones and sponges on shell beds.
The banner banks form in tidal eddies either side of headlands. Sand probably cycles through the banks as individual bedforms migrate (e.g., the Scots Bay dune field off Cape Split.)

S4 — **Trapped gravel dune field**
Morphology: Ridges of bouldery gravel up to 5 m high in a bank that is 20 m thick and 3.5 km long.
Texture and mobility: Well rounded boulder cobble gravel; high backscatter strength; boulders and cobbles are mobile under tidal currents.
Biota: No attached fauna; a few small starfish (*Asteriidae* sp.) noted on images.
This may considered one half of the banner bank complex at Cape Split, the other half being the Scots Bay dune field. This dune field is composed of coarse gravel, and has become trapped in the Minas Passage Scour Trough. Strong currents prevent growth of attached organisms.

S5 — **Sand**
Morphology: Low-relief, gently banked deposits of sand up to 30 m thick; seaward-sloping prisms offshore from beaches; flood-tidal delta deposits; commonly without large bedforms.
Texture and mobility: Sand and muddy sand with low backscatter strength; mobile under tidal currents, and also wave action in shallow water.
Biota: Sand dollars, bivalves (e.g., *Clinocardium* sp.), gastropods, sand dollars, surf clams, starfish, scallops; anemones and sponges on shell beds.
Sand bodies that have accumulated in a series of large drifts (e.g., west of Cape Chignecto), or in other settings.

S6 — **Shadow banks**
Morphology: Low-relief, gently banked deposits of sand up to 10 m thick, decorated by sand ribbons and barchan dunes up to 8 m high and 2 km across.
Texture and mobility: Well sorted medium sand with low backscatter strength; scattered cobbles and boulders, gravelly material in sand ribbon troughs; highly mobile under strong uni-directional tidal currents.
Biota: Sand dollars, bivalves (e.g., *Clinocardium* sp.), horse mussels, gastropods, sand dollars, surf clams, starfish, scallops; encrusting sponges and bryozoans on boulders and cobbles.
Sand bodies have accumulated adjacent to banner banks in areas of the seabed subject to uni-directional flow at all tidal stages.

S7 — **Submerged spit and spit platform**
Morphology: Ridge with recurves, reaching 20 m above surrounding seabed.
Texture and mobility: Gravel with sand patches; mainly high backscatter strength; clinoform structure on acoustic records; gravel and sand are mobile under tidal currents.
Biota: Some attached fauna.
Sand and gravel spits and spit platforms accumulated with northeast-directed longshore drift when sea level was ~25 m lower than today in the early Holocene.

Biological seascapes

Areas of sea floor in which a particular biological community plays an especially strong role in determining morphology and texture.

H — **Horse Mussel reefs**
Morphology: Linear ridges up to 3 m high and 16 kilometres long; very straight.
Texture and mobility: Sand with accumulations of dead horse mussels; up to 4 m thick and located on top of glacial sediments; high backscatter strength.
Biota: Horse mussels (*Modiolus modiolus)* in association with the bryozoan *Flustra foliacea*; *Polymastia* sp. sponge gardens.
These mussel bed bioherms resemble bedforms, as they are primarily composed of sand. Formed by accumulation of horse mussel shells that interact with tidal currents, they are aligned along principal current directions.

Anthropogenic seascapes

Much of the seafloor has been impacted by fishing trawls, although strong currents soon efface the effects. The major anthropogenic effect is the marine disposal area off Saint John..

A — **Marine disposal site**
Morphology: Mounded deposits up to 10 metres thick off Saint John; slump apron extending to the south.
Texture and mobility: Mixture of mud, sand, gravel; high backscatter; material at the disposal site undergoes significant reworking by tidal currents and waves: 84% of the dumped material, mainly fine-grained sediments, is transported away from the disposal site and only 16%, mainly coarser material, remains.
Biota: Unknown.
Formed by repeated disposal of dredge spoil from Saint John harbour and described in a series of GSC reports commissioned by Environment Canada.

▩ *Pockmarked terrain*

▨ *Gas masking on acoustic records*

⁘ *Irregular ridged terrain in mud areas*

Seascape unit boundaries are interpreted from multibeam sonar bathymetry and geophysical seismic profile data and are inferred contacts that may be gradational or conceptual in nature . . . .

Camera . . . . **Fig 5** ▲

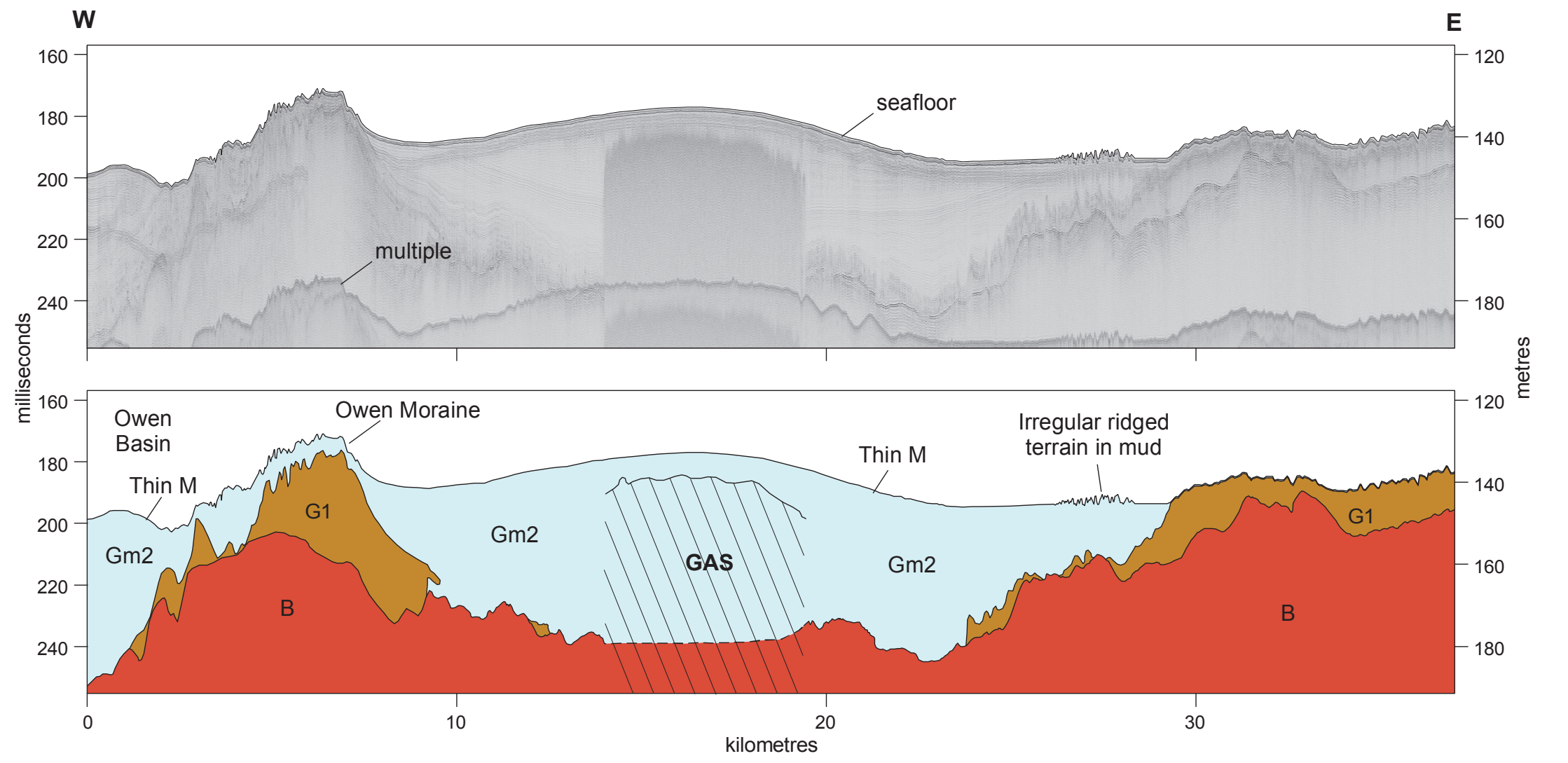

Figure 11. Seismic reflection profile (upper) and seismostratigraphic interpretation (lower) from the Bay of Fundy, northeast of Grand Manan Island (Huntec DTS, Hudson 2009039, day 247, 0000–0413). To the west is Owen Basin, filled with ponded glaciomarine (Gm2) sediment covered by postglacial (M) sediment in a layer too thin (1–2 m) to show at this scale. Owen Moraine, a bedrock (B) topographic high capped by till (G1) overlain by glaciomarine sediment (Gm2), separates Owen Basin from the Bay of Fundy. In the centre of the seismic profile, a thick (>40 m) sequence of glaciomarine sediment (Gm2) and a thin postglacial (M) sediment (too thin to show at this scale) overlies bedrock; over a distance of five kilometers, the deeper seismic reflectors are masked by the presence of (biogenic?) gas that has accumulated about 5 to 10 m below the seabed. The bedrock surface rises to the east where it is mantled by a thin (<10m) layer of till (G1).

This publication is available for free download through GEOSCAN (http://geoscan.ess.nrcan.gc.ca/).
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LOCATION MAP

Authors: J. Shaw, B.J. Todd, and M.Z. Li

This map was produced by Natural Resources Canada in co-operation with Fisheries and Oceans Canada

Geologic compilation by J. Shaw and B.J. Todd,
Geological Survey of Canada, 2012

Digital cartography by P. O'Regan, Data Dissemination Division (DDD);
and S. Hayward, GSC (Atlantic)

OPEN FILE 7028

SEASCAPES

BAY OF FUNDY

OFFSHORE NOVA SCOTIA/NEW BRUNSWICK

Scale 1:350 000/Échelle 1/350 000

kilometres 10 0 10 20 30 kilomètres

Universal Transverse Mercator Projection
North American Datum 1983

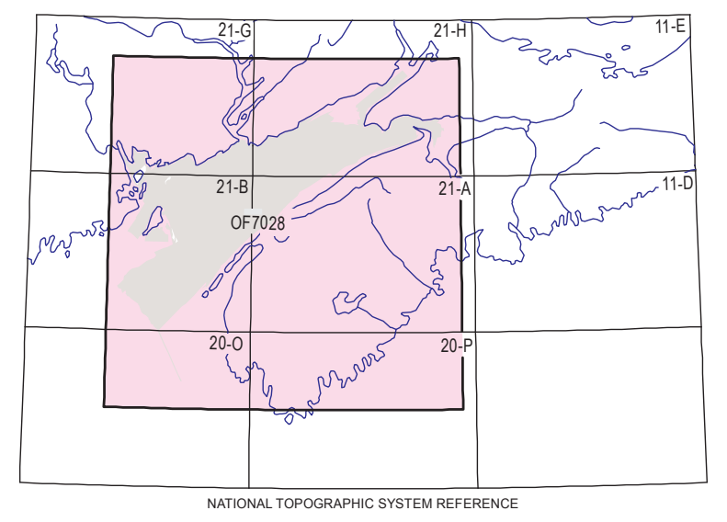
Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983

Any revisions or additional information known to the user would be welcomed by the Geological Survey of Canada

Digital bathymetric contours in metres supplied by the Canadian Hydrographic Service and GSC (Atlantic)

Magnetic declination 2012, 17°39'W, decreasing 7.25' annually. Readings vary from 18°26'W in the NE corner to 16°52'W in the SW corner of the map

Depth in metres below CHS Chart Datum as of 2007



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2012

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