

DESCRIPTIVE NOTES

INTRODUCTION
The traditional product of seafloor mapping on Canadian continental shelves was the surficial geology map depicting Quaternary sediment formations (e.g., Fader et al., 1982).

SEASCAPES
Our definition of a 'seascape' is based on the Australian Land-System approach, developed to manage agricultural land. To adequately understand the land and its use and management it was thought necessary to understand the relationships between soils and the soil parent materials, climate, and topography.

MAKKOVIK BANK
Makkovik Bank consists of gently dipping Cenozoic rocks separated from largely igneous rocks of the Makkovik Province (Wardle et al., 1989) by the Labrador Trough (see Fig. 1). The Labrador Current Terrane extends southward from the bank, but a seaward zone is evident in the main continuation of Makkovik Bank, at all depths down to the sea floor (Fig. 2).

LABRADOR TROUGH SEASCAPES
Labrador Trough Seascapes occur west of the Labrador Trough, adjacent to the mainland. Bedrock Terrain consists of crystalline basement rocks of the Makkovik Province (Wardle et al., 1989). It has regular relief that ranges up to 20 m. Bedrock Terranes are rare, and a veneer of Quaternary sediments is more typical at the seafloor.

MAKKOVIK BANK SEASCAPES
The western, northern and southern banks of the bank are mapped as the Bank Margin Moiraine-Lower Tilt seafloor unit. Multiple layers of compact till from deep recurrences up to 30 m high with slopes up to 15 degrees, lobbing furrows is evident, although less so above -120 m, and indeed the moraine surface seems smooth above this depth.

CONTINENTAL SLOPE SEASCAPES
The Upper Continental Slope seascapes consist of a network of deep, dendritic channels in depths below 300 m.

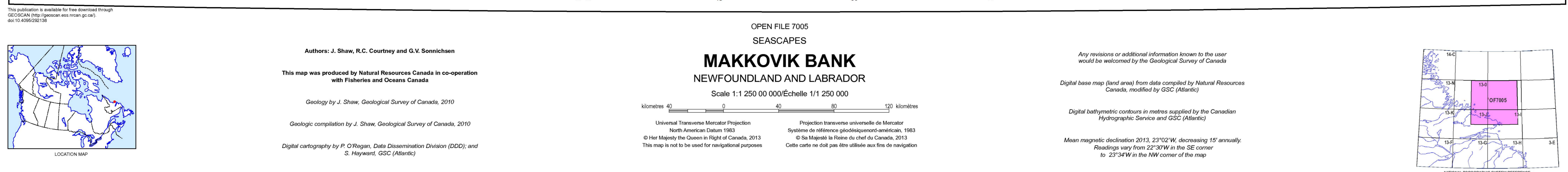
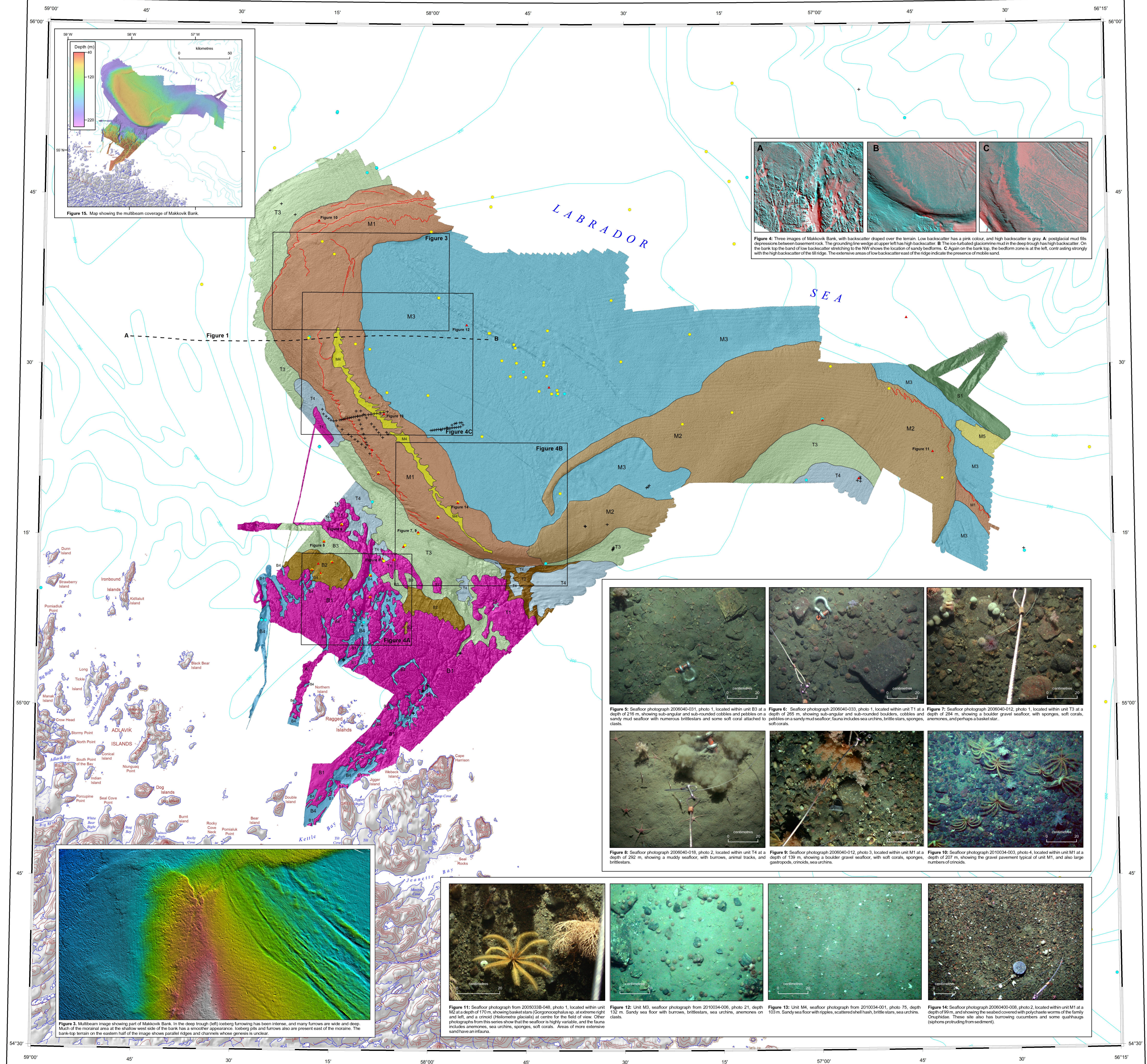
BACKSCATTER
Backscatter was used to classify the region into seafloor units. Figure 4 illustrates some of the variability in the region. Sands and muds have low backscatter while other terranes, bedrock, till, glaciomarine muds are characterized by higher, more reflective substrates.

BIOTA
Crustaceans predominate in the main area, but at varying depths, with varying sizes and current influence, so the biota seems to vary also. In some areas boulder-cobble-pebble seafloors show sponges and soft corals distributed fairly evenly (Fig. 6), but elsewhere a greater diversity is apparent (Fig. 7, 9). Crinoids and basket stars occur in quite large numbers in some areas, but it is difficult to generalise on their overall distribution based on the small number of photographs. Figure 8 is probably typical of areas of postglacial mud.

ACKNOWLEDGMENTS
The map is based on multibeam sonar data collected by the Canadian Hydrographic Service on vessels of the Canadian Coast Guard. The multibeam data were collected as part of a research collaboration between the Geological Survey of Canada and C-CORP, under which several petroleum exploration companies kindly provided financial support and access to data.

REFERENCES

Christie, C.A. and Stewart, J.A., 1963. General report on the survey of Mathews-Darwin region, 1946. CSIRO Australian Land Resources Series No. 1.
Commonwealth Scientific and Industrial Research Organization, 1967. Lands of Esquimaux and Baffin Islands. Province of Quebec, Land Resources Series No. 20. Montreal, Que., 182 & maps.



- Bedrock terrain
Morphology: Flights, knolls, and ridges, with relief up to 25 m and depths usually shallower than 130 m; irregular flat-topped depressions oriented along structural elements.
Texture: Bedrock with veneers of sandy muddy gravel. Thicker deposits of glaciomarine and glaciolacustrine mud in depressions, high backscatter except in muddy depressions, on geophysical records this unit forms acoustically bedrock.
Biota: There are no photographs of this seafloor unit, but probably the bedrock and boulder gravel surfaces host sponges, anemones, and soft corals. The extensive muddy depressions have molluscs.

Geological context (map unit boundaries are interpreted from multibeam seafloor bathymetry and geophysical seismic profile data and are inferred contacts that may be gradational or conceptual in nature)
Cross-section (Figure 1)
Photos
Grab samples
Core samples
Other samples

Figure 1: Airgun seismic reflection record...
Figure 2: Mean annual current velocity at 100 m depth...
Figure 3: Multibeam image showing part of Makkovik Bank...
Figure 4: Bathymetric map of the Makkovik Bank area...