

SURFICIAL AND GLACIAL MAPPING OF THE EAST HALF OF THE GREAT GULL POND
MAP AREA (12H/1), NEWFOUNDLAND

by

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Introduction

Mapping was conducted in the Great Gull Pond map area during 1983 as a continuation of the Surficial and Glacial Mapping Program in central Newfoundland (Sparkes, 1982). The aim of the project is to provide information on the nature and distribution of surficial landforms, the glacial dispersal of rock materials as an aid to mineral exploration, and to determine the significance of mineralized boulders which were discovered to the west of the mine site. The map area has good road access with numerous till exposures, but only a few bedrock exposures.

Field Program

Field work was started in mid-July and continued until mid-September. Information was obtained along existing roads, lake shorelines and streams as well as from numerous hand-dug and backhoe-dug pits. Three hundred sites were noted and 500 till samples were collected for particle size analyses and geochemistry. A representative pebble fraction (-16mm to +8mm) was obtained at most sites to determine the lithologic composition of the tills. This lithologic study also included geotechnical data such as silt/clay coating, weathering, staining, sphericity, fracturing, mineralogy and texture for each lithology present.

Stratigraphy

Evidence of glacial stratigraphy in the Great Gull Pond map area is limited to several exposures in the vicinity of the former Gullbridge mine. In a pit near the mine site, a 12 m exposure reveals approximately 2 m of a very sandy ablation till with sandy lenses, overlying 2-3 m of a more compact sandy lodgement till with occasional silty lenses. This till overlies up to 8 m of gravel and sand with some interbedded silty sand and silt, which is in turn underlain by striated bedrock which indicates glacial flow in a northeast direction.

Glacial Striae

Striae in the area record two ice flow directions (Figure 1), an early flow towards the northeast (030 to 060), followed by a later flow towards the north (350 to 015). Striae recording the earlier flow are numerous and were observed throughout the area, whereas evidence of the later north-easterly flow is present on only a few outcrops. The flow directions were assigned to the observed striae using one or more of the following indicators: (a) miniature crag and tail features or 'pressure shadows', (b) crescentic or lunate fractures or gouges, (c) nailhead features, and (d) miniature stoss and lee forms. The relative ages of the striae sets were determined by crosscutting relationships or by leeside preservation of more weathered and degraded striae.

Surficial Deposits and Landforms

Till deposits in the map area range from a thick (>3 m) blanket, possibly of lodgement till, in the area between Crooked Lake and Burnt Pond, to a very thin, discontinuous veneer with numerous rock outcroppings in the area to the north and west of Dawes Pond. An area of extensive ribbed moraine is located in the southwestern corner of the study area and within the South Brook valley. These moraines are generally 3 to 10 m in height, up to 700 m in length, and usually gravelly in texture. They were probably formed in an ice-frontal position and are generally transverse to the direction of ice flow. Linear till ridges, which generally form parallel to the direction of ice flow, are poorly developed within the study area and are limited to the southern part in the area west of Joes Lake.

Conclusions

Glacial dispersion in the Great Gull Pond area may have been affected by two glacial flows, an early northeastward flow and a later northward flow. The lodgement

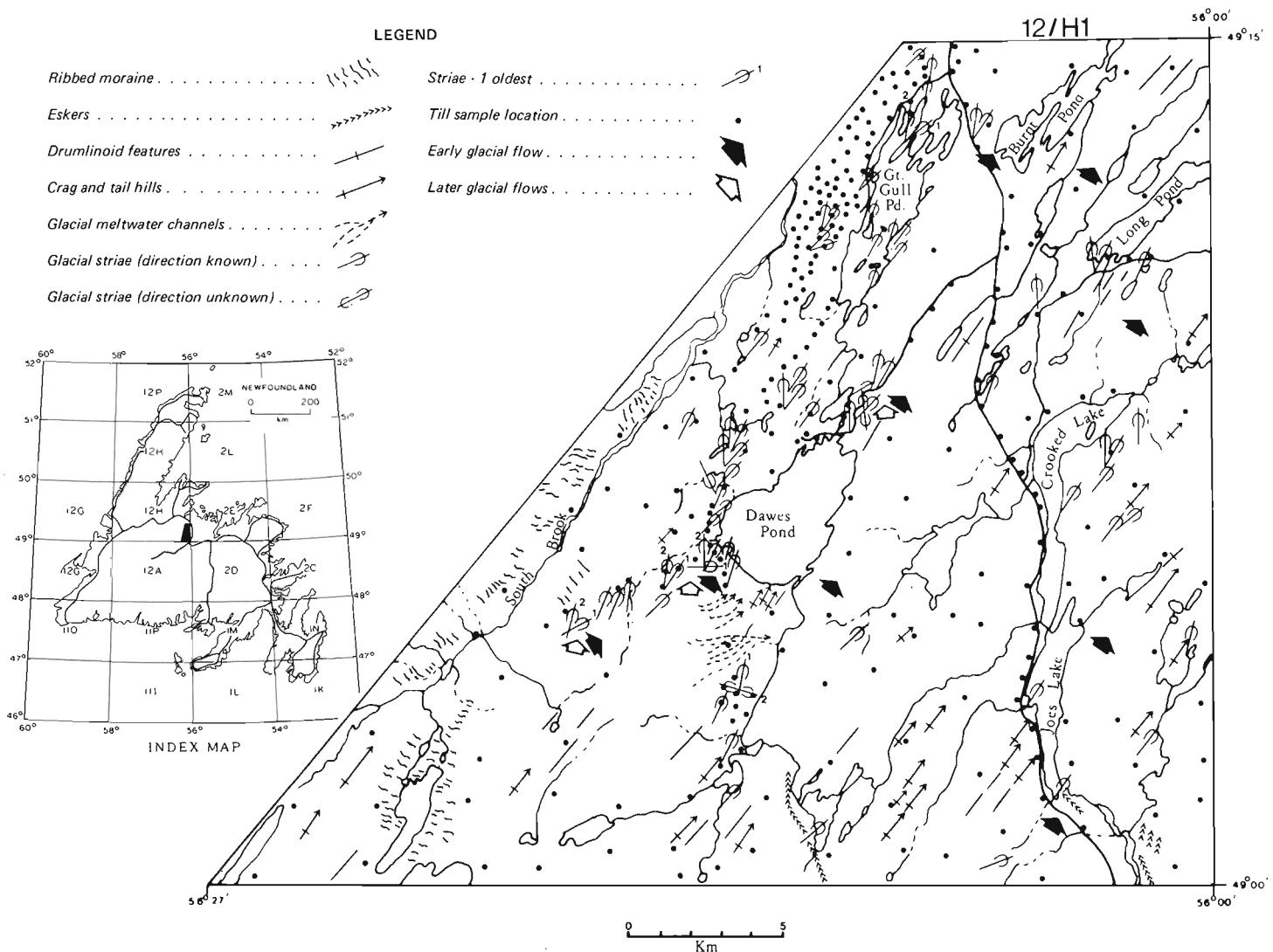


Figure 1: Surficial geology of Great Gull Pond map area 12H/1.

till which overlies sand and gravel in the Gullbridge mine area is probably related to the later flow or to a more localized advance of ice in the Great Gull Pond area.

The forthcoming analyses of the pebble fraction of the tills, as well as the particle size and geochemical analyses, should provide more information on the glacial history and distribution and characteristics of the tills of the area.

Reference

Sparkes, R.G.

1982: Surficial and glacial mapping of the Buchans map area (12A/15), Newfoundland. In *Current Research, New-*

foundland Department of Mines and Energy, Mineral Development Division, Report 83-1, pages 189-191.

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