

RECONNAISSANCE GEOCHEMICAL LAKE SEDIMENT PROGRAM,
TERRA NOVA AREA, NORTHEAST NEWFOUNDLAND

by

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INTRODUCTION

The reconnaissance lake sediment program for 1980 was conducted in northeastern Newfoundland (Figure 1). An area of approximately 17,000 km² was surveyed east of a line running from the coast south along longitude 56°W to latitude 49°N, east to longitude 55°30'W, south to latitude 48°15'N, then east to the coast. The area surveyed adjoins the 1977 survey (Meelpaeg Lake area, Open File Nfld. 986) along part of the western boundary and the 1978 survey (Fortune-Trinity Bay area, Open File Nfld. 1002) to the south. There were 2,450 sites sampled and 2593 samples collected (including replicate samples) for a sampling density of one per 6.9 km². The sampling and analytical methods are described elsewhere (Butler, 1980).

GEOLOGY

The area (Figure 2) can be divided into three sections. To the east are the Avalon Zone rocks, mainly Hadrynian in age and consisting of clastic and tuffaceous sedimentary rocks and acidic to mafic volcanic rocks underlain by siltstone, slate, graywacke, sandstone and argillite and overlain locally by quartzites of the Random Formation and Cambro-Ordovician sedimentary rocks. The central section consists of Gander Zone lithologies, generally consisting of Ordovician intermediate to mafic volcanic rocks, slate, graywacke, siltstone, chert, conglomerate and minor limestone and their metamorphosed equivalents. To the west is the Botwood Zone, consisting of Silurian volcanic and sedimentary rocks. The Botwood and Gander Zones and the western margin of the Avalon Zone have been intruded by granite and related rocks with minor mafic and ultramafic rocks of probable Devonian age.

MINERAL POTENTIAL

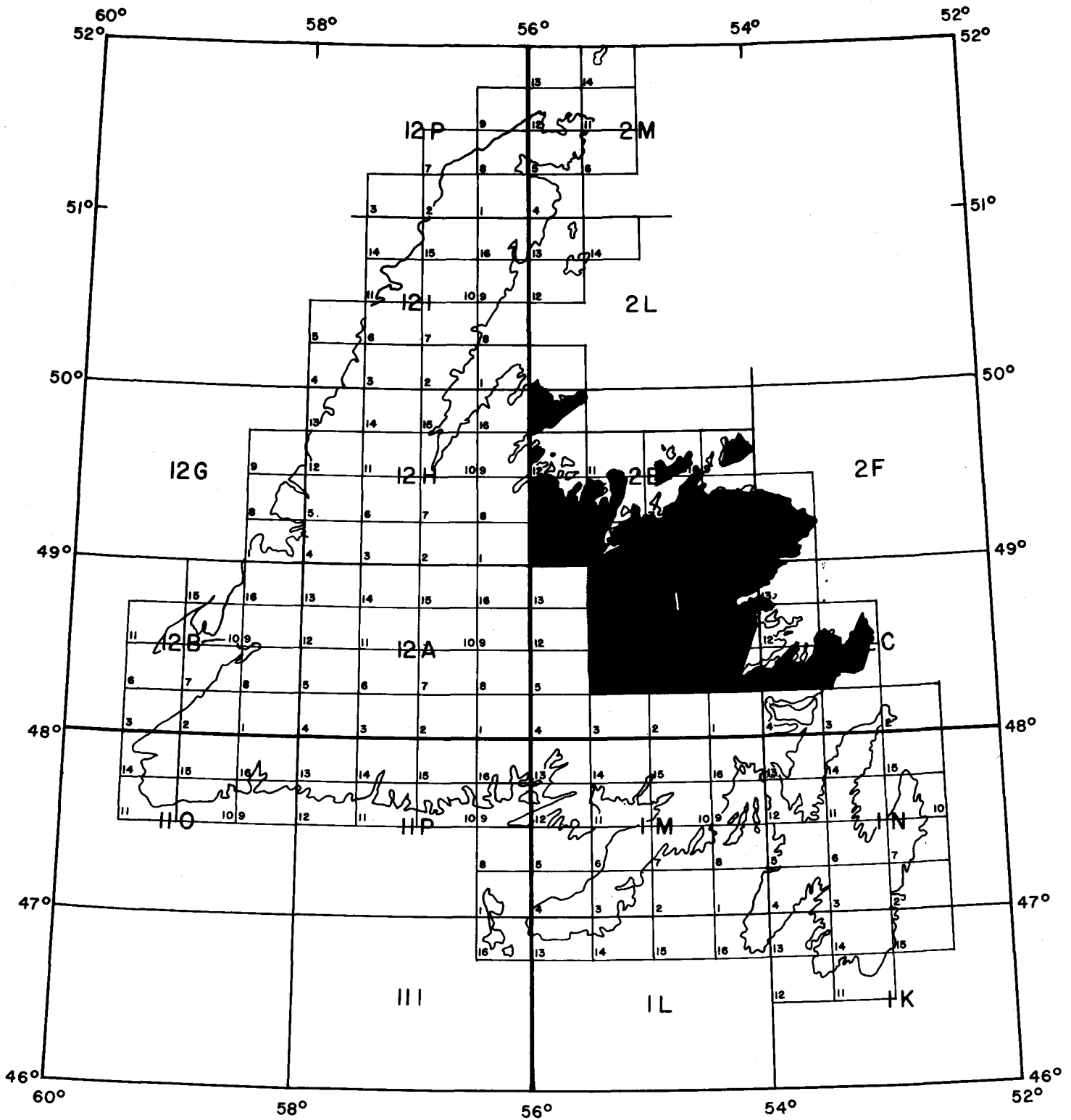
The abundance of base metal showings in the Notre Dame Bay area is well documented (Douglas, 1976); however, many of these showings are not extensive. Several base metal properties occur within the area, including Little Bay, Crescent Lake, Lockport, Miles Cove, Pelley's Island and Point Leamington (Dean, 1977). The base metal potential of the Gander Zone is less well known. A few copper showings are recorded around Kepenkeck Lake and minor showings occur on the coast near Doting Cove. The mineral potential of the Hadrynian rocks of the Avalon Zone is reviewed in detail in Taylor *et al.*, 1979.

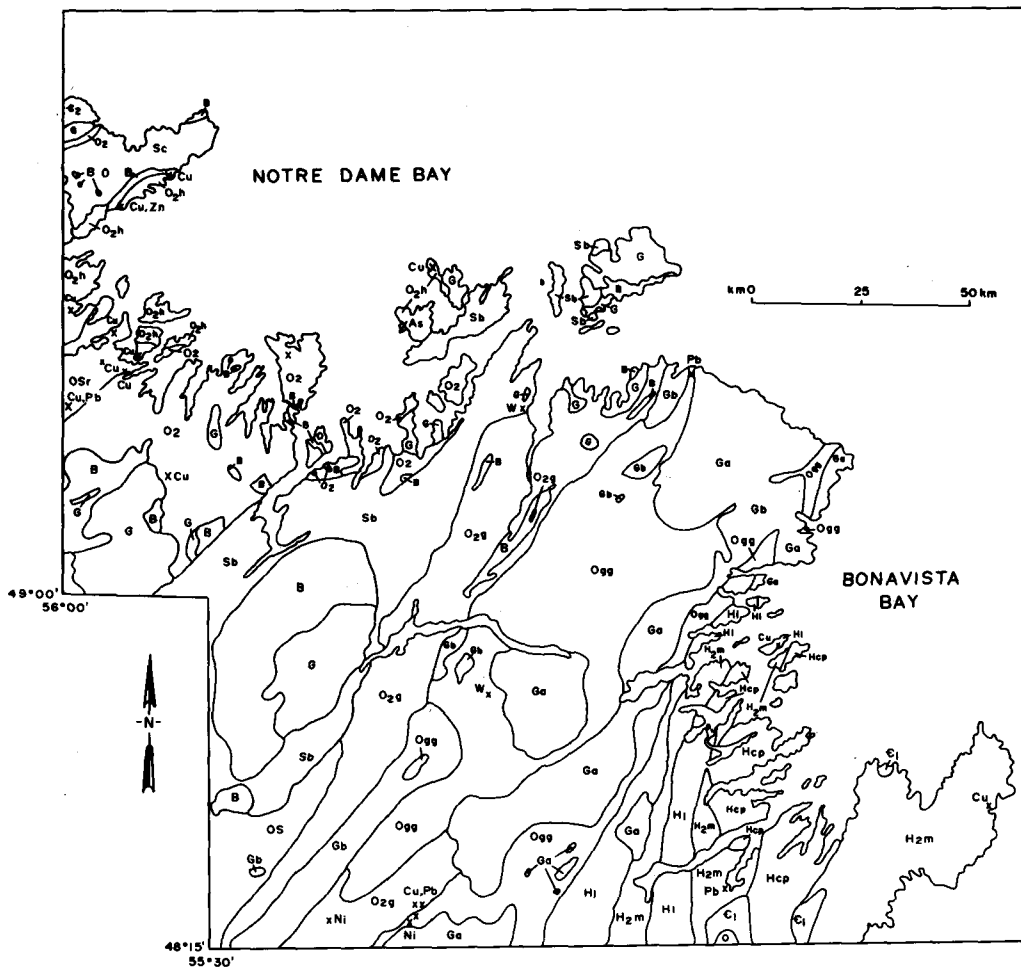
Minor showings of nickel are associated with the mafic rocks of the Gander Zone. Arsenic and antimony were once mined near Moreton's Harbour; gold and silver are also associated with this area. One tungsten prospect is located on the west side of Gander Bay and another south of Rodney Pond.

Knowledge of the mineral potential of the granitic intrusions is limited. Some molybdenum, beryllium, and fluorite showings are noted in the Wesleyville area.

OPEN FILE RELEASE

The data collected during this survey will be released on four sets of element distribution maps for each of Cu, Pb, Zn, Co, Ni, Ag, Mn, Fe, F, Mo, and U plus LOI and a set of sample location maps on a scale of 1:250,000 with a geological base. Included with this data will be reanalyzed samples collected in 1974 on the Burlington Peninsula, previously released as Open File Nfld. (785).





LEGEND

DEVONIAN

- G Granite, granodiorite syenite and related rocks; Ga, coarse grained porphyritic biotite granite; Gb, garnetiferous muscovite leucogranite
- B Gabbro, diorite, pyroxenite, quartz diorite and related rocks

SILURIAN

- S Sandstone, conglomerate, acidic to mafic volcanic rocks, graywacke, shale, limestone; Sb, BOTWOOD GROUP; Sc, CAPE ST. JOHN GROUP
- OS Slate, graywacke, acidic to mafic volcanic rocks, quartzite, chert, limestone; OSr, ROBERTS ARM GROUP

ORDOVICIAN

- O₂ Intermediate to mafic volcanic rocks, slate, graywacke, siltstone, chert, conglomerate, minor limestone, shale, siltstone, mudstone; O_{2g}, GANDER LAKE GROUP; O_{2h}, HEADLANDS GROUP
- O CLARENVILLE GROUP: Shale, siltstone, sandstone
- Ogg Granite gneiss

CAMBRIAN

Shales with limestone, conglomerate, siltstone, sandstone; includes RANDOM FORMATION: Quartzite, sandstone and conglomerate; FLEUR DE LYS GROUP: Psammitic to pelitic gneiss and schist, marble, chloritic green schist, amphibolite

HADRYNIAN

- Hm MUSGRAVETOWN GROUP: Siltstone, arkose, conglomerate, slate, minor acid to intermediate volcanic rocks
- Hcp CONNECTING POINT GROUP: Slate, siltstone, graywacke, conglomerate, minor volcanic rocks
- HI LOVE COVE GROUP: Acidic to mafic volcanic rocks with minor sedimentary rocks and metamorphic equivalents

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