

GEOCHEMICAL FOLLOW-UP SURVEYS, EASTERN NEWFOUNDLAND

by

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INTRODUCTION

Detailed geochemical follow-up was carried out in four areas during the 1984 field season. Two of these areas were in the Avalon Zone (Figure 1), they were (A) Bellevue and (B) Catalina; the other areas were in the Gander Zone, namely (C) Wesleyville and (D) Bay du Nord River. Stream sediment samples were collected in all these areas and in two, Wesleyville and Catalina, detailed soil grids were sampled over areas of interest. In a number of cases rock samples were also collected. All samples were analysed for Cu, Pb, Zn, Co, Ni, Ag, Mn, Fe, Cd and L.O.I. (loss on ignition). The samples from the Bellevue area were also analysed for fluorine. These areas are discussed individually.

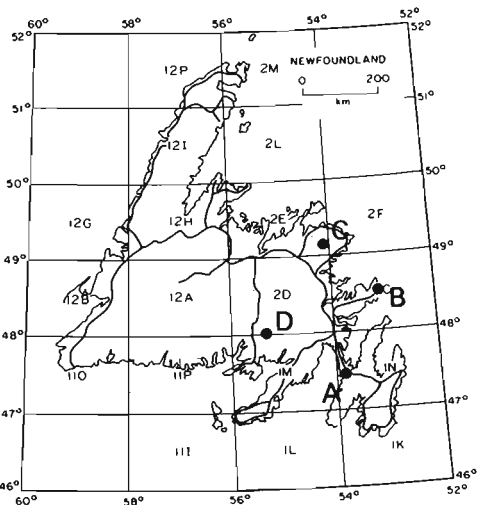


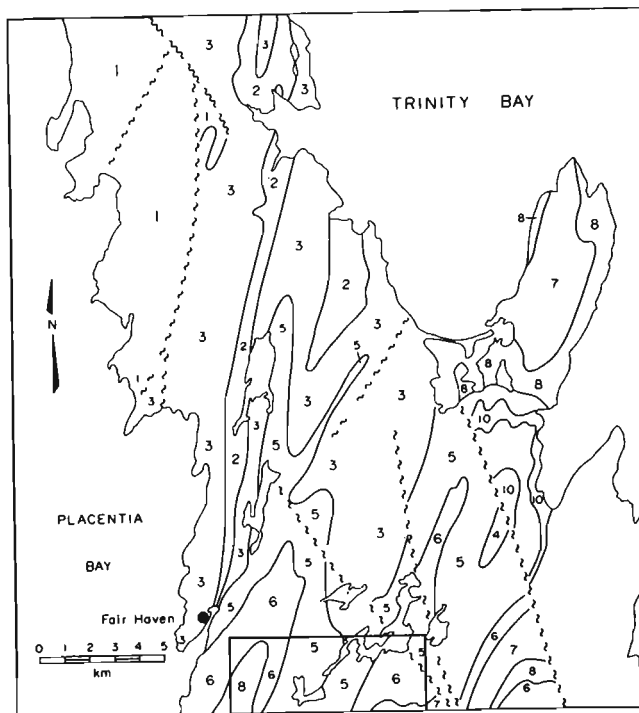
Figure 1: Index map of survey area, 1984.

Avalon Zone

Bellevue

A relatively small section in the southern part of N.T.S. map area 1N/2 was not surveyed during a joint Geochemistry - Mineral Deposits Section sampling program conducted in 1983. The sampling of this area (Figure 2), as well as a detailed look in the vicinity of an anomalous Cu stream sediment sample was carried out this season.

The area was mapped geologically by McCartney (1967) and is included in a general review of stratigraphy currently being conducted by King (in prep.). The



LEGEND

LOWER CAMBRIAN

- 11 *Bonavista, Smith Point and Brigus Formations*
- 10 *Random Group*

PRECAMBRIAN

- 9 *New Perlican Formation*
- 8 *Heart's Content Formation*
- 7 *Heart's Desire Formation*
- 6 *Quidi Vidi Formation*

Signal Hill Group

- 5 *Gibbett Hill Formation*

Bull Arm Group

- 4 *undivided*
- 3 *basaltic flows, etc.*
- 2 *silicic tuff, etc.*

- 1 *Connecting Point Group*

Figure 2: Simplified geology map of Bellevue showing survey area.

oldest rocks in the area are a sequence of marine sediments and tuff known as the Connecting Point Group. This group is overlain by a sequence of acid and mafic volcanics of the Bull Arm Group. The immediate study area is underlain predominantly by sedimentary rocks of McCartney's formations of the Musgravetown Group (King's Quidi Vidi Formation).

Stream sediment samples were, as usual, difficult to collect from the area, but samples were collected where possible. In the immediate vicinity of the highly anomalous Cu values (3945 g/t) the stream was resampled at a closer sample interval. The results of these samples indicate that although the values were still anomalous, they were not nearly as high as those collected the previous year. Rock samples were also collected from sites in the immediate vicinity. Visually the only mineralization noted in the area was hematite and pyrite; however, analyses of the rocks have not yet been completed.

All information collected in this area will be released on open file at a later date.

Catalina

Work in the Catalina area (Figure 3) was a detailed study of an area of anomalous

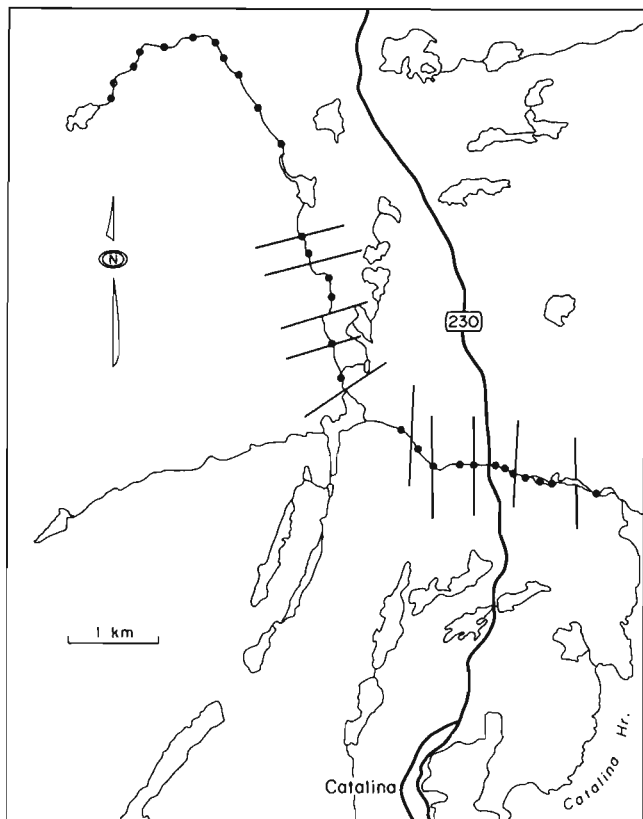


Figure 3: Little Catalina River area showing stream sediment sample sites and soil grid locations.

lous Pb values located during the 1983 regional follow-up survey near Bonavista. Stream sediments from the Little Catalina River (unofficial name) indicated anomalous values along most of the length ranging to a maximum of 794 g/t Pb.

During 1984 the river was resampled at a closer interval, approximately 150 metres. Soil samples were also collected from a grid over the area.

The grid consisted of lines run, generally perpendicular to the stream direction, at an interval of 400 metres on both sides of the stream. Both soil and rock samples were collected.

Mineralization, in the form of pyrite, was found in the stream as float and in outcrop to the east of the Little Catalina River. Samples were collected and submitted for analyses, the results of which are not currently available. A known lead occurrence on the coast just south of the community of Little Catalina was visited. The mineralization consists of fracture filling of the sedimentary rocks with crystalline quartz with pods of galena crystals. Fractures with quartz filling were noted over several hundreds of metres, but galena appeared limited to a narrow zone a few tens of metres wide. The widest vein observed was less than 5 cm and appeared to pinch out over a distance of about a metre.

Data from the present study is being compiled and will be released on open file when completed.

Gander Zone

Wesleyville

The survey in the Wesleyville area (Figure 4) complements the 1983 survey (Butler and Davenport, 1984). The area surveyed is located in the vicinity of Alleys Pond. A zinc anomaly was recorded in the regional lake sediment survey (Butler and Davenport, 1984) and regression done on data from the area confirmed the anomaly.

Stream sediment samples were collected from all streams which flow into or out of Alleys Pond. The Zn anomaly was centred on a small lake to the south of Alleys Pond. The soil sample grid was established using the long axis of the lake as a baseline. Cross lines were run in a generally east-west direction and varied in length from 400-800 metres.

When all the data has been compiled, an open file release will be made which includes all geochemical, geophysical and Quaternary data collected in the area.

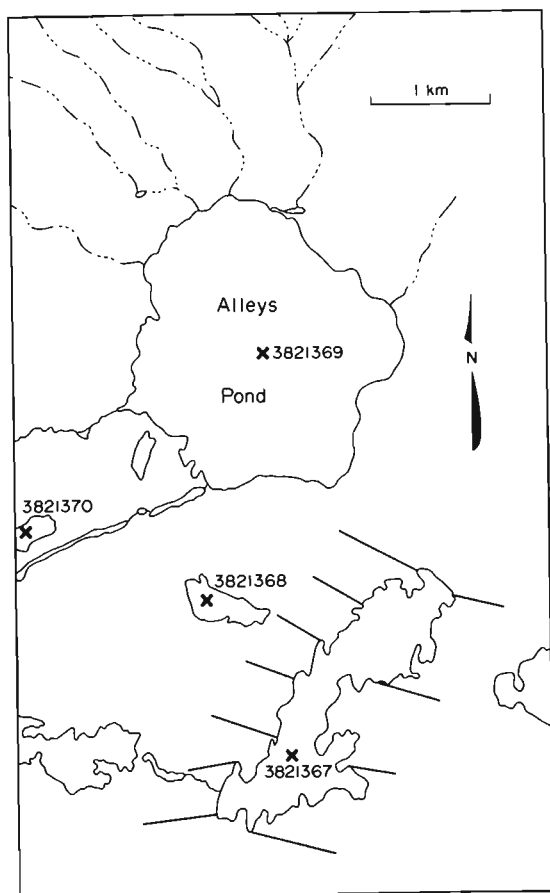


Figure 4: Soil sampling grid - Alleys Pond area.

Kim Lake

Kim Lake (Figure 5) is the unofficial name of a small lake immediately north of Medonnegonix Lake on the Bay du Nord River. The area is 18 km east of the Baie d'Espoir Highway and 36 km northeast of Milltown.

During field work in the mid 1950's (Berrange & McCabe, 1955), employees of Newfoundland and Labrador Corporation Limited (NALCO) located a mineral showing which they called Upper North Bay River Showing (later Kim Lake Prospect No. 1). The showing was a "good sulphide showing" to quote Berrange (1955) and further exploration work was recommended because of the "favourable geological setting" and because "although outcrop is very scarce a good sulphide showing has been found".

The following year the area was surveyed in more detail by NALCO employees. The area of the showing was examined, trenched and 30,000 feet of line were cut and soil sampled at 100 foot intervals on the baseline and crosslines. As a result of

the trenching the shear zone was traced to the eastern side of the brook for a distance of 120 feet, but sample results were less encouraging than the original showing.

Swinden (1980), in his economic geology study of the eastern Hermitage Flexure, states that the showing is in pelite schists of the Isle Galet Formation, is of limited extent and has no economic importance.

In 1977-1978 the Geochemistry Section of the Mineral Development Division conducted a regional lake sediment sampling survey which covered a part of the area each year (open files Nfld. [986] and Nfld. [1002]). Evaluation of the results of these studies showed that to the west of Kim Lake was an area anomalous in Zn and, to a lesser extent, in Pb.

A detailed stream sediment sampling program was conducted in the area using two sampling teams. All streams in the vicinity of the anomalous lakes were sampled at as regular a sampling interval as possible. The sampled area was extended beyond the Bay du Nord River to include the galena showing on that river. In all, 68 stream sediment samples were collected from the area. These samples will be analyzed for the usual elements and gold analyses will be done. Some rock samples were also collected from the mineralized zone on the Bay du Nord River.

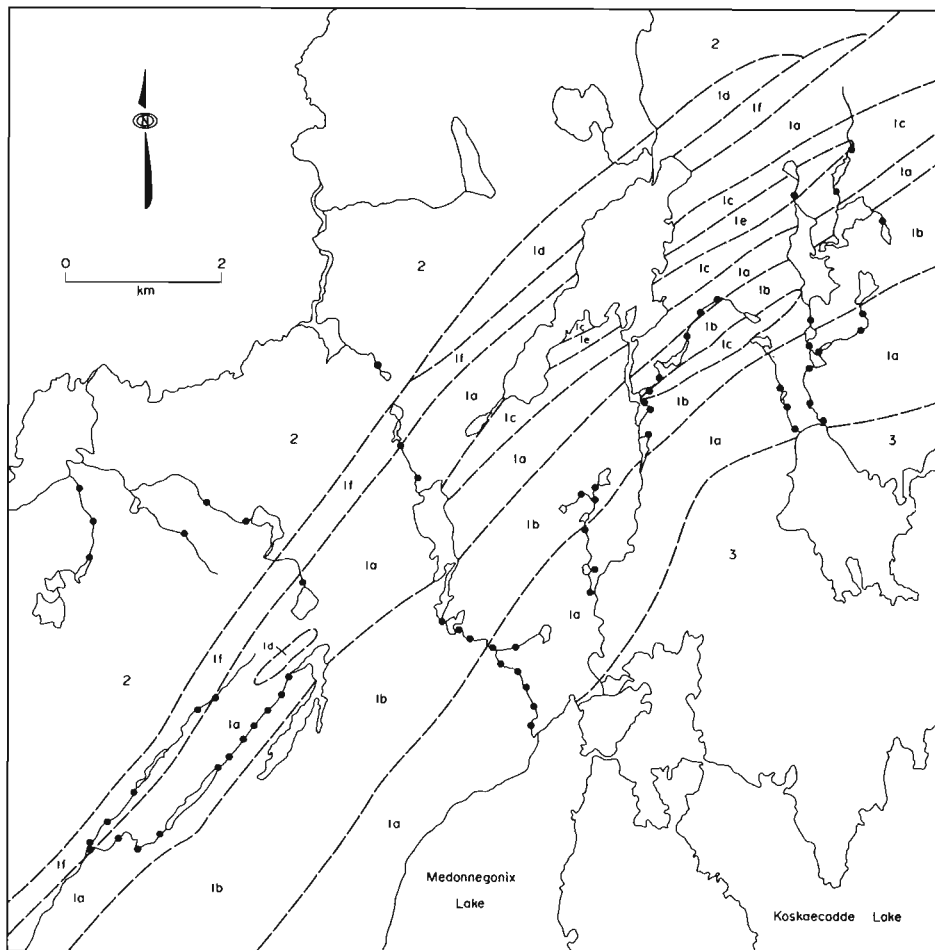
When the analyses and statistics are completed, the data will be released as an open file.

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LEGEND

DEVONIAN OR YOUNGER

- 3 Granitoid intrusive rocks

ORDOVICIAN

- 2 BAIE D' ESPOIR GROUP; chloritic and graphitic schist, felsic tuff, and micaceous greywacke
- 1 ISLE GALET FORMATION
 - (a) grey to black argillite, minor psammite, mafic to felsic tuff
 - (b) green chloritic schist and pelite
 - (c) massive amphibolite, pillow lavas
 - (d) conglomerate, quartz pebble conglomerate
 - (e) red to purple mudstone
 - (f) chloritized, medium grained, equigranular granite

Source of Geological Information

Swinden, S. (1980) *Economic geology of the eastern Hermitage Flexure*. In *Current Research* edited by C.F. O'Driscoll and R.V. Gibbons, Newfoundland Dept. of Mines and Energy, Min. Dev. Div., Rept. 80-1.

Figure 5: General geology of the Bay du Nord River area showing stream sediment sample locations.

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