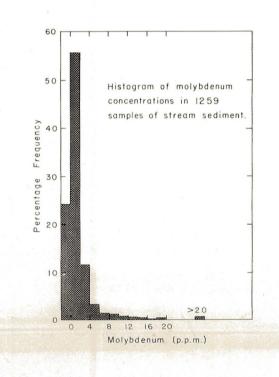


MINES DIVISION DEPARTMENT OF NATURAL RESOURCES

CANADA ATLANTIC DEVELOPMENT BOARD



The data recorded on this map are based on the analyses of 1,259 samples of fine-grained sediment collected from the channels of rivers and streams, and from rivulets flowing from springs and seeps. Where possible the active channels were sampled, but in a few cases bank material or residual sediment of dried-up streams was used. Sediment samples from poorly drained areas of muskeg and beaver workings contained abundant decomposed organic matter. All samples were collected during the 1967 field season. An attempt was made to maintain a uniform sample density, but this was frequently not achieved because of irregularities in the drainage network and the absence of an actively deposited sill-sized fraction in streams draining areas underlainby granitic rocks. All streams and rivers were traversed on foot, and samples were collected, where possible, at intervals of 1,000 to 1,500 feet.

Sediment samples were air dried prior to shipment to Bondar-Clegg & Company Limited, Ottawa, Ontario for laboratory analysis. The -80 mesh sieve fraction was used for the colorimetric determination of molybdenum after extraction by pyrosulphate fusion and HCl fusion. Values shown on this map are expressed in parts per million. The subdivisions used on the map are arbitrary, and the lowest subdivision can be taken to represent the regional background.

The molybdenum content of the stream sediments ranges from non-detectable (less than 1 ppm) to 83 ppm. The background for the whole district is probably 1 to 2 ppm, but important background variations are related to local variations in bedrock lithology, and the normal molybdenum content of stream sediments in areas underlain by grantitic rocks may be as high as 4 to 5 ppm. The frequency distribution of molybdenum data shows that 20.1 per cent of the analyses exceed 2 ppm, and 3.0 per cent of the analyses

The pattern of stream sediment molybdenum anomalies conforms closely to the regional dis-The pattern of stream sediment molybdenum anomalies conforms closely to the regional distribution of Devonian granitic rocks in southwestern New Brunswick. Anomalous amounts of molybdenum are spatially related to the granitic and contact rocks along the southern margin of the Charlotte batholith between Lake Utopia and the Nerepis River. In the area northwest of Long Reach, above normal molybdenum values in the 10 to 30 ppm range are coincident with the margins of felsic stocks of Devonian or younger age.

Many of the molybdenum anomalies to the north and northeast of Loch Alva appear to be associated with manganese concentrations in excess of 10,000 ppm. Manganese oxides and hydroxides adsorb and/or coprecipitate molybdenum, so that the presence of large concentrations of manganese may be a factor in the localization of molybdenum in some of the anomalous streams. This feature should be carefully considered when evaluating all anomalies on the map. Unusually low background concentrations for copper, zinc and manganese can be correlated with regionally low stream water pH values. The lack of a similar relation between pH and molybdenum concentration indicates that the mobility of Mo is independent of pH in

The molybdenum contents of stream and spring sediments shown on this map should be interpreted with respect to the geological environment (Map 1) and compared with the contents of individual elements in stream sediments on Maps 2 to 6 inclusive.

Metal Symbols

Field work by W. J. Wolfe, N. Szabo, J. S. Estabrooks, D. K. J. MacKinnon, A. Ashaolu and B. J. Sullivan Analyses by Bondar-Clegg & Company, Limited, Ottawa, Ontario

Map I should be consulted for further details on the geology and economic geology of the