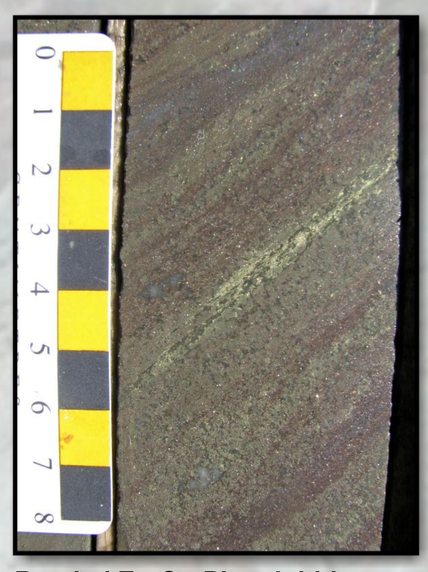
PROJECTS RELATED TO BASE METALS (Cu, Zn, Pb, Ni, Co)

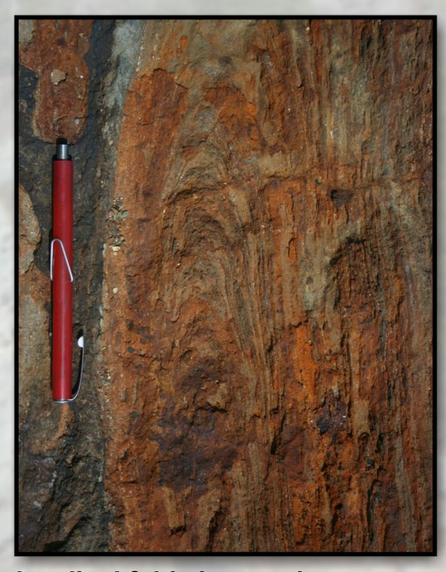
Widespread and diverse deposits of Cu, Zn and Pb are associated with early Paleozoic volcanosedimentary sequences in central Newfoundland, and are products of volcanogenic massive sulphide (VMS) systems. Possible stratiform, sediment-hosted copper mineralization occurs in eastern Newfoundland and perhaps also in Labrador. Significant magmatic sulphide mineralization is known mostly in Labrador.

Polymetallic VMS Mineralization in the Victoria Lake Supergroup

Since 2006, research into VMS metallogeny has been focused in the Victoria Lake Supergroup (VLSG). These rocks include the Duck Pond deposit and several high-profile exploration projects, including Boomerang (Messina Minerals), LeMarchant (Paragon Minerals), Bobby's Pond (Mountain Lake Resources) and Daniels Pond (Royal Roads). In 2009, work continued on the synthesis of results from this project, including analysis of extensive geochemical data.

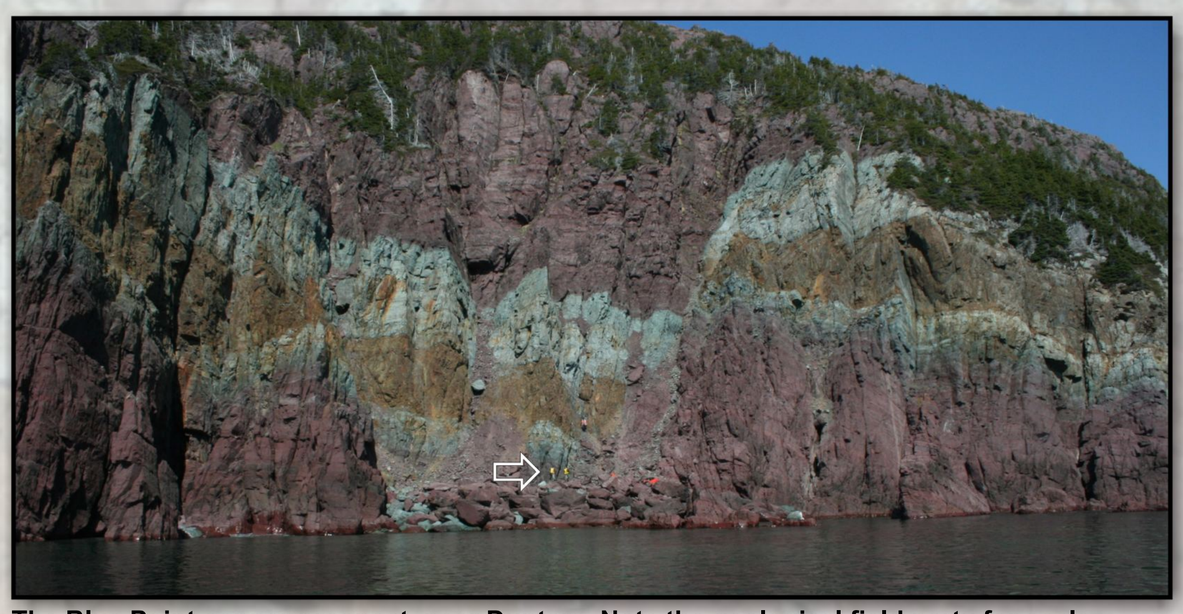


Banded Zn-Cu-Pb sulphides, Boomerang Deposit



Isoclinal folds in massive sulphides, Daniels Pond deposit.

Sediment-hosted Stratiform Copper (SSC) Mineralization in Eastern Newfoundland



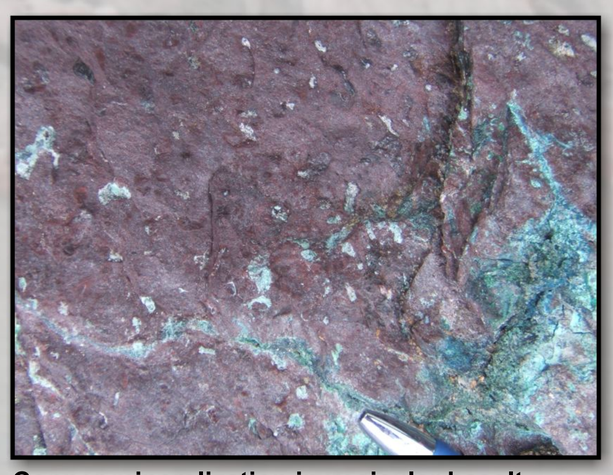
The Blue Point copper prospect, near Duntara. Note the geological field party for scale (located by arrow !)

Diagenetic pyrite cubes replaced by copper mineralization at the Tickle Cove showing. Note malachite staining.

A new project was initiated in 2009 to examine copper mineralization hosted in Neoproterozoic and Ediacaran sedimentary sequences of the Avalon Zone, notably on the Bonavista Peninsula. These deposits may represent examples of sediment-hosted stratiform copper (SSC) deposits, which are major world metal sources. This year's work focused mostly on the Bonavista Peninsula, where the best-known example of potential SSC occurs at the spectacular Blue Point prospect. In addition to documenting known occurrences in detail, the project is intended to define reduced sedimentary units that may act as potential regional host rocks. Metallogenic studies were coordinated in part with systematic geological mapping in the Bonavista area.

Copper in Labrador: Contrasting Genetic Models and their Implications

Native copper in veins, Seal Lake



Copper mineralization in vesicular basalt

Previous studies of the Seal Lake Group in Labrador proposed contrasting genetic models including both SSC-type mineralization and epigenetic, vein-style mineralization. Field work in 2009 supports the idea that much of the copper mineralization is epigenetic, and likely of minor extent. However, possible "stratiform" disseminated mineralization in shales may merit further investigation in the future.