# PROJECTS RELATED TO BASE METALS (Ni, Cu, Co, Pb, Zn, V, Ti, Fe)

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## Ni-Cu-Co and V-Ti-Fe Potential of Mafic Intrusions

Field work in 2013 mostly involved the examination of mafic intrusions in Newfoundland that have the potential to host Ni-Cu-Co mineralization. Fe-Ti-V mineralization associated with the Silurian Main Gut intrusion and the Neoproterozoic Steel Mountain anorthosite complex was also examined.

The recent recognition of magmatic Ni-Cu-Co mineralization in southwestern Newfoundland, hosted by Silurian mafic rocks of the Puddle Pond intrusion, provides an opportunity to research the styles and settings of such mineralization. These deposits may be analogous with producing deposits elsewhere in the world. The results of this study will aid in further exploration for this style of mineralization.

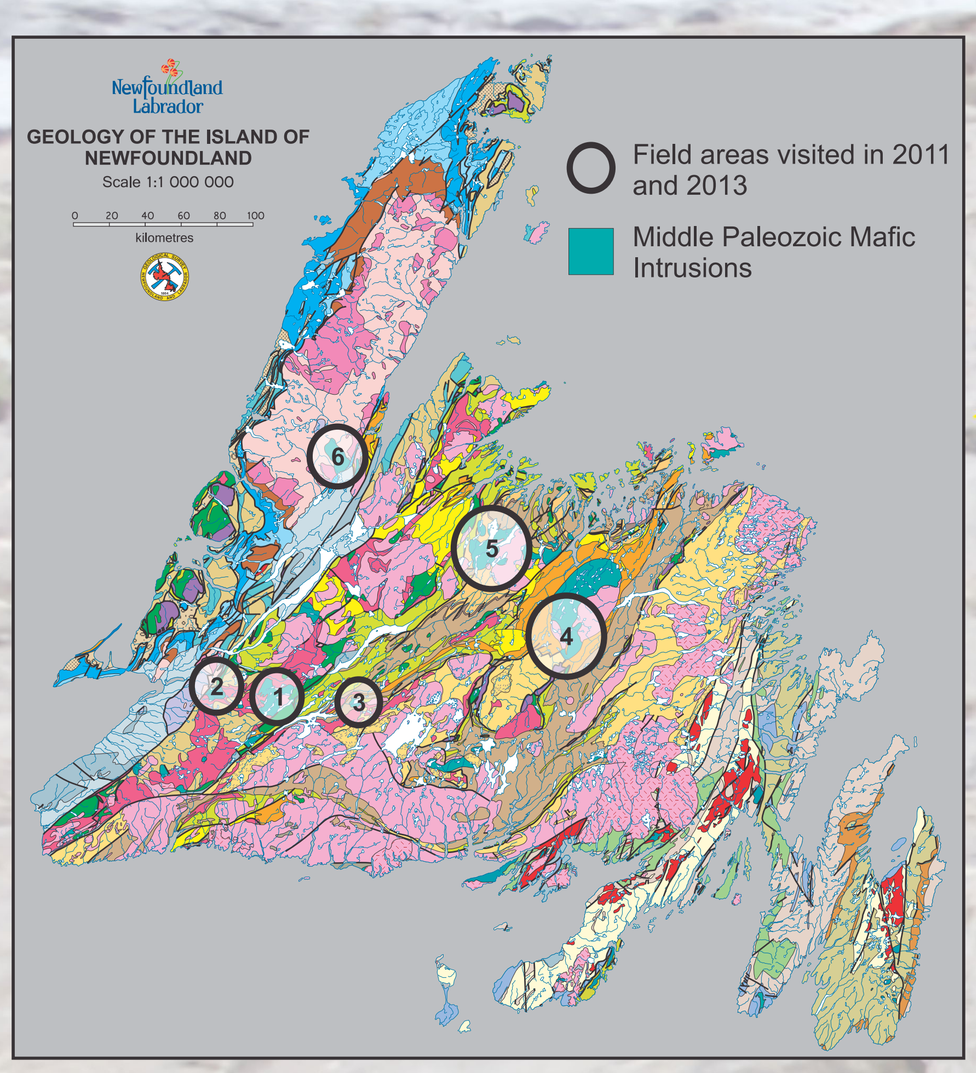
Fe-Ti-V mineralization in western Newfoundland is interpreted to be magmatic, and may have similar characteristics to some of the magmatic type Ni-Cu mineralization elsewhere on the island. Other mid-Paleozoic intrusions may have similar potential.

Melatroctolite with 1-3% disseminated sulphide; Red Cross Lake Intrusion. Location 3 on map.

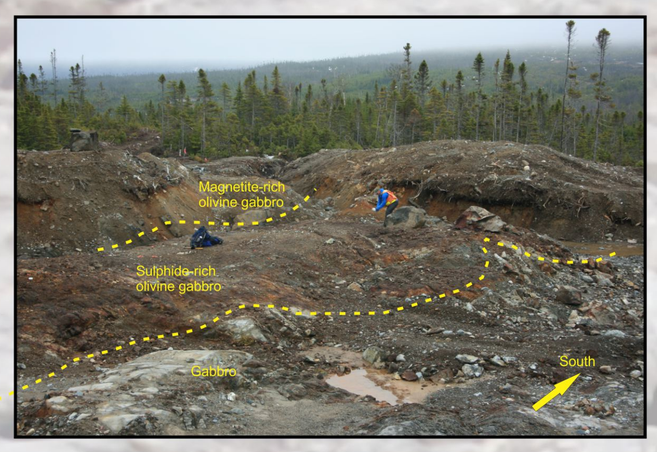
Massive sulphide pod at the base of a gabbro containing disseminated sulphide - Main Showing - Powderhorn Lake area. Location 5 on map.

Layered troctolite - SW portion of the Mt. Peyton Intrusive Suite. The rocks locally contain minor sulphide disseminations. Location 4 on map.

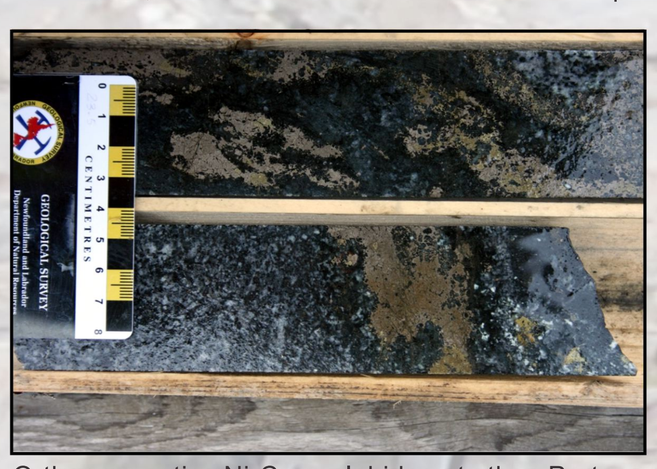
Cumulate oxides (magnetite-ilmenite) within layered gabbro in the Keating Hill Area. Location 2 on map.




Geological map of the island of Newfoundland highlighting the location of mid-Paleozoic mafic intrusions visited as part of this study. 1 = Puddle Pond compex, Portage Lake area; 2 = Puddle Pond complex, Main Gut intrusion; 3 = Red Cross Lake intrusion; 4 = Mt. Peyton intrusion; 5 = Hodges Hill intrusive suite; 6 = Taylor's Brook intrusion.



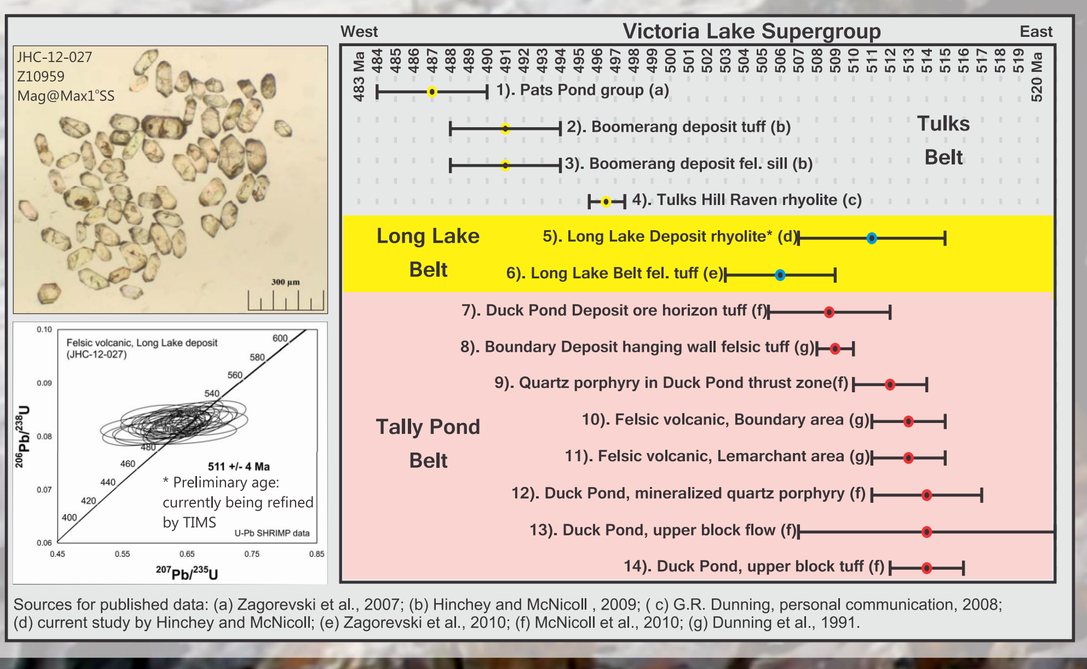

Main trenched and stripped area of the Portage occurrence, Puddle Pond intrusion. Location 1 on map.




Orthomagmatic Ni-Cu sulphide at the Portage occurrence, Puddle Pond intrusion. Location 1 on map.

## Polymetallic VMS Mineralization, Long Lake Belt, Victoria Lake Supergroup

Preliminary results suggest that there are at least two groups of felsic volcanic rocks within the Long Lake Belt. The Long Lake deposit is hosted by a high-field-strength element (HFSE) enriched rhyolite. Based on preliminary geochronological work as part of this project, the host rocks are of similar age (511 +/- 4 Ma) to those of the Duck Pond deposit in the Tally Pond Group. The other group of felsic volcanic rocks identified as part of the Long Lake Belt consists of ca. 506 Ma quartz-eye-phyric felsic tuff. These contain significantly lower concentrations of HFSE than the host rocks to the Long Lake deposit.




Sources for published data: (a) Zagorevski et al., 2007; (b) Hinchey and McNicoll , 2009; ( c) G.R. Dunning, personal communication, 2008; (d) current study by Hinchey and McNicoll; (e) Zagorevski et al., 2010; (f) McNicoll et al., 2010; (g) Dunning et al., 1991.