

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

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

Field work in 2012 documented volcanogenic sulphide mineralization and associated alteration zones in the Long Lake Belt, within the Cambrian to Ordovician Victoria Lake supergroup. The Long Lake Belt consists of ca. 505 Ma felsic volcanic rocks (tuffaceous and rhyolitic), mafic volcanic rocks (mafic tuffaceous rocks and pillow basalts), and sedimentary rocks (cherts, black shales, and graphitic argillite).

The Long Lake VMS deposit contains 407,000 tonnes at 7.82% Zn, 1.58% Pb, 0.97% Cu, 49 g/t Ag, and 0.57 g/t Au. Mineralization occurs as structurally attenuated, barite-rich, narrow high-grade massive sulphide horizons associated with the felsic volcanic rocks. The belt also hosts several VMS-type alteration zones.

Felsic volcanic rocks vary from aphyric to fine-grained felsic tuff, rhyolitic flows, domes and sills in the west to blue quartz-phyric rhyolite and felsic tuff in the east. Ongoing work is intended to characterize the various felsic volcanic rocks, and also alteration signatures associated with the different rock groupings. This work will add to the information previously presented for the Tally Pond and Tulks belts, also within the Victoria Lake supergroup.



Typical topography of the Long Lake Belt. The deposit sits beneath the bogs in the center of the photo.



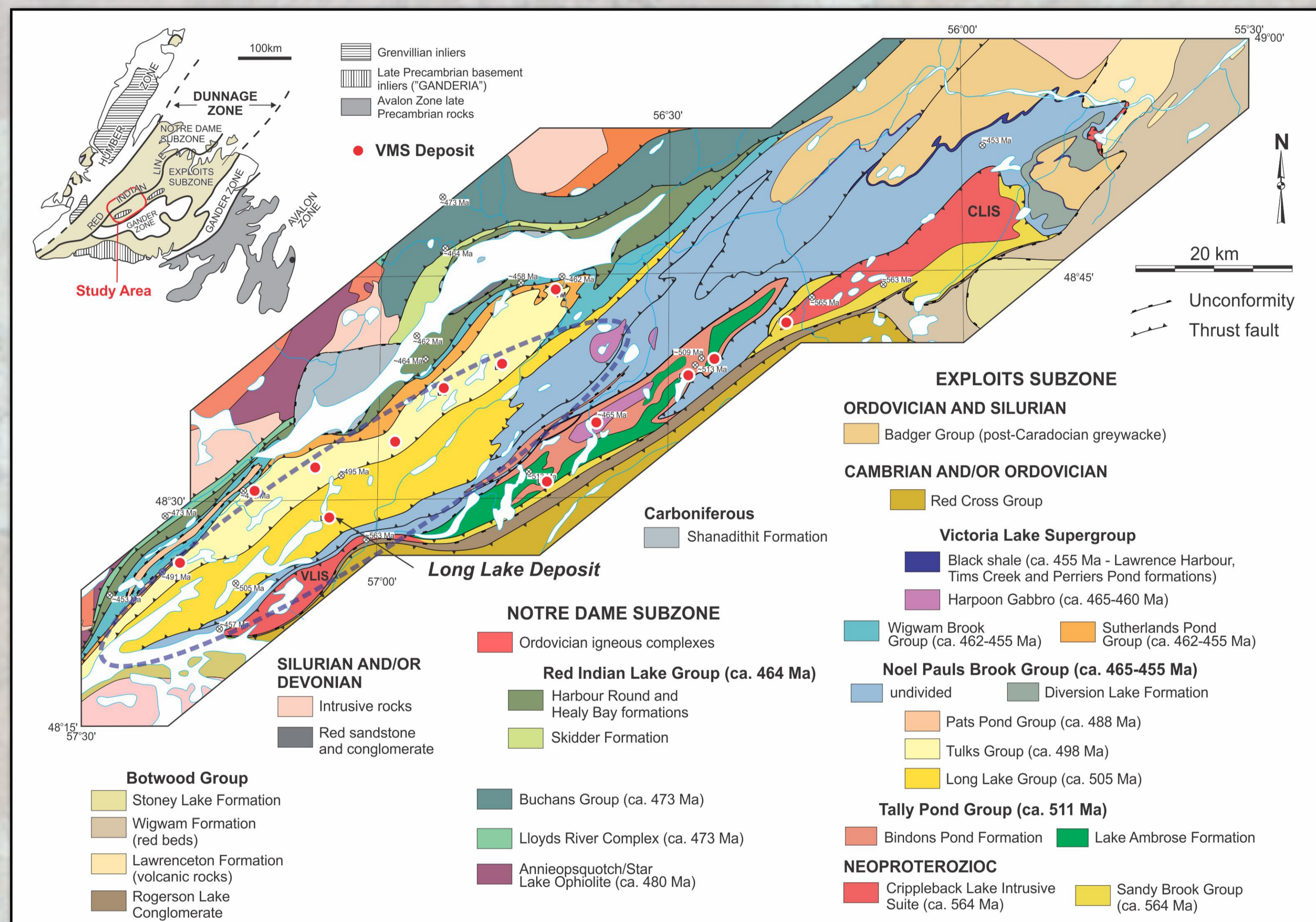
Strongly foliated and cleaved sericite-pyrite alteration of felsic volcanic rocks, Long Lake peninsula.



Tight folding of a magnetite seam in felsic volcanics, near the surface projection of the Long Lake deposit.



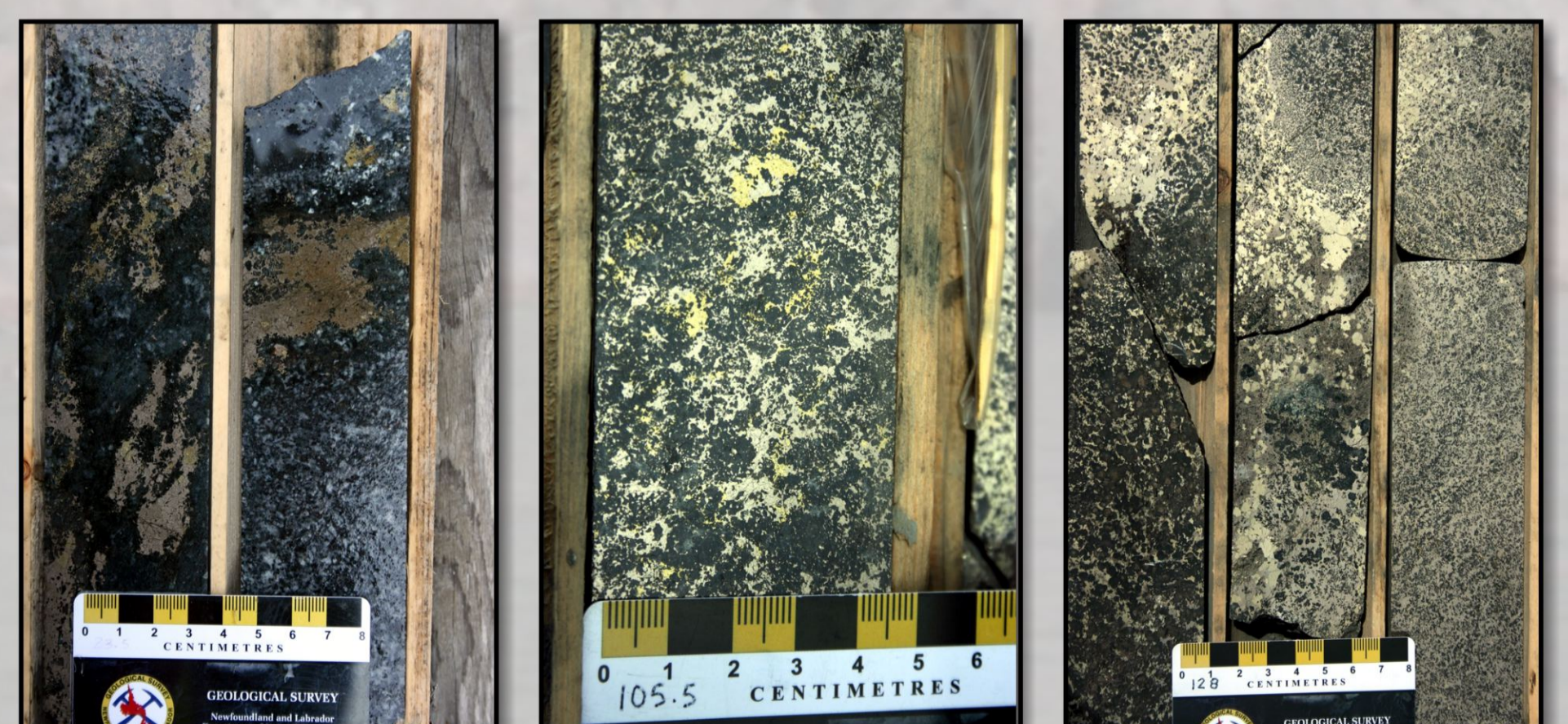
Massive sulphides at Long Lake, grading: 2.7% Cu, 1.1% Pb, 23.6% Zn, 45 g/t Ag and 0.7 g/t Au.



Location and generalized geology of the Red Indian Lake area, including rocks of the Victoria Lake supergroup. Geological map from a compilation by N. Rogers based, in part, on GSC mapping. Position of the Long Lake Belt is outlined by the dashed ellipse.

## Ni-Cu and Cu-Co Mineralization, Long Range Property, Western Newfoundland

Studies of Ni-Cu and Cu-Co mineralization based on field work in 2010 and 2011 continue with petrographic, geochemical, S-isotope and geochronological investigations. Preliminary results suggest that the ca. 431 Ma Portage zone represents typical orthomagmatic sulphide, whereas the ca. 463 Ma Range zone mineralization is of more enigmatic origin. Variable textures and hosts in the latter, combined with the absence of Ni, the presence of aluminosilicate minerals (e.g. cordierite) in the alteration assemblage, and heavy S-isotopic signatures may suggest an affinity to a metamorphosed massive sulphide occurrence.



Left, typical orthomagmatic Ni-Cu sulphides, Portage prospect. Right, enigmatic Cu-Co sulphide mineralization, Range prospect. Centre, disseminated Cu-Co mineralization in cordierite-rich host, Range prospect.