PROJECTS RELATED TO BASE METALS

Newfoundland Labrador
Natural Resources

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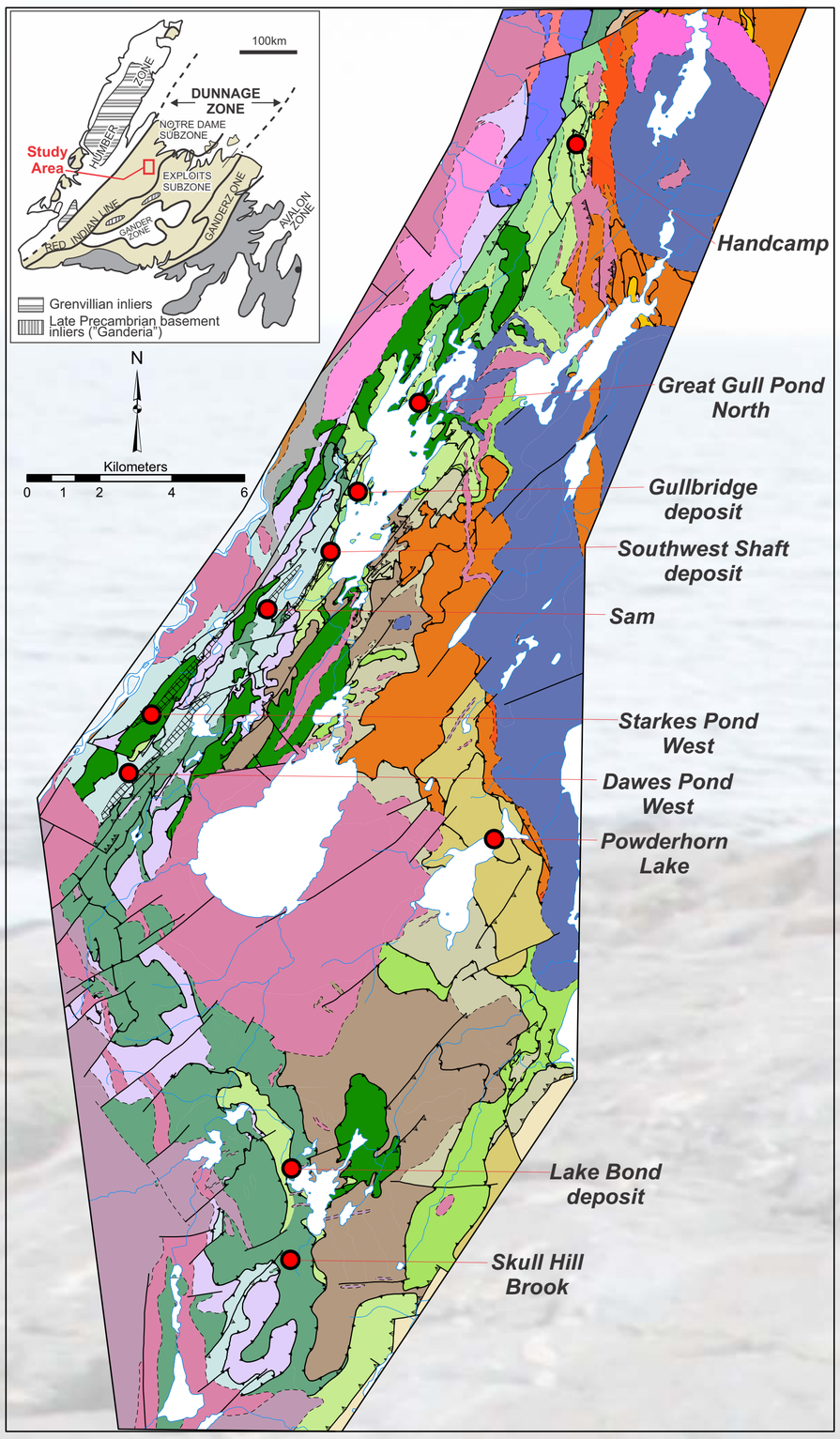
Volcanogenic massive sulphide (VMS) mineralization: Central Newfoundland



In 2017 a project was initiated to investigate the volcanogenic massive sulphide (VMS) mineralization and the related alteration developed within the central portion of the Buchans–Roberts Arm Belt. This region is host to several deposits of VMS-style mineralization (*e.g.* Gullbridge, Southwest Shaft and Lake Bond deposits; Figure 1). These rocks also locally host precious-metal (Au-Ag) enrichment (*e.g.* Handcamp prospect; Figure 1) in association with base-metal mineralization; however this enrichment has largely been attributed to a later, structurally controlled, mineralizing event.

VMS mineralization developed within the central portion of the Buchans–Roberts Arm Belt displays variable degrees of deformation and metamorphism related to the tectonic and plutonic activity within the region. This mineralization is predominantly hosted within volcanic and associated sedimentary rocks of the Early−Middle Ordovician Roberts Arm Group, which forms a north-northeast trending fold and thrust belt. Due to the structurally complex nature of the region, the majority of the VMS-related mineralization and alteration developed within the volcanic sequence is largely structurally bound. VMS-related mineralization developed within the area of the Gullbridge deposit is largely copper dominated, whereas occurrences within more southern portions of the region are primarily zinc dominated (*e.g.* Starkes Pond West, Dawes Pond West, Lake Bond deposit; Figure 1).

Information gathered from new outcrop exposures related to forestry activity in the region, coupled with new geology maps and airborne geophysical data will be combined to form a comprehensive geological database for the region. These data will form the basis of ongoing deposit-level and regional studies, aimed at further investigating the hydrothermal systems related to the development of VMS mineralization within the host volcanic sequence.

Figure 1: Simplified geological map of the study area (adapted from O'Brien 2009, 2016).

Outcropping VMS mineralization at the Gullbridge deposit.

New exposure of structurally bound VMS-style mineralization, located in a quarry ~ 4.5 km northeast of the Gullbridge deposit.

Historical adit, Southwest Shaft deposit.

Outcropping VMS mineralization and related alteration, Lake Bond deposit.