

Regional Geology of the Western Seal Lake Group, Central Mineral Belt, Labrador.

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The western portion of the Mesoproterozoic Seal Lake Group (ca. 1270-1225 Ma) is underlain by arenaceous, argillaceous and minor calcareous sedimentary rocks, amygdaloidal basalt flows, volcanoclastic rocks and gabbro sills on the northern limb of the regional Seal Lake syncline. The rocks are disposed in thin, open-folded, tabular-shaped units in the south and as thick, weakly deformed sequences in the north. Structures are dominated by east-northeast-striking, south-dipping bedding in the northern area and northeast-striking, southeast-dipping, transposed bedding and S_1 and S_2 fabrics and primarily southeast-plunging mineral lineations related to Grenvillian deformation along the southern contact with older igneous rocks. Unconformities of the basal units of the Seal Lake Group and older igneous rocks are poorly exposed although observed relationships indicates the contacts are moderate, to steeply-dipping and fault-bounded in the south and west and relatively undeformed and flat-lying at the northern limit of the group.

Sulphide mineralization includes minor bornite \pm chalcocite \pm chalcopyrite \pm malachite \pm azurite hosted in altered basalt flows, gabbro sill margins and argillaceous sedimentary rocks associated with quartz \pm calcite veins and localized deformation. Elevated radioactivity signatures are recorded from coarse-grained arenite, conglomerate and fine-grained shale in the lower levels of the Seal Lake Group stratigraphy and from marginal zones of older igneous rocks associated with unconformities.



Southeast-plunging F1 fold in interbedded quartz arenite-slate sequence located at the base of the Wuchusk Lake Formation. The left (east) limb of the fold is partially truncated by a minor south-southwest-striking fault (dashed line). Width of photograph is approximately 150 meters. Naskaupi River area.



Shallow (approx. 10°), south-dipping, interbedded quartz arenite and quartz-pebble conglomerate at the base of the Seal Lake Group proximal to the northern unconformity with anorthosite of the Harp Lake Complex. The unconformity, although not exposed, is interpreted as near flat-lying and relatively undisturbed with little evidence of subsequent deformation. North of Kanairiktok River.



Strongly deformed semi-pelitic schist at the base of the Seal Lake Group along the fault-bounded unconformity with coarse-grained granite of the North Pole Brook Intrusive Suite in the extreme southern map area. Fabric is defined by transposed S_1 and S_2 foliations and a southeast-plunging mineral lineation. Rotated quartz fragments (deformed veins?) suggest a sinistral sense of early shearing associated with this unconformity.



Volcanic breccia consisting of angular and subrounded, fine-grained basalt, volcanic tuff, gabbro and siltstone xenolithic blocks incorporated in fine-, to medium-grained basaltic composition matrix material, Majoqua Lake Formation, northern Seal Lake Group, South Shipiskan River.



Strongly weathered, matrix-supported conglomerate along the unconformity of quartz arenite at the base of the Seal Lake Group and underlying Archean biotite-hornblende granodiorite of the Seal Lake Intrusive Suite. The matrix material consists of medium-grained, partially unconsolidated arenite to quartz arenite. Subrounded clasts consist of the underlying granodiorite (cobble-sized clasts), and quartz arenite and rare fine-grained basalt of the Seal Lake Group (pebble-sized clasts). Majoqua Lake Formation, west of Bibikwasin Lake.



Diamixite breccia consisting of angular fragments of granodiorite gneiss, foliated granite, minor arenite and K feldspar clasts supported in a grit-textured matrix of arenaceous and granitic material. Rock is interpreted as a probable strongly deformed regolith weathering layer at the contact of the base of a fault-bounded outlier of the Seal Lake Group and Archean granitoid gneiss of the Seal Lake intrusive Suite, northwest shore of Michikamau Lake.



Strongly deformed pyroxene-bearing mafic gneiss of the Red Wine Intrusive Suite exposed along the Partridge River in the southern map area. The gneiss is in thrust fault contact with rhyolite porphyry of the Letitia Lake Group and quartz-sericite schist at the base of the southern Seal Lake Group. Note boudinaged and dextrally rotated quartz-plagioclase vein fragments. This subunit records elevated radioactivity signatures up to 9800 total counts per second with preliminary assays of 50 ppm U and 1600 ppm Th.



Malachite-azurite alteration and minor bornite and chalcocite (1%) hosted in a small, quartz vein-bearing shear zone within strongly altered gabbro sill margin, near the contact with a slate layer. MODS Occurrence 13L/02/Cu007, Wuchusk Lake Formation, headwaters of the Naskaupi River.



Malachite (green alteration) and minor bornite (1%) hosted in strongly altered limonite-bearing gossan zone in strongly foliated, fine-grained, homogeneous basalt flow margin. The mineralization is associated with a steeply-dipping, north-striking shear zone developed along the contact of the basalt flow with slate and quartz arenite. (MODS Occurrence 13L/02/Cu004, Wuchusk Lake Formation, southeast of Maid Marion Falls, Naskaupi River).