

# Seal Lake Area, Central Labrador

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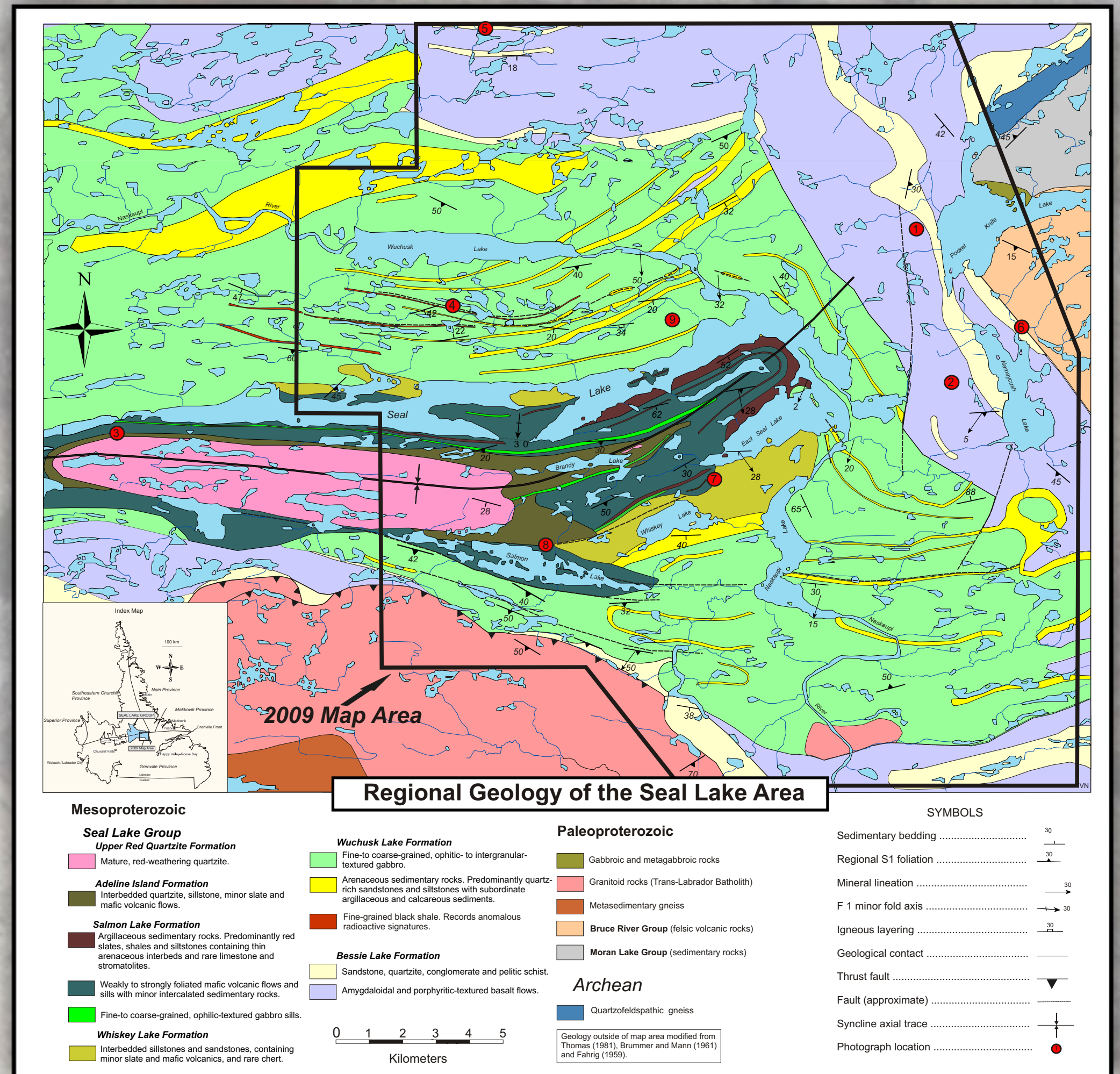
Field work in the Seal Lake area during 2009 consisted of 1:50 000-scale bedrock mapping of parts of NTS map areas 13K/3, 4, 5 and 6. This area is underlain by the eastern part of the Mesoproterozoic Seal Lake Group. Sedimentary rocks comprise a sequence of quartzite, sandstone, siltstone, slate, shale, phyllite, schist and minor limestone, and chert layers. These rocks are intercalated with massive, amygdaloidal and porphyritic basalt flows, volcanoclastic rocks and medium- to coarse-grained gabbro sills. Rare, fine-grained, cm-scale mafic dykes intrude the gabbroic rocks.

Structures are dominated by east- to northeast-trending, south-dipping, commonly transposed bedding and F1 foliations and south- to southwest-plunging lineations and minor fold axes. These features delineate the eastern part of a regional-scale, doubly plunging syncline. Kinematic indicators in southeast-trending fault zones, along the southern boundary of the Seal Lake Group, indicate a north-directed sense of thrusting. Sedimentary features, including crossbeds, ripple marks and imbricated grains indicate a general easterly direction of deposition.

Metamorphic grade shows a variation from greenschist facies, chlorite-bearing assemblages in the extreme southern map area, associated with fault zones, to weakly metamorphosed rocks in the north.

Copper mineralization in the map area includes locally occurring chalcocite, native copper, bornite, chalcopyrite, malachite and azurite. These minerals are hosted primarily in quartz ± calcite veins associated with the margins of basalt flows, slate units, and gabbro sills. Pyrite and ilmenite are common accessory phases in gabbroic rocks.

Anomalous radioactive signatures are associated with thin, black shale, conglomerate and rare tuff layers in the lower units of the sedimentary sequence.



1 Rounded pillow features developed in altered basalt flow. Note strong hematite alteration of pillow margins. (Bessie Lake Formation, west of Pocket Knife Lake).



4 Black shale unit which yields anomalous radioactive signatures (locally up to 3100 counts per second). This unit occurs as several east-trending, 50-70 m-wide layers intercalated with quartzite, basalt flows and thin gabbro sills, between Seal Lake and Wuchusk Lake. (Wuchusk Lake Formation)



7 Chalcocite aggregates, to the right of pen, hosted in vertical, cross-cutting quartz + calcite veins within strongly foliated and altered basalt flow. Foliation in basalt flow is perpendicular to quartz veins. (Salmon Lake Formation, northeast of Whiskey Lake).



2 Well-developed polygonal jointing indicative of cooling at the top of a plagioclase-porphyritic basalt flow. Jointing is hematized and locally displaced along late fractures as shown just above scale card. (Bessie Lake Formation, south of Pocket Knife Lake).



5 Graded- and cross-bedding in sandstone-conglomerate unit. Elevated radioactive signatures, locally up to 1050 counts per second, are associated with the conglomerate beds. Coarse bed contains sub-rounded feldspar, quartz, slate and minor felsic volcanic clasts. (Bessie Lake Formation, Sprigg's Lake showing area, MODS No. 13K/05/U001).



8 Dextral shearing associated with late, discordant quartz veining in medium-grained sandstone, Salmon Lake Formation, north of Salmon Lake.



3 Malachite and azurite staining and disseminated chalcocite in strongly hematized, amygdaloidal basalt flow. Mineralization occurs as amygdules and as fine-grained aggregates along fracture surfaces. (Salmon Lake Formation, south shore of Seal Lake, Ellis Pond Occurrence No. 75, MODS No. 13K/05/Cu028).



6 Coarse-grained conglomerate composed of sub-rounded quartz, sandstone, red slate, granitoid rock and felsic volcanic rock clasts in medium-grained feldspar + quartz matrix. (Bessie Lake Formation, eastern margin of Seal Lake Group, south of Pocket Knife Lake).



9 Fine-grained, possibly boudined, mafic dyke intruding medium-grained, massive, ophiolite-textured gabbro. Partial assimilation of host gabbro by the intruding dyke is evidenced by small plagioclase phenocrysts present in the very fine-grained, 1 cm-wide, chilled margin. Dyke margin is outlined in black for clarity. (Wuchusk Lake Formation, north of Seal Lake).