#### QUATERNARY

HOLOCENE - LATE WISCONSINAN



MARINE - ALLUVIAL AND OUTWASH DEPOSITS (MA, OW) \*: MA; silty clay. sand and gravel; forms estuarine deposits, alluvial floodplains and alluvial channel deposits. OW; silt, sand and gravel; massive to horizontally bedded; channel sequences common; forms flat plains and terraced deposits



ICE-CONTACT DEPOSITS (IC) \*: silty sand, gravel and boulders, abrupt grain size transition from shallow- to steeply-dipping beds; faulting is common; clasts reflect provenance of surrounding till; may be interstratified with till; forms kames, kame terraces, ice contact deltas and eskers; thickness 1-15m.

LATE - MIDDLE WISCONSINAN



SHELBURNE RIVER TILL: Occurs as granite (GSRT) and greywacke/slate (MSRT) lithological facies; loose, texture varies from a sandy matrix-rich to a stony, clast supported till; colour varies from white (10YR8/1)\*\* to very pale brown (10YR7/3); nonweathered appearance; occurs as hummocks, ridges and a rolling ground moraine; deposits are crudely stratified; spatially associated with kames and eskers; exhibits extensive onlap of clasts down-ice onto adjacent bedrock units; renewal distances\*\*\* vary from 0.1 km to >5 km; matrix may be derived from up-ice lithologies and may not reflect the composition of the pebble fraction; thickness varies from 1-3 m in areas of ground moraine to 10-15 m on hummocks and ridges; the major transport direction is toward the southeast with lesser transport toward the south and

BEAVER RIVER TILL: Divided into ablation, ground moraine and drumlin-derived units.



Ablation moraine\*: May occur as granite (GTC), greywacke (GWC) and slate (SLC) lithological facies; loose, matrix supported till containing intrabeds of silt, sand and gravel; colour varies from very pale brown (10YR7/4) to yellowish-brown (10YR5/4); forms hummocks and ridges with associated ice-contact deposits; locally derived or may exhibit extensive onlap of clasts and matrix down-ice onto adjacent rock types; renewal distances vary from 0.1 to 6 km; thickness 1-10 m; glacial transport is toward the southeast and



Ground moraine: Subdivided into granite (GTB)\* and greywacke-slate (GWB)-(SLB) lithological facies; structureless stony matrix, though sandier varieties with minor washed zones around boulders are common; colour varies from light yellowish-brown (10YR6/4) to dark yellowish-brown (10YR4/4) in the granitic facies, light olive-brown (2.5Y5/4) in the greywacke and slate facies; generally forms a featureless ground moraine; exhibits rapid lithological change down-ice of bedrock contacts, 90% of clasts are transported less than 1 km; renewal distances vary from tens to hundreds of metres; thickness 1-6 m; glacial transport directions are difficult to determine due to short renewal distance, it is southeastward across most of the South Mountain Batholith (SMB); however, northward, northwestward and westward dispersal was mapped in the northern and western margins of the



Drumlin-derived moraine (GTB(D))\*: Loose, medium- to coarse-grained, sandy matrix, moderately stony, minor washing; colour is brown (10YR5/3) to dark yellowish-brown (10YR4/4); till mantles and forms a ground moraine between drumlins; nongranitic lithologies are incorporated from stratigraphically older tills; matrix composition is in part dependent on composition of reworked older till; thickness 1-4 m; actual glacial transport directions are the same as those of the ground moraine unit; however, a strong southeast transport was inherited from older, reworked southeast-transported till(s).



LAWRENCETOWN TILL (LT)\*: Muddy to sandy till, moderately compact, jointed, greenish mottling in the weathered zone; colour varies from dark reddish-brown (2.5YR3/4) to strong brown (7.5YR4/6); occurs as a ground moraine and drumlins; clast lithologies vary from 10-90% local bedrock to 10-90% non-granitic clasts derived from as far as 90 km, distal sources are the metasedimentary/volcanic massif complex of the Cobequid Highlands, Meguma Group, metasedimentary and volcanic rocks of the White Rock, New Canaan, Kentville and Torbrook formations, and North Mountain basalt; renewal distances vary from hundreds of metres to tens of kilometres; thickness is 1-2 m as a ground moraine and 4-30 m as drumlins; dispersal direction varies from southward to southeastward.

## EARLY WISCONSINAN (?)



HARTLEN TILL (HT)\*: Occurs as granite (GTA) and slate (STA) lithological facies; sandy, compact till, clast-rich, fissile; colour varies from strong brown (7.5YR4/6) in granite facies to olive (5Y5/3) in slate facies; generally forms or cores drumlins; cast lithology dominated by local bedrock lithologies; 10-35 percent of clasts transported 20-25 km; thickness 1-10 m; glacial transport is toward the southeast with lesser transport toward the east-southeast(?).

## PRE-WISCONSINAN

a veneer to 3 m.



RESIDUUM (R)\*: Chemically-weathered bedrock; commonly develops a soil-like consistency due to in situ weathering followed by glacial mixing; may retain hypidiomorphic granular texture of parent granite, preservation of K-feldspar megacrysts and hydrothermally altered fracture zones; restricted to the topographically higher regions of the Southern Uplands; thickness varies from

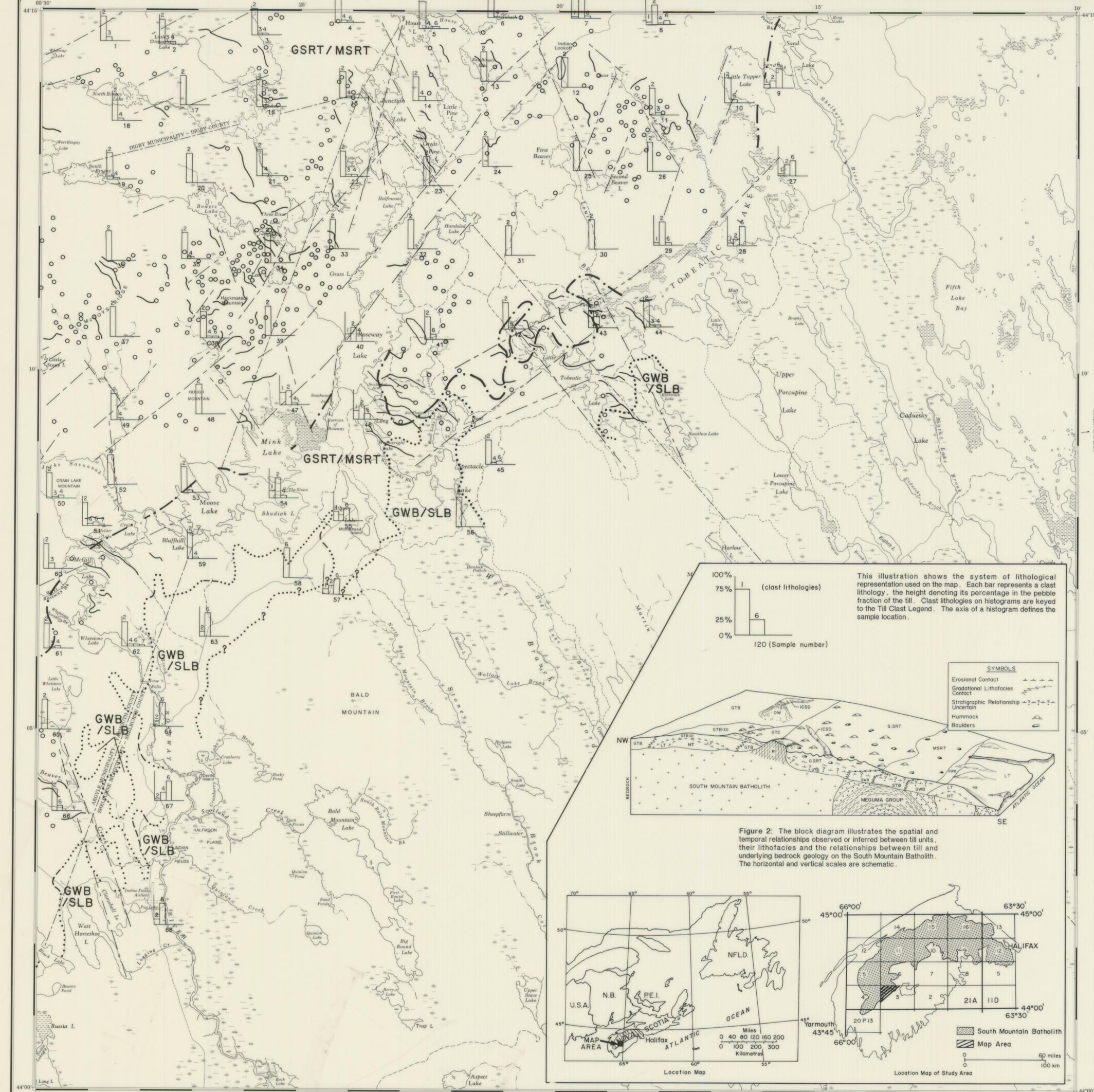


BEDROCK (D)\*: Glacially-scoured bedrock; areas of discontinuous till veneer and B-horizon soil developed to bedrock; bedrock structure and large scale features of glacial erosion are easily discernible on aerial photographs.

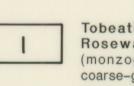
\* Indicates units not mapped on this map sheet.

\*\* All colours from Munsell Soil Colour

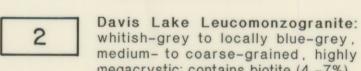
\*\*\* Renewal distance is the distance required by a given rock type (measured from the proximal contact of the up-ice lithology) to increase its proportion in till from 0% to 50% (Peltoniemi, 1985).



# TILL CLAST LEGEND



Tobeatic Lake Monzogranite and Roseway Lake Granodiorite: (monzogranite) mediumcoarse-grained with abundant K-feldspar megacrysts, contains biotite (4 - 7%), muscovite (trace - 2%) and cordierite (trace - 2%): (granodiorite) mediumgrained equigranular to slightly porphyritic, contains biotite (16 - 18%), muscovite (1 - 1.5%) and very abundant metasedimentary zenoliths.



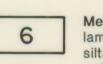
whitish-grey to locally blue-grey, medium- to coarse-grained, highly megacrystic; contains biotite (4 -7%), muscovite (trace-2) and cordierite (trace



Porphyritic rocks: grey- to blueish-grey, medium-grained matrix; quartz and feldspar phenocrysts; includes aplitic rocks.



Biotite muscovite leucomonzogranite: grey, white, orange or blue, fine-grained equigranular, biotite (0 -3%), muscovite (0 - 2%), may be

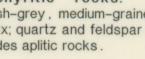


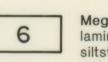
Meguma Group metasediments: finely laminated, black-dark grey slates and siltstones, greenish-grey to light-grey metawacke and argillite.

indurated sandstone and quartzite.

Contact between surficial units based on airborne radiometrics,

Ablation hummock

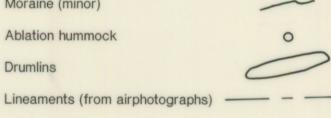




Foreign rocks: basalt, mafic dyke,

#### field mapping and airphotograph interpretation (gradational, interpretative, assumed) Bedrock geological boundary (from Corey and Horne, 1989) Moraine (minor)

SYMBOLS





Corey, M. C. and Horne, R. J. 1989: Preliminary Geological Map of Lake Rossignal, NTS Sheet 21A/3 (West Half); Nova Scotia Department of Mines and Energy, Open File Map 89-010, scale 1:50 000.

Peltoniemi, H. 1985: Till lithology and glacial transport in Kuhmo, eastern Finland; Boreas, v. 14, p. 67-74.

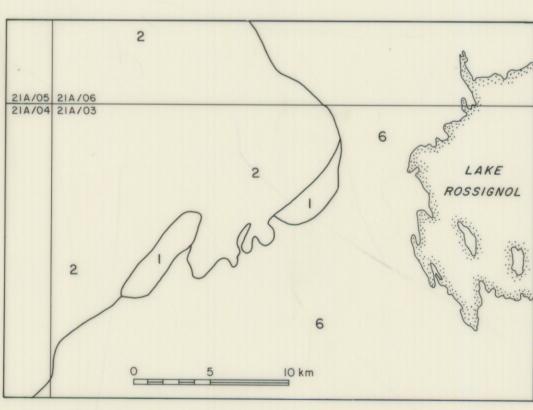


FIGURE 1: Simplified bedrock geology of Lake Rossignol (NTS 21A/03) modified after Corey, et al., (1989). Bedrock units and rock lithologies are keyed to the till clast legend and histograms on the glacial geology map.

