

Surficial geology of the Caledonia Highlands, exploration geochemistry and land use applications**Toon Pronk***Geological Surveys Branch, Minerals and Energy Division, Department of Natural Resources and Energy,
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The 1:50 000 scale surficial mapping and till geochemistry project that covers most of the (1:250 000) 21 H map area (Amherst) is progressing at the rate of approximately 1 map sheet per year. The mineral potential of the area has long been recognized, and recently gold mineralization has been found in the Belleisle Bay area along the Taylor Brook and Wheaton Brook faults. However, till geochemical results for that area are not yet available. The Caledonia Highlands area is also the subject of several land use related studies: the Kennebecasis drainage basin study (DOE); the Fundy Model Forest research project (ForCan, DNRE Forest Management); and Ecological Land Classification (DNRE Stewardship Branch). Data that have been collected using standard surficial geology mapping methodology have been used for baseline data in all of these studies.

Glacial erosion, mixing, dispersal, and deposition are determined using glacial striae and landforms, till fabric analyses and pebble and boulder dispersal patterns. Material is mostly of local derivation, but transport of up to 30 km can be identified. Some lithologies are particularly useful tracers of glacial dispersal, as are certain chemical elements. Gross dispersal patterns not only have exploration significance, but also have land use implications. The combination of source rocks, mixing, and glacial abrasion determines many of the soil parent material properties. These, in combination with relief, which is also largely controlled by geological factors, and climate, determine land use potential.