

---

**Till geochemistry of the  
New Brunswick Lowlands**

---

PAMELA J. DICKINSON<sup>1</sup>, G. REX BOLDON<sup>1</sup>,  
MARC DESROSIERS<sup>2</sup>, MICHAEL A. PARKHILL<sup>2</sup>,  
AND ALLEN A. SEAMAN<sup>1</sup>

*1. New Brunswick Department of Natural Resources, Geological*

*Surveys Branch, P.O. Box 6000, Fredericton, NB, Canada E3B 5H1  
<pam.dickinson@gnb.ca> ¶ 2. New Brunswick Department of  
Natural Resources, Geological Surveys Branch, P.O. Box 50,  
495 Riverside Drive, Bathurst, NB, Canada E2A 3Z1*

Previously, regional till geochemistry surveys conducted by Geological Surveys Branch were carried out with a focus on known higher economic mineral potential areas in the northern, western, and southern parts of New Brunswick. Sampling in these earlier investigations used a standard 2-km sampling grid (1 sample/4 km<sup>2</sup>). In contrast, field work for the summer of 2008 consisted of reconnaissance-scale sampling of the New Brunswick Lowlands (central and eastern New Brunswick) using a 10-km sampling grid (1 sample/100 km<sup>2</sup>). The study area comprised: (1) the New Brunswick parts of the Cape Tormentine (11 L/04) and Amherst (21 H/16) NTS map areas; (2) the New Brunswick part of the Moncton NTS 21 I map area (all or parts of thirteen 1:50 000 scale map areas); (3) the northeastern part of the comparable Fredericton NTS 21 G map area (four 1:50 000 scale map areas); (4) the Doaktown (21 J/09) map area and the southeast corner of the adjacent McKendrick Lake (21 J/16) map area; and (5) the eastern and central parts of the Bathurst NTS 21 P map area (all or parts of nine 1:50 000 scale map areas).

The objective of this reconnaissance till sampling project was two-fold: (1) to help assess the mineral resource potential and glacial dispersal trends in eastern New Brunswick; and (2) to aid in determining where or whether future, more detailed, till sampling projects should be conducted in the New Brunswick Lowlands. Basal till samples were collected from 240 sites. In addition, 20 samples from previous surveys were reanalyzed. This material is highly variable in character from one site to the next. In texture it varies from clay loam to very gravelly sandy loam. Colour varies from grey brown to red; however, brown or dark brown is dominant, with yellowish brown and reddish brown the most common of the other colours.

The till samples have been processed in the DNR Geochemical Laboratory, separating splits for in-house grain size analysis and for geochemical analysis by 'near total' extraction techniques at an external laboratory. The geochemical results have been completed using analytical techniques comparable to those used for previous till geochemical investigations in west-central New Brunswick. The lithology of pebble samples collected from each site will also be determined in the DNR laboratory. The series of 4 open file reports will be an important contribution to the provincial basal till database, both from a mineral exploration perspective and from an environmental perspective (through defining background levels for both nutrient and toxic elements).