

Petrographic and Chemical Variations Through the Goldenville and Halifax Formations, Bear River, High Head, and Broad River Sections, Southwestern Nova Scotia

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The Meguma terrane of southern Nova Scotia is the most outboard terrane of the northern Appalachian orogen. It is characterized by the Meguma Group, made up of the Late Proterozoic(?) to Cambrian Goldenville Formation, which consists mainly of thickly bedded, massive metasediments with minor interbedded metasilts and slates, and the conformably overlying Cambrian to Lower Ordovician Halifax Formation, composed mainly of slate with thin beds of metasilts and metasediments. Although generally interpreted to have formed at a continental margin, whether that continent was Africa or some other peri-Gondwanan area is still debated.

Sedimentary rock geochemistry is a viable tool for regional correlation and provenance studies. During the summer of 2005, samples were collected from three relatively well exposed stratigraphic sections through the Goldenville and Halifax formations in the Bear River, High Head, and Broad River areas of the Meguma terrane. The purpose of this project is to compare petrographic and chemical data from these samples to look for systematic regional or stratigraphic variations in the Meguma Group. These data will be integrated with other available geological and geochronological data to interpret the depositional/tectonic setting and provenance of the sediments that now form the Meguma Group.

A total of 38 samples were collected, mainly metasilts and metasediments but also including some slate samples. Twelve samples were collected over a section 12 000 m in stratigraphic thickness in the Bear River area, 13 samples over a section 7600 m in stratigraphic thickness in the High Head area, and 13 samples over a section 3200 m in stratigraphic thickness in the Broad River area. All three sections cross the Goldenville Formation - Halifax Formation contact. Documentation and interpretation of the petrography and chemistry of these samples will form the basis of the B.Sc. honours thesis of the first author.

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