

## **Stratigraphy and structure of the Horton Group in the Lochaber-Mulgrave area, Nova Scotia**

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A detailed stratigraphic and structural study has been undertaken of sedimentary rocks in the Lochaber-Mulgrave area of northern mainland Nova Scotia. The sedimentary sequence in this area is bounded on the north by the Glenroy Fault and on the south by the Roman Valley Fault, and has

been tentatively assigned to the Early Carboniferous Horton Group. It has been divided into three units (from oldest to youngest): (1) Clam Harbour River Formation, (2) Tracadie Road Formation, and (3) Caledonia Mills Formation. The Clam Harbour River Formation contains polymictic

conglomerate, light grey to maroon quartz arenite and siltstone, and minor inter-bedded black laminated siltstone, and is interpreted to have been deposited in an alluvial fan-fluvial environment. The overlying (?) lacustrine Tracadie Road Formation consists of grey to black laminated siltstone interbedded with minor quartz arenite and pebble conglomerate. The overlying (?) Caledonia Mills Formation consists of red to greenish-grey, massive to well laminated, siltstone and slate interbedded with minor pebble conglomerate, and is interpreted to have been deposited in a fluvial-lacustrine environment. Based on lithological similarities, the Clam Harbour River, Tracadie Road, and Caledonia Mills formations closely resemble the Creignish, Strathlorne, and Ainslie formations, respectively, of the Horton Group in western Cape Breton Island. However, the stratigraphic sequence appears opposite to that of similar rocks assigned to the Horton Group in the St. Marys Basin. In addition, the Caledonia Mills Formation closely resembles red

siltstone exposed west of Lochaber that, based on fossils, has been assigned to the Silurian Arisaig Group.

In comparison to the Horton Group in other areas, the rocks in the Lochaber-Mulgrave area are highly deformed. The western part of the area has open to tight, upright to overturned, northeast- and northwest-trending folds with well-developed axial planar cleavage. The eastern part of the area has tight to closed, upright, north-south-trending folds with moderately developed axial planar cleavage. The folded axial plane traces and the scattered cleavage orientations indicate that the area has undergone polyphase deformation and is much more structurally complex than previously thought. Possible complications in Horton Group stratigraphy in the Lochaber-Mulgrave area and its structural complexity may be related to interaction between the Avalon and Meguma terranes during their juxtaposition along the Cobequid-Chedabucto fault system.