

**Lacustrine stromatolites at the base of the Late Carboniferous Merigomish Formation,
Pictou County, Nova Scotia**

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A distinctive unit of Late Carboniferous stromatolitic limestone occurs in outcrop and boreholes close to the north edge of the Stellarton graben, Pictou County, Nova Scotia. The unit occurs immediately above alluvial fan conglomerates of the Cumberland Group and is overlain by a thick succession of fluvial (meandering, anastomosing, and braided) sandstones and shales assigned to the Merigomish Formation of the Pictou Group. This carbonate unit is 7 to 15 cm thick and consists of mixed carbonate-siliciclastic sediments, stromatolites, and fossiliferous sandstones.

Vertical sequences through the carbonate unit show coarsening-upward cycles suggesting a prograding shoreline

environment. Lithologies directly above boreholes P-57 and P-58 and those described at Smalls Brook are consistent with a shoreline environment.

Petrographic analysis of the stromatolites shows three distinct fabrics: radial fibrous, sparry calcite, and micritic. The radial fibrous calcite, which forms the majority of most samples, is unusual in marine stromatolites, but has been described from freshwater examples elsewhere. Paleontological data have been collected from the solution of stromatolitic samples yielding approximately 600 fragments of bone, teeth, and fish scales, and a species of bivalve. These indicate a freshwater environment. Gastropods from sand-

stone samples in core are also distinctively nonmarine.

The carbonate unit at the base of the Merigomish Formation is contemporary with lacustrine sedimentation in the Stellarton graben to the south. Tectonic control of lacustrine

sedimentation is presumed to have been related to the development of the Cobequid-Hollow fault system, but additional data on the distribution of the stromatolites would be required to constrain a paleogeographic reconstruction.