

**The Horton Bluff Formation: A Tectonically Influenced
Fluvial-Lacustrine Basin Fill**

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The Lower Carboniferous (Tournaisian) Horton Bluff Formation includes the first strata deposited in the Windsor Subbasin following the Acadian Orogeny. The Windsor Subbasin contains the best exposures of the Horton Group found on the Meguma Terrane. In the Hantsport (type) area, the Horton Group comprises the Horton Bluff Formation (divided into three members, the Lower, Middle, and Upper) and the overlying Cheverie Formation.

The Lower Member is 100 m thick and composed mainly of minor siltstone and medium- to very coarse-grained pebbly sandstone shed from a granitic and Meguma Group source. The deposits are of a braided-fluvial origin.

The Middle Member is divided into two units. The lower unit is a 160 m thick package of coarsening-upward cycles of siltstone to fine sandstone, and near the top of the unit, of horizontally bedded sandstone. This unit represents the progradation of a delta into a relatively deep lake. The upper unit is 180 m thick and composed of thick "deep-water" shale at the base and

coarsening-upward cycles of shale, and interbedded shale/very-fine sandstone near the top. These cycles are commonly capped by carbonate, and were deposited in offshore and marginal lacustrine environments.

The Upper Member in the Hantsport area is 100 m thick and contains two types of coarsening- and shallowing-upward cycles. The first resembles the cycles of the upper Middle Member, but are thinner, and contain more sand and better developed soil horizons. The second type of cycle coarsens upward into coarse-grained, cross-bedded sandstone, interpreted as delta mouth-bar deposits. The member represents interdeltic and deltaic deposits prograding into a relatively shallow lake.

The basin-fill succession of braided, deltaic, open lacustrine, deltaic, and fluvial (Cheverie Formation) documents a major lake transgression followed by a gradual filling (regression) of the basin. Transgression in a tectonically subsiding basin reflects initial basin subsidence outstripping sediment input; regression occurs after subsidence slows.

The thickness of the Horton Bluff Formation and of its individual cycles increase northeastward. Basin subsidence was greatest in that area, possibly due to penecontemporaneous

motion along the Cobequid Fault. Similar basin-fill successions of the Horton Group throughout the Maritimes Basin suggest regional tectonic events.