
**Modelling of Horton Group (Devonian–Carboniferous)
paleolakes, southern New Brunswick
– are we still out of our depth?**

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A variety of lithofacies are present in strata assigned to the Horton Group in southern New Brunswick, including: alluvial fan, sheetflood, fluvio-deltaic, algal swamp, shoreface, carbonate mudflat, shallow lacustrine, evaporitic lake, and offshore lake. The general lithofacies model projects a humid tropical intermontane setting with alluvial fans and fluvio-deltaics enclosing lacustrine strata in at least two structurally discrete subbasins. Most earlier authors have noted that lake area and depth fluctuated due to numerous lake transgressions and regressions. Some authors additionally have envisioned the lake evolving from a predominantly closed lake to an open lake with time, or that relatively deep lakes (10's of metres) are thought to have persisted in the southeast with more transient lakes elsewhere.

Ongoing analysis of recently available data, and comparison

with other modern and ancient lake basins, broadly confirms the existing model. In the Hillsborough area, core, wireline, and seismic data suggest high relief lacustrine delta systems periodically prograded from the NNE toward the Albert Mines depocentre where the oil shales accumulated. Preservation of 'highstand' delta-top deposits in the Dawson Settlement Member support the contention that deep, possibly open lake conditions were the norm relatively early in Horton times. In the Sussex area, similar delta-top facies from outcrop suggest infilling toward the northeast.