

### Tectonic evolution of the Late Paleozoic St. Mary's Basin, Nova Scotia

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The St. Mary's Basin, Nova Scotia, is underlain by Late Devonian-Early Carboniferous fluvial to lacustrine clastic rocks of the Horton Group. The basin straddles the east-west boundary between the Meguma and Avalon terranes, and has been interpreted as a graben or as a pull-apart basin generated by post-accretionary strike-slip activity. We propose that the St. Mary's "Basin" is a tectonic slice of the much larger northeast-belt of Horton Group rocks, originally contiguous with those in Cape Breton Island and the Annapolis Valley. Namurian-Early Westphalian dextral motion along the Chedabucto Fault dismembered this belt, and generated folds and thrusts adjacent to active faults.

An Early Carboniferous reconstruction, based on the minimum subsequent motion required along the Chedabucto Fault, restores ca. 100 to 150 km of strike-slip movement and places the western edge of the St. Mary's Basin against the southeastern Antigonish Highlands as part of a

northeast-trending belt of Horton Group rocks. This reconstruction suggests former continuity of lithologically similar Ordovician-Early Devonian volcanic and siliciclastic sequences of the Antigonish Highlands, Guysborough and the Annapolis Valley, and a potential genetic association between the Antigonish and Shubenacadie basins. The reconstruction also has implications for the accretion of the Meguma terrane, because pre-Carboniferous motion along east-west faults that bound the terrane cannot be demonstrated. Northwest-directed telescoping between the Avalon and Meguma, from ca. 410 to 360 Ma may result in the generation of a northeast-trending Early basin into which Horton Group rocks were deposited. Late Carboniferous dismemberment and deformation related to dextral strike-slip motion was associated with collision of Laurentia and Gondwana and the amalgamation of Pangea.