

Evidence of the Younger Dryas re-advance of a Gulf of St. Lawrence glacier from the “Great Ditch” of Nova Scotia¹

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In the summer of 1999, the Maritimes and Northeast Pipeline Company excavated a 3 m deep trench across northern Nova Scotia bordering the Gulf of St. Lawrence to host the Sable Island gas pipeline. The "great ditch" of Nova Scotia exposed a continuous transect of surficial deposits along a 237 km corridor. A paleosol with preserved A horizon (peat and wood) was found buried under 2-10m of surface till over a wide area of the pipeline route. 10 new sites were sampled and submitted for palynological analysis and radiocarbon dating. The A horizon peaty layer throughout the region is only a few cm thick consisting mainly of herbaceous plant material with few large wood fragments. It is relatively flat and dips under the trench while the trench follows the gently undulating, fluted glacial topography. Till fabric analysis in the upper reddish diamicton, indicated a strong fabric parallel to regional glacial lineations. Radiocarbon dates on wood from 2 sites were 10.9 ka (GSC-6435) and 10.8 ka (GSC-6419).

Previous to these finds only two localities revealed till overlying peat, so the extent of YD glaciers could not be clearly established. The regional till sheet overlying the soil can be traced to ice-marginal deposits near the Cobequid Highlands to the south, including ice-dammed glaciolacustrine sediments overlying peat found along the coasts of northern Nova Scotia and Cape Breton. Stea and Mott (GPQ-1998) had proposed a glacier around eastern PEI to account for the formation of these ice marginal glacial lakes. These discoveries have suggested a greater YD ice cover than formerly envisioned based on the few lakes in this region that have preserved a pre-Younger Dryas sedimentary record. These must have been spared from glacial erosion.

Please view our website for photos and a description of the trench discoveries.
(<http://www.gov.ns.ca/natr/meb/field/start.htm>).

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