

# Deglaciation of Nova Scotia: stratigraphy and chronology of lake sediment cores and buried organic sections<sup>1</sup>

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The deglaciation of Nova Scotia is reconstructed using the AMS-dated chronology of lake sediments and buried organic sections exposed in the basins of former glacial lakes. Ice cleared out of the Bay of Fundy around 13.5 ka, punctuated by a brief readvance ca. 13-12.5 ka (Ice Flow Phase 4). Glacial Lake Shubenacadie (1) formed in central Nova Scotia, impounded by a lobe of ice covering the northern Bay of Fundy outlet. Drainage was re-routed to the Atlantic Ocean until the Fundy outlet became ice free after 12 ka. When this lake drained, bogs and fens formed on the lake plain during climatic warming. Organic sediment (gyttja) began to accumulate in lake basins throughout Nova Scotia. Glacierization during the Younger Dryas period (ca. 10.8 ka) resulted in the inundation of lakes and lake plains with mineral sediment. The nature and intensity of this mineral sediment flux or "oscillation" varies from south to northern regions. Southern lakes simply record changes in total organic content whereas northern lakes, where most buried peat sections are found, feature a thick inorganic sediment layer. Glacial ice or permanent snow cover and seasonal melting are essential in the formation of this mineral sediment layer; both to provide the water source for erosion, and to prevent plant re-colonization and landscape stabilization. Some northern lakes do not appear to record the Younger Dryas event, with organic accumulation starting around 10 ka. During the Younger Dryas, fine and coarse-grained deposits were deposited in Glacial Lake Shubenacadie (2) and other lowland areas at elevations similar to former (12 ka) lake levels, impounded by re-invigorated residual ice caps and permanent snow/aufeis.

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