

Interactions between a disintegrating ice sheet and changing sea level produced sequences of late glacial and glaciomarine geomorphic landforms, providing evidence of former ice margin positions and sea level changes. Pleistocene sea level lowering during late glacial periods exposed the continental shelf to subaerial erosion to depths of as much as 89 m. The most recent of these regressions ended at approximately 11 000 yrs BP and was followed by a rapid transgression.

A total of 269 sub-bottom lines representing over 3100 km of seismic track lines from the research vessels CSL Heron and CCGS Frederick Creed, over the 2007 to 2009 survey seasons were examined for the Bay of Fundy area between the St. Croix and St. John rivers. Natural gas obscures sub-bottom profiles for some areas due to acoustic masking. However, where a clear record exists, the stratigraphy mainly represents from oldest to youngest, bedrock, till, stratified glaciomarine, unstratified glaciomarine sediment, sand and gravel, and modern Holocene deposits. The glacial-Holocene sequence is divided by an unconformity at depths ranging from 40 to 89 m below the seafloor, separating a lower sequence of bedrock and glacial/deglacial sediments from modern Holocene marine mud. This erosional surface was associated with the Late Pleistocene to Early Holocene regression/transgression, which was also affected by local isostatic rebound following deglaciation.

Late Pleistocene regional unconformity in the Bay of Fundy, coastal southwestern New Brunswick

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The physiographic environment of the northwestern Bay of Fundy nearshore has been shaped by a complex history of glaciation, sea level fluctuations, and modern processes.