

Late Wisconsinan subaqueous outwash deposits in northeast Newfoundland

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Relative sea levels at the end of the last glaciation were raised to at least 57 m asl in northeast Newfoundland. Consequently, a belt of land at least 5 km wide was submerged by ocean water. Littoral beach gravels account for the majority of sediments related to higher sea levels. Near Musgrave Harbour, however, emerged ice marginal subaqueous deposits are associated with sea levels higher than 46 m asl. These formed in waters up to 32 m deep.

As glacial ice retreated in the area, increased meltwater production resulted in several gravel fans being deposited rapidly proglacially. Rapid sand and silt deposition took place between the fans forming proximal rhythmites which grade laterally into rippled deposits. More gravel fans were deposited on the top of these. The fans join to form a ridge approximately 15 km long by up to 4 km wide.

Loading of the finer deposits by the gravels resulted in extensive deformation and dewatering, with resultant sedimentary features including diapers, flame structures, dish and pillar structures, ball and pillow structures, and recumbent folds. Interbedded with the gravels and silts are many sediment gravity flow deposits. These are mainly debris flow, fluidized grain flow, and turbidity current deposits. Proglacial deposition resulted in the formation of a moraine ridge almost 15 km long. This, however, does not represent a lengthy stillstand of ice.

Further melting of the ice resulted in collapse and faulting of proximal sediments and further deformation due to dewatering. As sea levels dropped, the upper surfaces of many of these deposits were reworked by marine action to form beach terraces.