

Quaternary sediments of southeast Baffin Shelf

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Quaternary sediments of the southeastern Baffin Island continental shelf have been mapped using a combination of geophysical profiling systems (655 cm³ single channel sonder, sidescan sonar) and samples obtained by Van Veen and Norwegian clam shell grabs, piston and gravity cores.

Four main units have been delineated and informally named:

1) Baffin Shelf Drift: poorly sorted unstratified sediments up to 130m thickness interpreted to have been deposited directly under grounded ice during the Pleistocene;

2) Cumberland Silt: moderately to poorly sorted sediments up to 30m in thickness interpreted to have been variably deposited in ice proximal and ice distal environments during the Mid to Late Wisconsin. On acoustic profiles these sediments vary from well stratified to unstratified. The lack of stratification is due to extensive disruption by grounding icebergs;

3) Kaxodluin Silts and Clays: moderately sorted sediments in Frobisher Bay and Cumberland Sound up to 30m in thickness, stratified on acoustic profiles, deposited

during the Late Wisconsin-Holocene;

4) Lady Franklin Sand and Gravel: moderately sorted, acoustically unstratified, coarse sediments that form a thin veneer over bedrock or locally over till, interpreted to represent erosional lag deposits.

The presence of morainal and multiple till deposits indicate that grounded glacial ice extended onto the continental shelf during one or more intervals during the Pleistocene. Repeated advances and retreats occurred in some localities. Northeast of Resolution Island the till laterally interfingers with the Cumberland Silt indicating, in part contemporaneous deposition. The present seabed sediment surface reflects modification due to current winnowing and scouring by grounded icebergs.