Sea level history of the Gulf of St. Lawrence

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The sea level history of the Gulf of St. Lawrence is both regionally variable and locally complex. Interpretation of a new data set consisting of geomorphic, seismostratigraphic and piston core data is beginning to challenge existing concepts of sea level history within the region.

Terraces of regional extent occur along most of the northeastern margin of the Magdalen Plateau at depths of 110 m and 160 m below present sea level. The smooth surface and low relief of the Magdalen Plateau masks a complex system of basins and channels which are incised to a maximum depth of 160 m and may equate in time to development of the terrace along the plateau margin. The terrace is not observed in the uppermost tills which occur as lobate till sheets emanating from the Cape Breton Channel and Bay of Chaleur. We interpret this to indicate that the terrace predates the last glacial advance in this region.

Sediments infilling bedrock depressions in the Cape Breton Channel from a depth of 119 m comprise organic rich, dark coloured, interbedded silts and sands suggestive of a shallow marine or estuarine system. Stratigraphic evidence suggests that these shallow marine sediments immediately overlie the uppermost (late Wisconsinan) tills. It appears that the Gulf of St. Lawrence records multiple low sea level events including a significant lowering (±100 m) during the Late Wisconsinan glaciation.

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