Microfossil evidence of Holocene salinities and sea levels in the Gulf of St. Lawrence and off the northeast coast of Newfoundland

Geoffrey W. Davis
Department of Geology, Saint Mary's University, Halifax, Nova Scotia B3H 3C3, Canada

Cores from the Gulf of St. Lawrence and Notre Dame Bay, Newfoundland, were sampled for ostracods with the purpose of investigating salinity fluctuations and sea level changes during Late Wisconsian glaciation. Forty-three species of Ostracoda from twenty-nine genera were present. Local salinities and depths were inferred from the conditions in which those species live today. The Notre Dame Bay ostracod faunas indicate frigid water conditions interrupted by short intervals of subfrigid conditions, with water depths of 100 to 200 m. The absence of exclusively marine species in selected intervals is taken as indicating coastal-marine conditions. The Gulf of St. Lawrence faunas indicate a progression through three stages: (1) temperate to warm waters of 200 m or more; (2) cold-temperate to warm waters of 200 m or more; and (3) sub-frigid to cold temperate coastal-marine to marine waters of less than 200 m depth. Brackish to coastal-marine transitions similar to those seen in Notre Dame Bay are observed in the upper part of the Gulf of St. Lawrence succession. The presence of warm water in the Gulf of St. Lawrence is tentatively interpreted as being due to a northward migration of the Gulf Stream, caused by flow reversal in the Davis Strait at the end of Wisconsian glaciation.