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Coastal Environmental Change
During Sea-Level Highstands:
A Global Synthesis with implications
for management of future coastal change

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Quaternary coastal morphology and sea level changes



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Doherty C. T.¹, Patterson R. T.², Roe H. M.¹

Isolation basin stratigraphy and Holocene relative sea-level change in Belize Inlet and Seymour Inlet, central British Columbia, Canada

¹School of Geography, Queen's University of Belfast, Belfast, U.K.,

E-mail: c.t.doherty@qub.ac.uk, h.roe@qub.ac.uk

²Department of Earth Sciences, College of Natural Sciences, Carleton University Ottawa, Ontario, Canada,

E-mail: tpatters@ccs.carleton.ca

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Abstract

The Holocene sedimentary in-fills of a series of coastal basins in Belize and Seymour Inlet, adjacent to the Queen Charlotte Strait central British Columbia have been examined in order to establish the regional relative sea-level history. This is an area where little is known about crustal dynamics following deglaciation and the associated pattern of relative sea-level movements (Clague, 1975). Basins were selected by careful examination of both maps and aerial photographs. Site selection was based on strict criteria of accessibility, distance from the coast and altitude (Andrews and Retherford, 1978). The sedimentary in-fills of three basins, Woods Lake, Tiny Lake and Two Frog Lake (sill elevations 1.58 – 3.3 m above present MSL) are characterised by a gradual regressive I-II-III (marine-transitional-lacustrine) facies succession, indicating a postglacial history of emergence (Corner et al., 1999; Corner et al., 2001). Diatom zones clearly document these palaeo-environmental changes through a period of marine occupation (marine diatoms), isolation from Belize Inlet and Seymour Inlet (marine, brackish and fresh diatoms) and subsequent lacustrine conditions (freshwater diatoms) (Pienitz et al., 1991). Radiocarbon ages (pending) from the marine-freshwater transitions will constrain the isolation chronology. The central coast of British Columbia was covered by relatively thick ice (*c.* 1000-1500 m) during the late Wisconsinan (Fraser) Glaciation (Clague et al., 1982). Isolation appears to have been due to a relative sea-level fall associated with rebound from the melting of the Cordilleran Ice Sheet (Clague and James, 2002). The new sea-level index points from the data will contribute to the understanding of glacio-isostatic rebound and the duration of marine submergence for this region.

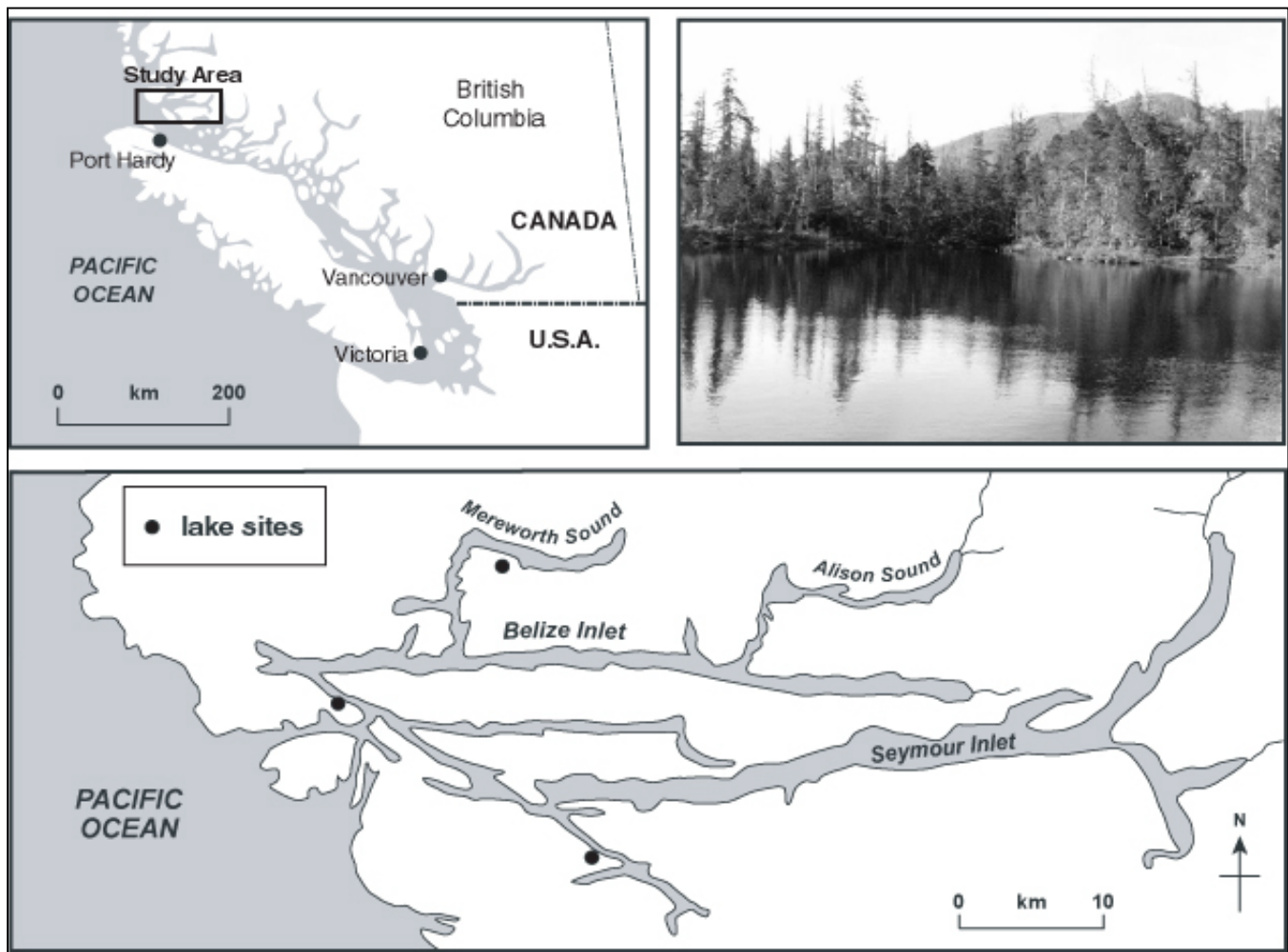


Figure 1. A map to show the location of the study area; **Figure 2.** A photograph of Woods Lake; **Figure 3.** A map to show the location of the selected sites

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