

anthropogenic and natural disturbances of the lakes and wetlands have the potential to increase the bioavailability of contaminants. Management of these wetlands must take into account the sensitivity of the wetland system to environmental disturbance.

Paleolimnological records of post-glacial wetland evolution from the Chignecto Isthmus region, eastern Canada

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The Isthmus of Chignecto on the New Brunswick-Nova Scotia border is the location of the Tantramar, Missaguash, and Amherst marshes, which together form a large coastal wetland system that has been the focus of much ecosystems research and habitat modification, even though little is known about systems evolution. In this study, lithostratigraphic and chemostratigraphic lake sediment records from three lakes are used to provide a high resolution record of post-glacial environmental change for the region.

Lake sediment stratigraphy indicates rapid fluctuations in lake productivity and sedimentation rates. Basal dates for the lakes range from >10 000 cal. yr BP to <4000 cal. yr BP. Chemostratigraphic proxies indicate rapidly fluctuating salinity and oxygen levels in two of the three lakes and show that multiple, prolonged saltwater incursions took place. Analyses of metals indicate anomalously high pre-historic concentrations of Hg (~900 ppb) that coincide with stratigraphic proxies of salt water influx. Historic concentrations of Pb and Hg provide evidence for significant atmospheric deposition from industrialization in the region during the late 1800s and early 1900s.

Collectively, these data suggest that a more sophisticated model is required to adequately explain the physical evolution of this extensive wetland system. Periods of sustained saltwater influx into freshwater systems were likely a fundamental driver of systems change. Additionally, both