High-resolution paleoecological study of human-ecosystem interactions in relation to Holocene environmental change in Port Joli Harbour, southwestern Nova Scotia, Canada.

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Introduction
A high-resolution pollen record from Path Lake in Port Joli Harbour, Nova Scotia, was used to reconstruct Holocene climate and vegetation variability. Archaeological excavations from the same area indicate the presence of ancient Mi’kmaw occupations along the Atlantic coast between ca. 3000-350 cal. BP (Keenlyside, 1999). The vulnerability of the Mi’kmaw to century- and decadal-scale environmental changes was investigated by comparing cultural indicators with changes in vegetation composition, climate variability and sea level rise.

Environmental Changes
Three climate regimes were identified based on average total annual precipitation;
~ A dry period (9280-3400 cal. yr. BP)
  Mixed forest of pine and hardwood stands
~ A transition period (3400-1600 cal. yr. BP)
  Increased wetland species (alder, sphagnum)
~ A wet period (1600 cal. yr. BP – present)
  Boreal species (spruce and fir)

Human-Ecosystem Interaction
~ *Ilex* was used as a mild ceremonial stimulant. The appearance of *Ilex* during culturally significant periods suggests it’s potential importance in human activities.
~ Harbour development and periods of high effective moisture around ca. 1450 and 700 cal. yr. BP would have increased abundance of soft shell clams (main component of the Mi’kmaw diet); correlates well with increased size and frequency of shell middens in Port Joli Harbour.
~ *Ambrosia* rise at 350 cal. yr. BP indicates European settlement. A peak in charcoal around 160-180 cal. yr. BP can be related to anthropogenic disturbances (ie. land clearance) after the American Revolution (Dunlop and Scott, 2006).

References