
**High resolution palynological records
from the southeastern Canadian seaboard:
Holocene paleoceanographic and paleoclimatic history**

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Palynological records were used to reconstruct Holocene paleoceanographic and paleoclimatic conditions along the eastern Canadian seaboard. Cores from La Have Basin, St. Anne's Basin, and Bay of Islands provide a resolution of about 100 years and have multiple radiocarbon ages. Proxy data from dinoflagellate cysts were used to reconstruct sea surface conditions by means of paleobioclimatic transfer functions. Ocean-atmosphere interactions were determined by onshore-offshore correlation of marine and terrestrial pollen records from Nova Scotia and Newfoundland.

Records from the Scotian Shelf show a south to north progression of oceanic events. An early Holocene sea surface temperature (SST) maximum, 3 to 5°C warmer than today's average, occurs from 10.5 to 8.5 ka in La Have Basin, and 7.5 to 6 ka in St. Anne's Basin. Salinity was also higher than today. The warm conditions were followed by an interval of SST 1–2°C cooler than today. In most basins, sea surface conditions during the latest half of the Holocene were characterized by frequent oscillations of SST (1–2°C below and above today's average) and salinity. A second warm SST interval was reconstructed in St. Anne's Basin between 4 and 2.5 ka. Evidence for a major late Holocene cooling is weak.

In Bay of Islands, SSTs were lower by 3°C during the early Holocene. The Holocene SST maximum between 8.5 and 7 ka, was characterized by SST up to 5°C warmer than today's February average (1°C in August). After the SST maximum (7–4 ka), the sea surface conditions were similar to the past century, except for

cooler summer SST (by 3°C). Between 4 and 1 ka, February SST were up to 5°C higher than today. Cooler SSTs were reconstructed 1000 years ago.

Pollen records from the same shelf basins and from Bay of Islands showed that the warming of the land was delayed by 2000 years on average relative to the ocean. Increased proportions of spruce and a decline of pine indicate a cooling during the last 2000 to 3000 years.