



## **Low resilience and high vulnerability of subarctic aquatic ecosystems mark first arrival of Sadlermiuts at Native Point, Southampton Island (Nunavut)**

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Based on archaeological and genetic studies, the Arctic was first populated by Paleo-Eskimos (Dorset culture) and eventually succeeded by the arrival of the ancestors of present-day Inuit (Thule culture). The first Thule forager groups settled successfully in the Hudson Bay region of the Canadian Arctic starting ca. 1050 CE. At Native Point on Southampton Island (Nunavut), first evidence of settlements dates prior to 1200 CE by Sadlermiuts, a Thule group that adopted Dorset culture elements. The village consisted of numerous sod and winter houses, which framed a small shallow freshwater body (c. 20,000 m<sup>2</sup>). Numerous butchered carcasses of mainly walrus, seal, bowhead whales and caribou remained in the pond and further decayed in the water.

Here, we present results from a paleolimnological study of three short sediment cores taken from the bottom of the settlement pond. Sedimentological, geochemical and micropaleontological analyses show an abrupt change at c. 1150 from pristine aquatic environments to eutrophic conditions, alongside shifts in chironomid faunal assemblages that infer changes in the pond's aquatic vegetation as well as a dominance by the detritivore *Tanytarsus gracilentus* during this period. Likewise, variations in  $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$  isotopes of the organic matter suggest that this shift is related to the first butchering activities of Sadlermiuts in the area.