

The truncate softshell clam as an indicator of eco-geochemical conditions around the
community of Qikiqtarjuaq, Nunavut

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This project seeks to address the following two questions: 1) What is the extent of plastic contamination in soft-shell clams and their surrounding environment? and 2) How have the components of the regional ecosystem evolved, including factors such as temperature and salinity?

The main objective of this project is to contribute to the knowledge of food health in countries by examining the impact that the accumulation of microplastics could have on the softshell clam. Additionally, we seek to understand how components of the regional ecosystem (e.g., temperature, productivity) are changing, using a subsistence and heritage species, the truncated softshell clam, as a proxy for environmental change. Our project, directly aligned with the research requests expressed by the Nattivak HTA, will therefore collect baseline data on the oceanographic (surface/subsurface sea, inorganic carbon, oxygen) and biological (phytoplankton, invertebrates) components of the target ecosystem established at the national level.

This project will thus improve our ability to detect environmental changes in coastal environments; to make use of a long-lived, sessile and filter-feeding species that is abundant around the community of Qikiqtarjuaq, and the Canadian Arctic, and that is considered of cultural and ecological importance; and to provide the first estimates of microplastic and plastic additive concentrations in *Mya truncate*.

The fieldwork will be conducted from August 31, 2024, to September 11, 2024, in Qikiqtarjuaq. Samples of water, sediment, and soft-shell clams will be collected near the shore, at depths of up to 30 meters.

This year, we propose to collect 80 clams (10 clams per site) with the hope to hire a local boat operator and diver to help us with this study. Water samples (2L per site) and sediment samples (100g per site) will also be taken at the same sites as the clams; and stored in glass bottles.

Our study is unlikely to have any significant impact due to the small sample quantities involved. However, the project will necessitate the collection of a few truncated clams. The total quantity will be verified and approved by community members to ensure it does not affect local fisheries. These organisms are not listed under the Species at Risk Act (SARA) of the Department of Fisheries and Oceans (DFO). Additionally, our sampling does not involve the use of chemicals.

All data will be managed by the principal investigator, David Deslauriers. Additionally, we are currently collaborating with the St. Lawrence Global Observatory (SLGO) for data storage.

Our project is part of the Coastal Environmental Baseline Program for Qikiqtarjuaq. It was conceived with the community and approved by the Nattivak Hunters and Trappers Association. We hope to hire a local boat operator and diver to help us with this study. Results of the 2024 research will be presented to the Hunters and Trappers Association during an update meeting in the summer of 2025.