NIRB Uuktuutinga Ihivriuqhikhamut #126170

Physiological response of soft-shell clam Mya truncata to spring microalgal blooms

Uuktuutinga Qanurittuq:	New
Havaap Qanurittunia:	Scientific Research
Uuktuutinga Ublua:	Tuesday, April 15, 2025
Period of operation:	from 2025-05-15 to 2025-10-25
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QANURITTUT

Tukihiannaqtunik havaariyauyumayumik uqauhiuyun

Qablunaatitut: Physiological response of soft-shell clam (Mya truncata) to spring microalgal blooms (PRECAB)Leads: Lisa Matthes (DFO) and Michelle Kamula (DFO)Dates: May 1, 2025-March 31, 2026Funding: DFO-Coastal Environmental Baseline ProgramThe truncate soft-shell clam Mya truncata is an important subsistence food for Inuit communities across Nunavut. Additionally, the filter feeding clam is an important food source for bearded seals and walruses, providing a significant linkage for energy and nutrient to transfer between primary producers and the higher trophic species. Despite their ecological importance in the Arctic marine food web, their life history and reproductive cycle in relation to the timing of primary production, like sea ice algae and open water phytoplankton, is not well known. This lack of understanding impedes any predictions of the impact of climate and/or anthropogenic related changes on the reproductive potential and ultimately clam biomass available for harvest in the future. The objective of this project is to investigate how the soft-shell clam population of Mya truncata, found in the coastal marine waters near the community of Qikiqtarjuaq, physiologically respond to different microalgal blooms of sea ice algae in spring and phytoplankton in summer. To investigate the clams physiological response to different food sources, we plan to collect sea ice and water samples to investigate microalgal biomass, diversity and fatty acid composition; soft-shell clams will be collected by SCUBA diving to examine food web signatures and gonadal development stages. This investigation will provide more information on which role the different microalgal communities play in the spawning cycle of M. truncata. Where, when, and how long the field research will be:To capture seasonal changes in the gonadal development stages of the soft-shell clams in response to the different microalgal blooms, we plan to sample clams during the ice-covered season 20 May to 6 June, 2025 and over a two week period in July 2025 . Samples will be collected at 3 – 4 coastal stations near the community of Qikiqtarjuaq (see Figure 1). Methods used to conduct the research:In May/June 2025, clams will be collected by a local SUBA diver. In July 2025, clams will be collected by SCUBA diving from a small local boat or by collection at low tide. Up to 25 clams will be collected at each station during each sampling period for a maximum total of 200 clams. After sampling, clams will be measured, photographed and either frozen or preserved in 10% formaldehyde. The frozen clams will be brought back to DFO Winnipeg in coolers. In the DFO laboratory or on site at the new research centre, tissue samples will be collected for fatty acid analysis to examine food web structure. The remaining tissue will be dissected to determine the gonadal development stage during a microscopic analysis. At the same locations where clams are collected, sea ice, water and sediment samples will be collected to investigate microalgal biomass, diversity and fatty acid content. Sea ice cores will be sampled using a Kovacs Ice Corer. The bottom 3 cm of the ice will be melted and filtered for analyses of ice algae taxonomy, chlorophyll a, particulate organic carbon/nitrogen, and fatty acids. Additionally, one ice core will be sampled to assess physical ice conditions including temperature and conductivity down the full length of the ice. Water profiles of conductivity, temperature, depth, and light will be measured at each station using a Maestro CTD sense to characterize physical water column properties. Water samples at the surface, middle and near bottom will be collected using a pump (surface only) and niskin bottles. Water will be processed for nutrients, salinity, phytoplankton taxonomy, chlorophyll a, particulate organic carbon/nitrogen, fatty acids and highly branched isoprenoids (HBI's). Surface sediment samples may be collected by the diver or by using a shovel at low tide at each location. Surface sediments will be analyzed for particulate organic carbon/nitrogen, fatty acids and How, when, and with whom research results will be shared.Following data collection, we plan to provide an update to the Nattivak HTA on the sampling activities in person and by written communication. We will also continue to contribute to the DFO led Coastal Environmental Baseline Program yearly newsletters. Once analyses is completed, we will provide a written summary of findings to the Nattivak HTA and will work closely with the Coastal Environmental Baseline Program on a coordinated effort to ensure the data is publicly available.

Uiviititut: This project does not take place in the city of Iqaluit. If French translation is still required, please contact me directly. Thank you.

Inuktitut: ᐆᒪᔪᐃᑦ ᖃᓄᐃᓘᕐᓂᕆᖃᑦᑕᖅᑕᖏᑦ ᖃᓄᐃᓕᓂᖏᓐᓄᑦ ᓯᓚᑎᖓᒍᑦ ᐊᕿᑦᑐᓖᑦ ᐊᒻᒨᒪᔪᓂᑦ (Mya truncata) ᓴᖅᑭᑎᑦᑎᓗᑎ ᒥᑭᕚᑎᕋᓖᓂᑦ ᐃᒪᕐᒥ ᐱᕈᖅᑐᓂᑦ (PRECAB)ᑐᑭᒧᐊᖅᑎᑦᑎᔪᑦ: ᓖᓴ ᒪᐃᑕᔅ (ᐃᒪᕐᒥᐅᑕᓕᕆᓂᕐᒧᑦ ᑲᓇᑕᒥ) ᐊᒻᒪ ᒥᓯᐅᓪ ᑲᒧᓚ (ᐃᒪᕐᒥᐅᑕᓕᕆᓂᕐᒧᑦ ᑲᓇᑕᒥ)ᐅᓪᓗᖓ: ᒪᐃ 1, 2025-ᒫᑦᓯ 31,

2026ᑮᓇᐅᔭᖅᑎᑕᐅᓂᕐᒧᑦ: ᐃᒪᕐᒥᐅᑕᓕᕆᔨᒃᑯᑦ ᑲᓇᑕᒥ – ᓯᒡᔭᐃᑦ ᐊᕙᑎᖓᓐᓂ ᑐᙵᕕᓪᓗᐊᑕᖅ ᐱᓕᕆᔾᔪᑎᐱᓕᕆᐊᒃᓴᒧᑦ ᓇᓗᓇᐃᔭᓂᖅ:ᐊᕿᑦᑐᓂᑦ ᓯᓚᑎᓖᑦ ᓯᓚᑎᖓᒍᑦ ᐊᕿᑦᑐᓖᑦ ᐊᒻᒨᒪᔪᐃᑦ Mya truncata ᐱᒻᒪᕆᐅᔪᑦ ᓂᕿᒋᔭᐅᓪᓗᑎ ᐃᓄᐃᑦ ᓄᓇᓕᖕᒥᓐᓄᑦ ᓄᓇᕗᓕᒫᒥ. ᐃᓚᒋᐊᕐᒍᒍ, ᓂᕆᔭᐅᖃᑦᑕᖅᑐᑦ ᐊᒻᒨᒪᔪᐃᑦ ᐱᒻᒪᕆᐅᔪᑦ ᓂᕿᒋᔭᐅᓪᓗᑎ ᐅᔾᔪᓂᑦ ᐊᒻᒪ ᐊᐃᕕᖕᓂᑦ, ᐱᑕᖃᖅᑎᑦᑎᔪᑦ ᑲᑎᙵᖃᑎᖃᓂᕐᒥᑦ ᐊᐅᓚᔪᓐᓇᓂᕐᒧᑦ ᐊᒻᒪ ᐆᒪᔾᔪᑎᐅᔪᓐᓇᖅᑐᑦ ᐊᐅᓪᓛᑕᐅᓪᓗᑎ ᓴᖅᑭᑎᑦᑎᒋᐊᙳᖅᑕᖅᑐᓄᑦ ᐊᒻᒪ ᖁᑦᑎᓂᖅᓴᓂᑦ ᓂᕆᖅᑕᖅᑐᓂᑦ ᐆᒪᔪᓄᑦ. ᐊᕙᑎᖓᓄᑦ ᐱᒻᒪᕆᐅᓂᖅᑲᕋᓗᐊᖅᑎᓪᓗᒋᑦ ᐅᑭᐅᑕᖅᑐᒥ ᐃᒪᕐᒥ ᓂᕆᔭᐅᕙᑦᑐᓂᑦ, ᐆᒪᓂᓇᕙᑦᑕᖅᑐᑦ ᐱᖅᑯᓯᖏᑦ ᐊᒻᒪ ᓴᖅᑭᑎᑦᑎᖅᑕᑲᓐᓂᕐᓂᖏᓐᓄᑦ ᐊᑦᑐᐊᓂᓕᓐᓄᑦ ᖃᐊᖕᒐᓗᒃᑯᓂᖏᓐᓄᑦ ᓴᖅᑭᑎᑦᑎᒋᐊᙳᖅᑕᐅᑎᓪᓗᒋᑦ, ᓲᕐᓗ ᓯᑯᒥ ᐃᒪᕐᒥ ᐱᕈᖅᑐᐃᑦ ᐊᒻᒪ ᐃᒪᐃᓐᓇᕐᒥ ᒥᑭᔪᑎᑦ ᐃᒪᕐᒥ ᐱᕈᖅᑐᑦ, ᖃᐅᔨᒪᔭᐅᑦᑎᐊᙱᑦᑐᑦ. ᑖᓐᓇ ᑐᑭᓯᔭᐅᓯᒪᑦᑎᐊᙱᓐᓂᖅ ᒥᔅᓴᐅᓴᔅᓴᐅᑎᑦᑎᓂᖅᑐᑦ ᐊᑦᑐᖅᑕᐅᔪᓂ ᓯᓚᙳᓄᑦ ᐊᒻᒪ/ᐅᕝᕙᓘᓐᓃᑦ ᐃᓄᓐᓄᑦ ᐱᓕᕆᔭᐅᔪᓄᑦ ᐊᓯᔾᔨᖅᑐᓂᑦ ᐊᒻᒨᒪᔪᓕᐅᒃᑲᓂᖃᐅᕐᓂᖏᓐᓄᑦ ᐊᒻᒪ ᐅᓇᐅᓪᓗᓂ ᐊᒻᒨᒪᔪᐃᑦ ᐊᒥᓯᑦ ᐊᔾᔨᒌᖏᑦᑐᑦ ᐊᑐᐃᓐᓇᐅᓕᖅᑐᑎ ᓂᕆᔭᕐᓴᑖᕐᔪᐃᓐᓇᖅᑐᑦ ᓯᕗᓂᕐᓴᒥ.ᑐᕌᒐᕆᔭᖓ ᑖᔅᓯᒪᖓ ᐱᓕᕆᐊᒧᑦ ᖃᐅᔨᓴᕐᓗᑎ ᖃᓄᖅ ᓯᓚᑎᖓᒍᑦ ᐊᕿᑦᑐᓖᑦ ᐊᒻᒨᒪᔪᐃᑦ ᐊᒥᓲᓂᖏᑦ Mya truncata, ᓇᒥᔭᐅᔪᑦ ᐃᒪᐅᑉ ᑭᒡᓕᖓᓂ ᐃᒪᖏᓐᓂ ᖃᓂᐱᕆᔭᖓᓂ ᕿᑭᖅᑕᕐᔪᐊᖅ, ᐆᒪᔪᐃᑦ ᖃᓄᐃᓘᕐᓂᖃᖅᑕᖅᑕᖏᑦ ᖃᓄᐃᓕᓂᖏᓐᓄᑦ ᐊᔾᔨᒌᖏᑦᑐᓄᑦ ᒥᑭᔪᑎᑦᑎᐊᕈᓄ ᐃᒪᕐᒥ ᐱᕈᖅᑐᓄᑦ ᓯᑯᖓᓂ ᐃᒪᕐᒥ ᐱᕈᖅᑐᐃᑦ ᐅᐱᕐᖓᓵᒃᑯᑦ ᐊᒻᒪ ᒥᑭᔪᑎᑦ ᐃᒪᕐᒥ ᐱᕈᖅᑐᑦ ᐊᐅᔭᒃᑯᑦ. ᖃᐅᔨᓴᕐᓗᒋᑦ ᐊᒻᒨᒪᔪᐃᑦ ᐆᒪᔪᐃᑦ ᖃᓄᐃᓘᕐᓂᖃᖅᑕᖅᑕᖅᑎᑦ ᖃᓄᐃᓕᓂᖏᓐᓄᑦ ᐊᔾᔨᒌᖏᑦᑐᓄᑦ ᓂᕿᑦᓯᔭᖏᓐᓂ, ᐸᕐᓇᓯᒪᔪᒧᑦ ᓄᐊᑦᑎᕈᑕ ᓯᑯᓪᓗᓂ ᐊᒻᒪ ᐃᒪᓪᓗᓂ ᖃᐅᔨᓴᖅᓯᓂᑦ ᖃᐅᔨᓴᕐᕈᑕ ᐃᒪᕐᒥ ᒥᑭᔪᑎᑦ ᐱᕈᖅᑐᐃᑦ ᐊᒥᓲᓂᖏᑦ, ᐊᔾᔨᒌᖏᑦᑐᓂᖏᑦ ᐊᒻᒪ ᐅᖅᑯᖏᓐᓂ ᐃᑐᓕᖏᓐᓂ; ᓯᓚᑖᒍᑦ ᐊᕿᑦᑐᓖᑦ ᐊᒻᒨᒪᔪᐃᑦ ᓄᐊᑕᐅᓂᐊᖅᑐᑦ ᐊᖏᕐᒪᖅᑕᕐᓗᑎ ᖃᐅᔨᓴᕐᓗᒋᑦ ᓂᕆᖅᑕᖅᑐᑦ ᓇᒧᓇᐃᕈᑎᖏᑦ ᐊᒻᒪ ᐊᒻᒨᒪᔪᓕᐅᕈᑎᒃᑲᓂᖏᓐᓄᑦ ᐱᕙᓪᓕᐊᓂᖅᑕᖅᑕᖅᑎᑦ. ᑖᓐᓇ ᖃᐅᔨᓴᕐᓂᐅᔪᖅ ᑐᑭᓯᐊᕈᑎᖅᑎᑎᒃᑲᓂᖅᓂᐊᖅᑐᖅ ᓇᓪᓕᐅᓐᓂ ᐊᑐᕐᓂᖏᑦ ᐊᔾᔨᒌᖏᑦᑐᓂ ᒥᑭᔪᑎᑦᑎᐊᕈᓂᑦ ᐃᒪᕐᒥ ᐱᕈᖅᑐᓂᑦ ᖃᓄᐃᓘᖅᑕᖅᓯᒪᓪᓚᕆᑦᑕ ᓯᕙᐃᔭᖅᑕᑎᓪᓗᒋᑦ M. truncata.ᓇᒻᒥ, ᖃᖓᒃᑯᑦ, ᐊᒻᒪ ᖃᓄᑎᒥ ᖃᐅᔨᓴᕐᓂᖅᑲᓂᐊᖅᑲᑦ:ᖃᐅᔨᓴᐅᑎᓗᑎ ᐊᕐᕌᒍ ᐃᓗᐊᓂ ᐊᔾᔨᒌᖏᑦᑐᓂ ᐊᒻᒨᒪᔪᓕᐅᕈᑎᒃᑲᓂᖏᓐᓄᑦ ᐱᕙᓪᓕᐊᓂᖅᑕᖅᑕᖅᑎᑦ ᓯᓚᑖᒍᑦ ᐊᕿᑦᑐᓖᑦ ᐊᒻᒨᒪᔪᐃᑦ ᖃᓄᐃᓕᓂᖏᓐᓄᑦ ᐊᔾᔨᒌᖏᑦᑐᓄᑦ ᒥᑭᔪᑎᑦᑎᐊᕈᓄᑦ ᐃᒪᕐᒥ ᐱᕈᖅᑐᓄᑦ ᐊᒥᓱᓄᑦ, ᐸᕐᓇᓯᒪᔪᒧᑦ ᖃᐅᔨᓴᖅᑕ ᐊᒻᒨᒪᔪᓂᑦ ᓯᑎᐱᕆ 20 ᒪᐃ ᑎᑭᓪᓗᒍ 6 ᔫᓂ, 2025 ᐊᒻᒪ ᒪᕐᕉᓐᓂ ᐱᓇᓱᐊᕈᓰᓐᓂ ᔪᓚᐃ 2025. ᖃᐅᔨᓴᖅᓯᔾᔭᐃᑦ ᓄᐊᑕᐅᓂᐊᖅᑐᑦ 3 – 4 ᐃᒪᐅᑉ ᑭᒡᓕᖓᓂ ᖃᐅᔨᓴᕝᕕᓂᑦ ᖃᓂᒋᔭᖓᓂ ᓄᓇᓕᖓᓂ ᕿᑭᖅᑕᕐᔪᐊᖅ (ᑕᑯᓗᒍ ᐊᔾᔨᙳᐊᖅ 1).ᐊᑐᖅᑕᐅᓂᖓᑦ ᐊᑐᖅᑕᐅᔪᑦ ᖃᐅᔨᓴᕐᓂᖃᕐᓗᑎ:ᒪᐃᒥ/ᔫᓂ 2025, ᐊᒻᒨᒪᔪᐃᑦ ᓄᐊᑕᐅᓂᐊᖅᑐᑦ ᓄᓇᓕᒻᒥ ᐊᖅᑲᐅᒪᖃᑦᑕᖅᑐᒧᑦ. ᔪᓚᐃ 2025, ᐊᒻᒨᒪᔪᐃᑦ ᓄᐊᑕᐅᓂᐊᖅᑐᑦ ᐊᖅᑲᐅᒪᖃᑦᑕᖅᑐᒧᑦ ᒥᑭᔪᒥᑦ ᐅᒥᐊᕐᒥ ᐅᕝᕙᓘᓐᓃᑦ ᓄᐊᑦᑎᓗᑎ ᑎᓂᖓᑎᓪᓗᒍ. ᑎᑭᓯᒪᔪᓂᑦ 25 ᐊᒻᒨᒪᔪᐃᑦ ᓄᐊᑕᐅᓂᐊᖅᑐᑦ ᐊᑐᓂ ᖃᐅᔨᓴᕝᕕᐅᔪᓂᑦ ᐊᑐᓂ ᖃᐅᔨᓴᕐᓂᖅᑎᓪᓗᒋᑦ ᐊᒥᒐᓕᓐᓂᕐᓇᕐᓗᒋᑦ 200 ᐊᒻᒨᒪᔪᐃᑦ. ᖃᐅᔨᓴᕐᓂᖃᓚᐅᖅᑎᓪᓗᒋᑦ, ᐊᒻᒨᒪᔪᐃᑦ ᐆᑐᖅᑕᐅᓂᐊᖅᑐᑦ, ᐊᔾᔨᓕᐅᖅᑕᐅᓂᐊᖅᑐᑦ ᐊᒻᒪ ᖁᐊᖕᒍᓗᑎ ᐅᕙᓂᙶᖓᑦ ᐱᓯᒪᔭᐅᓗᑎ 10% ᐱᐅᖅᓯᐊᕈᑎ ᕗᐊᒧᑎHᐊᐃᑦ. ᖁᐊᑦ ᐊᒻᒨᒪᔪᐃᑦ ᐅᑎᐅᔾᔭᐅᓂᐊᖅᑐᑦ ᐃᒪᕐᒥᐅᑕᓕᕆᔨᒃᑯᑦ ᑲᓇᑕᒥ ᕗᓂᐸᐃᓪᒧ ᓂᓪᓕᓇᖅᑐᒃᑯᕕᖏᓐᓄᑦ. ᐃᒪᕐᒥᐅᑕᓕᕆᔨᒃᑯᑦ ᑲᑎᙵᖃᑎᖃᖅᓯᕙᓐᓂ ᐅᕝᕙᓘᓐᓃᑦ ᓇᔪᖅᑕᐅᔪᒥᑦ ᖃᐅᔨᓴᕝᕕᒻᒥ, ᐊᒻᒨᔩᙳᖅᑐᑦ ᖃᐅᔨᓴᖅᓯᔾᔭᐃᑦ ᓄᐊᑕᐅᓂᐊᖅᑐᑦ ᐅᖅᓱᖓᓄᑦ ᐋᓯᑦ ᖃᐅᔨᓴᖅᑕᐅᓗᑎ ᓂᕆᖅᑕᖅᑐᑦ ᓴᓇᓯᒪᓂᖓᓄᑦ. ᐊᒥᐊᒃᑯᖓᑦ ᐊᒻᒨᔩᙳᖅᑐᑦ ᐱᓚᑦᑕᐅᓂᐊᖅᑐᑦ ᓇᓗᓇᐃᕐᓗᒋ ᐊᒻᒨᒪᔪᓕᐅᕈᑎᒃᑲᓂᖏᓐᓄᑦ ᐱᕙᓪᓕᐊᓂᖅᑕᖅᑕᖅᑎᑦ ᒥᑭᔪᑎᑦᑎᐊᕈᓂᑦ ᖃᐅᔨᓴᕐᓂᖅᑎᓪᓗᒋᑦ.ᑕᕝᕙᓂᓴᐃᓇᖅ ᓇᒦᓂᖏᓐᓄᑦ ᐊᒻᒨᒪᔪᐃᑦ ᓄᐊᑕᐅᓚᐅᖅᑐᑦ, ᓯᑯᖓ, ᐃᒪᖓ ᐊᒻᒪ ᐃᖅᑲᖓᓂ ᖃᐅᔨᓴᖅᓯᔾᔭᐃᑦ ᓄᐊᑕᐅᓂᐊᖅᑐᑦ ᖃᐅᔨᓴᕐᓗᑎ ᒥᑭᔪᑎᑦᑎᐊᕈᓂ ᐃᒪᕐᒥ ᐱᕈᖅᑐᓂᑦ ᐊᒥᓯᓂᑦ, ᐊᔾᔨᒌᖏᑦᑐᓂᑦ ᐊᒻᒪ ᐅᖅᑯᖏᓐᓂ ᐊᑦᔨᒋᔭᖏᑦ ᐃᓗᓕᖏᓐᓂ. ᓯᑯᖓᓂ ᐹᕈᖅᑕᐅᔪᓂᑦ ᖃᐅᔨᓴᖅᑕᐅᓂᐊᖅᑐᑦ ᐊᑐᕐᓗᑎ Kovacs ᓯᑯᒥᑦ ᐹᕈᑎᔾᔪᑎᒥᑦ. ᐊᑎᖓᓂ 3 cm ᓯᑯᖓᓂ ᐊᐅᑦᑎᑕᐅᓂᐊᖅᑐᑦ ᐊᒻᒪ ᓴᓂᐅᔾᔭᐃᒃᑯᑎᒃᑰᕐᓗᑎ ᖃᐅᔨᓴᖅᑕᐅᓂᖏᓐᓄᑦ ᓯᑯᖓᓂ ᐃᒪᕐᒥ ᐱᕈᖅᑐᓂᑦ ᓇᓗᓇᐃᔭᖅᓯᒪᓂᖏᓐᓄᑦ, ᑯᓪᓗᓇᕕᐅ A, ᐱᕈᕈᓐᓇᖅᑐᓂ ᑳᐸᓐ/ᓇᐃᑐᓇᔭᓐ, ᐊᒻᒪ ᐅᖅᓱᖏᓐᓂ ᐋᓯᑦ. ᐃᓚᒋᐊᕐᒍᒍ, ᐊᑕᐅᓯᖅ ᓯᑯᖓᓂ ᐹᕈᖅᑕᐅᓯᒪᔪᖅ ᖃᐅᔨᓴᖅᑕᐅᓂᐊᖅᑐᖅ ᖃᐅᔨᓴᕐᓗᑎ ᖃᓄᐃᓕᖓᓂᖓ ᓯᑯᖓ ᖃᓄᐃᓐᓂᖏᑦ ᐱᖃᓯᐅᑎᓪᓗᒍᓯᑎ ᐆᓇᕐᓂᖓ ᐊᒻᒪ ᓯᓈᓇᕈᓐᓇᕐᓂᖓ ᐊᑕᖏᓕᖅᑐᒍ ᑕᑭᓂᖓ. ᐃᒪᖓᓂ ᓇᓗᓇᐃᔭᖅᓯᒪᓂᖏᑦ ᓯᓈᓇᕈᓐᓇᕐᓂᖓ, ᐆᓇᕐᓂᖓ, ᐃᑎᓂᖓ, ᐊᒻᒪ ᖃᐅᒪᖓ ᖃᐅᔨᓴᖅᑕᐅᓂᐊᖅᑐᑦ ᐊᑐᓂ ᖃᐅᔨᓴᕝᕕᐅᔪᓂᑦ ᐊᑐᕐᓗᑎ Maestro CTD ᖃᐅᔨᓴᐅᑦ ᓇᓗᓇᐃᔭᕐᒍᒍ ᐃᒪᖓᓂ ᐃᑐᓕᖏᓐᓂ. ᐃᒪᖓᓂ ᖃᐅᔨᓴᖅᓯᔾᔭᐃᑦ ᖄᖓᓂ, ᕿᑎᐊᓂ ᐊᒻᒪ ᐊᑎᑉᐸᒍᐊᓂ ᓄᐊᑕᐅᓂᐊᖅᑐᑦ ᐊᑐᕐᓗᑎ ᒥᓪᓗᐊᕈᑎᒥᑦ (ᖄᖓᓂᑐᐊᖅ) ᐊᒻᒪ ᓂᕐᑭᓐ ᐃᒪᖃᐅᑎᑦ. ᐃᒪᖓ ᐱᕙᓪᓕᐊᑎᑕᐅᓂᐊᖅᑐᑦ ᐆᒪᔪᑎᐅᔪᓐᓇᖅᑐᓄᑦ, ᑕᕆᐅᖅᓴᓂᖓ, ᒥᑭᔪᑎᑦᑎᐊᕈᑦ ᐃᒪᕐᒥ ᐱᕈᖅᑐᑦ ᓇᓗᓇᐃᔭᖅᓯᒪᓂᖏᑦ, ᑯᓪᓗᓇᕕᐅᓪ A, ᐱᕈᕈᓐᓇᖅᑐᓂ ᑳᐸᓐ/ᓇᐃᑐᓇᔭᓐ, ᐊᒻᒪ ᐅᖅᓱᖏᓐᓂ ᐋᓯᑦ ᐊᒻᒪ ᐊᐃᓯᐹᓇᓄᐃᑦᓂᑦᓫ (HBI). ᖄᖓᓃᑦᑐᑦ ᐃᖅᑲᖓᓂ ᖃᐅᔨᓴᖅᓯᔾᔭᐃᑦ ᓄᐊᑕᐅᓂᐊᖅᑐᑦ ᐊᖅᑲᐅᒪᔫᒧᑦ ᐅᕝᕙᓘᓐᓃᑦ ᐊᑐᕐᓗᓂ ᖃᓗᕆᐅᒪᒥᑦ ᑎᓂᖓᑎᓪᓗᒍ ᐊᑐᓂ ᓇᒦᓂᖏᓐᓄᑦ. ᖄᖓᓃᑦᑐᑦ ᐃᖅᑲᖓᓂ ᖃᐅᔨᓴᖅᑕᐅᓂᐊᖅᑐᑦ ᐱᕈᕈᓐᓇᖅᑐᓂ ᑳᐸᓐ/ᓇᐃᑐᓇᔭᓐ, ᐊᒻᒪ ᐅᖅᓱᖏᓐᓂ ᐋᓯᑦ ᐊᒻᒪ ᖃᓄᖅ, ᖃᖓ, ᐊᒻᒪ ᑭᓇᒥᑦ ᖃᐅᔨᓴᓂᕐᒧᑦ ᖃᓄᐃᓐᓂᓴᔭᖅᑎᑦ ᑐᓂᔭᐅᓂᐊᖅᑲᑦ.ᑐᑭᓯᒋᐊᕈᑎᑦ ᓄᐊᑕᐅᓚᐅᖅᑎᓪᓗᒋᑦ, ᐸᕐᓇᓯᒪᔪᒧᑦ ᑐᑭᓯᒋᐊᕈᑎᖅᑎᑦᑎᓗᑕ ᓇᑦᑎᕙᒃ ᐆᒪᔪᕐᓂᐊᑎᒃᑯᑦ ᑲᑐᔾᔭᖅᑎᕆᓂᖓᓄᑦ ᖃᐅᔨᓴᓂᕐᒧᑦ ᐱᓕᕆᔭᐅᔪᓂᑦ ᐊᒻᒪ ᑎᑎᕋᖅᓯᒪᔪᑎᒍᑦ ᑐᓴᐅᒪᑎᑦᑎᓂᕐᒧᑦ. ᑲᔪᓯᑎᓐᓂᐊᕐᒥᔭᕗᑦ ᑐᓂᓯᓂᕐᒧᑦ ᐃᒪᕐᒥᐅᑕᓕᕆᔨᒃᑯᓐᓄᑦ ᑲᓇᑕᒥ ᑐᑭᒧᐊᖅᑎᑕᐅᔪᑦ ᐃᒪᐅᑉ ᑭᒡᓕᖓᓂ ᐊᕙᑎᖓᓄ ᑐᙵᕕᖓᓄᑦ ᐱᓕᕆᐊᒧᑦ ᐊᕐᕌᒍᑕᒫᑦ ᐅᖃᓕᒫᒐᕐᓄᑦ. ᖃᐅᔨᓴᐃᓂᐅᔪᑦ ᐱᔭᕇᖅᓯᒪᓕᖅᐱᑎ, ᑎᑎᕋᖅᓯᒪᔪᑦ ᓇᓗᓇᐃᔭᐃᓂᖅᑎᑦᑎᓂᐊᖅᑐᒍᑦ ᖃᐅᔨᓴᐅᔪᓂᑦ ᓇᑦᑎᕙᒃ ᐆᒪᔪᕐᓂᐊᑎᒃᑯᑦ ᑲᑐᔾᔭᖅᑎᕆᓂᖓᓄᑦ ᐊᒻᒪ ᐃᖅᑲᓇᐃᔭᖅᑎᕆᑦᑎᐊᓂᐊᖅᑕᕗᑦ ᐃᒪᐅᑉ ᑭᒡᓕᖓᓂ ᐊᕙᑎᖓᓄ ᑐᙵᕕᖓᓄᑦ ᐱᓕᕆᐊᖅ ᐊᐅᓚᑕᐅᓂᖅᑐᓂᑦ ᑖᒃᑯᐊ ᑐᑭᓯᒋᐊᕈᑎᑦ ᑭᒃᑯᑐᐃᓇᓄᑦ ᐊᑐᐃᓇᐅᓗᑎ.

Personnel

Personnel on site: 3

Days on site: 24
Total Person days: 72
Operations Phase: from 2025-05-15 to 2025-10-25

Hulilukaarutit

Inigiya	Hulilukaarut Qanurittuq	Nunannga Qanurittaakhaanik	Initurlinga qanuritpa	Initurlinga utuqqarnitat unaluuniit Ingilraaqnitat Uyarannguqtut akhuurninnga	Qanitqiyauyuq qanitqiamut nunallaat kitulluuniit ahiruqtailiyainnit nuna
Three coastal sampling sites will be selected to collect clams, water, and ice. No work will take place on Inuit owned lands	Sampling sites	Marine	Three sampling sites will be selected to collect clams, water, and ice. Exact sites will be selected based on scuba divers experience and accessibility to clams.	N/A	Near the community of Qikiqtarjuaq

Nunaliin Ilauyun, Aviktuqhimayuniitunullu Ikayuuhiarunguyun

Nunauyuq	Atia	Timiuyuq	Upluani Uqaqatigiyaungmata
Qikiqtarjuaq	Billy Arnaquq	Nunavut Experience Outfitting	2025-01-15
Qikiqtarjuaq	Sammy Qappik	SCUBA Diver	2024-12-20
Qikiqtarjuaq	Pasa Aulaqiaq	Nattivak HTO	2025-01-28

Angiuttauvaktunik

Naunaiqlugu nunanga talvani havauhikhaq ittuq:

Angiuttauvaktunik

Munariniqmut Ayuittiaqtuq	Angirutinga Qanurittuq	Tadja Qanurittaakhaanik	Ublua Tuniyauyuq/Uuktuqtuq	Umikvikhaa Ublua
Iqalukhiurniqmut Tariuqmilu Kaanata	Licence to Fish for Scientific Purposes	Active	2025-04-03	2026-03-31
Nunavunmi Ihivriuqniqmut Timiqutigiyanga	Research licence under NRI. Waiting for NPC and NIRB review.	Applied, Decision Pending	2025-02-07	

Project transportation types

Transportation Type	Qanuq Atuqtauniarmangaa	Length of Use
Water	Local Inuit owned and operated snowmobiles will be used in winter and a local boat in July to reach sampling sites	

Project accomodation types

Nunauyuq

Alaanut,

Ihuaqutivaluin Atuqtauyukhan

Hanalrutit atuqtaunahuat (ukuallu ikuutat, pampiutainnik, tingmitinik, akhaluutinik, hunaluuniit)

Hanalrutit Qanurittuq	Qaffiuyut	Aktikkulaanga – Qanurittullu	Qanuq Atuqtauniarmangaa
Ski-doo	2	115 x 50 x50 inches	We plan to hire two ski-doos and komatiks, and local Inuit guides to operate the machines to reach our sampling sites. The Inuit guides will also our bear monitors while sampling on the ice.
Boat	1	25 feet	We will hire a local Inuit owned and operated Cuddy Cabin Aluminum Boat 25 footer boat to collect samples in open water
Ion Auger	2	47.69 x15.37 in	We will use a standard 10inch blade Ion battery operated auger to drill through sea ice to sample water underneath.
RBR Maestro CTD	1	60 inches long x 15 inches wide	A RBR Maestro CTD will be attached to a rope and lowered through the water column to just above the seafloor to collect measurements of the temperature, depth, conductivity, turbidity and ffluorescence of the water.
Mark II Kovacs Ice Corer	2	100x9 cm	An ice corer will be used to collect ice core samples. The samples will be used measure ice algae biomass, taxonomy, nutrients, salinity, fatty acids, and highly branched isoprenoid (HBI's)
Niskin water sampler	2	5L	We will use a 5L Niskin water sampling bottle, attached to a rope and weight, to collect water throughout the water column. The water will be analyzed for nutrients, salinity, phytoplankton, chlorophyll a, particulate organic carbon, and highly branched isoprenoids.
Light Meter	1	5.5 × 3 x1.5	Used to measure the light at the sampling sight. Will be placed on a cooler while sampling takes place.

Qanurittuq Urhuqyuaq unalu Qayangnaqtut Hunavaluit Aturninnga

Qanurittuq urhuqyuaq hunavaluit	Urhuqyuaq Qanurittuq	Qaffiuyut qattaryut	Qattaryuk Aktikkulaanga	Atauttimut Qaffiuyut	Ilanga	Qanuq Atuqtauniarmangaa

aturninnga:						
Acetone (90%)	hazardous	4	2	8	Liters	Acetone is used in the lab when conducting chlorophyll a concentration measurements, which is a common method to measure primary production in water.
Hydrochloric acid (5%)	hazardous	1	1	1	Liters	Used in the lab to clean glassware and forceps
Ethanol (70%)	hazardous	1	1	1	Liters	Used in the lab for cleaning and as part of the chlorophyll a analyses test.
Gasoline	fuel	25	20	500	Liters	Gasoline will be used to operate local Inuit owned and operated snowmobiles and boats.
10 % Formaldehyde	hazardous	6	5	30	Liters	Use to preserve clam tissue samples

Imaqmik Aturninnga

Ubluq qanuraaluk (m3)	Aturumayain imavaluin utiqtittagaani qanuq	Atulirumayain imavaluin utiqtittagani humi
0		

Iqqakuq

Ikkakunik Munakgiyauyunik

Havauhikhaq Hulilukaarut	Qanurittuq Iqqakut	Ihumagiyauyuq Qanuraaluktut Atuqtait	Qanuq Iqqakuurniarmangaa	Halummaqtirarnirutikhan piyutin
Scientific/International Polar Year Research	Qayangnaqtut	8 L	ll acetone and related glassware will be packaged and shipped according the Transport Canada dangerous goods regulations to the Freshwater Institute for disposal.	hemicals will be received by and securely stored at the new Qikiqtarjuaq research centre in proper chemical storage cabinets. This chemical will only be used within the lab.
Scientific/International Polar Year Research	Qayangnaqtut	30 L	Chemicals will be received by and securely stored at the new Qikiqtarjuaq research centre in proper chemical storage cabinets. This chemical will only be used in the lab and will be shipped back to DFO-Winnipeg.	The 10% formalin solution will be used to preserve samples. All samples and left over chemicals will be packaged and shipped to the Freshwater Institute for storage and if necessary, disposal.
Scientific/International Polar Year Research	Qayangnaqtut	1 L	Ethanol will be packaged and shipped according to the Transport Canada dangerous goods regulations to the Freshwater Institute for disposal.	Chemicals will be received by and securely stored at the new Qikiqtarjuaq research centre in proper chemical storage cabinets. This chemical will only be used within the lab.
Scientific/International Polar Year Research	Qayangnaqtut	1 L	The diluted acid will be packaged and shipped according to the Transport Canada dangerous goods regulations to the Freshwater Institute for disposal.	Chemicals will be received by and securely stored at the new Qikiqtarjuaq research centre in proper chemical storage cabinets. Chemicals will only be used in the lab at the research centre.

Avatiliriniqmut Ayurhautingit:

We do not anticipate environmental impacts from our sampling work. Clams will be handpicking by a local Inuit diver and possibly digging during low tide. This means there will be no bycatch and that total number of clams sampled will not exceed our sample design of 25 per site per season. No scientific equipment will be left in the water. The use of local snowmobiles and a local boat will require gasoline to operate. Snowmobiles will be fueled at the local COOP gas station, mitigating any potential spills from jerry cans. The local boat will require fueling which will take place in the harbor only when seas are calm. We will also provide spill absorbent clothes to the local boat operator to wipe up any potential fuel drops onto the boat.

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION I1: Municipal Development

Qanurittuq Ittunik Avatinga: Avatingalluanga

This project is funded by DFO's coastal environmental baseline program which aims to collect marine baseline data in anticipation of the proposed deep seaport in Qikiqtarjuaq. The marine environment where we will be working consists of coastal marine waters influenced by Baffin Bay. We will be sampling primarily from the land fast ice sea ice that forms between Baffin Island and Broughton Island. This landfast first year ice is considered stable with ice breakup usually occurring in early July.

Qanurittuq Ittunik Avatinga: Inuuhimayunut Avatinga

Soft shell clams (Mya truncata) are abundant within the channel between Broughton Island, where the community of Qikiqtarjuaq is, and Baffin Island. This is owing to the sandy and mixed substrate seafloor and currents that flow through the north-south oriented channel which provides food to these filter feeding clams. This region is also known as a productive area for both sea ice algae in spring and phytoplankton in open water season, which likely also contributes to the abundant softshell clam population in the area.

Qanurittuq Ittunik Avatinga: Inungit-maniliurutingit Avatinga

Soft-shell clams are an important subsistance food for many people in Qikiqtarjuaq with the potential for a future local fishery. This project could provide future support by describing the reproductive cycle of the clams. Additionally, this project will employ a local Inuit SCUBA diver, and two Inuit field supports to collect clams in the spring and summer from four locations which may cost as much as $10, 000 for their services. Sampling will take place with local Inuit guides. We will employ two Inuit guides per trip ($180/guide/day) out on the ice for a maximum of eight sampling days. We will rent snowmobiles and komatiks directly from a local outfitter for a rate of $250/day/snowmobile. During the spring field program, our project will provide $2,880 in salaries and $4000 for snowmobile rental. In July, we will rent a local Inuit owned and operated boat for sampling at a rate of $2,350.00 for four sampling trips ($9400). In total, anticipate that this project will contribute $22, 280 in local revenue and employment within the community of Qikiqtarjuaq in 2025.

Miscellaneous Project Information

Naunaiyainiq ukuninnga Ayurhautingit unalu Piumayaat Ikikliyuumiutinahuarutit

Impacts from this project will be minimal. Clams will be handpicked by a local Inuit scuba diver and possibly hand dug at low tide. This greatly reduces any disturbance to the seafloor and the potential of collecting unwanted bycatch. No scientific instrument (e.g., temperature and salinity profiler) or sampling equipment (e.g., water sampler, ice sampler) will be left unattended in the water. All equipment will return with researchers.

Tamatkiumayunik Ihuikgutivaktunik

This project will contribute to baseline data collection as part of the Coastal Environmental Baseline program led by DFO. Baseline data will be used to assess any potential future environmental changes as a result of the proposed deep seaport and/or climate change. Additionally, this project will provide employment to local Inuit diver and outfitter. In total, we anticipate that this project will contribute $22, 280 in local revenue and employment within the community of Qikiqtarjuaq in 2025.

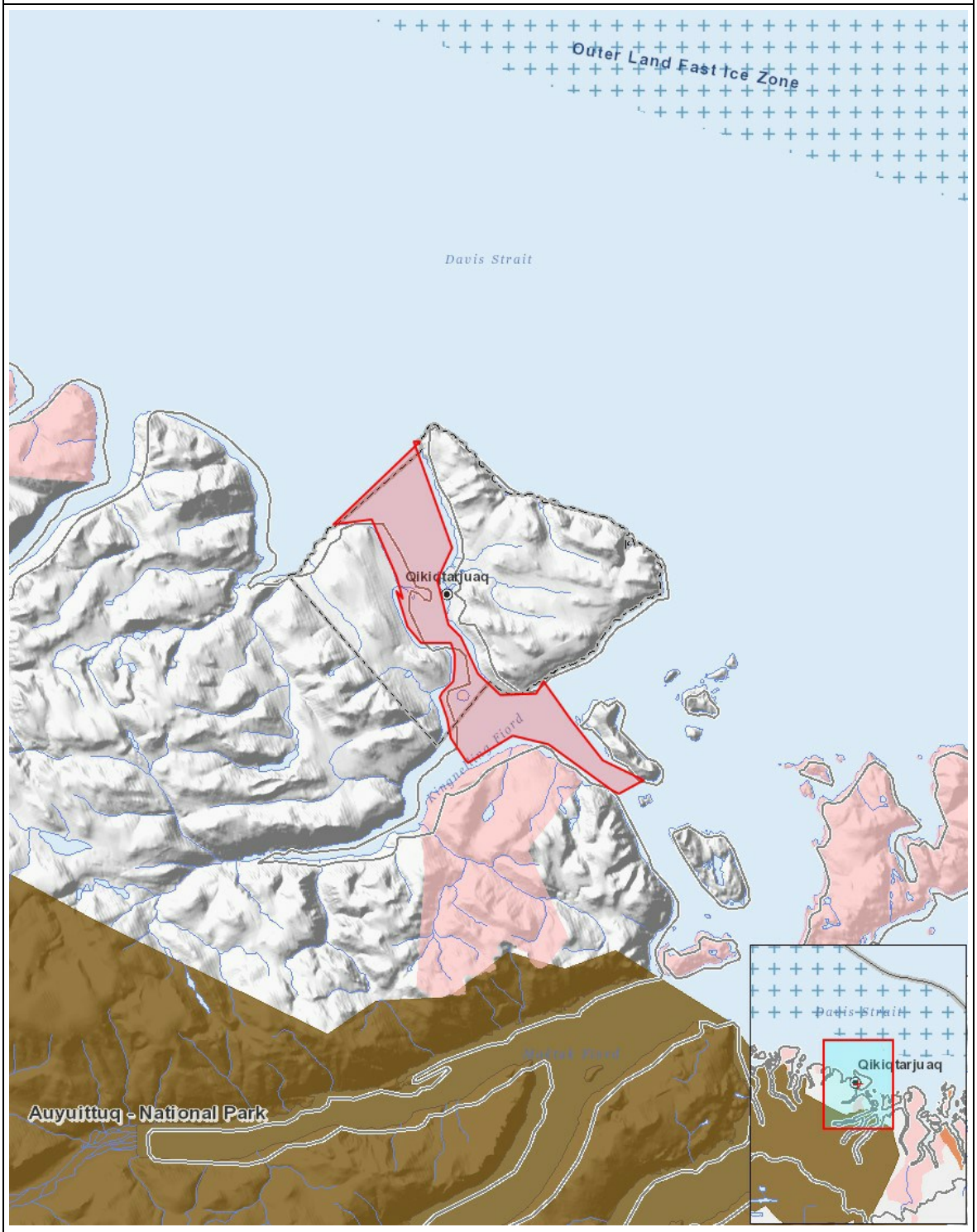
Impacts

Ilitariyauniq Avatiliriniqmut Ayurhautingit

	PHYSICAL	Designated environmental areas	Ground stability	Permafrost	Hydrology / Limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO-ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
Havakvinga																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-
Aulapkaininnga																									
Sampling sites		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	U	-		-	P	-	-	-
Piiqtauniq																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

(P = Nakuuyuq, N = Nakuungittut unalu mikhilimaittuq, M = Nakuungittut unalu mikhittaaqtuq, U = Naluyauyuq)

Havaariyauyukhamut Nayugaa



List of Project Geometries

1 polygon	Three coastal sampling sites will be selected to collect clams, water, and ice. No work will take place on Inuit owned lands