Project Dashboard

Community-based study of under-ice benthic assemblages in the Arctic (BenthArctic)

(149725)

Proposal Status: Conformity Determination Issued

- Overview
- Documents
- Correspondence
- Questionaire

Project Overview

Type of application: **New**

Proponent name:	Annie Mercier
Company:	OSC - Memorial University

Schedule:

Start Date:	2022-07-31
End Date:	2023-06-30
Operation Type:	Annual

Project Description:

The proposed project builds on interest expressed by Inuit communities in Nunavut to assess the status and value of their marine benthic resources and prospects for their sustainable use in the context of food security and climate change. It aims to expand our understanding of nearshore benthic assemblages, with a focus on winter-spring processes occurring at sea-ice edges and on species of relevance to commercial and subsistence fisheries. Interlinked objectives will be dedicated to fundamental research, practical knowledge transfer and community mobilization. Field work is expected to take place in the summer/fall of 2022 and the winter/spring of 2023. The approach centers on the use of a portable remotely operated vehicle (ROV) deployed through holes in the sea ice to investigate the benthic community structure and diversity in two regions (Low vs High Arctic, specifically Sanikiluaq and Grise Fiord). The ROV will have minimal environmental impact; it will capture videos of the benthos and collect a few water, sediment and biological samples for analysis. Videos will be used for scientific analyses and to create education material; they will be shared with end users in the two localities. A complementary segment will assess methods best adapted for the collection and handling of key commercial species. Benthic life occurring underneath or close to inshore polynyas and landfast ice edges in the Arctic is an understudied topic. Findings thus have the potential to yield novel information on species interactions and benthic-pelagic coupling, including how birds and mammals both depend on and fuel the underlying benthos. The project brings together academic investigators (scientists and students), the territorial government, an NGO partner, an Inuit Birthright Corporation, the local Hunters and Trappers Organizations (HTOs), and other members of the Inuit communities. Ultimately it will produce conservation and technical guidelines for species that might be targeted for premium markets (seafood, nutraceuticals, and pharmaceuticals). Moreover, the project will ground-truth the use of small-sized submersibles as a tool for research and capacity-building in areas where other methods would be too destructive or impractical (due to ice cover or shallow depth). Community leaders and youth will be the primary informants and participants in the project.

Personnel:

Persons:	10
Days:	14

Project Map

List of all project geometries:

ID	Geometry	Location Name
8571	point	New project geometry
8572	polyline	New project geometry
8573	point	New project geometry
8574	polyline	New project geometry

Planning Regions:
Qikiqtani
Kivalliq
Affected Areas and Land Types
Municipal
Settlement Area
North Baffin Planning Region

Project Land Use and Authorizations

Project Land Use
Scientific Research
Winter Access
Licensing Agencies
DFO: Fish for Scientific Purposes Permit
Other Licensing Requirements
No data found.

Material Use

Equipment

Type	Quantity	Size	Use
Portable remotely operated vehicle	1	12x14x20 inches	Underwater surveys, sample collection

Fuel Use

Type	Container(s)	Capacity	UOM	Use
No records found.				

Hazardous Material and Chemical Use

Type	Container(s)	Capacity	UOM	Use
No records found.				

Water Consumption

Daily Amount (m^3)	Retrieval Method	Retrieval Location
0		

Waste and Impacts

Environmental Impacts
The main training and assessments will be conducted using a small remotely operated vehicle (ROV) for image-based surveys and collection of seawater and marine sediment parameters. The ROV will either be deployed in the ocean, through holes in the ice, or towed from a boat in the community. Local participants will opportunistically use their fishing gear (nets, rakes and mini trawls) to obtain additional samples of the sediment and benthos. All the work will be conducted inshore (<100 m). The images will allow us to estimate abundance and size distributions for echinoderms (sea urchins, sea cucumbers) and other macrobenthic invertebrates (e.g. sea anemones, mussels,

scallops). A limited number of biological samples will be collected for taxonomic identification, stable isotope /fatty acid analyses, and determination of caloric content. We do not anticipate to generate any wastes from these activities.

Waste Management

Waste Type	Quantity Generated	Treatement Method	Disposal Method
No data found.			