Demande de la CNER faisant l’objet d’un examen préalable #126433

Arctic kelp forests and seaweed biodiversity in Cambridge Bay

Type de demande :	New
Type de projet:	Scientific Research
Date de la demande :	Wednesday, May 6, 2026
Period of operation:	from 2026-07-01 to 2030-09-30
Promoteur du projet:	Amanda Savoie Canadian Museum of Nature 1740 chemin Pink Gatineau Quebec J9J 3N7 Canada Téléphone :: 5062606894, Télécopieur ::

DÉTAILS

Description non technique de la proposition de projet

Anglais: Title: Arctic kelp forests and seaweed biodiversity in Cambridge BayThis project studying Arctic kelp and seaweeds around Cambridge Bay is led by the Canadian Museum of Nature and Laval University, with support from Polar Knowledge Canada. We are seeking to better understand the animals and seaweeds that live in coastal waters of the Kitikmeot Sea around Cambridge Bay.Kelp are a type of large brown macroalgae that create underwater forests in cold temperate and Arctic waters. These kelp forests support biodiversity by creating habitat, food and shelter for other seaweeds as well as animals such as benthic invertebrates (small animals that live on the seafloor) and fish. Kelp and seaweeds are photosynthetic, and form part of the base of the marine food web.We are proposing to study these kelp forests by using both SCUBA diving and underwater video monitoring methods. While SCUBA diving, we will collect small amounts of seaweed and invertebrates and bring them back to the lab to study and identify them. We will conduct underwater video transects to map the location of kelp forests and understand their occurrence and extent in the area, as well as use baited cameras to understand what type of fish live inside and outside kelp forests.We are requesting permission to install small data loggers in kelp forest habitats to record salinity, temperature, light, nutrients, pigments, pH, and dissolved oxygen across seasons. They could be installed for short amounts of time (days) or longer (months). They are small in size (~5 x 5 cm) and would be installed by SCUBA divers.Our preliminary results from field campaigns in 2022-2024 found that even though kelp forests in the area around Cambridge Bay cover only a relatively small area, they support much more marine life than the surrounding bare seafloor. We found about nine separate kelp forests in the area around Cambridge Bay. These forests are located mostly in open waters of Dease Strait and Queen Maud Gulf, in areas with strong currents and colder water, and where ice breaks up earlier in spring.Species living in kelp forests include the kelp themselves, with four species in the area, as well as other smaller species of seaweed that grow under the kelp canopy. Small animals we observed include clams and mussels, worms (for example bristle worms), amphipods (small shrimp-like creatures that serve as food for many fish species), and green sea urchins. Larger animals include Greenland cod that we observed hiding in kelp during warmer years, and other fish such as sculpins and Arctic cod were more numerous in kelp areas. We also often observed bearded seals around kelp areas.Our analyses show that there are five times more benthic invertebrate species living in kelp habitats as compared to habitats lacking kelp. The sites with the most invertebrate and seaweed biodiversity in the area that we surveyed were located west of Cambridge Bay, in the Finlayson Islands. Even though kelp forests cover only a small area of the seafloor, they support much more marine life than the surrounding bare seafloor.We are requesting to continue this work in Cambridge Bay due to the importance of kelp and seaweeds to the nearshore marine ecosystem. These special habitats are common throughout the Arctic but are poorly studied and are sensitive to the impacts of climate change and warming ocean waters. Climate change may affect where kelp grows; more mixing and currents could help kelp expand, while more freshwater from melting ice could make it harder for kelp to grow. Kelp forests support so much life that changes in kelp will affect many other species. It will also be important to understand how potential changes in the distribution and abundance of seaweeds could potentially impact associated species like fish that are valued and consumed by northern communities.The geographic area covered by this project includes Cambridge Bay itself as well as the West Arm, and extends out to nearby areas of Dease Strait, including the Finlayson Islands, Cape Enterprise, and Wellington Bay, as well as Queen Maud Gulf, including as far east as Anderson Bay and as far south as Melbourne Island and the Minto Islands.The proposed project will take place in summer 2026, in August and September, but we also propose to continue long-term monitoring in this area over subsequent years, with the hope of understanding what changes may be occurring with increased vessel traffic and the additional impacts of climate change and ocean warming.We are keen to include local traditional knowledge of seaweed diversity in this study and to work with the community of Cambridge Bay during this research program. We hope this project will provide valuable information to the community on changes to the coastal zone in this region. By knowing where kelp forests are, Ikaluktuutiakmiut can monitor changes over time and make informed decisions about marine stewardship.

Français: n/a

Inuktitut: n/a

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havaqatigijaangallu nunallaani Iqaluktuuttiami talvuuna ihivriudjutikharnik havaakharni. Ilihimagumik humiittaakhaanik aqajait napaaqtuit, Iqaluktuuttiarmiut munarittaaqtait aallannguqtirutit qakugunguraikpat ihumaliurlutiglu tarjumi munaqhidjutikhanik.

Personnel

Personnel on site: 4
Days on site: 21
Total Person days: 84
Operations Phase: from 2026-07-01 to 2030-09-30

Activités

Emplacement	Type d'activité	Statut des terres	Historique du site	Site à valeur archéologique ou paléontologique	Proximité des collectivités les plus proches et de toute zone protégée
The marine waters around Cambridge Bay (Dease Strait and Queen Maud Gulf)	Marine Based Activities	Marine	There have been very few scientific surveys of the benthic flora and fauna of the marine zone around Cambridge Bay. The Vancouver Aquarium did some surveys in the mid 2010's. The waters around the community are used by Inuit for fishing and harvesting.	This work is solely marine.	We are mostly working outside the bay area of Cambridge Bay, on the nearshore coastal waters of Dease Strait and Queen Maud Gulf. The nearest protected area to my knowledge is the Bird Sanctuary in the southern part of Queen Maud Gulf.

Engagement de la collectivité et avantages pour la région

Collectivité	Nom	Organisme	Date de la prise de contact
Cambridge Bay	Beverly Maksagak	Ekaluktutiak Hunters and Trappers Organization	2022-04-22
Cambridge Bay	John Lyall Jr.	Local boat operator	2022-08-20

Autorisations

Indiquez les zones dans lesquelles le projet est situé:

Kitikmeot

Autorisations

Organisme de régulation	Description des autorisations	État actuel	Date de l'émission/de la demande	Date d'échéance
Pêches et Océans Canada	A fishing license will be necessary to collect seaweed and benthic invertebrates.	Not Yet Applied		
Institut de recherche du Nunavut	An NRI license will be necessary to conduct this research.	Not Yet Applied		

Project transportation types

Transportation Type	Utilisation proposée	Length of Use
Air	We will travel from Ottawa to Cambridge Bay by commercial air travel.	
Water	We will hire a local boat operator in Cambridge Bay for our marine work.	

Project accomodation types

Collectivité

Utilisation de matériel

Équipement à utiliser (y compris les perceuses, les pompes, les aéronefs, les véhicules, etc.)

Type d'équipement	Quantité	Taille – Dimensions	Utilisation proposée
small marine boat	1	21 feet	In the past we have used the guiding services and boat of a local community member for setting drop cameras and as a platform for SCUBA diving.
Marine Front Lander	1	33 feet	In the past we have used the Arctic Research Foundation vessel R/V Blue Nanook to help with sampling and SCUBA diving in addition to smaller boats from the community.
data loggers	15	5 x 5 cm	We are requesting permission to install small data loggers in kelp forest habitats to record salinity, temperature, light, nutrients, pigments, pH, and dissolved oxygen across seasons. They could be installed for short amounts of time (days) or longer (months). They are small in size and can be installed by SCUBA divers.

Décrivez l'utilisation du carburant et des marchandises dangereuses

Décrivez l'utilisation de carburant :	Type de carburant	Nombre de conteneurs	Capacité du conteneur	Quantité totale	Unités	Utilisation proposée
Gasoline	fuel	25	20	500	Liters	if we use smaller marine boats owned by community members in Cambridge Bay for this work, the typical fuel is gasoline. A typical day out would use 4 or 5 jerry cans. I have estimated a maximum of 5 days of work using 5 20L jerrycans per day.
Gasoline	fuel	3	200	600	Liters	if we use the larger Arctic

						Research Foundation vessel R/V Blue Nanook, an estimated fuel consumption would be similar, approximately 600 L of gasoline for 5 days of fieldwork.
none	hazardous	0	0	0	Liters	not applicable

Consommation d'eau

Quantité quotidienne (m3)	Méthodes de récupération de l'eau proposées	Emplacement de récupération de l'eau proposé
0		

Déchets

Gestion des déchets

Activités du projet	Type des déchets	Quantité prévue	Méthode d'élimination	Procédures de traitement supplémentaires
Information is not available				

Répercussions environnementales :

This project will have overall positive environmental impacts as our goal is to increase the scientific understanding of the benthic flora and fauna in the coastal zone around Cambridge Bay. Our sampling of seaweeds and benthic invertebrates is small in scale and we are only taking samples when they are necessary for identification of the organisms. This type of knowledge of will be a critical first step to creating any marine protected area or marine park. We hope the unique marine areas that we identify during this project give the community the tools they need to help protect their marine zone, which faces many threats including climate change and increased shipping though the northwest passage.

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

Description de l'environnement existant : Environnement physique

This work will take place in the marine environment around Cambridge Bay. It is a typical Arctic system with a relatively cold and stratified water column and a mix of bottom substrates, from sand and mud to boulders to areas of bedrock.

Description de l'environnement existant : Environnement biologique

The marine benthos around Cambridge Bay is patchy and uneven. Part of our project is to map this area and describe any areas that may be particularly sensitive or of high biological importance. There are areas of kelp forest but also areas with minimal life besides sea urchins.

Description de l'environnement existant : Environnement socio-économique

The most important socioeconomic component of the marine environment around Cambridge Bay is Arctic Char. We don't see char on our surveys because they tend to be higher in the water column and we are focused on the bottom. We do see cod and sculpins which are also harvested occasionally by the community.

Miscellaneous Project Information

Identification des répercussions et mesures d'atténuation proposées

Our sampling of marine benthos will have minimal impact. We are taking very few samples from each site and ensuring that our sampling efforts are spread out across a wide area.

Répercussions cumulatives

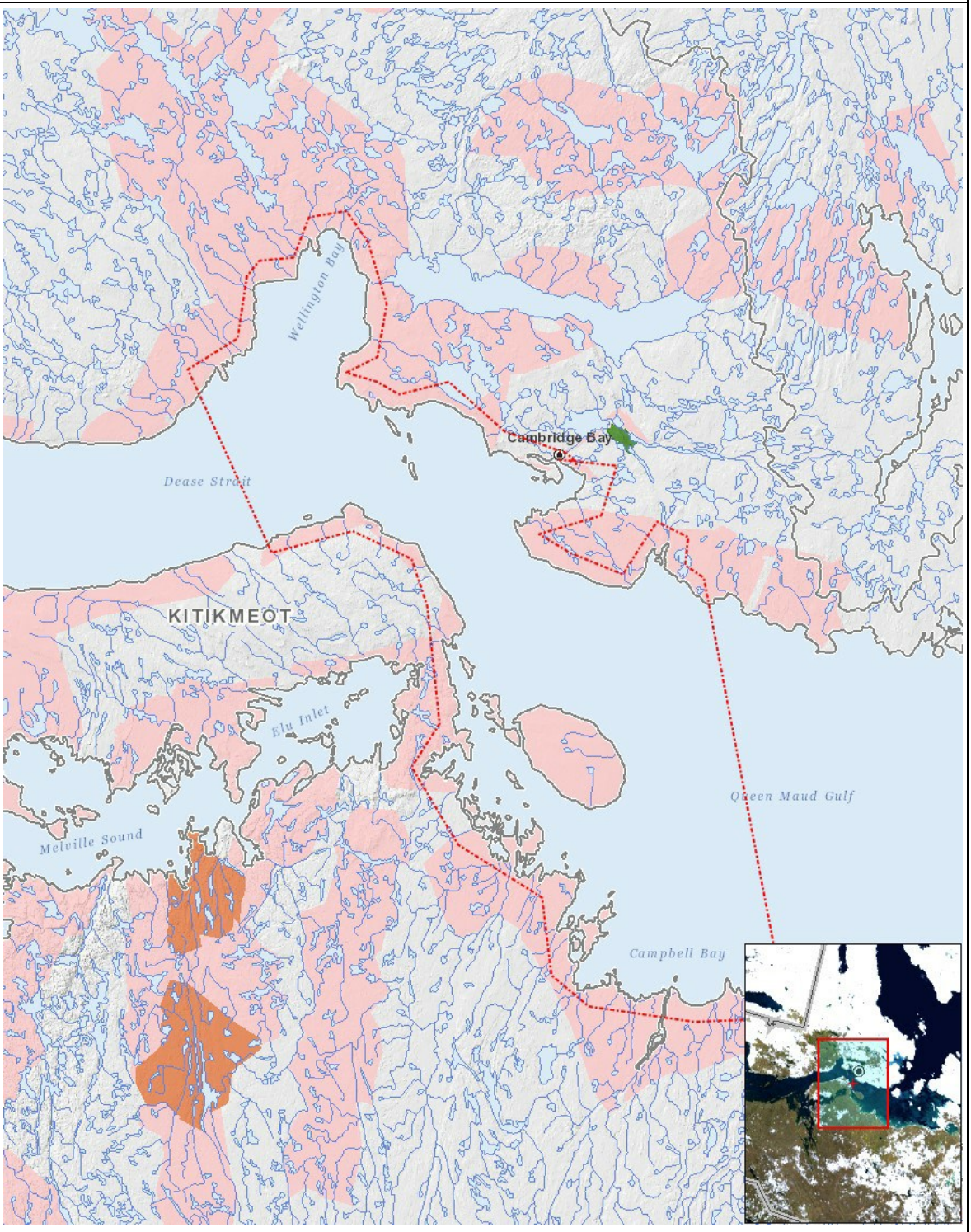
Impacts

Identification des répercussions environnementales

	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
Construction																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-
Exploitation																									
Marine Based Activities		P	-	-	-	-	-	-	-	-	-	-	-		P	-	-	-	P		-	-	-	-	-
Désaffectation																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

(P = Positive, N = Négative et non gérable, M = Négative et gérable, U = Inconnue)

Site du projet



Liste des géométries de projet

1	polyline	The marine waters around Cambridge Bay (Dease Strait and Queen Maud Gulf)