NIRB Application for Screening #126401
Adaptation to an ice-free summer by Arctic seabirds

Application Type: New

Project Type: Scientific Research

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DETAILS

Non-technical project proposal description

English: Coats Island (Appatuurjuaq) is an important seabird colony in Nunavut. We propose to conduct research on nesting thick-billed murres and glaucous gulls during the summer (June 20 – August 15). Research activities will include trapping, banding, and observing migratory birds and involve 3-8 people. General ActivitiesThe site is located on Coats Island/Appatuurjuaq (62.94132N, -82.01722W). The camp is supplied by twin otter on tundra tires in June. The base camp consists of 4 small cabins. These structures rest on granite surrounded by vegetation. In general, the work and camping arrangements and resulting impact on the land are similar to our other years of work here and hence impact will again be low. Fuel (gasoline, propane) will be stored near the camp well above the ocean high water line on a cliff, in small, 25L gerry cans and 20lb tanks. These materials will be located on a flat location, with a small berm built around them in the event of a fuel spill. All sumps will be located 30m above the high water line, and will be back-filled, mounded, and contoured to match surrounding landscape prior to leaving the camp. Current MSDS will be kept in a central location (the cabin office area) so as to be accessible to all personnel. We keep an Emergency Spill Kit at the camp and have a Spill Contingency Plan in place which has been submitted with past permit applications. We will use gas to run 2 generators and the ATV, and 100lbs propane to fuel the stove. We will fly into and out of the site by Twin Otter. We will have a total of about 5 flights through the season to mobilizing the field site, resupply and change over crew members, and to demobilize the field site at the end of the season. We will use an ATV after each flight to haul gear from the plane to the cabin. Inuit research assistants may also use the ATV for hunting. Combustible garbage will be burned in a SmartAsh incinerator – the ash and all non-combustibles (e.g., cans, jars, etc.) will be flown out for proper disposal in Iqaluit. Grey water from washing dishes and clothes is poured into a sump and buried at the end of the field season. The camp has a composting toilet.Our operation will offer socio-economic benefits to the area. We will again be hiring two or three Inuit assistants to participate in our field work, hopefully through the IFRA program. All of our groceries and some equipment where practical will be purchased in Iqaluit.Seabird ResearchThe science team will arrive in mid-June and depart the second week of August. We will use the same science procedures employed for the past 45 years. Observations will be made of adult murres incubating from concealed locations (blinds) along the cliffs. Defined areas of the colony will be counted daily to determine population trends, again without disturbing the birds.Future Arctic seas will have longer ice-free periods. We will establish novel genomic and physiological techniques to examine the resilience of Arctic seabirds to a less-icy future. Specifically, we will examine whether particular genes or blood chemistries are associated with the ability of thick-billed murres to cope with environmental change. We will use GPS-depth-camera-accelerometers, stomach temperature tags and satellite tags to track murres at sea in response to changing ice cover. We will measure energy expenditure with doubly-labelled water. We will also determine whether unmanned aerial vehicles can be used to census murres in the Canadian Arctic. As a major cause of biologist mortality in Canada is air/boat accidents, we propose that unmanned aerial vehicles can be used to safely record murre numbers. We will fly vehicles past at varying distances and heights to determine what height and distance can be used to accurately census murre numbers without disturbing the birds. We will measure fish populations using an uncrewed surface vehicle (USV) with hydroacoustics. Finally, chemical pollution is an important component of environmental change in the Arctic. We will measure pollution levels in various tissues from glaucous gulls and murres.

French: L'île Coats (Appatuurjuaq) est une importante colonie d'oiseaux marins au Nunavut. Nous proposons de mener des recherches sur les guillemots de Brünnich et les goélands bourgmestres nicheurs durant l'été (20 juin – 15 août). Les activités de recherche comprendront la capture, le baguage et l'observation d'oiseaux migrateurs, et impliqueront de 3 à 10 personnes.Activités généralesLe site est situé sur l'île Coats/Appatuurjuaq (62.94132N, -82.01722W). Le camp est ravitaillé par un Twin Otter sur roues tundra en juin. Le camp de base est composé de quatre petites cabanes. Ces structures reposent sur du granite entouré de végétation.De manière générale, les activités de travail et les installations de camping, ainsi que leur impact sur le terrain, sont similaires à ceux des années précédentes; l'impact sera donc encore une fois faible.Le carburant (essence, propane) sera entreposé près du camp, bien au-dessus de la ligne de marée haute, sur une falaise, dans de petits jerricans de 25 L et des bonbonnes de 20 lb. Ces matériaux seront placés sur une surface plane, avec une petite digue construite autour d'eux en cas de déversement. Tous les puisards seront situés à 30 m au-dessus de la ligne de marée haute, puis remblayés, surélevés et façonnés pour correspondre au paysage environnant avant de

quitter le camp. Les fiches signalétiques (FS) à jour seront conservées dans un endroit central (le bureau de la cabane) afin d'être accessibles à tout le personnel. Nous gardons une trousse d'urgence pour les déversements au camp et avons un plan d'intervention en cas de déversement, déjà soumis dans le cadre de demandes de permis antérieures.Nous utiliserons de l'essence pour faire fonctionner deux génératrices et le VTT, ainsi qu'environ 100 lb de propane pour alimenter la cuisinière. Nous nous rendrons au site et en repartirons en Twin Otter. Nous effectuerons environ cinq vols au cours de la saison pour mobiliser le site, assurer le ravitaillement et la rotation du personnel, puis démobiliser le site à la fin de la saison. Après chaque vol, nous utiliserons un VTT pour transporter le matériel de l'avion jusqu'aux cabanes. Les assistants de recherche inuits pourront également utiliser le VTT pour la chasse.Les déchets combustibles seront brûlés dans un incinérateur SmartAsh – les cendres et tous les déchets non combustibles (p. ex. canettes, bocaux, etc.) seront transportés par avion pour être éliminés adéquatement à Iqaluit. Les eaux grises provenant de la vaisselle et du lavage des vêtements seront versées dans un puisard et enterrées à la fin de la saison. Le camp est équipé d'une toilette à compost.Notre opération offrira des avantages socio-économiques à la région. Nous embaucherons de nouveau deux ou trois assistants inuits pour participer à nos travaux de terrain, idéalement par l'intermédiaire du programme IFRA. Tous nos aliments et une partie de notre équipement, lorsque possible, seront achetés à Iqaluit.Recherche sur les oiseaux marinsL'équipe scientifique arrivera à la mi-juin et repartira la deuxième semaine d'août. Nous utiliserons les mêmes procédures scientifiques que celles employées depuis 30 ans. Des observations seront effectuées sur les adultes incubant à partir d'emplacements dissimulés (affûts) le long des falaises. Des zones définies de la colonie seront comptées quotidiennement pour déterminer les tendances de population, encore une fois sans déranger les oiseaux.Les mers arctiques futures connaîtront des périodes sans glace plus longues. Nous établirons de nouvelles techniques génomiques et physiologiques pour examiner la résilience des oiseaux marins arctiques face à un avenir moins glacé. Plus précisément, nous examinerons si certains gènes ou paramètres sanguins sont associés à la capacité des guillemots de Brünnich à faire face aux changements environnementaux. Nous utiliserons des GPS-profondeur-caméras-accéléromètres, des capteurs de température stomacale et des balises satellites pour suivre les déplacements des guillemots en mer en réponse à la variation de la couverture de glace. Nous mesurerons la dépense énergétique à l'aide d'eau doublement marquée. Nous déterminerons également si des véhicules aériens sans pilote peuvent être utilisés pour recenser les guillemots dans l'Arctique canadien. Comme une cause majeure de mortalité chez les biologistes au Canada est liée aux accidents d'avion ou de bateau, nous proposons que les véhicules aériens sans pilote puissent être utilisés pour enregistrer les effectifs de guillemots en toute sécurité. Nous ferons voler ces appareils à différentes distances et hauteurs pour déterminer à quelle hauteur et distance il est possible de recenser les guillemots avec précision sans les déranger. Nous mesurerons les populations de poissons à l'aide d'un véhicule de surface sans équipage (USV) équipé d'un système hydroacoustique. Enfin, la pollution chimique est un élément important du changement environnemental dans l'Arctique. Nous mesurerons les niveaux de pollution dans divers tissus de goélands bourgmestres et de guillemots.

Inuktitut: ᐅᑭᐅᖅᑕᖅᑑᑉ ᑎᖕᒥᐊᖕᒋᑦ ᑕᕆᐅᕐᒥᐅᑕᐃᑦ ᐊᐅᔭᒃᑯᑦ ᓯᑯᖄᖕᕋᑎᓪᓗᒍ ᖃᓄᐃᓕᐅᖅᐸᖕᓂᖕᒋᑦ (2026-2028)ᐊᒃᐸᑑᕐᔪᐊᖅ ᐱᒻᒪᕆᐅᕆᔭᐅᖕᒪᑦ ᑎᖕᒥᐊᓄᑦ ᐊᒥᓱᓄᑦ ᓄᓇᕗᒻᒥ. ᐱᓕᕆᔪᒪᕗᒍᑦ ᖃᐅᔨᓴᐃᓗᑕ ᐃᕙᑎᓪᓗᒋᑦ ᐊᑉᐸᐃᑦ ᐊᒻᒪᓗ ᓇᐅᔭᐃᑦ ᐊᐅᔭᖕᒐᓂ (ᔫᓐ 20-ᒥᑦ ᐋᒍᓯ 13-ᒧᑦ). ᖃᐅᔾᓴᕐᓗᑎᒃ ᖃᓄᐃᓕᐅᕐᒪᖕᖠᑕ ᐃᓚᒋᔭᐅᔪᖅ ᒪᑦᑎᑦᑎᖃᑦᑕᖅᑐᑦ, ᓇᒡᒍᐊᕐᒥᒃᓯᖃᑦᑕᖅᑐᑦ, ᐊᒻᒪᓗ ᑕᑯᔭᖅᑐᖅᑕᐅᓗᑎᒃ ᑎᑭᐸᒃᑐᑦ ᑎᖕᒥᐊᑦ ᐊᒻᒪᓗ ᐱᓕᕆᖃᑕᐅᓗᑎᒃ 3-ᓂᑦ 10-ᓄᑦ ᐃᓄᖕᓂᒃ.ᖃᓄᑐᐃᓐᓇᖅ ᖃᓗᐃᓕᐅᕈᑕᐅᓂᐊᖅᑐᑦᐅᓇ ᐃᓂᖕᒐ ᑕᐃᑲᓃᓐᓂᐊᖅᑐᖅ ᐊᒃᐸᑑᕐᔪᐊᖅ (62.94132ᐅᐊᖕᓇᖕᒐ, -82.01722ᐱᓇᖕᓇᖕᒐ). ᑕᖕᒫᖅᓯᒪᕕᖕᒐᑦ ᒥᑭᔪᒥᒃ ᑎᖕᒥᓲᑦ ᓄᓇᑐᐃᓐᓇᒧᑦ ᒥᓲᖅ ᔫᓐᒥ. ᐅᓇ ᑭᓱᑐᐃᓐᓇᓄᑦ ᑕᖕᒫᖅᓯᒪᕕᒋᓂᐊᖅᑕᖕᒐᑦ ᒪᕐᕈᖕᓂᒃ ᐃᒡᓗᕋᓛᓕᒃ, ᐊᒻᒪᓗ 1 ᑐᐱᖅ ᓇᑉᐸᖅᑕᐅᓗᓂ ᓯᕐᓗᐊᕆᓂᐊᕋᑦᑎᒍᑦ ᐊᕐᕌᒍᑕᒫᑦ. ᐅᑯᐊ ᓇᑉᐸᖅᓯᒪᔪᑦ ᐊᕙᓗᔭᐅᓯᒪᔪᑦ ᐱᕈᖅᑐᓂᑦ.ᑕᐃᒪᐅᑎᓪᓗᒍ, ᐱᓕᕆᐊᕐᓭᖅ ᐊᒻᒪᓗ ᑕᒻᒫᕐᕕᐅᑉ ᐋᖅᑭᒃᑕᐅᓂᖕᒋᑦ ᐊᒻᒪᓗ ᖃᓄᐃᑦᑑᓂᖕᒋᑦ ᐱᕙᓪᓕᐊᔪᑦ ᓄᓇᒥ ᐊᔾᔨᒃᓴᐅᔪᑦ ᐅᕙᑦᑎᐊᕈ ᐱᓕᕆᖃᑦᑕᖅᑎᓪᓗᑕ ᐅᑭᐅᑦ ᖄᖕᒋᖅᓯᒪᓕᖅᑐᓂᒃ ᐊᒻᒪᓗ ᓇᓗᓇᓗᐊᙱᑦᑐᖅ ᐱᕙᓪᓕᐊᓯᒪᔪᑦ ᒥᑭᑦᑑᓂᐊᖅᑐᑦ. ᐅᖅᓱᐊᓗᒃ (ᒑᓴᓕᖅ, ᐳᓗᐱᓐ) ᑑᖅᓯᒪᓂᐊᖅᑐᖅ ᖃᓂᒋᔭᖕᒐᓂ ᑕᖕᒫᖅᓯᒪᕕᒋᔭᔪᑉ ᐅᖕᒐᓯᒡᓗᓂ ᐃᒪᕕᖕᒧᑦ ᑕᓖᓂ ᐃᓐᓈᕈᓂ, ᒥᑭᔪᖅ, 25ᓖᑕ ᐅᖅᓴᒃᓴᐅᑎᑦ ᐊᒻᒪᓗ 20 ᐸᐅᑦ ᖃᑦᑕᐅᔭᐃᑦ. ᐅᑯᐊ ᐱᕐᑯᑎᑦ ᐃᓂᖃᖅᑐᖅ ᑕᓖᓂ ᒪᓂᕋᐅᓂᖕᒐᓂ, ᒥᑭᔪᒥᒃ ᖃᓕᖅᓯᒪᔪᑦ ᐅᖅᓱᐊᓗᖕᒥ ᑭᕕᔪᖃᕐᓂᖅᐸᑦ. ᑕᒪᕐᒥᒃ ᐃᓂᖃᖅᑐᑦ 30ᒦᑕ ᐅᖕᒐᓯᒃᑎᕆᔪᖅ ᐃᒪᖕᒐᓂ, ᐊᒻᒪᓗ ᐃᓗᑦᑐᖅᑕᐅᓯᒪᔪᒥ, ᖁᕙᕆᐊᖅᓯᒪᓗᒍ, ᐊᒻᒪᓗ ᐊᔾᔨᕆᓕᖅᑎᓯᒪᓗᒍ ᐊᕙᓗᐊᓂ ᓄᓇᖕᒐᓂᒃ ᕿᒪᓚᐅᓐᖏᓂᖕᒋᑦᑎᓂ ᑕᖕᒫᖅᓯᒪᕆᔭᕗᑦ. ᒫᓐᓇ ᐅᓇ ᑎᖕᒥᐊᓂᑦ ᑎᑭᕕᐅᕙᒃᑐᑦ ᓴᐳᓂᐊᖅᑕᐅᔪᖅ ᓄᓇᖕᒐ ᕿᑎᐊᓅᓐᓂᐊᖅᑐᑦ ᐃᓂᖕᒐᓂ (ᐃᒡᓗᕋᓛᖃᕐᕕᒃ ᐊᒡᓚᒃᕕᐅᓗᓂ) ᑕᐃᒪᓗ ᐃᓯᖅᑕᐅᔫᓇᕐᓗᓂ ᑕᒪᐃᓐᓂᑦ ᓴᓇᔨᓂᒃ. ᑐᐊᕕᕐᓇᖅᑐᖃᕐᓂᖅᐸᑦ ᑯᕕᔪᖃᕐᓂᖅᐸᑦ ᐱᓯᒪᑦᑎᔪᒍᑦ ᑕᒻᒫᕐᕕᒻᒥ ᐸᕐᓇᐅᑎᓂᒃ ᐊᑐᖅᑕᐅᖃᑦᑕᖅᑐᖅ ᐅᕙᑦᑎᐊᕈ ᑐᒃᓯᖃᖅᓯᒪᑎᓪᓗᑕ ᑐᒃᓯᕋᐅᑎᓂᒃ.ᐊᑐᕐᓂᐊᖅᑐᒍᑦ ᒑᓯᒨᖅᑐᑦ ᒪᕿᕐ (2) ᔭᓄᓚᐃᑕ ᐊᒻᒪᓗ ᑎᓴᒪᓕᑦ, ᐊᒻᒪᓗ 100ᐸᐅᓐ ᐳᓪᓚᓕᒃ ᐅᖅᓱᒃᓴᖕᒐ ᐃᒐᐅᑉ. 6 ᖃᑦᑕᐃᔭᐃᑦ ᖁᓕᒨᓕᖕᒧᑦ ᐃᓂᑦᑎᓄᐊᖅᑕᐅᓂᐊᖅᑐᑦ ᔪᓚᐃᒥ ᐊᒻᒪᓗ ᐊᑐᖅᑕᐅᓗᓂ ᖁᓕᒨᓕᖕᓂᑦ ᑭᕕᒃᓯᖃᑦᑕᕐᓂᐊᕐᒪᑕ ᐱᖁᑎᓂᒃ ᖃᖕᒐᑕᓗᑎᒃ ᒥᑦᑕᕐᕕᖕᒥ ᖄᖕᒐᓂᒃ ᐃᓐᓈᕈᑦ ᐅᓪᓗᓄᑦ ᒪᕿᖕᓄᑦ (2). ᓇᓕᐊᑐᐃᓐᓇᖅ ᐊᑐᓐᖏᑦᑐᖅ ᐅᖅᓱᐊᓗᒃ

ᐅᑎᖅᑎᑕᐅᓂᐊᖅᑐᖅ ᐃᖃᓗᓐᓄᑦ. ᒪᕐᕈᓕᒃᑯᑦ ᖃᓐᓚᑕᓲᒃᑯᑦ ᐱᒋᐊᕐᓂᐊᓕᕈᑦᑕ ᑕᐅᕗᓐᓚᐅᓂᐊᖅᑐᒍᑦ ᐊᒻᒪ ᐱᔭᕇᕈᑦᑕ ᖃᓐᓚᑕᓲᒧᑦ ᐊᐃᔭᐅᓂᐊᕐᒥᔪᑦ. ᐱᒋᐊᓕᕌᕈᑦᑕ ᑎᓴᒪᓕᖓᓂᒃ ᐊᑐᓚᐅᑲᓐᓂᐊᖅᑐᒍᑦ ᐱᕐᑯᑎᕗᑦ ᖃᓐᓚᑕᓲᕐᒥᑦ ᐃᒡᓗᕋᓛᕐᒧᑦ ᐊᒡᔭᖅᑐᖅᑕᐅᓂᐊᕐᒪᑕ. ᐃᓄᐃᑦ ᐃᑲᔪᖅᑎᒋᓂᐊᖅᑕᕗᑦ ᐱᔪᒪᒍᑎᒃ ᑎᓴᒪᓕᖓᓂᒃ ᐊᑐᖃᑦᑕᕈᓇᕐᓂᐊᖅᑐᑦ ᐊᖑᓇᓱᒋᐊᕈᒪᒍᑎᒃ.ᐊᑦᑕᑯᐃᑦ ᐃᑭᑕᐅᓂᐊᖅᑐᑦ ᐸᐅᓕᐅᕈᑎᒥᒃ ᐊᑐᕐᓗᑎᒃ – ᐸᐅᖅ ᐊᒻᒪᓗ ᐊᓯᙱᑦ ᐊᑦᑕᑯᐃᑦ ᐅᑎᖅᑎᑕᐅᓂᐊᖅᑐᑦ ᑎᒻᒥᓲᒃᑯᑦ. ᓴᓗᒪᐃᑦᑐᖅ ᐃᒪᖅ ᐅᐊᓴᕐᓗᓂ ᓂᕆᑦᔪᑎᓂᒃ ᐊᒻᒪᓗ ᐊᓐᓄᕌᓂᒃ ᑯᕙᑕᐅᓲᖑᔪᖅ ᓴᐅᓯᐅᓂᑯᒧᑦ ᐊᒻᒪᓗ ᓴᐅᑕᐅᓪᓗᓂ ᐊᐅᓪᓚᕐᓂᐊᓕᖅᑎᓪᓗᒋᑦ. ᑕᒻᒫᕐᕕᒃ ᐊᓇᕐᕕᖃᖅᑐᖅ. ᐊᐅᓚᑕᕗᑦ ᑮᓇᐅᔭᓕᐅᕈᑕᐅᓂᐊᖅᑐᖅ ᓄᓇᒋᔭᐅᔪᒧᑦ. ᐃᖅᑲᓇᐃᔾᔭᖃᖅᑎᑦᑎᓂᐊᖅᑐᒍᑦ ᐃᓄᙵᒃ ᐃᑲᔪᕐᓗᓂ ᐱᓕᕆᐊᕆᓯᑦᑎᓐᓄᑦ, IFRA-ᑯᑦ ᑮᓇᐅᔾᔭᓂᒃ ᐃᑲᔪᖅᑕᐅᓗᑕ. ᓴᓕᒥᓐᓛᖅᑐᒥᒃ. ᓂᕿᓗᒃᑖᑦ ᐊᒻᒪᓗ ᐃᓚᙱᓐᓂᒃ ᐱᕐᑯᑎᓂᒃ ᓂᐅᕕᖅᑕᐅᓂᐊᖅᑐᑦ ᐃᖃᓗᓐᓂ. ᑕᕆᐅᑉ ᑎᙵᐊᙱᓐᓂᒃ ᖃᐅᔨᓴᕐᓂᖅ ᐅᑯᐊ ᖃᐅᔨᓴᖅᑏᑦ ᐱᓇᓱᐊᖃᑎᒌᒃᑐᑦ ᑎᑭᓐᓂᐊᖅᑐᑦ ᕿᑎᐊᓂ ᔩᓐ ᐊᒻᒪᓗ ᐊᐅᓚᕐᓗᑎᒃ ᐱᖃᑖᓂ ᐱᓇᓱᐊᕈᓯᐊᓂ ᐋᒍᓯ. ᐊᑐᕐᓂᐊᖅᑐᒍᑦ ᑖᒃᑯᓂᙶᑦᑕᐃᓐᓇᖅ ᖃᐅᔮᓴᐃᓂᒻᒪᕆᙵᓂᒃ ᐱᐅᓯᕆᕝᑕᑦᑎᓂᒃ ᐃᖅᑲᓇᐃᔭᖅᐸᒃᑕᑦᑎᓂᒃ ᑕᐃᒪᙶᓂᑦ 30 ᐅᑭᐅᑦ. ᑕᑯᔭᖅᑐᕐᓗᒋᑦ ᐃᓐᓇᐃᑦ ᐊᑉᐸᑦ ᐃᕙᕚᓕᐊᓕᖅᑎᓪᓗᒋᑦ ᐃᔾᔨᖅᓯᒪᔪᓂᑦ ᐃᓂᒥᙵ (ᑕᑯᒃᓴᐅᓐᖏᑦᑐᓂ) ᑕᒫᓐ ᐃᓐᓈᕈᕐᓂ. ᓇᓗᓇᐃᔭᑦᑎᐊᕐᓗᒋᑦ ᖃᓄᑲᐃᑐᓂᙱᑦ ᑎᒥᐊᑦ ᓈᓴᖃᑦᑕᕐᓗᒋᑦ ᖃᐅᑕᒫᑦ ᖃᓄᖅ ᐅᓄᖅᓯᕚᓕᐊᙳᐊᖕᒪᖔᑕ, ᓱᓕ ᐸᒃᕕᓂᐊᓐᖏᑕᕗᑦ ᑎᒥᐊᑦ. ᓯᕗᓂᒃᓴᑦᑎᓐᓂ ᐅᑭᐅᖅᑕᖅᑐᖅ ᓯᑯᖃᓐᖏᑯᑖᒃᐸᓪᓕᐊᓂᐊᖅᑐᖅ. ᐅᑭᐅᖅᑕᖅᑐᒥᐅᑦ ᑎᒥᐊᙱᑦ ᑕᕆᐅᕐᒥᐅᑕᐃᑦ ᖃᐅᔨᓴᕐᓂᐊᖅᑕᕗᑦ ᖃᓄᖅ ᐃᓕᖅᑭᒃᐸᓪᓕᐊᓂᐊᕐᒪᖔᙱᑦ ᓯᑯᖃᓐᖏᑯᑖᖃᑦᑕᕐᓂᐅᓂᐊᖅᑐᒧᑦ. ᐱᓗᐊᕐᓗᒍ, ᖃᐅᔨᓴᐃᔭᒪᔪᑦ ᐊᐅᙱᒧᑦ ᖃᓄᖅ ᐊᒃᐸᐃᑦ ᐃᓕᖅᑭᒃᐸᓪᓕᐊᓂᐊᕐᒪᖔᙱᑦ ᑕᒪᓐᓇ ᐊᕙᑎᕗᑦ ᐊᓯᔾᔨᖅᐸᓪᓕᐊᑎᓪᓗᒍ. ᓇᓗᓇᐃᖅᓯᓇᓱᙵᓂᐊᕐᒥᔪᑦ ᖃᓐᓚᑕᓲᑦ ᐃᓄᖃᙱᑦᑐᑦ ᐊᑐᖅᑕᐅᔫᓇᕐᓂᐊᕐᒪᖔᙱᑦ ᓈᓴᖅᑕᐅᑎᓪᓗᒋᑦ ᐊᒃᐸᐃᑦ ᑲᓇᑕᐅᑉ ᐅᑭᐅᖅᑕᖅᑐᙵᖃᑦᑕᖅᑐᑦ. ᐊᑐᕐᓂᐊᖅᑕᕗᑦ GPS-accelerometer-depth-satellite-stomach loggers / drones / doubly-labelled water ᖃᐅᔨᓇᓱᒡᓗᑕ ᖃᓄᖅ ᑎᒥᐊᑦ ᖃᓐᓚᑕᕙᙳᙵᑕ ᐳᐃᔾᔪᖅᐸᙳᙵᑕᓗ. ᑲᓇᑕᒥ ᖃᓐᓚᑕᓲᓄᑦ ᐅᒥᐊᕐᓄᓪᓗ ᐊᐳᖅᑕᐅᓪᓗᑎᒃ ᑐᕐᑯᔾᔭᑕᐅᓂᖅᐹᙳᖃᑦᑕᖅᑎᓪᓗᒍ, ᐃᓄᖃᓐᖏᑦᑐᒥᒃ ᖃᓐᓚᑕᓲᒥᒃ ᐊᑐᕈᒪᓂᐊᖅᑐᒍᑦ ᓈᓴᖅᑕᐅᑦᑎᐊᕐᓂᐊᕐᒪᑕ ᐊᒃᐸᐃᑦ ᐸᕝᕕᓴᒃᑕᐅᓗᐊᓐᖏᓪᓗᑎᒃ. ᖃᓐᓚᑕᓲᖅ ᐃᓄᖃᓐᖏᑦᑐᖅ ᐊᑐᓕᕈᑦᑎᒍᑦ ᖃᐅᔨᓇᓱᙵᓂᐊᖅᑐᒍᑦ ᖃᓄᖅ ᖁᑦᑎᒃᑎᒋᒃᐸᑦ ᖃᓂᓈᖅᐸᓪᓗᐋᓃᑦ ᓈᓴᐃᑦᑎᐊᕈᓇᕐᓂᖅᐹᙳᓂᐊᕐᒪᖔᑦᑕ ᐊᒃᐸᓂᒃ. ᑭᙳᓪᓕᕐᒥᒃ, ᐅᑭᐅᖅᑕᖅᑐᒥ ᐊᕙᑎᕗᑦ ᐊᓯᔾᔨᖅᐸᓪᓕᐊᑎᓪᓗᒍ ᖃᓄᑎᒋ ᓱᕈᕐᓇᐅᑎᖃᕐᒪᖔᙶ ᐊᕙᑎᕗᑦ ᖃᐅᔨᓇᓱᙵᓂᐊᕐᒥᔭᕗᑦ. ᓇᐅᔭᖅᐸᓂᑦ ᐊᒃᐸᓂᓪᓗ ᖃᐅᔨᓴᕐᓂᐊᖅᑐᒍᑦ ᖃᓄᑎᒋ ᓱᕈᕐᓇᖅᑐᖃᕐᒪᖔᙱᑦ ᑎᒥᙱᓐᓂ. ᐊᑐᕐᓂᐊᖅᑕᕗᑦ unoccupied surface vehicle ᖃᐅᔨᓇᓱᒡᓗᑕ ᖃᓄᖅ ᐃᖃᓗᐃᑦ ᐳᐃᕙᙵᕐᒪᖔᑕ.

Personnel

Personnel on site: 8
Days on site: 50
Total Person days: 400
Operations Phase: from 2019-06-10 to 2029-08-15

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
USV area	Scientific/International Polar Year Research	Marine	None known.	None known.	Coral Harbour
Colony	Scientific/International Polar Year Research	Inuit Owned Surface Lands	Scientific research since 1981	Not known.	Coral Harbour

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Coral Harbour	Noah Nakoolak	Aiviit HTO	2026-03-05

Authorizations

Indicate the areas in which the project is located:

Kivalliq
South Baffin

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Canadian Wildlife Service	Migratory birds & bird banding permit (Pending new authorizations)	Active	2024-06-27	2026-12-31
Government of Nunavut, Department of Environment	Wildlife permit (Pending new authorizations)	Active	2024-06-01	2026-08-31
Nunavut Water Board	Permit or exemption	Applied, Decision Pending		
Kivalliq Inuit Association	Permit	Applied, Decision Pending		

Project transportation types

Transportation Type	Proposed Use	Length of Use
Air	Twin Otter to field camp	
Water	Uncrewed surface vehicle (no people on it)	
Land	ATV to carry gear	

Project accomodation types

Permanent Camp

Material Use

Equipment to be used (including drills, pumps, aircraft, vehicles, etc)

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Unoccupied surface vehicle	2	0.5 x 2 m	Measure fish abundance around the seabird colony
GPS-depth-accelerometer (Technosmart AxyTrek)	30	0.5 cm X 2 cm X 2 cm	Track bird locations
Generator	1	28x27x41 inches	To charge equipment when solar system not sufficient
Drone (DJI Mavic 3)	1	0.5 m X 0.5 m X 0.25 m	Count birds
Camera loggers (Little Leonardo)	20	3 cm X 2 cm X 0.5 cm	Record behaviour of birds
Camera trap (Reconyx)	15	10 cm X 10 cm X 10 cm	Record behaviour of birds
ATV (Honda)	1	2 m X 2 m X 2 m	To carry gear up to camp
Depth-geolocators (Migrate technology)	40	0.5 cm X 0.5 cm X 0.5 cm	Record year-round behaviour of hte birds
Stomach logger (Anipill)	20	0.5 cm X 0.5 cm X 0.5 cm	Measure stomach temperature of bird

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Gasoline	fuel	5	20	100	Liters	To power ATV and generator
Propane	fuel	5	20	100	Liters	Camp stove

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0	Snow melt	Next to camp

Waste

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Scientific/International Polar Year Research	Combustible wastes	100 lbs	Incinerated at camp.	Ashes carried out.
Scientific/International Polar Year Research	Greywater	1 m3	Grey water will be disposed of in a sump near camp, away from water sources and will be backfilled to match the slope of the land.	None.
Scientific/International Polar Year Research	Non-Combustible wastes	20 lbs	Flown out at the end of each season and placed in landfill.	None.

Environmental Impacts:

This research will identify key habitats for seabirds, including those within proposed marine protected areas. Thus, it should have a positive impact on those areas, as well as a positive impact on the birds themselves by allowing governments to protect the species. There will be some flushing of individuals due to our activities, including drone and capture, but we do not believe there will be any impact on reproductive success and survival, and any impacts will be mitigated by the scientific knowledge gained.

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 of Existing Environment: Physical Environment

The Coats Island murre camp is surrounded by majestic cliffs that drop directly into the island.

Description of Existing Environment: Biological Environment

There is a large murre colony at this site.

Description of Existing Environment: Socio-economic Environment

Caribou-hunting occurs at Coats island, but not near our camp.

Miscellaneous Project Information

Identification of Impacts and Proposed Mitigation Measures

Impacts: Counting and tracking the birds may lead to some disturbance to the colony. Mitigation: We will minimize our time at or near the colony.

Cumulative Effects

No cumulative effects should occur.

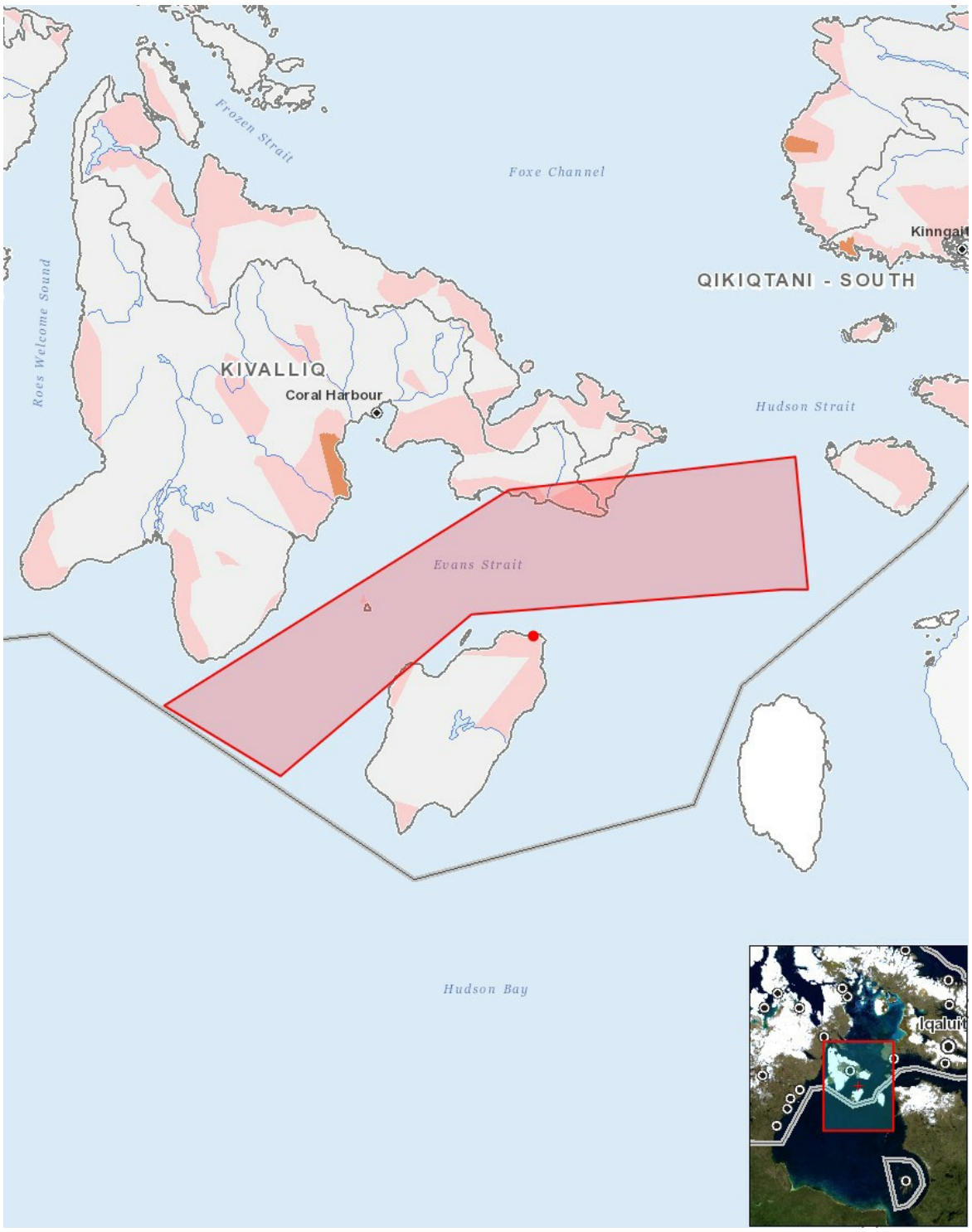
Impacts

Identification of Environmental Impacts

	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																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-
Operation																									
Scientific/International Polar Year Research		-	-	-	-	-	-	-	-	-	-	-	-		M	-	P	-	P		-	P	-	-	-
Decommissioning																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

Project Location



List of Project Geometries

1	polygon	USV area
2	point	Colony