NIRB Application for Screening #125304

Migratory and breeding ecology of birds facing global environmental change.

Application Type:	New
Project Type:	Scientific Research
Application Date:	3/28/2018 3:17:34 PM
Period of operation:	from 0001-01-01 to 0001-01-01
Proposed Authorization:	from 0001-01-01 to 0001-01-01
Project Proponent:	Jean-François Lamarre Polar Knowledge Canada 1 Uvajuq road, p.o. box 2150 Cambridge Bay Nunavut X0B0C0 Canada Phone Number:: 867-983-4935, Fax Number:: 867-983-3644

DETAILS

Non-technical project proposal description

English: Project Name: Migratory and breeding ecology of birds facing global environmental change.Plain language summaryAs many migratory animals are currently suffering global declines, their conservation requires an understanding of the space they use year-round. Timing and success of reproduction can be linked to events happening previously thousands of kilometers away in areas that are heavily impacted by human development. Our objective is to monitor the reproduction and the migration of Arctic-nesting migratory birds (predator and preys, nesting habitats, breeding densities, population trends, and migration requirement). The data is to be used for management, monitoring the state of the environment, and for species conservation efforts and will be made available for education and research for public and scientific use. The project is led by Jean-François Lamarre (Science officer at Polar Knowledge Canada). Trends in Arctic-nesting migratory birds breeding ecologyWe will look at the long-term variation in the reproduction of bird and their predators and prey in the Ikaluktuutiak (Greiner) Lake watershed. Invertebrate:Using pitfall traps with a small vertical screen we will sample invertebrates regularly to describe the prey availability for insectivorous birds. Regional variation in arthropod diversity and abundance will also be assessed with up to 20 Malaise traps that will be deployed for extended periods.Small mammals:With the support of experts from the Canadian Museum of Nature, we will develop a monitoring program on small mammals (mostly lemmings). Lemming are a key species of the arctic tundra and their variation through time impact predator's reproduction success and productivity. Lemmings will be trapped and released after receiving a tag for later identification upon recapture. This causes low to no harm to animals. Some lemmings (up to 60) will be collected through snap-trapping for the Canadian Museum of Nature's collections.ShorebirdsData collected will include location, abundance sex, age (adult or juvenile), and status (breeding or not breeding locally). Data collected will be pooled with other sites in the Arctic. Birds will not be harassed during these observations. To document the spatial and annual variation in predation risk, we will use artificial shorebird nests. Shorebird nest will be opportunistically found and marked with small sticks to ease monitoring. Some nest (up to 20 per species) will be equipped with temperature probes or with motion triggered cameras for remote monitoring. Small probes nor cameras are elevating predation risk. Upon nest detection, eggs will be floated to assess timing of initiation and measured (weight, width and length) to define adult investment in clutch. All manipulations will be made with gloves to avoid leaving human scent behind that could induce predation. Predator monitoringAvian predator nests (Hawk, Falcon, Owl, Jaeger, Raven, Gull, Loon) may be found, described and monitored. Additionally, following previous field work in Elu Inlet and Melville Sound in the early 1990, many avian predators were observed nesting and were mapped. We will revisit some areas showing former use by avian predators to look at consistency of species usage.If we find fox dens we will map and monitor them to count cubs. Some dens may be equipped with motion triggered cameras. We will also collect some fresh fox scat (20 to 50 samples) to look at diet. Herbivore abundanceWe will use feces transects to obtain an estimate of herbivores abundance. We will be considering 5 species group: geese, hares, ptarmigan, caribou, muskox. As snow goose are considered overabundant and thus have strong impact on the tundra ecosystem, we will visit 2 colonies close to Cambridge Bay (the Anderson bay and Icebreaker channel areas). We plan on taking aerial high-resolution pictures with an helicopter to be able to later count snow geese.Tracking migration path of migratory speciesWe will study the path of migratory birds across their range with methods such as GPS tracking. The American Golden-Plover (pluvialis dominica) and the Pectoral Sandpiper (Calidris Melanotos) are currently targeted by this aspect of our monitoring program.Adults will be trapped on the nest. We will band birds to identify individual from afar. Basic measurements and samples (blood, feathers, feces) will be taken. Up to 15 American Golden plovers will be tagged with small satellite devices. Nests will be monitored to determine hatching success. No mortality is expected but, if this would happen, the birds will be collected for tissue sampling. We will look for key areas used by species, define inter-population mixing, and eventually identify critical ecosystem components in those areas.

French: No document attached as this project takes place in the Kitikmeot region.

Inuktitut: No document attached as this project takes place in the Kitikmeot region.

Inuinnaqtun: Havaap Atia: Tikitpaktut ivayulu nunagiyait tikmijat atuqpagait hilaqyuami avatauyuq aalaguqpalianiganit Kagiqhinatiaqtumik uqauhiq naitumik Amigaitut tikitpaktut uumayut taja naglikhaaqpaktilugit hilaqyuap ihuiliniganit, munariyauyaagani pijutauyuq qauyimayaagani nunat atuqpagait ukiuraaluk. Pigiaqnigit nakuutiaqnigilu piaraqaqnigit ilagiyaulaaqtuq hulijutinik hivuani amihuni kilaamitani ugahikniqaqtunik nunani akhuraaluk aktuqtauhimayut inuit pivaliajutainit. Pijutigiyaqut amiriyaagani piaraniktiqnigit tikmijuhiilu Ukiuqtaqtumi ivavaktut tikitpaktut tikmijat (niqikhaqhiuqnigit agunahuagailu niqikhaitik, ivaviuyut nunaat, nuliaqnigit qanuraaluk, amigainiginut pitquhiit, tikmiyaamiknilu aturiaqaqtainik). Naunaipkutit atuqtauyukhat munarijutini, amirinigagut qanuriniganik avatauyuup inuit naunaiyautinilu atuqtukhanik. Havaaq hivuliqhuqtauyuq Jean-François Lamarre-mit (Naunaiyautini atanguyaq Ukiuqtaqtumi Qauyimayauyunik Kanatami). 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Uvluq naniyaukpat, maniit puuktalaaqtitauniaqut naunairiagani maniuliqniginik naunaiyaqtaulutiklu (uqumainiginik, hilikniginik, takiniginiklu) naunairiagani iniqniuyut munariyautiaqniganik maniit. Tamaini hulijutauyuni pualuqaqpakniaqut inukhuuknilaqigitaagani ipiraijutaulaaqmat maniknik.Niqainaqtuqtut amiriyaunigit Tikmijat niqainaqtuqtut uvluit (Kalaat, Kilgaviit, Uukpiit, Ihugait, Tulukat, Nauyat, Qaqhaulu) naniyaulaaqtut, qanuriniginik uqautaulutik amiriyaulutiklu. Ilagiyaani, kiguani nunami havaanik Elu Inlet-mi Melville Sound-milu atulihaliqtilugit 1990-ukiut, amigaitut niqainaqtuqataqtut tikmijat takuyauyut uvluqaqtut nunauyamilu naunaiyaqtauvlutik. Takuyaqtufaaqniaqtavut ilagin nunat atuqtauhimayut niqainaqtuqpaktunit tikmijanit naunairiagani atuqtauqataqniginik ukua.Nanihiguupta tiriraniat hitainik nunauyami naunaiyaqniaqavut amirilugilu kititiyaaptikni ivagiyainik. Ilagit hitit piqaqniarunaqhivut igutaaqtuqaraagat piksaliutinik. Katitiriniaqtugulu tiriganiat anahaaqtainik (20-nit 50-nut naunaiyagakhat) naunairiagani niqait.Nautaiqtuinaqtunik amigainigit Atuqniaqtugut anainik qanuriniginik piyaaptikni amigainiginik nautiaqtuinaqtunik amigainiginik. Ihumaginiaqtavut talimat umayut: ulluut, ukaliit, aqilrit, tuktuut, umikmailu. Kaguut ihumagiyaukmata amigaituuniginik akhuraaluklu aktuqniqaqmata nunainaqmi nauhimayunik, takuyaqtuiniaqtugut malruuknik kaguqaqtunik qanituani Iqaluktuutiap (Iqalivikmi Hikuliqutilu kihaqhimaviini nunani). Qulvanilu takuukhautiaqtunik piksaliurumayugut halikaptakut kiguani kititiyaaptikni kagunik. Naunaiyaqniginik aulaniginik tikitpaktut umayut Ilituqhaqniaqtavut tikmijuhiit tikitpaktut tikmijat nunagiyamikni atuqlugit ulamniriipkutit (GPS) naunaiyautinik. Tulinuit Hikyarialu taja ihumagiyauyut amirijutikhanik havaami.Iniqniuyut naniriaqtugauniaqtut uvluini. Mikilraqmiutiqniaqtavut tikmijat ilitariyauyaagani ugahiktuanit. Agitilaagit naunaiyagakhaniklu (auginik, huluinik, anainiklu) piyauniaqtut. 15-nik Tuliknik naunaipkuhiqtauniaqut mikiyunik hilainakut ihuaqutinik aulaniginut. Uvluit amiriyauniaqut naunairiagani tiringuaguuqpaliayut. Tuquyuqalimaitunaqhiyuq kihiani, taimailiyuqaqat, tikmijat katitigauniaqut niqainailu ilituqhagaulutik. Qiniqniaqtugut atuqtauluqtunik nunanik tikmijanit, uqatiaqlugit avanmut atautimuukpalianiginik, kiguani naunairiagani ihumaluknaqnigit nunami hunaqaqniginik ukunani nunani.

Personnel

Personnel on site: 5
Days on site: 40
Total Person days: 200
Operations Phase: from 2018-05-14 to 2018-08-31

Activities

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
2018_Lamarre_temporary_camp	Scientific/International Polar Year Research	Crown	N/A	N/A	N/A
2018_Avian_predator_surveys	Scientific/International Polar Year Research	Crown	N/A	N/A	N/A
2018_Arthropod_traps	Scientific/International Polar Year Research	Crown	N/A	N/A	N/A
2018_Icebreaker Channel goose colony survey	Scientific/International Polar Year Research	Crown	N/A	N/A	N/A
2018_Anderson bay goose colony survey	Scientific/International Polar Year Research	Inuit Owned Surface Lands	N/A	N/A	N/A

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Information is not available			

Authorizations

Indicate the areas in which the project is located

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Canadian Wildlife Service	CWS scientific permit	Not Yet Applied		
Nunavut Research Institute	Wildlife research permit	Not Yet Applied		
Nunavut Water Board	NWB authorization; for activities using less that 50 m3 water per day	Not Yet Applied		

Project transportation types

Transportation Type	Quantity	Proposed Use	Length of Use
Air	0	Helicopter bell 2016	
Land	0	Snowmobile, ATV and foot	

Project accomodation types

Temporary Camp

Material Use

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

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Research - Motion triggered cameras	20	5-1/2"H x 4-1/2"W x 3" D	Monitoring of wildlife (nest predators or dens) and habitat. Most equipment will be installed for a short period of time and few may be installed more permanently to record habitat variation through the year. They will be frequently visited (minimum once a month.
Research - Temperature probes for nests.	60	2"H X 2"W X 2"D	Monitoring of bird nest temperature. Logger is few feet away from nest and a small cable leads to the probes in the nest.Probes are not affecting predation rate. They will help us know how steadily the birds incubate and if the nest hatch.
Research - Trapping equipment	175	see in proposed use	Up to 9 small traps for invertebrate (15"H X 15"W X 3"D) - Duration of use is 3 months. Traps will be revisited each 2-3 days.Up to 20 larger traps for invertebrate (6.5'H X 5'W X 5'D) - deployed for extended periods (two to eight weeks)Up to 2 bird traps (Max 6' diameter, flat) - Traps will be monitored at all times (capture time generally less than one hour)Up to 144 lemming traps. (15"H X 15"W X 3"D) - Duration of use is 2 weeks. Traps will be revisited frequently (Twice a day).

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Aviation fuel	fuel	0	0	0	Liters	Helicopter use will require fuel but as the length of travel planed is small (under 500 km) we do require fuel caches and helicopter will be based solely at Cambridge Bay airport.
Gasoline	fuel	2	20	40	Liters	ATV, Snowmobile and Generator run on unleaded gasoline and a small quantity will be stored at camp in jerry cans on top of a spill containment tray with absorbent. Up to four 20L jerry can will be stored on site

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
1	20 L Jugs carried by foot.	Nearby camp.

Waste

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Scientific/International Polar Year Research	Greywater	20 L per day maximum	Grey water (coming from dishwashing) will be filtered to remove all particules bigger than 2mm diameter. Water will be drained in a hole in the ground away from water bodies. Hole will be away from camp and covered to avoid attracting wildlife to it. Biodegradable soap will be used. Particules filtered will be disposed in the trash and stored in bear proof containers.	N/A
Scientific/International Polar Year Research	Sewage (human waste)	Up to 1 kg per day (for 5 persons at camp).	Human waste will be collected at camp and brought back to Cambridge for appropriate disposal.	Containers will be sealed when not in use to avoid attracting wildlife.

Environmental Impacts:

A small temporary camp setting will be used. This camp will hold 1 cooking tent and up to 5 personal tents. Camp locations will change each 5 days. We will prefer barren ground/sandy area to reduce disturbance to the tundra at a minimum and will avoid wetland areas. Fuel will be stored on a spill containment tray and absorbent will be readily accessible to deal effectively with any fuel spill. Bear detectors and noise deterrent will be deployed during the whole duration of the camp. All food will be stored in tight containers to avoid smell and all trash will be collected in bear proof containers and brought back to Cambridge Bay. Low to no impact on the environment is expected.

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

Description of Existing Environment: Biological Environment

Description of Existing Environment: Socio-economic Environment

Miscellaneous Project Information

Identification of Impacts and Proposed Mitigation Measures

Cumulative Effects

Impacts

Identification of Environmental Impacts

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