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NIRB Application for Screening #125084

Shorebird Research - Prince Charles Island

Application Type:	New
Project Type:	Research
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Period of Operation:	From 2017-06-20 to 2019-12-31
Proposed Authorization:	From 2017-06-01 to 2019-12-31
Project proponent:	Nikolas Clyde Environment Canada 1125 Colonel By Drive Ottawa Ontario K1S 5B6 Canada Tel: 6139909746, fax:

DETAILS

Non-technical project proposal description

English: 2017 Shorebird Research Camp on Prince Charles Island The research camp is located on a gravel ridge on the west side of Prince Charles Island (N 68.179943, W 76.728055) and will be accessed via twin otter aircraft with tundra tires which will land on a nearby gravel esker. The crew (up to 5 people) will use an ATV to shuttle gear to the camp which consists of 1 cabin and 2-3 tents. Other than this ATV use will be kept to a minimum to avoid damage to the environment. Small gas generators will power the laptops and VHF radios and recharge any batteries required. The research team will spend most of the time walking on the tundra searching for shorebird nests, and will use the camp for cooking, washing and sleeping. Water use is generally restricted to personal/camping use – cooking, drinking and washing. Water will be collected from a nearby stream and hauled to camp using buckets. Grey water from washing dishes and sewage will be disposed of in gravel sumps >100m from flowing water and buried at the end of the field season. All other garbage and waste will be either incinerated on site (in our portable incinerator) or flown out of camp at the end of the season. We have an emergency spill kit in camp and will store our fuel in secure containers away from any body of water or sensitive area. THE RESEARCH Shorebird populations in arctic Canada are thought to be declining, but the reason remains unclear. In 1997 the Canadian Wildlife Service initiated a shorebird monitoring program at East Bay to investigate shorebird ecology and address questions related to the potential cause of declines. In recent years, the focus has extended to studies of how geese might be affecting shorebirds and tundra habitats. Populations of Snow Geese continue to expand and there is an increasing interest in quantifying the mechanisms and magnitude of the effects of geese on other birds. OBJECTIVES Shorebird Demographics The main objectives of our research on Shorebirds are: 1) identify the habitat and biological factors that influence reproductive success of shorebirds in the Canadian Arctic, 2) identify the environmental factors that result in annual fluctuations in reproductive output and population size (e.g. weather, timing of snow melt, variation in predation), 3) link these findings to ongoing shorebird surveys during breeding and migration, and 4) evaluate the hypothesis that some shorebird population declines may be resulting from declines in reproductive success. METHODS Marking of Birds Shorebirds and terns will be trapped on their nests, weighed and measured, and then banded with a metal band, a coded white flag for individual identification in shorebirds and colour bands for non-shorebirds. Sampling of Birds We will collect blood samples from a subsample of the captured shorebirds. We will analyze these samples to measure exposure to mercury and other contaminants, which will be compared to other sites across the North American Arctic, as well as to assess diet through stable isotope analysis. We will also collect feathers to measure stable isotope signatures of the wintering grounds as well as to determine exposure to contaminants in these areas. Stable isotope signatures from the feathers will indicate where these birds are overwintering and for birds with geolocator data (see below), will contribute to the development of a map of wintering locations vs. isotopic signatures for use in other studies. Tracking of Birds We will deploy up to 50 lotek nanotags on shorebirds of various species to track their timing

of departure from the breeding grounds and their subsequent migration behaviour. These small tags (0.67g) fall off the birds after a period of several months and offer the ability to very accurately track the movements and behaviour of birds when they are in the vicinity of receiver stations. These stations are now deployed at hundreds of locations in Eastern North America, including many key stopover sites for shorebirds. Timing of departure data are being used to test whether habitat damage from snow geese adversely affects the breeding ecology of shorebirds. Data from elsewhere in the receiver array will be used to understand stopover behaviour of shorebirds. This information is, in turn, vital to make sense of the counts of migrant shorebirds which form the basis of long-term population monitoring for these species. We will also deploy up to 20 small geolocators on Arctic Terns if time permits. These small devices are attached to the leg of the bird and are used all over the world as an accepted way to track medium sized birds. Seabird Ecology We will monitor Sabine's and Herring Gulls and Arctic Terns to detect changes in their breeding ecology over time. The gulls and terns are important components of the avian community because many shorebirds nest in close proximity to these territorial seabirds to gain protection from predators. Snow Gee

French: See description in English or Inuktitut. French translation can be provided if needed.

Inuktitut: 2017 ᑎᖕᒥᐊᕐᓂᒃ ᓯᒡᔭᒦᑉᐸᒃᑐᓂᒃ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ ᑕᖕᒫᖅᑕᕐᕕᒋᔭᐅᔪᖅ ᐳᒃᑭᑦᑐᔮᖅ ᕿᑭᖅᑕᕈᓗᖕᒥ ᖃᐅᔨᓴᖅᑎᓪᓗᑕ ᑕᖕᒫᕐᕕᒋᓛᖅᑕᕗᑦ ᑐᐊᐸᐅᔪᒥᒃ ᑎᓯᐊᕐᒦᑦᑐᖅ ᐳᒃᑭᑦᑐᔮᖅ ᕿᑭᖅᑕᕈᓘᑉ ᐱᓇᖕᓇᖅᐸᓯᐊᓂ (ᐅ 68.179943, ᐱ 76.728055) ᐅᐸᒃᑕᐅᓛᖅᖢᓂᓗ ᒪᕐᕈᓕᒃᑯᑦ ᖃᖓᑕᔩᒃᑯᑦ ᐊᒃᓴᓗᐊᓕᖕᒥᑦ ᓄᓇᓯᐅᑎᓂᒃ ᒥᓛᖅᖢᓂ ᖃᓂᑦᑐᒥ ᑐᐊᐸᖕᒥᒃ ᕿᒥᐊᕐᔪᖕᒥ. ᐱᓕᕆᖃᑎᒌᒃᑐᑦ (5ᖑᔪᓐᓇᖅᖢᑎᒃ) ᑎᓴᒪᓕᖕᒥᒃ ᐊᑐᓛᖅᑐᑦ ᐊᒡᔭᖅᑐᐃᓗᑎᒃ ᐱᖁᑎᓂᒃ ᑕᖕᒫᖅᑕᕐᕕᒋᓛᖅᑕᒥᓄᑦ ᐊᑕᐅᓯᕐᒥᒃ ᐃᒡᓗᕋᓛᖅᑕᓛᖅᖢᑎᒃ 2-3ᖑᓗᑎᓪᓗ ᑐᐲᑦ. ᑖᔅᓯᒪ ᐊᓯᐊᒍᑦ ᑐᓴᒪᓕᓂᒃ ᐊᑐᖅᑕᐅᑦᑕᐃᓕᒪᓇᓯᓛᖅᑐᑦ ᓯᕋᒃᑕᓇᑦᑕᐃᓕᓪᓗᑎᒃ ᐊᕙᑎᒥᒃ. ᒑᓴᓕᕐᒥᒃ ᐊᑐᖅᑐᑦ ᔭᓄᓚᐅᑐᕋᓛᑦ ᐆᒻᒪᖅᑯᑎᖃᖅᑎᑦᑎᓛᖅᑐᑦ ᖃᓇᓴᐅᔭᕋᓛᕐᓂᒃ VHFᓂᓪᓗ ᐆᕚᓂᒃ ᐹᑕᓕᓂᓪᓗ ᐆᒻᒪᖅᑯᑎᖃᖅᑎᑕᐅᒃᑲᓐᓂᕆᐊᖃᖅᐸᑕ. ᖃᐅᔨᓴᖅᑐᑦ ᐱᓗᐊᖅᑐᒥᒃ ᓄᓇᒥ ᐱᓯᖃᑦᑕᓛᖅᑐᑦ ᕿᓂᕐᓗᑎᒃ ᑎᖕᒥᐊᑦ ᓯᒡᔭᒦᑉᐸᒃᑐᑦ ᐃᕙᕝᕕᖏᓐᓂᒃ, ᐊᑐᖃᑦᑕᓛᖅᖢᓂᐅᓪᓗ ᑕᖕᒫᖅᑕᕐᕕᒋᔭᖓ ᐃᒐᓂᕐᒧᑦ, ᐃᕐᒥᖕᓂᕐᒧᑦ ᐊᒻᒪᓗ ᓯᓂᖕᓂᕐᒧᑦ. ᐃᒪᖅ ᐊᑐᖅᑕᐅᔪᑦ ᑭᓪᓕᖃᖅᑐᑦ ᐃᖕᒥᒧᑦ/ᐊᐅᓪᓛᖅᓯᒪᓂᕐᒧᑦ – ᐃᒐᓂᕐᒧᑦ, ᐃᒥᕐᓂᕐᒧᑦ ᐃᕐᒥᖕᓂᕐᒧᓪᓗ. ᐃᒪᖅᑕᖃᑦᑕᓛᖅᑐᑦ ᖃᓂᑦᑐᒥᑦ ᑰᕋᓛᕐᒥᑦ ᐃᒥᖅᑕᖃᑦᑕᓛᖅᖢᑎᓪᓗ ᑕᖕᒫᖅᑕᕐᕕᒋᔭᖏᓐᓄᑦ ᐊᑐᕐᓗᑎᒃ ᖃᑦᑕᕐᓂᒃ. ᐃᒪᕐᓗᑎᒃ ᓂᕐᕆᓯᓕᕆᔭᐅᔪᓂᑦ ᑭᓈᓗᖕᓂᓪᓗ ᑯᕕᔭᐅᓛᖅᑐᑦ ᑐᐊᐸᖕᒥ ᐃᒪᕐᓗᖃᐅᓯᕝᕕᓕᐊᖑᔪᓄᑦ >100ᒦᑕᓂᒃ ᐅᖓᓯᒃᑎᒥᓂᖃᕐᓗᓂ ᑯᕕᕙᓪᓕᐊᔪᒥᑦ ᐃᒪᕐᒥᑦ ᓴᐅᔭᐅᓛᖅᖢᓂᓗ ᖃᐅᔨᓵᓂᒃᐸᑕ. ᐊᓯᓗᒃᑖᑦ ᐊᒃᑕᑯᑦ ᐊᑐᙱᑦᑐᓪᓗ ᐆᑕᐅᓛᖅᑐᑦ ᑕᒃᐱᑲᓂ (ᓅᑕᐅᔪᓐᓇᖅᑐᒥ ᐆᓯᕝᕕᒃᑎᓐᓂ) ᐅᕝᕙᓘᓐᓃᑦ ᖃᐅᔨᓵᓂᒃᐸᑕ ᐊᐅᓪᓚᖅᑎᑕᐅᓗᑎᒃ ᖃᖓᑕᔩᒃᑯᑦ. ᑯᕕᔭᖃᕐᓂᖅᐸᑦ ᑐᐊᕕᕐᓇᖅᑐᒃᑯᑦ ᓴᓗᒻᒪᖅᓴᐃᔪᑎᖃᓛᖅᑐᒍᑦ ᑕᖕᒫᖅᑕᕐᕕᒋᔭᑦᑎᓐᓂ ᑐᖅᑯᐃᓛᖅᖢᑎᒍᓪᓗ ᐅᖅᓱᐊᓗᒃᐳᑦ ᑯᕕᔅᔭᐃᖅᑎᑕᐅᓯᒪᔪᓂᒃ ᖃᓂᒋᔭᖃᖅᑕᐅᙱᓪᓗᑎᓪᓗ ᐃᒪᐅᔪᓄᑦ ᐃᓂᒋᔭᓇᐊᖃᙱᑕᖏᓐᓄᓪᓗ. ᖃᐅᔨᓴᕐᓂᖅ ᓯᒡᔭᐅᑉ ᖁᐸᓄᐊᖕᒥ ᐊᒥᓲᓂᖏᑦ ᑲᓇᑕᐅᑉ ᐅᑭᐅᖅᑕᖅᑐᖓᓂ ᐃᓯᒪᒋᔭᐅᔪᑦ

ᓄᖑᕙᓪᓕᐊᓂᖏᓐᓄᑦ, ᑭᓯᐊᓂ ᓲᖑᓂᖓ ᖃᐅᔨᒪᔭᐅᙱᑦᑐᖅ. 1997-ᖑᑎᓪᒍ ᑲᓇᑕᐅᑉ ᓂᕐᔪᑎᓕᕆᔩᑦ ᐱᔨᑦᑎᔨᖏᑦ ᐱᖁᔨᔨᓚᐅᖅᑐᑦ ᖃᐅᔨᓴᕐᓗᑎᒃ ᓯᔾᔭᒥ ᖁᐸᓄᐊᖏᓐᓂᒃ ᖃᖅᓴᐅᒎᒥ ᖃᐅᔨᓴᕐᓗᑎᒃ ᖁᐸᓄᐊᓂᒃ ᓯᔾᔭᒦᑦᑐᓂᒃ ᑲᑎᙵᔪᓂᒃ ᐊᒻᒪᓗ ᐊᐱᖅᓱᕐᓗᑎᒃ ᐃᓚᒌᒃᑐᓂᒃ ᓄᖑᕙᓪᓕᐊᔪᓂᒃ. ᐅᕙᑦᑎᐊᕈ ᐅᑭᐅᖑᔪᐃᑦ, ᑕᐅᑦᑐᖃᓚᐅᖅᑐᑦ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ ᖃᓄᖅ ᓂᕐᔫᑦ ᐱᕙᓪᓕᐊᓂᖏᑦ ᓯᔾᔭᒥ ᖁᐸᓄᐊᓄᑦ ᐊᒻᒪᓗ ᓄᓇᒥᔭᐅᔪᒧᑦ. ᐊᒥᓲᕙᓪᓕᐊᓯᒪᔪᑦ ᓂᕐᔫᑦ ᐊᒻᒪᓗ ᐊᖏᓕᕙᓪᓕᐊᓪᓗᓂ ᐊᒥᓲᓂᖏᑦ ᖃᓄᐃᓕᐅᖃᑦᑕᕐᓂᖏᑦ ᐊᒻᒪᓗ ᐊᒥᓲᕙᓪᓕᐊᓪᓗᑎᒃ ᐱᕙᓪᓕᐊᔪᑦ ᓂᕐᔫᑦ ᐊᓯᖏᓐᓄᑦ ᖁᐸᓄᐊᓄᑦ. ᑐᖂᒪᒃᓴᐃᑦ ᓯᔾᔭᒥ ᖁᐸᓄᐊᑦ ᓈᓴᐃᓂᖅ ᑐᕿᒧᐊᖅᑕᐳᑦ ᖃᐅᔨᓴᖅᑎᓪᓗᑕ ᓯᔾᔭᐅᑉ ᖁᐸᓄᐊᖏᓐᓂᒃ ᐅᑯᐊᖑᕗᑦ: 1)ᖃᐅᔨᒥᐊᕐᓂᖅ ᓇᔪᖅᑕᐅᔪᑦ ᐆᒪᔪᓄᑦ ᐊᒻᒪᓗ ᓄᓇᒥᙴᖅᑐᓂᒃ ᐊᑐᖅᑕᐅᕙᒃᑐᓂᒃ ᐊᒥᓲᕙᓪᓕᐊᓂᖓᓄᑦ ᐱᔾᔪᑎᒋᓪᓗᒋᑦ ᓯᔾᔭᒥ ᖁᐸᓄᐊᓂᒃ ᑲᓇᑕᐅᑉ ᐅᑭᐅᖅᑕᖅᑐᖓᓂ, 2) ᖃᐅᔨᒥᐊᕐᓂᖅ ᓄᓇᐅᑉ ᐊᑐᖅᑕᐅᓂᖏᑦ ᐅᑭᐅᒧᑦ ᐅᑎᕐᕕᐅᖃᑦᑕᕐᓂᖓᓄᑦ ᐊᒻᒪᓗ ᐊᒥᓲᕙᓪᓕᐊᓂᖏᓐᓄᑦ (ᐆᑦᑑᑎᒋᓗᒍ ᓯᓚ, ᐊᐳᑎ ᐊᐅᕙᓪᓕᐊᓂᖓ, ᐊᔾᔨᒌᙱᑦᑐᑦ ᓂᕐᔪᑏᑦ ᖁᐸᓄᐊᓂᒃ ᓂᕆᖃᑦᑕᖅᑐᓂᒃ), 3) ᖃᐅᔨᓴᕐᓗᒋᑦ ᖃᐅᔨᓴᖅᑕᐅᓯᒪᔪᑦ ᖃᐅᔨᓴᖅᑕᐅᖃᑦᑕᓚᐅᖅᑐᑦ ᒪᓐᓂᓕᐅᖃᑦᑕᖅᑎᓪᓗᒋᑦ ᐊᒻᒪᓗ ᐊᐅᓪᓛᖃᑦᑕᖅᑎᓪᓗᒋᑦ, ᐊᒻᒪᓗ 4) ᖃᐅᔨᓴᕐᓗᒋᑦ ᓇᓚᐅᑦᑖᕐᓂᒃᑯᑦ ᐃᓚᖏᑦ ᖁᐸᓄᐊᑦ ᓯᔾᔭᒥᐅᑕᐃᑦ ᓄᖑᕙᓪᓕᐊᓂᖏᓐᓄᑦ ᖃᓄᐃᓕᐅᕈᑕᐅᓂᖏᓐᓄᑦ ᐱᐊᓂᒍᓐᓇᕋᓗᐊᖅᑎᓪᓗᒋᑦ. ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᓇᓗᓇᐃᒃᑯᑕᓂᒃ ᖁᐸᓄᐊᓄᑦ ᖁᐸᓄᐊᑦ ᓯᔾᔭᒥ ᐊᒻᒪᓗ ᐃᒥᖅᑯᑕᐃᓚᐃᑦ ᐅᒃᑰᑎᑕᐅᓂᐊᖅᑐᑦ ᒪᓐᓂᓕᐅᕐᕕᖏᓐᓂ, ᐅᖁᒪᐃᓐᓂᖏᑦ ᐊᒻᒪᓗ ᐊᖏᓂᖏᑦ ᓇᓗᓇᐃᕐᓗᒋᑦ ᐊᒻᒪᓗ ᓇᓗᓇᐃᒃᑯᑕᒥᒃ ᐃᓕᓯᓗᑎᒃ ᓴᕕᒻᒥᒃ, ᓇᓗᓇᐃᖅᓯᒪᔪᒥᒃ ᖁᖅᑐᒥᒃ ᐃᒻᒥᒃᑰᖓᓯᒪᔪᒃᑯᑦ ᓇᓗᓇᐃᒃᑯᑕᓂᒃ ᖁᐸᓄᐊᓄᑦ ᓯᔾᔭᒥᐅᑕᓂᒃ ᐊᒻᒪᓗ ᑲᓚᖃᖅᑐᒃᑯᑦ ᓯᔾᔭᒥᐅᑕᐅᙱᑦᑐᓂᒃ. ᖃᐅᔨᓴᕐᓂᖅ ᖁᐸᓄᐊᓂᒃ ᑲᑎᖅᓱᐃᓂᐊᖅᑐᑦ ᐊᐅᓂᒃ ᖁᐸᓄᐊᓂᙶᖅᑐᓂᒃ ᐊᐅᖏᔭᖅᑕᐅᓯᒫᓂᒃᓯᒪᔪᓂᑦ ᖁᐸᓄᐊᓂᑦ. ᖃᐅᔨᓴᕐᓂᐊᖅᑕᕗᑦ ᐊᐅᖏᑦ ᐊᕿᑮᔭᖏᓐᓂᒃ ᐊᒻᒪᓗ ᐊᓯᖏᓐᓂᒃ ᐃᓚᐅᕈᑎᔅᓴᓂᒃ, ᖃᐅᔨᓴᖅᑕᐅᓗᑎᒃ ᐊᔾᔨᒌᙱᓐᓂᖏᑦ ᓇᔪᕐᕕᐅᔪᓂᑦ ᐊᓯᖏᓐᓂᑦ ᓄᐊᑦ ᐊᒥᐊᕆᑲᒥ ᐅᑭᐅᖅᑕᖅᑐᖓᓂ, ᐊᒻᒪᓗ ᖃᐅᔨᓴᕐᓗᒋᑦ ᓂᕆᖃᑦᑕᖅᑕᖏᑦ ᖃᐅᔨᓴᕈᑎᒥᒃ ᐊᑐᕐᓗᑕ. ᑲᑎᖅᓱᐃᖃᑕᐅᓂᐊᖅᑐᑦ ᓱᓗᖕᓂᒃ ᖃᐅᔨᓴᕈᑕᐅᓗᑎᒃ ᖃᐅᔨᓴᕈᑎᒥᒃ ᐊᑐᕐᓗᑎᒃ ᐅᑭᐅᒃᑯᑦ ᓇᔪᕐᕕᒋᕙᒃᑕᖏᓐᓂᒃ ᐊᒻᒪᓗ ᖃᐅᔨᒥᐊᕐᓗᑕ ᐃᓚᔅᓴᒥᔭᐅᕙᖕᓂᖏᑦ ᓄᓇᒥᔭᐅᔪᒥ. ᖃᐅᔨᓴᕈᑎ ᓇᓗᓇᐃᒃᑯᑕᐃᑦ ᓱᓗᓂᙶᖅᑐᑦ ᓇᓗᓇᐃᖅᓯᓂᐊᖅᑐᑦ ᓇᒦᖃᑦᑕᕐᓂᖏᑦ ᐅᑭᐅᒥ ᐊᒻᒪᓗ ᓇᓗᓇᐃᒃᑯᑕᐅᓗᑎᒃ ᖁᐸᓄᐊᓄᑦ ᑎᑎᕋᖅᓯᒪᔪᒃᑯᑦ (ᑕᑯᓗᒍ ᐊᑖᓂ), ᐊᑑᑎᖃᕐᓂᐊᖅᑐᑦ ᐱᕙᓪᓕᐊᓂᕐᒧᑦ ᓄᓇᙳᐊᓕᐅᕐᓗᑎᒃ ᐅᑭᐅᑯᑦ ᓇᔪᕐᕕᐅᖃᑦᑕᖅᑐᓂᒃ ᐊᒻᒪᓗ ᓇᓗᓇᐃᖅᓯᒪᔪᒃᑯᑦ ᐊᓯᖏᓐᓄᑦ ᖃᐅᔨᓴᖅᑕᐅᓯᒪᔪᒃᑯᑦ. ᓇᓂᓯᓂᖅ ᖁᐸᓄᐊᓂᒃ ᐃᓕᓯᓂᐊᖅᑐᑦ 50-ᓂᒃ ᓇᓗᓇᐃᒃᑯᑕᓂᒃ (lotek nanotags) ᓯᔾᔭᐅᑉ ᖁᐸᓄᐊᖏᓐᓂᒃ ᐊᔾᔨᒌᙱᑦᑐᓂᒃ ᓇᓂᒥᐊᕐᓗᒋᑦ ᖃᖓᒃᑯᑦ ᐊᐅᓪᓚᖃᑦᑕᕐᓂᖏᑦ ᒪᓐᓂᓕᐅᕐᕕᖏᓐᓂᑦ ᐊᒻᒪᓗ ᓇᐅᒃᑰᖃᑦᑕᕐᓂᖏᑦ ᑎᒻᒥᑎᓪᓗᒋᑦ. ᑖᒃᑯᐊ ᒥᑭᑦᑐᑦ ᓇᓗᓇᐃᒃᑯᑕᐃᑦ (0.67g) ᐲᔪᖑᔪᑦ ᐊᒥᓱᓗᐊᙵᑦᑐᓂᒃ ᑕᖅᑭᓂᒃ ᐱᐊᓂᒃᑎᓪᓗᒋᑦ ᐊᒻᒪᓗ ᖃᐅᔨᓴᕈᑕᐅᓪᓗᑎᒃ ᓇᒦᓐᓂᖏᑦ ᐊᐅᓪᓛᖃᑦᑕᖅᑎᓪᓗᒋᑦ ᐊᒻᒪᓗ ᓄᒍᐊᖃᑦᑕᕐᓂᖏᑦ ᓇᔪᕐᕕᐅᔪᒥ ᖃᐅᔨᓴᕐᕕᒻᒥ. ᖃᐅᔨᓴᕐᕖᑦ ᐃᓚᔭᐅᓯᒪᔪᑦ ᐊᒥᓲᓗᑎᒃ ᑲᓇᖕᓇᖓᓂ ᓄᐊᑦ ᐊᒥᐊᕆᑲᒥ, ᐊᒻᒪᓗ ᐊᒥᓱᑦ ᓄᖅᑲᕐᕕᐅᕙᒃᑐᒃᑯᑦ ᓇᓗᓇᐃᒃᑯᑕᕐᕕᒻᒥᒃ ᓯᔾᔭᒥ. ᐊᐅᓪᓚᖃᑦᑕᖅᑎᓪᓗᒋᑦ ᑎᑎᕋᖅᓯᒪᔪᑦ ᐊᑐᖅᑕᐅᓲᖑᔪᑦ ᖃᐅᔨᓴᕈᑕᐅᓪᓗᑎᒃ ᓇᔪᕐᕕᐅᔪᑦ ᐆᒪᔪᓄᑦ

ᐊᑲᐅᙱᓕᐅᕈᑎᓕᐅᖅᑐᓂᒃ ᓂᕐᓕᓂᑦ ᐊᑲᐅᙱᓕᐅᖅᑐᓂᒃ ᒪᓐᓂᓕᐅᖃᑦᑕᖅᑎᓪᓗᒋᑦ ᓯᒡᔭᒥ ᖁᐸᓄᐊᓂᑦ. ᑎᑎᕋᖅᓯᒪᔪᑦ ᐊᓯᖏᓐᓂ ᖃᐅᔨᓴᕈᑎᓂᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᑐᑭᓯᐊᒥᐊᕐᓗᑎᒃ ᓄᖅᑲᖃᑦᑕᕐᓂᖏᑦ ᓯᒡᔭᒧᑦ. ᑐᑭᓯᐊᔾᔪᑏᑦ, ᓇᓗᓇᐃᕐᓂᐊᖅᑐᑦ ᐊᒥᓲᓂᖏᓐᓂᒃ ᐊᐅᓪᓛᖃᑦᑕᖅᑐᓂᒃ ᖁᐸᓄᐊᓂᒃ ᓯᒡᔭᒥ ᐊᑯᓂᐅᔪᒃᑯᑦ ᓇᔪᕐᕕᐅᖃᑦᑕᖅᑐᓂᒃ ᖃᐅᔨᓴᕐᓂᖅ ᖁᐸᓄᐊᓂᒃ. ᐃᓕᓯᓂᐊᖅᑐᒍᑦ 20-ᓂᒃ ᒥᑭᑦᑐᓂᒃ ᓇᓗᓇᐃᒃᑯᑕᓂᒃ ᐃᒥᖅᑯᑕᐃᓚᓄᑦ ᐱᕕᔅᓴᖃᕐᓂᖓ ᒪᓕᓪᓗᒍ. ᑕᒪᒃᑯᐊ ᒥᑭᑦᑐᑦ ᖃᐅᔨᓴᕈᑏᑦ ᐃᓕᔭᐅᓯᒪᔪᑦ ᓂᐅᖏᓐᓄᑦ ᖁᐸᓄᐊᒍᑦ ᐊᒻᒪᓗ ᐊᑐᖅᑕᐅᓲᖑᓪᓗᑎᒃ ᓯᓚᕐᔪᐊᓕᒫᒥ ᓇᓂᒋᐊᕐᓗᒋᑦ ᖁᐸᓄᐊᓂᒃ. ᑕᕆᐅᒥ ᖁᐸᓄᐊᑦ ᓇᔪᕐᕕᖏᑦ ᖃᐅᔨᓴᕐᓂᐊᖅᑐᒍᑦ ᕿᕐᓂᖅᑐᓂᒃ ᖁᐸᓄᐊᓂᒃ ᐊᒻᒪᓗ ᑲᕕᐱᓯᓲᓂᒃ ᐊᒻᒪᓗ ᐃᒥᖅᑯᑕᐃᓚᓂᒃ ᖃᐅᔨᓴᕐᓗᑕ ᒪᓐᓂᓕᐅᖃᑦᑕᖅᑎᓪᓗᒋᑦ ᓇᔪᕐᕕᖏᓐᓂ. ᑲᕕᐱᓯᓲᑦ ᐊᒻᒪᓗ ᐃᒥᖅᑯᑕᐃᓚᑦ ᐱᒻᒪᕆᐅᔪᑦ ᖁᐸᓄᐊᑦ ᓇᔪᕐᕕᒋᔭᖏᓐᓂᑦ ᓯᒡᔭᐅᑉ ᖁᐸᓄᐊᖏᓐᓄᑦ ᒪᓐᓂᓕᐅᖃᑦᑕᖅᑎᓪᓗᒋᑦ ᐊᔾᔨᑲᓴᐅᓂᖏᓐᓄᑦ ᖁᐸᓄᐊᖑᓂᖏᑦ ᐸᓯᒻᒥᔭᐅᔾᔨᑎᒥᓪᓗᒋᑦ ᖁᐸᓄᐊᓂᒃ ᓂᕆᖃᑦᑕᖅᑐᓂᑦ. ᓂᕐᓃᑦ ᐱᕙᓪᓕᐊᓂᖏᑦ ᓯᒡᔭᐅᑉ ᖁᐸᓄᐊᖏᓐᓄᑦ ᓇᔪᕐᕕᐅᔪᑦ ᖃᓄᐃᓐᓂᖏᑦ ᑲᔪᓯᓂᐊᖅᑐᒍᑦ ᖃᐅᔨᓴᕐᓗᑕ ᐱᕙᓪᓕᐊᔪᓂᒃ ᓂᕐᓕᓂᒃ ᓯᒡᔭᒥ ᖁᐸᓄᐊᓃᓚᖅᑎᓪᓗᒋᑦ ᖃᐅᔨᓴᕐᓗᑕ ᖃᓄᐃᓕᐅᖃᑦᑕᕐᓂᖏᓐᓄᑦ ᓇᔪᕐᕕᐅᔪᒥ ᐊᒻᒪᓗ ᓇᔪᕐᕕᐅᔪᑦ ᐱᕈᖅᓯᐊᑦ ᓂᕆᔭᐅᖃᑦᑕᖅᑐᓂᒃ ᖃᓄᐃᑦᑑᓂᖏᓐᓂᒃ. ᑖᔅᓱᒪ ᐅᑭᐅᖓᓂ ᑲᑎᖅᓱᐃᓂᐊᖅᑐᒍᑦ ᖃᐅᔨᓴᕈᑎᓂᒃ ᒪᓐᓂᓕᐅᕐᕕᓐᓂᙴᖅᑐᓂᑦ ᓂᕐᓕᓂᑦ ᖃᐅᔨᒋᐊᕐᓗᑕ ᐊᓇᖃᑦᑕᕐᓂᖏᑦ ᐊᔾᔨᑮᙱᓐᓂᖏᓐᓂᒃ (ᑎᒥᖓ ᐊᐅᓚᓂᖓᓄᑦ ᖃᓄᐃᓕᐅᕐᓂᖓ) ᒥᑭᓪᓕᕚᓪᓕᐊᓂᖓᓄᑦ ᐊᒻᒪᓗ ᐊᑲᐅᙱᓕᐅᕈᑎᒋᔭᖓᒍᑦ ᓇᔪᕐᕕᐅᔫᑉ. ᖃᐅᔨᓴᖃᑕᐅᓂᐊᖅᑐᒍᑦ ᓇᔪᕐᕕᐅᔪᑦ ᕿᒪᒃᑕᐅᖃᑦᑕᕐᓂᖏᑦ ᖁᐸᓄᐊᓂᒃ ᓂᕆᖃᑦᑕᖅᑐᓂᒃ ᓂᕐᓕᓂᑦ ᒪᓐᓂᓕᐅᕐᕕᖓᓂ ᐃᓕᓯᓗᑕ ᖃᐅᔨᓴᕈᑎᒥᒃ ᐊᔾᔨᓕᐅᕈᑎᒥᒃ ᖃᓂᖓᓂ ᐊᒻᒪᓗ ᐅᖓᓯᑦᑐᒥ ᓂᕐᓕᐅᑉ ᒪᓐᓂᓕᐅᕐᕕᖏᓐᓂ. ᕿᒥᕐᓗᖃᙱᑦᑐᓂᒃ ᖃᐅᔨᓴᕈᑏᑦ ᐱᒋᐊᕐᓗᑕ ᐊᒥᓲᓂᖏᑦ ᓂᕆᔭᐅᕙᒃᑐᓂᒃ ᓯᒡᔭᒥ ᖁᐸᓄᐊᓂᑦ ᒪᓐᓂᓕᐅᕐᓇᐅᓕᖀᖓᑦ, ᐃᓕᓯᓂᐊᖅᑐᒍᑦ ᐅᒃᑰᑎᓂᒃ ᑕᒻᒫᕐᕕᐅᑉ ᖃᓂᖓᓂ. ᐅᒃᑰᑏᑦ ᖃᐅᔨᒋᐊᖅᑕᐅᓲᖑᔪᑦ ᒪᕐᕉᒃ ᐅᕝᕙᓘᓐᓃᑦ ᐱᖓᓱᐃᑦ ᐅᓪᓗᖓᓂ ᖃᐅᔨᓴᖅᑕᐅᓪᓗᑎᒃ ᓂᕆᔭᐅᕙᒃᑐᓂᒃ ᖁᐸᓄᐊᓂᑦ ᐅᑭᐅᖑᔪᒧᑦ. ᐊᕕᙵᓂᒃ ᐅᒃᑰᑎᓂᖅ ᐊᕕᙵᐃᑦ ᐱᒻᒪᕆᐅᓂᖅᐹᖑᔪᑦ ᐊᕕᙵᑐᖃᑦᑕᖅᑐᓄᑦ ᕿᕐᓂᖅᑕᓄᑦ ᖁᐸᓄᐊᓄᑦ ᐊᒻᒪᓗ ᐅᑭᐅᖅᑕᖅᑐᒥ ᑎᕆᒐᓂᐊᓂᑦ, ᑕᐃᒫᒃ ᓇᓗᓇᙱᑦᑐᖅ ᖃᐅᔨᒋᐊᕈᑕᐅᓗᑎᒃ ᒪᓐᓂᓕᐅᕐᓇᕐᕕᐅᑎᓪᓗᒍ ᐊᓯᖏᓐᓄᑦ ᖁᐸᓄᐊᓄᑦ ᓄᓇᒋᔭᐅᔪᒥ ᖃᓄᐃᓕᐅᖃᑦᑕᕐᓂᖏᓐᓄᑦ. ᑖᔅᓱᒪ ᐅᑭᐅᖑᔪᒥ, ᐸᕐᓇᒃᓯᒪᔪᒍᑦ ᐊᑯᓂᐅᔪᒃᑯᑦ ᖃᐅᔨᓴᕐᓗᑕ ᐅᑭᐅᓗᒃᑖᒍᑦ ᐅᑎᖅᑕᖃᑦᑕᖅᑐᓄᑦ ᐊᕕᙵᖅᑕᖃᙱᑎᓪᓗᒍ. ᐊᑐᕐᓂᐊᖅᑐᒍᑦ ᐅᒃᑰᑎᓂᒃ ᖃᐅᔨᓴᕈᑎᑕᖃᖅᑐᓂᒃ, ᐱᑕᕐᓗᒍ, ᓇᓗᓇᐃᒃᑯᑕᓕᐅᕐᓗᒍᑦ ᐊᒻᒪᓗ ᐅᑎᖅᑎᓪᓗᒋᑦ ᐊᕕᙵᐃᑦ ᓄᓇᒧᑦ. ᐅᒃᑰᑏᑦ ᖃᐅᔨᓴᕈᑎᑕᖃᖅᑐᑦ ᒪᕐᕈᐃᕐᓗᒍ ᐃᓕᓯᓂᐊᖅᑐᑦ ᒪᕐᕉᓐᓄᑦ ᐅᓪᓗᓂᒃ ᒥᑭᓪᓕᒋᐊᕈᑎᒋᓗᒍ ᓄᙳᑦᑕᐃᓕᒪᓂᕐᒧᑦ ᐊᕕᙵᓂᒃ.

Personnel

Personnel on site: 5
Days on site: 25
Total Person days: 125
Period of operation: from 2017-06-20 to 2017-07-10

Proposed term of operation: from 2017-06-01 to 2019-12-31

ACTIVITIES

Project Activities

Location	Activity Type	Land Status	Site History	Site Archaeological or Palentological Value	Proximity to the nearest communities and any protected areas
Study Area	Researching	Crown	This site has been used as a study area and camp site by researchers in the past, including two field seasons in 1996 and 1997.	We do not have any knowledge of any archaeological sites within the study area. If any are found we will report them and avoid damaging or otherwise disturbing them.	There are no communities on Prince Charles Island. Hall Beach, Igloolik, and Cape Dorset are all reachable by boat or twin otter.

Community Involvement and Regional Benefits

Community	Name	Organization	Date Contacted
Cape Dorset	Annie Suvega	Aiviq HTO	2016-03-15
Hall Beach	Manasie Naullaq	Hall Beach HTO	2017-03-14

AUTHORIZATIONS

Project Locations

South Baffin

Project Authorization

Authorizing Agency	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Canadian Wildlife Service	CWS Permit for Take and Disturbance of Migratory Birds	Applied, Decision Pending		
Environment Canada	Animal Care Permit	Applied, Decision Pending		
Canadian Wildlife Service	Bird Banding Permit	Applied, Decision Pending		
Nunavut Water Board	Authorization to use waters without a licesnse	Applied, Decision Pending		
Government of Nunavut, Department of Environment	Wildlife Research Permit	Applied, Decision Pending		
Indigenous and Northern Affairs Canada	Land Use Authorization	Applied, Decision Pending		

MATERIAL USE

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

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Aircraft	1	Twin Otter	Transport in/out of field
Genereator	1	Honda 1000	Generator to power field laptops and equipment
ATV	1	Honda Rancher	ATV - used to transport gear and people to field camp and retreive water

Detail Fuel and Hazardous Material Use

Fuel / Material	Type	Number of Containers	Container Capacity	Total Amount	Units	Proposed Use
Gasoline	fuel	6	5	30	Gallons	Fuel for generator and ATV

Project Water Consumption

Daily Amount (m3)	Proposed Water Retrieval Methods	Proposed Water Retrieval Location
0	collected from nearby stream in bucket	stream or lake nearby camp

WASTE

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional Treatment Procedures
Researching	Greywater	0.05m3/day	sump	sump buried at end of season - not located within 100m of running water
Researching	Non-Combustible wastes	0.05m3/day	removal	all non-combustible wastes will be removed at the end of the season on flights back to Iqaluit. Wastes will be depostited in the landfill there.
Researching	Sewage (human waste)	0.005m3/day	sump	sump buried at end of season - not located within 100m of running water

Environmental Impacts

Environmental impacts of the project will be very low. There will only be 5 persons at the field site for the summer season. Solid waste will be burned in an incinerator to reduce emissions and ash. Grey water and sewage will be disposed of in a sump which will be buried and located more than 30m from waterbodies. Non-combustible waste will be flown out at the end of the season. ATV use will be kept to a minimum to reduce damage to the landscape, and will primarly be used on gravel eskers only. Other than this, the main activity of the research camp will be nest searching by foot on the tundra. This will have little to no impact whatsoever on the landscape. Water use and waste production will be kept to a minimum.

Description of Existing Environment: Physical Environment

Description of Existing Environment: Biological Environment

Description of Existing Environment: Socioeconomic Environment

Identification of Impacts and Proposed Mitigation Measures

Cumulative Effects

IMPACTS

TABLE 1 - 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																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

DECOMMISSIONING																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

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

Project Map