Project Dashboard

Long-term changes in bird populations near Cambridge Bay based on lake sediment records (149257)

Proposal Status: Conformity Determination Issued

- Overview
- Documents
- Correspondence

Project Overview

Type of application: **New**

Proponent name:	Jules Blais
Company:	University of Ottawa

Schedule:

Start Date:	2020-06-22
End Date:	2022-07-10
Operation Type:	Annual

Project Description:

Project title: Long-term changes in bird populations near Cambridge Bay based on lake sediment records Objectives: Our short term objective is to show how bird populations around Cambridge Bay and the Ahiak Migratory Bird Sanctuary have changed over time using lake sediments as a natural archive. Long term, we will integrate bird population histories with recent research and indigenous knowledge to investigate the stability of migratory bird populations and their reliability as a food source in the North. Rationale: Sediment is a natural archive because it slowly accumulates at the bottom of lakes and it contains animal and plant material from the time it was deposited. Thus sediment is a record of environmental changes. When birds colonize the area, they fertilize the water, and these changes are recorded in the chemical and biological composition of the lake sediment layers, which can be used to show the history of bird populations. Progress to date: We are developing new and increasingly sensitive methods to detect how birds alter the environment where they nest over time (i.e. decades to centuries). This information allows detailed historical interpretations of how and when bird populations increased or collapsed in the past based on lake sediment profiles. We recently used lake sediment to show how common eider populations in Hudson Strait declined. We contacted Jennie Rausch in Cambridge Bay, Vice-Chair of the Ahiak Area Co-Management Committee. She offered to help us design our study and to liaise with community stakeholders. We also contacted Dr. Ray Alisauskas from the Canadian Wildlife Service in Saskatoon who has an extensive history researching in the Ahiak Sanctuary. We have also contacted the Ahiak Migratory Bird Sanctuary Management Board to help us arrange field logistics. Methodology: We propose to track long-term changes in several bird populations including (but not restricted to): (1) geese (snow geese and Ross's geese) in the Ahiak Migratory Bird sanctuary, the Anderson Bay colony, the Icebreaker colony, and (2) Common eiders on coastal islands and within Nayak Lake in the southwest of the Kent Peninsula. Our field collections will involve collecting lake sediment cores

adjacent to bird colonies. Jules Blais and colleagues have 30 years of experience collecting sediment cores, many of which were from Canada's Arctic regions. Methods for sediment analysis to reconstruct past histories in bird populations are well established in the Blais laboratory at the University of Ottawa. Sediment samples will be analyzed for different fats (lipids) that we have shown to be effective in tracking bird populations. Also, sediment DNA may give us new information about the species of birds that were present and when. Data management: All data produced by this research will be made available on a publically accessible data repository. Research outputs: Research will be published in the peer-reviewed scientific literature, in graduate theses, conference presentations, and an annual newsletter translated to Inuktitut.

Personnel:

Persons:	4
Days:	18

Project Map

List of all project geometries:

ID	Geometry	Location Name
5932	polygon	Ahiak Migratory Bird Sanctuary
5935	polygon	Icebreaker Colony
5936	polygon	Cambridge Bay and region

Planning Regions:

Qikiqtani

Affected Areas and Land Types

Inuit Owned Surface Lands
Municipal
Extablished National or Territorial Park
Settlement Area

Project Land Use and Authorizations

Project Land Use

Scientific Research

Licensing Agencies

NRI: Scientific Research Licence
CWS: Migratory Bird Sanctuary permit under the Migratory Bird Sanctuary Regulations
KivIA: 0

Other Licensing Requirements

No data found.

Material Use

Equipment

Type	Quantity	Size	Use

Aircraft	1	20' x 8'	A helicopter to ferry passengers and equipment to field sites
Sediment coring device	1	3' x 1'	A sediment coring device to collect lake sediment samples
All terratin vehicle	3	6' x 4'	All terrain vehicles for accessing field sites near Cambridge Bay

Fuel Use

Type	Container(s)	Capacity	UOM	Use
Aviation fuel	3	200	Liters	Fuel for helicopter

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

No environmental impacts anticipated

Waste Management

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