Inuit knowledge about light geese in the Kivalliq region, Nunavut
Project summary from Coral Harbour

In the Canadian Arctic, populations of northern-breeding geese (mainly Lesser Snow Geese, *Chen caerulescens caerulescens*, and Ross’ Geese, *Chen rossii*, hereafter called ‘light geese’; *Kangut* and *Kangunnaaq* in Inuktitut) have increased dramatically in the last 50 years according to scientific research. Scientists are studying the impact that geese have on the land and other animals, including shorebirds. Their work to date suggests that light geese have affected vegetation over large areas of the Canadian Arctic, and could negatively impact shorebird populations nesting in areas where geese are abundant. In Nunavut, light geese are harvested by Inuit. Few studies document Inuit knowledge (IK) of goose populations and interactions of geese with the land, water, animals, and people. Inuit have lived and hunted in the areas of the light goose colonies for generations, and are knowledgeable about past and current patterns of goose distribution and population growth or decline over time. Inuit knowledge will help everyone to better understand how light geese are impacting the land, water and other wildlife including shorebirds, and improve the way goose populations are managed today. This project documents Inuit knowledge about light geese and shorebird ecology and management strategies, which was gathered in August 2017 through interviews, groups discussions, participatory mapping, and sites visits with 21 Coral Harbour residents. The study was conducted as a partnership between Environment and Climate Change Canada, the Irniurviit and Nivvialik Area Co-Management Committees, the Arviat and Aiviit (Coral Harbour) Hunters and Trappers Organizations, the Kivalliq Wildlife Board, and Carleton University. It was led by a Project Management Committee comprised of representatives from partner organizations.

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### Project objectives

- Documenting IK about light goose populations and their impacts on the land, water, other animals (including other bird species) and people in the Kivalliq region;
- Documenting Inuit-identified strategies for light goose management that address Inuit concerns and perspectives;
- Increasing the capacity of Coral Harbour residents to do IK research on wildlife;
- Encouraging the combined use of IK and scientific information to provide recommendations for light goose and land management.
Shorebirds can be signs of changing weather, changing seasons, and nearby animals. People described different things about the size of the shorebird population around Coral Harbour, such as (1) the number of shorebirds has not changed over time; (2) the number of shorebirds is decreasing; or (3) they are unsure about shorebird numbers.

Reasons given about why fewer shorebirds are seen nowadays include:
- Shorebirds have moved to new areas to feed (e.g., Red Phalarope);
- People do not know because no one is hunting them locally, so shorebirds must be dying on their own;
- In 1988 or 1989, thousands of dead birds, with no wounds, were seen near Coats Island. The elders thought maybe they were struck by lightning;
- Drier land, lower water levels, and ozone depletion are negatively impacting shorebirds;
- Shorebirds have been affected by changes in food source (e.g., not enough insects, overgrazed vegetation, lower water level in lakes that have krill and little fish);
- Shorebirds have been affected by changes in predators including new birds of prey, a drastic increase in the number of ravens in the 1980s, and more polar bears;
- Increased human activity and new methods of transportation (e.g., local boats, large ships, all-terrain vehicles) create noise and pollution that impact shorebirds; and
- Shorebirds are affected by human activity in the South.

Key findings

Here is what Coral Harbour residents said about light geese:
- Starting in 1917, the government tried to stop Inuit from hunting light geese because they said the numbers were too low. Inuit did not listen, as they saw how many geese were nesting.
- In the past, people did not eat as many light geese as today. Instead they hunted other animals.
- Light geese were an important food source from the time when there were no caribou around (starting in 1967) until there were enough caribou for Sallirmiut to hunt (in the late 1970s).
- In the past, light geese and their eggs were stored underground to keep them cool.
- Light geese are a very important food source today. Mostly youth hunt them.
- People described different things about the size of the light goose population around Coral Harbour, such as (1) the goose population is increasing and there are too many geese, (2) the goose population is increasing but this is fine, (3) the goose population is stable.
- People described different things about the impacts of light goose droppings on the land, water, wildlife, and people. Goose droppings are (1) contaminating drinking water out on the land; (2) contaminating the land; (3) helping the land by adding nutrients; and (4) making caribou sick when light goose droppings are on their food.
- People described different things about how light geese have changed the land. They mentioned that (1) this is just part of the natural cycle and not a concern; (2) light geese are eating so much that they are changing the vegetation, and (3) geese leave a lot of feathers and droppings.
- Some people said that when light geese nest, it affects the land the most. Other people said that when light geese graze, it affects the land the most.
- People explained that light geese have recently moved to new areas. Reasons for this include:
  - Climate change is making the land drier than in the past;
  - Like all animals, light geese need to move to new feeding grounds when food runs out;
  - Light geese are avoiding predators such as foxes, and higher numbers of hawks and polar bears;
  - Light geese have changed the land so they move when there is bare soil and nothing to build nests with; and
  - Use of motorized transportation (snowmobiles, all-terrain vehicles) when going out on the land has become very common. The increase in types of transportation, the number of people using them, and how often people are using them has disturbed light geese and caused them to move to new areas.

Here is what Coral Harbour residents said about shorebirds:
- Shorebird meat, eggs, fat, feathers, and skins were very important in the past.
- Today, people still enjoy seeing and hearing shorebirds, and eating their eggs.
- Shorebirds can be signs of changing weather, changing seasons, and nearby animals.
- People described different things about the size of the shorebird population around Coral Harbour, such as (1) the number of shorebirds has not changed over time; (2) the number of shorebirds is decreasing; or (3) they are unsure about shorebird numbers.
- Reasons given about why fewer shorebirds are seen nowadays include:
  - Shorebirds have moved to new areas to feed (e.g., Red Phalarope);
  - People do not know because no one is hunting them locally, so shorebirds must be dying on their own;
  - In 1988 or 1989, thousands of dead birds, with no wounds, were seen near Coats Island. The elders thought maybe they were struck by lightning;
  - Drier land, lower water levels, and ozone depletion are negatively impacting shorebirds;
  - Shorebirds have been affected by changes in food source (e.g., not enough insects, overgrazed vegetation, lower water level in lakes that have krill and little fish);
  - Shorebirds have been negatively impacted by changes in predators including new birds of prey, a drastic increase in the number of ravens in the 1980s, and more polar bears;
  - Increased human activity and new methods of transportation (e.g., local boats, large ships, all-terrain vehicles) create noise and pollution that impact shorebirds; and
  - Shorebirds are affected by human activity in the South.
Light geese and shorebird management strategies

Here is what Coral Harbour residents said about light geese management strategies that could be implemented in the future:

- More research is needed about the light goose population size outside the Qaqsauqtuuq (East Bay) and the Ikattuaq (Harry Gibbons) Migratory Bird Sanctuaries.
- Take no action as people want the light geese to come back next year.
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Here is what Coral Harbour residents said about shorebird management strategies that could be implemented in the future:

- Put a bounty on light geese.
- Hunt light geese commercially and build a local processing plant (i.e., factory for treatment of meat and down).
- Have open sport hunting for light geese.
- Increase the sport hunting daily bag limit and the length of hunting season for non-Inuit in order to encourage people to come to Coral Harbour.
- Develop tourism opportunities such as bird watching and seeing nesting areas.
- Light geese should not be wasted. This is not the Inuit way.

- Many people said they did not know what could be done to increase shorebird numbers.
- It would be hard to change boat or ship traffic because Coral Harbour people are going to continue boating and they cannot stop ships. Only the government can make those changes.
- Protect some beaches in the South for shorebirds to rest on during migration.

The final step of this project consisted in a workshop held in Winnipeg in September 2018 where IK holders, biologists, and wildlife managers shared their knowledge and developed joint recommendations for the management of light geese in the Kivalliq region, Nunavut.