

NUNAVUT WILDLIFE MANAGEMENT BOARD

INTERIM REPORT

Project Number: #4-10-03

Project Title: Avian Cholera: Examining the Geographic Spread and Population Impact of the Disease among Northern Common Eider Ducks Nesting in Nunavut

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Summary:

Our project investigates the recent emergence of avian cholera affecting common eiders in Nunavut. Common eiders are sea ducks of considerable economic and cultural importance. They are an important source of food, eggs, and down for subsistence hunters in the Canadian Arctic and Greenland. Common eiders often concentrated in large numbers during their annual cycle, making them vulnerable to disturbance, environmental catastrophes and disease.

Recently, avian cholera outbreaks have caused large scale mortality events at some breeding colonies in Nunavut and northern Quebec (Nunavik). This disease has been documented further south in the past, but appears to be new in northern common eiders. It is caused by infection with the bacterium *Pasteurella multocida*. Avian Cholera is suspected when large numbers of dead ducks or geese are found in a short time, when few sick birds are seen, and when the dead birds look otherwise healthy.

We are examining the geographic extent and population impacts of avian cholera for eiders and other bird species, as well as the implications of these outbreaks for wildlife management and subsistence use in Nunavut. Our project has 3 primary dimensions, which include (1) the use of Inuit Ecological Knowledge to understand the occurrence and spread of avian cholera in Nunavut, (2) demographic research at the Environment Canada field station on Mitivik Island in the East Bay Migratory Bird Sanctuary, Southampton Island – where outbreaks have been observed at a colony that is the subject of long-term research, and (3) surveys of other colonies in the region by

teams comprised of Inuit and southern biologist personnel to examine colony characteristics, bird numbers and to test for the presence of avian cholera.

Project Objectives:

The complexity and geographic scope of the factors currently affecting northern common eiders requires community-based research and monitoring to ensure conservation. The main objectives of our project are to:

- (1) Continue to use Inuit Ecological Knowledge to understand the occurrence and spread of Avian Cholera in Nunavut.
- (2) Continue our research at East Bay Island and conduct new boat-based surveys around Cape Dorset and East Bay using Inuit personnel to study the disease.
- (3) Investigate the origins, distribution, impact, and spread of Avian Cholera in eider populations of the eastern Arctic by collecting and analyzing samples from the environment and from live and dead eiders at East Bay Island and around Cape Dorset.
- (4) Communicate our results to local communities and provide wildlife management organizations with the information necessary to make management decisions concerning eiders.

Materials and Methods:

Our methods for our use of Inuit Ecological Knowledge and the long-term research program on Mitivik Island in the East Bay Migratory Bird Sanctuary have not changed from previous reports (Project 4-07-01). Briefly, PhD student Dominique Henri (Oxford University) conducted interviews of northern residents in the communities of Kimmirut, Cape Dorset and Coral Harbour in 2007-2009. PhD student Sam Iverson has used the information gathered in these interviews to implement field surveys in the vicinity of Cape Dorset in 2010. Surveys are planned for 2011 in the vicinity of both Cape Dorset and Coral Harbour. These surveys were designed in collaboration with the Kinngait HTO. Advice was given as to the optimal time to conduct surveys considering ice conditions and eider breeding chronology. Locations where significant numbers of eiders are known to occur were identified. Agreement was made about costs for hiring guides and leasing boats. The HTO directors volunteered to advertise for guides and make preliminary selections on the basis of guide experience and equipment, subject to approval by EC. It was agreed that offshore eider breeding colonies would be accessed by 2 teams travelling in boats that camp together and work in adjacent areas. The teams would remain in close proximity for safety reasons. Each team will be comprised of a lead guide/boat operator, 2 guide assistants, and a biologist hired by EC.

The data collected included GPS coordinates of colony locations, estimates for the number of common eider breeding females and nest status on each islands, the biophysical characteristics of the colonies, other wildlife present, and disease samples. The disease samples were collected from live-trapped birds, from ponds on the island,

by collecting fecal samples from nests, and by salvaging the carcasses of dead birds. These samples will be processed by the laboratory of Dr. Catherine Soos.

Project Schedule and Reporting to Communities:

Our project is on schedule and no changes have been made. This is a 3 year project with multi-year funding. Including below is a timeline for the research and community consultation. Community consultation has been in the form of presentations to local HTO, discussion and announcements on the radio, and visits to community schools.

Year	Date	Event	Status
1	March – May 2010	Preliminary planning and consultation (email and telephone)	Complete
	June 2010	Consultation meeting in Cape Dorset with HTO, conservation officer, local community	Complete
	July 2010	Costal surveys in the vicinity of Cape Dorset	Complete
	May – August 2010	Field research camp at Mitivik Island in the East Bay Migratory Bird Sanctuary	Complete
	December 2010 - January 2011	Completion of interim report for year 1	Complete
2	March 2011	Consultation meeting in Coral Harbour with HTO, conservation officer, local community	Planned
	May 2011	Presentation of preliminary results and consultation meeting in Cape Dorset with HTO, conservation officer, local community	Planned
	July 2011	Costal surveys in the vicinity of Cape Dorset and Coral Harbour	Planned
	May – August 2011	Field research camp at Mitivik Island in the East Bay Migratory Bird Sanctuary	Planned
	December 2011 - January 2012	Completion of interim report for year 2	Planned
3	May 2012	Presentation of preliminary results and consultation meeting in Coral Harbour with HTO, conservation officer, local community	Planned
	May 2012	Presentation of preliminary results and consultation meeting in Cape Dorset with HTO, conservation	Planned

July 2012	officer, local community Costal surveys in the vicinity of Cape Dorset and Coral Harbour	Planned
May – August 2012	Field research camp at Mitivik Island in the East Bay Migratory Bird Sanctuary	Planned
December 2012 - January 2013	Completion of final report	Planned

Preliminary Results

Surveys were conducted in the vicinity of Cape Dorset from July 8-30, 2010. We hired the following people : Qabaroak Qatsiya (boat captain/lead guide), Qavavao Peter (boat captain/lead guide), Numa Ottokie (guide assistant), Tutiuya Qatsiya (guide assistant), Adamie Samayualie (guide assistant), Paulassie Ottokie (guide assistant), Ezzevaluk Suvega (guide assistant), Sheojuk Peter (guide assistant), and Evie Kanuk – (home stay)

The trip was organized such that three excursions were made from town.

- Trip #1 – Chamberlain Island and Chorkbak Inlet Area (9 days)
- Trip #2 – Foxe Peninsula Area (3 days)
- Trip #3 – West Foxe Islands and Andrew Gordon Bay Area (4 days)

In total, >500 km shoreline and 102 colonies were surveyed. Approximately 4875 eider nests were visited. Comparison to historical data were made, which indicate that the population declined from 1956 to 1976 by >60% and from 1976 to 1999 by a further 40%. However, from 1999 to 2010 numbers increased to the point that they were above the 1976 level (but still <50% the 1956 level).

The laboratory results of the disease sampling are pending. In total, environmental samples were collected from 14 colonies, fecal swabs were collected from 310 live trapped birds or eggs found in nests, and 22 carcasses salvaged for pathology testing. The other interesting result of our research was a high amount of polar bear depredation of eider nests. A total of 11 polar bears were seen in an 8 days period in the eastern sector (Chamberlain Islands/Chorkbak Inlet). The bears destroyed >95% of nests on some islands and eider eggs were a clear prey target. We will be examining this in further detail in 2011.