

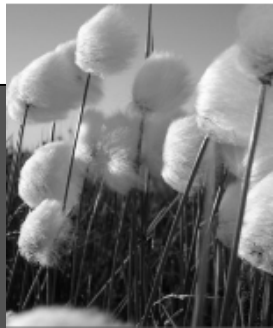


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Using Inuit knowledge for detecting and monitoring avian cholera outbreaks among Common Eiders in the eastern Canadian Arctic



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By Dominique Henri, Allison Patterson, and Grant Gilchrist

Who we are

- Dr. Dominique Henri



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Acknowledgements

We are grateful to the elders and hunters who generously shared their knowledge and experience during this project.

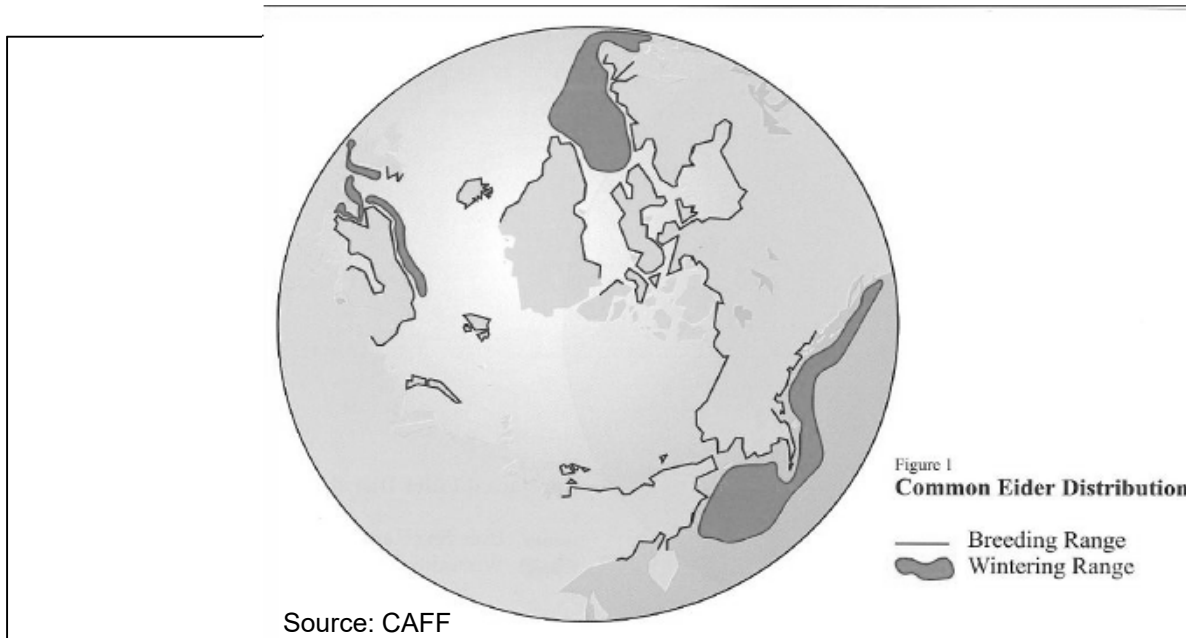
We would like to acknowledge the collaboration of Hunters and Trappers Organizations in Kimmirut, Cape Dorset, Coral Harbour and Igloolik, Nunavut, who gave permission, advice and support to carry out this work.

Qujannamiik. Thank you.



Context – Common eiders

- Common Eider (*Somateria mollissima*)
- Long-lived, large-bodied, highly gregarious migratory sea duck
- Circumpolar Arctic distribution
- Vulnerable to contagious diseases



Source: Cornell Lab of Ornithology

Context – Avian cholera



- Avian cholera (*Pasteurella multocida*)
- Origin and geographic spread
- Symptoms
- High mortality rates + number of species affected + frequency of epizootics + geographic spread = **conservation issue**
- Ongoing scientific monitoring at Common Eider colonies in the eastern Canadian Arctic



Context – Inuit and *mitiq*



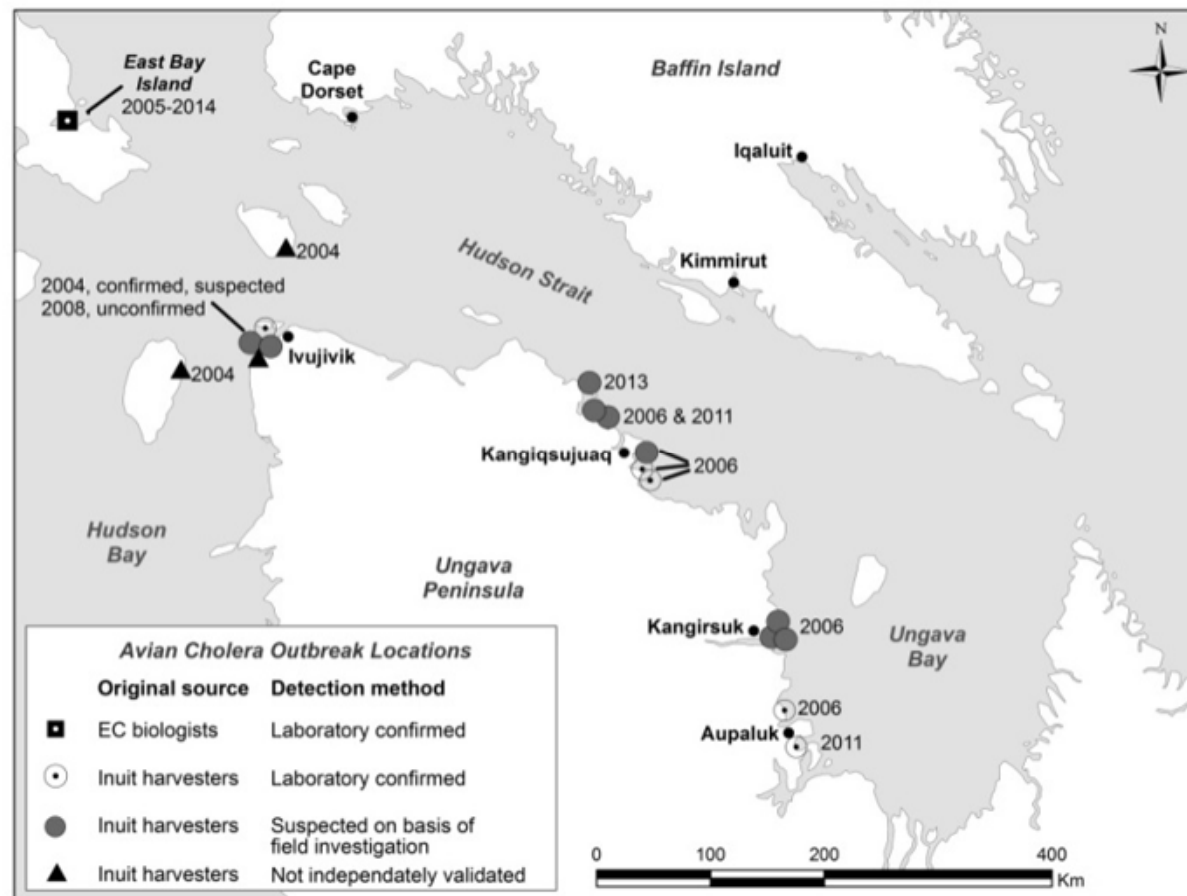
Source: Inuit Tapiriit Kanatami

- Longstanding cultural importance
- Broad ecological understanding
- Inuit eider egg harvest in summer = when eiders are most vulnerable to avian cholera



Context – Inuit and *mitiq*

- Inuit hunters from Nunavik were the first to detect avian cholera in the eastern Canadian Arctic in 2004



Source: adapted from Iverson, 2015

Objectives

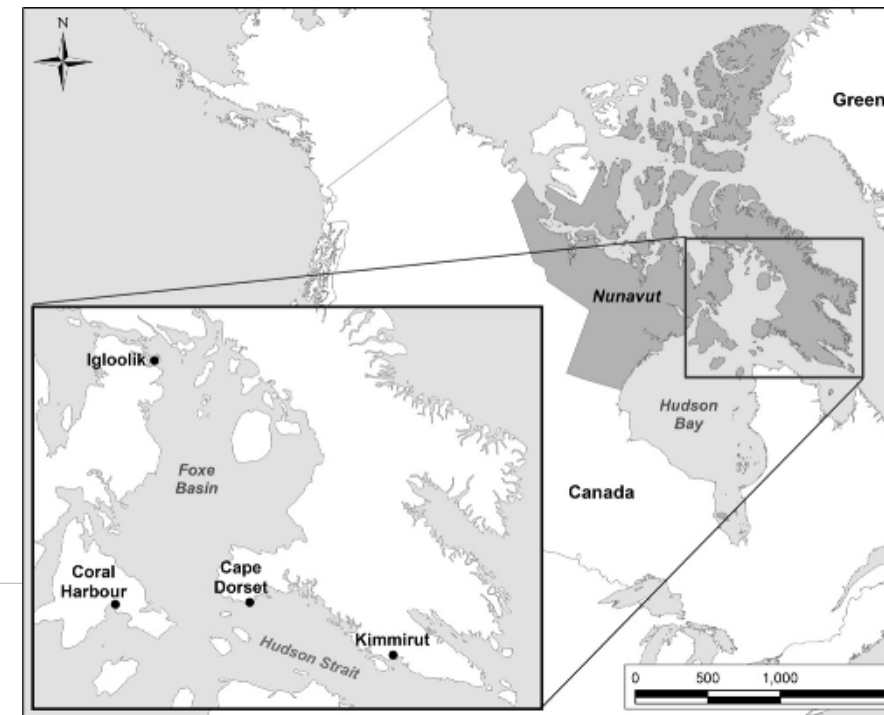
- Project addressing Inuit concerns about avian cholera
- Conducted as partnership between ECCCC and local hunters and trappers organizations
- Specific objectives:
 - Documenting Inuit knowledge about avian disease
 - Explore how Inuit knowledge can contribute to ongoing and future avian disease monitoring efforts
 - Build local capacity for Inuit engagement in monitoring/research



Methods

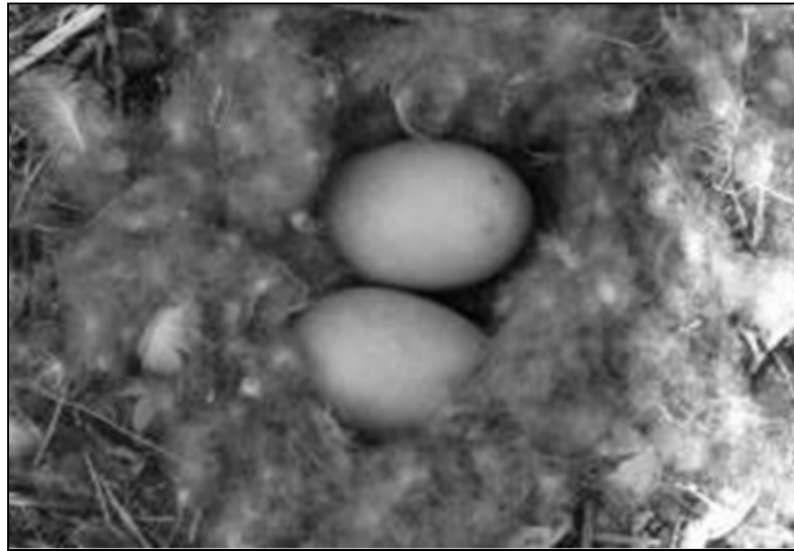


- Document Inuit knowledge about avian disease and mortality in four communities (Nunavut)
- 40 interviews + mapping with Inuit hunters and elders
- Field research team: researcher + local assistant + local interpreter
- Validation and results sharing with communities



Results

- Inuit harvesting practices and uses of the Common eider
 - All participants engaged in various activities: harvest for meat, eggs, and/or feather down, making of clothes and accessories
 - 60% (n=40) of participants visited eider colonies during seasons of confirmed avian cholera outbreaks



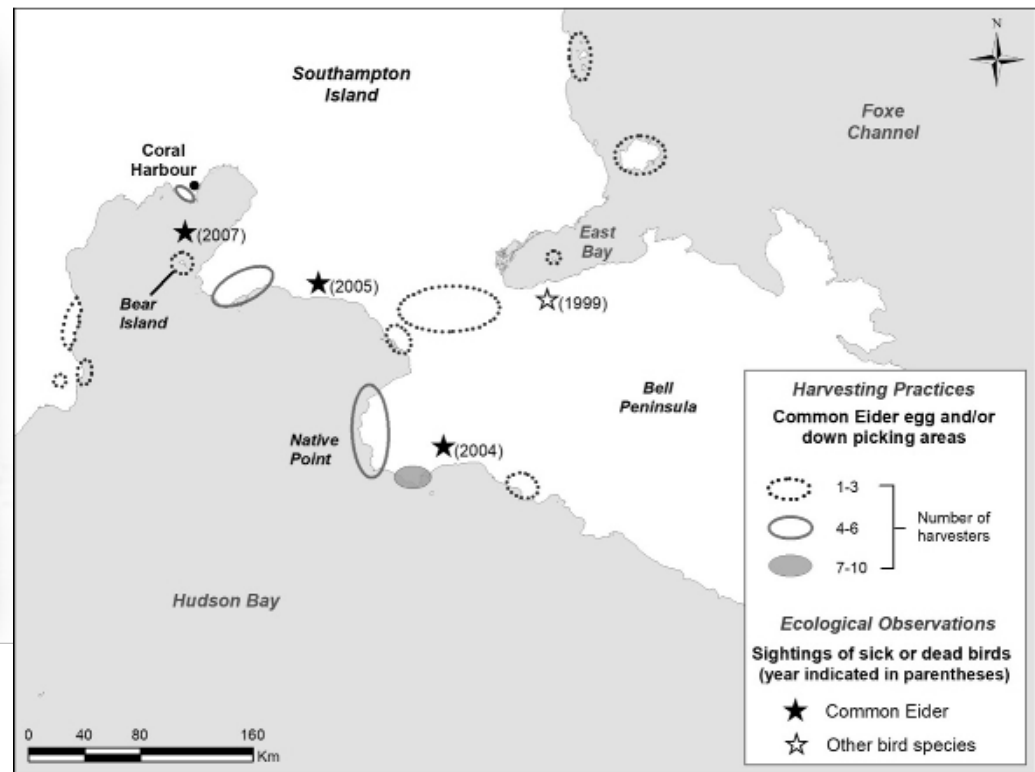
Results



- Avian disease and mortality events
 - 38% of participants (n=40) reported avian disease/mortality events
 - Total of 14 disease/mortality events directly observed by participants between 1956 and 2008 (total of 8 Common Eiders and 41 specimens of other bird species)
 - Mention of two past mass mortality events (heard from stories)
 - Detailed reports about timing/location/number of sick/dead birds
 - Temporal scope of observations: 2-3 years generations
 - Spatial scope of observations: within 215 km radius from community
 - Most events observed at sea, on sea ice or on small nesting islands – *would have gone undetected by biologists monitoring larger nesting colonies*
 - Results support hypothesis of recent (2004) emergence of avian cholera in the eastern Canadian Arctic

Results

- Avian disease and mortality events
 - Map of Common Eider harvesting areas and observations of avian disease/mortality events produced for each community
 - Example: Coral Harbour



Implications for wildlife monitoring

- Inuit knowledge is valuable for monitoring avian cholera and other wildlife diseases in the Arctic
 - Effective detection of unusual ecological events (avian disease)
 - Drawing attention to phenomena undetected by scientists
 - Provide unique observations
- Toward collaborative monitoring
 - Importance of comparing spatial and temporal scales
 - Importance of communication



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Read also: Henri, D. A., F. Jean-Gagnon, and H. G. Gilchrist. 2018. Using Inuit traditional ecological knowledge for detecting and monitoring avian cholera among Common Eiders in the eastern Canadian Arctic. *Ecology and Society* 23(1):22.
<https://doi.org/10.5751/ES-09289-230122>

A black and white photograph of a polar bear on a piece of ice, eating a seal pup. In the background, a Common Eider is visible on another piece of ice. A speech bubble is positioned above the eider.

Questions ?

This project was funded by Environment and Climate Change Canada, the Nunavut Wildlife Research Trust and the Rhodes Trust.