

## Steven H. Ferguson



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## Project profile #9 - February 2011

## Research on Arctic marine mammals

## Summary

The central emphasis of this project is to collect detailed empirical information throughout the Canadian Arctic marine ecosystems, using diverse methods including both scientific and local knowledge. Research will incorporate community-based monitoring to collect ecosystem samples and engage northerners in developing their scientific capacity.



## Polar bears habitat monitoring

The specific focus is on intensive sampling of selected marine mammal species, including polar bears, which are dominant upper trophic-level consumers in the Arctic marine ecosystem and key species for Inuit subsistence hunting culture. Several areas of mammal health will be studied, including diet, diseases, contaminants, and stress. Satellite tracking, tissue samples from local hunters, genetic and population modeling will be used to understand change.

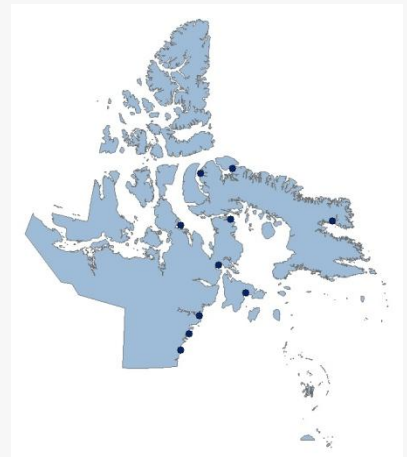


## Satellite tracking of whales

This project will examine how global warming affects marine mammals in the Arctic and answer: Can marine mammals adapt to global warming – and what are the possibilities for future survival? What is the relationship between warming temperatures and the habitats of polar bears, seals, and whales? What are the potential effects of global warming on reproduction, and how many mammals will survive? What will be the effects of changes on northern communities and Inuit lifestyle? How can we reduce the effects of these changes and assist northern communities and species into an uncertain future?

Knowing how Arctic ecosystems may change with global warming will help to develop strategies for conservation and species management.

## Study site locations



Arctic Bay, Arviat, Churchill, Repulse Bay, Chesterfield Inlet, Coral Harbour, Igloolik, Kugaaruk, Pangnirtung, Pond Inlet, Sanikiluaq, Whale Cove.

## Local collaborations

Partnerships include HTOs, local hunters and guides, and other community members in, Arctic Bay, Arviat, Repulse Bay, Chesterfield Inlet, Igloolik, Kugaaruk, Pangnirtung, Pond Inlet, Sanikiluaq, Nunavut Tunngavik Inc. (NTI), the Igloolik Research Centre (Nunavut Research Institute), the Nunavut Wildlife Management Board (NWMB), ecotourism operators, Parks Canada, and Government of Nunavut Conservation Officers (CO).

## Questions to Researchers

ArcticNet recognizes the importance of framing climate change issues from various perspectives. Below we are asking a few questions to the project leaders in order to identify scientific priority issues and demonstrate how the research results can be used by policy and decision-makers in terms of community and climate change adaptation planning in the Eastern Canadian Arctic.

*1) From your own research perspective can you identify and describe the key issues that are (will be?) affecting social, economic or environmental conditions in the Eastern Canadian Arctic?*

Inuit hunt all Arctic marine mammals including walrus, polar bear, seals, bowhead, beluga whales, and narwhal. As the Arctic warms it is losing sea ice and it is sea ice that is the critical habitat of these mammals. Therefore, Inuit subsistence hunts will be reduced as conservation measures are enacted to save these ice-adapted mammals. Reduced hunting is the least preferred management option because it will have profound implications to Inuit culture and socioeconomic relations.

*2) How will your ArcticNet project contribute to a better understanding of these issues affecting the Eastern Canadian Arctic?*

We are providing information to understand and predict how changes in numbers and distribution of marine mammals will occur with the continued loss of sea ice. Will they have trouble growing and producing young or will they die from new predators and disease? If we understand how these changes will occur we may be able to slow its progression or concentrate efforts to save important habitats or populations.

*3) Provide an example of how the results of your project may contribute to the decision-making process with respect to these issues.*

Advanced knowledge of ongoing changes can assist local managers with quotas for marine mammals that may be at risk. Changes in predation may be one way that the Arctic will see a transition from ice-adapted species to more temperate species. Our killer whale research indicates that they are a new predator to the Hudson Bay region and that small local prey populations may be at risk. For example, the Northern Hudson Bay narwhal population is located further south than any other narwhal stock and may be suffering increased predation from killer whales. Our research has contributed to a better co-management realization that narwhal in the region need to be managed carefully.

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