



**THE HUDSON BAY PROJECT  
ECOSYSTEM STUDIES IN COASTAL  
ARCTIC TUNDRA**

**The Hudson Bay Project: 20  
years of collaboration to  
characterize the effects of  
goose herbivory in Hudson  
Bay, Canada**

# HBP Objectives

- Understand and quantify the ecological processes and interactions between (snow) geese and the community of other species in coastal ecosystems of Hudson Bay and James Bay
- Translate findings into useable management tools, monitoring programs and projections
- Contribute to the training and education of the next generation of ecologists and resource managers

Canada Geese

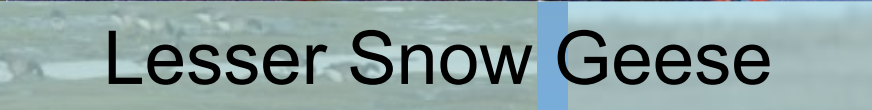


Ross's Geese



Cackling Geese

Lesser Snow Geese



Brant



# Project History

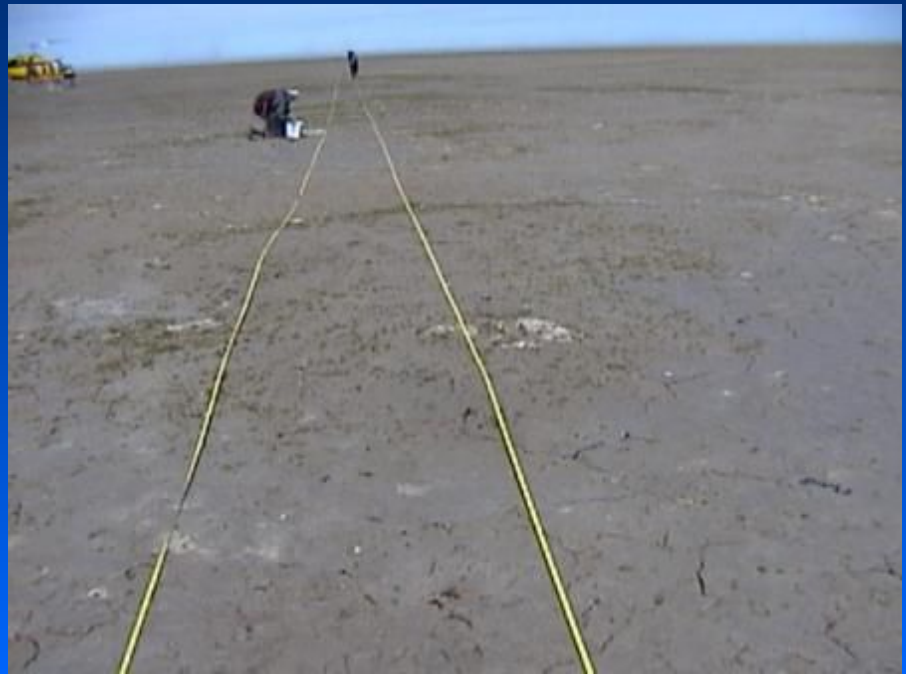
- 1968 to 1992 - La Pérouse Bay Snow Goose Project – Fred Cooke, Queen's U, Kingston, Ontario
- 1978 to 1992 – Robert Jefferies, U Toronto, studies of plants and herbivory at La Pérouse Bay
- 1993-2009 – Hudson Bay Project led by Jefferies, Robert Rockwell (City U New York, American Museum of Natural History) and Ken Abraham (Ontario Ministry of Natural Resources)
- 2009-2014 – Hudson Bay Project “after Jefferies” – New PI including Christa Mulder (U Alaska), Scott McWilliams (U Rhode Island), Susan Ellis-Felege (U North Dakota), Kit Schnaar (U of Jamestown)

# HBP Habitat Research & Monitoring Components

- Long-term transects, protected plots, recovery plots
- Short-term biomass plots, transplant experiments, rapid assessment transects and plots
- Satellite image land-cover classification, NDVI vegetation change detection
- Medium and short-term, species-specific habitat assessment

# HBP Habitat Research & Monitoring Components (cont.)

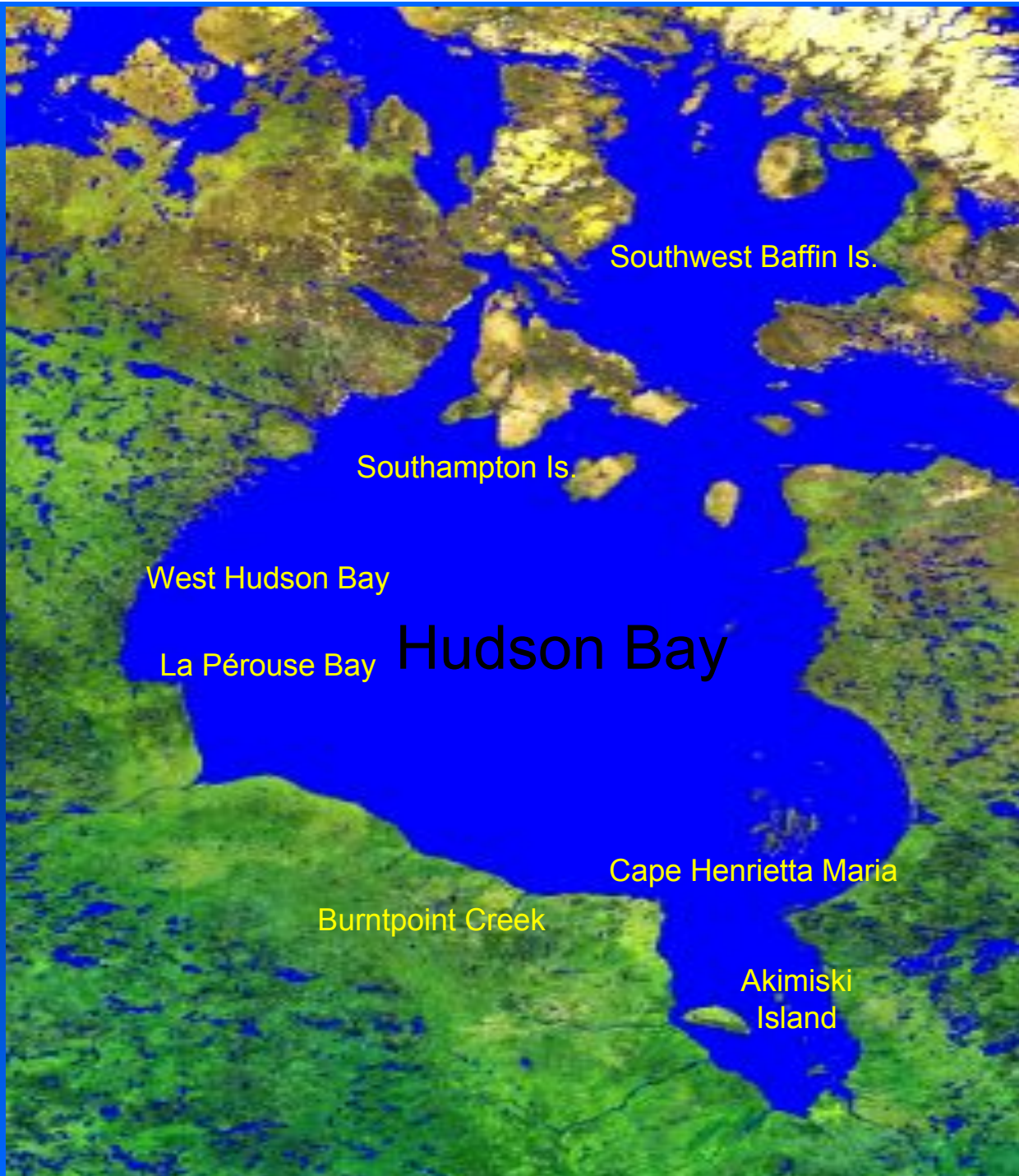
- Plant phenology – individual plant tracking
- ‘Citizen-science’ outreach to school children
- Rapid assessment of goose herbivory



# HBP Habitat Research & Monitoring Sites

- La Pérouse Bay-Cape Churchill, Manitoba
- Akimiski Island, Nunavut
- Hudson Bay-James Bay coast, Manitoba, Ontario, Nunavut
- Southampton Island, Nunavut
- Alaska





Southwest Baffin Is.

Southampton Is.

West Hudson Bay

La Pérouse Bay

Hudson Bay

Cape Henrietta Maria

Burntpoint Creek

Akimiski  
Island

# HBP Principal Investigators

- Robert Jefferies, Robert Rockwell, Ken Abraham (founders)
- Jim Leafloor, Walter Skinner, Andrew Jano, Peter Kotanen
- Evan Cooch, Dave Koons
- Rod Brook, Lyle Walton
- Christa Mulder, Scott McWilliams,

# HBP Collaborators

- Canadian & US Wildlife Services/Environment Canada
  - Jim Leafloor, Ken Ross, Dale Caswell, Andrew Didiuk, Keith Hobson, Jack Hughes, Joel Ingram, Todd Kemper, Tim Moser, Paul Smith, Grant Gilchrist, Guy Morrison
- Others
  - Lise Aubry, Dave Beresford, Brian Darby, Marcus Dyck, Mike Johnson, Kate Edwards, Gilles Gauthier, Milton Freeman, Dave Koons, Maarten Loonen, Erica Nol

# Institutional & Financial Support

- Two universities, one provincial government (core)
- Canadian and US Federal governments
- Arctic Goose Joint Venture
- Migratory Birds Flyway Councils
- National Science Councils
- Numerous smaller contributors and granting agencies

# HBP Contributions

- Students (9 Ph.D., 17 M.Sc, >200 undergraduates)
- Peer reviewed papers (>450)
- Major Technical Reports – Arctic Goose Joint Ventures/CWS/USFWS
- Management plans
- Working groups (Arctic Goose Habitat)
- Litigation support (US and Canadian courts)

# Successful Collaboration Models

Hudson Bay Project has engaged with other collaborative enterprises

- Arctic Goose Joint Venture
- IPY ArcticWOLVES
- Arctic Shorebird Demographics Network

# Arctic Goose Joint Venture

- Part of the NA Waterfowl Management Plan
- Convened Arctic Habitat Working Group
- Centrally involved in the snow goose issue
- Special publications on Lesser Snow, Greater Snow and Ross's goose
- Structure of JV: US, Canada, 4 Flyways, Provinces

# IPY ArcticWOLVES

- Multi-site, pan-arctic collaboration, multiple investigators
- Central Coordination
  - Gilles Gauthier and Dominique Berteaux at Laval University, Quebec, Canada
- Large core funding shared among participants
  - Government of Canada IPY
  - National Science and Engineering Research Council IPY
- Specific questions and framework
- Cross site projects designed and implemented
- Cooperative development of data collection protocols
- Centralized data depository, data architect/coordinator
- Communications coordinator
- Annual meetings with high attendance
- Joint publications



# Arctic Shorebird Demographics Network

- Multi-site, pan-arctic collaboration, multiple investigators
  - 17 partners at 16 camps
  - Memorandum of Agreement to Principles and Conduct
- Central coordination
  - Overall Coordinator: Stephen Brown (Manomet Center for Conservation Science)
  - Science Coordinator: Richard Lanctot (USFWS),
  - Study Design and Analysis Lead: Bret Sandercock (Kansas State U)
- Large core funding shared among participants
  - Neotropical Migratory Bird Conservation Program, USFWS;
  - Arctic Landscape Conservation Cooperative
- Specific questions and framework
- Cross site projects designed and implemented
  - Memorandum of Agreement for side-projects
- Cooperative development of data collection protocols
- Centralized data depository, data coordinator
- Joint publications – proposal process

# Next Steps in Collaboration

- Objectives are to determine nature, extent and intensity of Snow/Ross's goose herbivory at scale of NA arctic as a whole and to quantify impact on other species
- CWS - Habitat specialist hired (Todd Kemper)
- ASDN- Side Project MOU (Paul Smith)
- AGJV, CWS and Environment Canada central funding

# Key Elements

- Specific questions and objectives
- Strong Leadership – committed, long term
- Core funding - shared with network members
- Central data repository and analysis – dedicated staff person if possible
- Follow through – publication, open access

# Web Sites

- Hudson Bay Project

<http://research.amnh.org/~rfr/hbp/main.html>

- ArcticWOLVES

[http://www.cen.ulaval.ca/arcticwolves/en\\_intro.htm](http://www.cen.ulaval.ca/arcticwolves/en_intro.htm)

- Arctic Shorebird Demographics Network

<https://www.manomet.org/ASDN>

- Arctic Goose Joint Venture

<https://www.agjv.ca>

- Churchill Community of Knowledge

- <http://yorkspace.library.yorku.ca/xmlui/handle/8089>