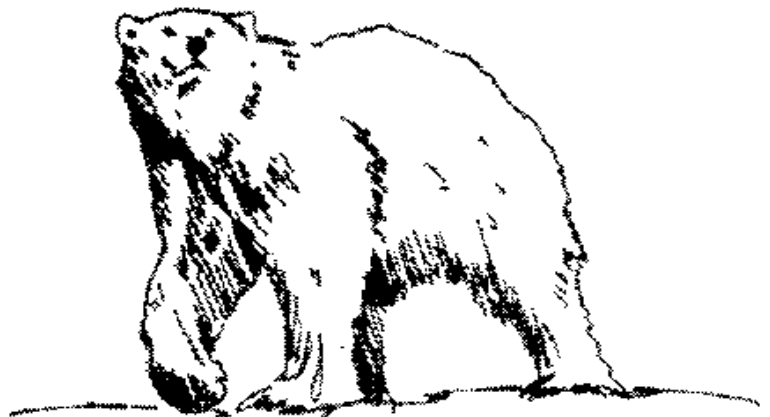
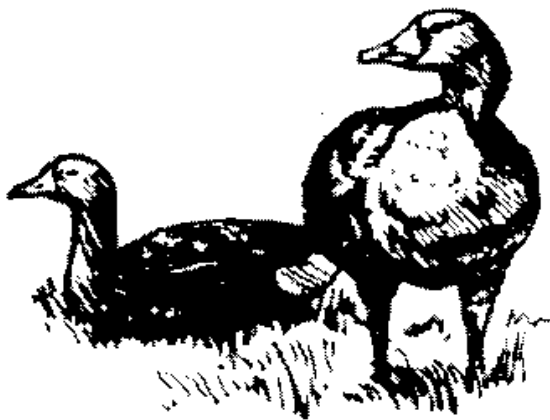


# CANADIAN WILDLIFE SERVICE

## *Current Activities in the Northwest Territories and Nunavut*



Canadian Wildlife Service  
Prairie and Northern Region  
Yellowknife, NWT  
1999

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# INTRODUCTION

The Canadian Wildlife Service (CWS) has conducted wildlife research in the Northwest Territories (NWT) and Nunavut (NU) for over 50 years. However, the total CWS effort dedicated to northern wildlife issues is often not apparent. Northern expertise is widely distributed throughout the Service and as a result, projects are undertaken from several centres including Yellowknife, Edmonton, Saskatoon, Winnipeg, Hull, Ste. Foy, and Mt. Pearl (near St. John's).

The Northern Conservation Division in Yellowknife is part of the Prairie and Northern Region, and coordinates programs in the NWT and Nunavut.

This document provides an overview of CWS northern programs and projects and is a reference guide to CWS northern expertise. (Names and addresses are at the end of the report.) Comments on the content and utility of this document are welcome. Please direct your comments to:

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## LIST OF ACRONYMS

AC	Arctic Council	NAWMP	North American Waterfowl Management Plan
AES	Atmospheric Environment Service	NEI	Northern Ecosystem Initiative
AGJV	Arctic Goose Joint Venture	NFA	Nunavut Final Agreement
AHSD	Arctic Hydrometric Surveys Division	NLCA	Nunavut Land Claim Agreement
ARI	Aurora Research Institute	NOW	Northwater Polynya
CAFF	Conservation of Arctic Flora and Fauna	NRCAN	Natural Resources Canada
CEAA	Canadian Environmental Assessment Act	NRI	Nunavut Research Institute
COSEWIC	Committee on the Status of Endangered Wildlife in Canada	NSERC	National Science and Engineering Research Council
CWA	Canada Wildlife Act	NTI	Nunavut Tunngavik Incorporated
CWS	Canadian Wildlife Service	NU	Nunavut
DFO	Department of Fisheries and Oceans	NWA	National Wildlife Area
DND	Department of National Defence	NWMB	Nunavut Wildlife Management Board
DU	Ducks Unlimited	NWRI	National Water Research Institute
EC	Environment Canada	NWT	Northwest Territories
EMAN	Ecological Monitoring and Assessment Network	PC	Parks Canada
EPB	Environmental Protection Branch	PCB	Polychlorinated Biphenyl
GFA	Gwich'in Final Agreement	PCSP	Polar Continental Shelf Project
GNU	Government of Nunavut	RCMP	Royal Canadian Mounted Police
GNWT	Government of the Northwest Territories	SDJV	Seaduck Joint Venture
GRRB	Gwich'in Renewable Resources Board	SFA	Sahtu Final Agreement
HTC	Hunters and Trappers Committee	SRRB	Sahtu Renewable Resources Board
HTO	Hunters and Trappers Organization	USFWS	US Fish and Wildlife Service
IFA	Inuvialuit Final Agreement	USGS	US Geological Service
IGC	Inuvialuit Game Council	WAPPRIITA	Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act
IIBA	Inuit Impact and Benefit Agreement	WBNP	Wood Buffalo National Park
INAC	Department of Indian Affairs and Northern Development	WHC	Wildlife Habitat Canada
ISR	Inuvialuit Settlement Region	WHSRN	Western Hemispheric Shorebird Reserve Network
MBCA	Migratory Birds Convention Act	WMAC	Wildlife Management Advisory Council (Inuvialuit)
MBS	Migratory Bird Sanctuary	WWF	World Wildlife Fund
MVRMA	Mackenzie Valley Resource Management Act		

## **A. CWS ROLES AND RESPONSIBILITIES**

CWS is responsible for management of wildlife in the national interest. Its roles and responsibilities derive from the following legislation:

### **1. Migratory Birds Convention Act (MBCA)**

Under this act, CWS is responsible for the conservation and management of migratory birds in Canada and administers the Migratory Birds Regulations which govern hunting and possession of migratory birds. The Migratory Bird Sanctuary Regulations provide the legal basis for CWS to establish and manage bird sanctuaries. As of 1999, there were 17 Migratory Bird Sanctuaries (MBS) in the NWT and Nunavut.

### **2. Canada Wildlife Act (CWA)**

This act enables CWS to protect wildlife species in danger of extinction and to acquire lands for wildlife research, conservation, and interpretation. These lands, known as National Wildlife Areas (NWA), are managed in accordance with the Wildlife Area Regulations. NWAs are managed in cooperation with local people in accordance with the terms of various land claim agreements throughout the north. As of 1999 there are two National Wildlife Areas in Nunavut.

### **3. Wild Animal and Plant Protection Act (WAPPRIITA)**

In cooperation with the provinces and territories, CWS may control or prohibit importation into or export from Canada, or transport between provinces, of any wild animal or plant.

### **4. International Issues**

CWS is responsible for Canadian participation in international agreements and fora such as the International Polar Bear Agreement, the Ramsar Convention on Wetlands of International Importance, and the Circumpolar Agreement on the Conservation of Arctic Flora and Fauna. CWS plays a major role in the international management of migratory birds through the North American Waterfowl Management Plan (NAWMP), the way Councils, Western Hemispheric Shorebird Reserve

Network (WHSRN), and other cooperative efforts.

## **5. National Issues**

CWS plays a role in all domestic interjurisdictional wildlife issues. For example, CWS provides a secretariat for the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and participates on the Polar Bear Technical and Management Committees.

Over the years, CWS has played a key role in determining the distribution of contaminants in wildlife species, particularly in migratory birds through the Northern Contaminants Program. CWS also collaborates with Health Canada to inform northern residents about the levels of contaminants in country foods.

## **B. NORTHERN INITIATIVES**

In addition to ongoing roles and responsibilities, CWS programs support a number of northern initiatives.

### **1. Land Claims**

Virtually all of the NWT and Nunavut are subject to comprehensive land claims by aboriginal peoples (Figure 1). The Inuvialuit Final Agreement was concluded in 1984, the Gwich'in Final Agreement in 1992, the Nunavut Land Claim Agreement in 1993, and the Sahtu Final Agreement in 1994. Negotiations with respect to outstanding land claims are ongoing in the southern NWT. CWS participates in main table and land selection negotiations and also implements various legal and administrative obligations arising from the completed land claims. CWS collaborates with the Wildlife Management Boards on an ongoing basis.

### **2. Sea Duck Joint Venture (SDJV)**

The SDJV, a component of NAWMP, is intended to enhance our understanding and management of seaducks. The SDJV identifies research priorities and funding requirements, reviews research proposals, and communicates project results to interested parties. The Venture includes representatives from the Canadian and U.S. federal governments, provincial/territorial and state governments, flyway councils and non-government groups.

### 3. Arctic Goose Joint Venture (AGJV)

The AGJV, a component of NAWMP, is intended to enhance our understanding and management of arctic geese. The AGJV identifies research priorities and funding requirements, reviews research proposals, and communicates project results to interested parties. The Venture includes representatives from the Canadian and U.S. federal governments, provincial/territorial and state governments, flyway councils and non-government groups.

### 4. Northern Ecosystem Initiative (NEI)

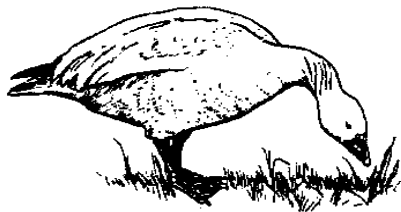
The NEI is an Environment Canada (EC) initiative intended to facilitate coordinated action to identify and address priority issues that relate to the health and sustainability of northern communities and ecosystems. EC's principal areas of interest are: Atmospheric change, biodiversity, contaminants, and impacts of major developments.

### 5. Northern Contaminants Program (NCP)

Through the NCP, CWS has provided information on the acceptability of wild foods, including migratory birds, for human consumption. The identification, geographical distribution, temporal trends and effects of persistent organic contaminants in polar bears has also been extensively studied.

### 6. Arctic Council (AC)

The Arctic Council was established in 1996 as a high level forum to promote cooperation among the Arctic States, with involvement of the Arctic indigenous communities and other Arctic inhabitants, on common issues, particularly sustainable development and environmental protection in the Arctic. Five Working Groups support the Council, including one which addresses the Conservation of Arctic Flora and Fauna (CAFF). CWS is active in the CAFF Program.



## C. CWS ACTIVITIES AND PROGRAMS

### INTERNATIONAL PROGRAMS

The CAFF Program is a forum for scientists, indigenous peoples and policy makers to address issues of circumpolar conservation concern. Current initiatives include: an overview of the status and trends in key circumpolar species and ecosystems, assessment of the ecological impacts of climate change, and development of a circumpolar approach to monitoring biodiversity in the Arctic. CWS is the lead agency for coordinating Canada's contribution to this program

Duration: Ongoing

Contact: Kevin McCormick

### LAND CLAIMS

#### 1) Inuvialuit Final Agreement (IFA)

Signed in 1984, this was the first comprehensive land claim in the NWT. All of the one-time biological resource-related studies for which CWS is responsible have been completed. CWS contributes to the ongoing Inuvialuit Harvest Study which documents the extent of subsistence harvest within the Inuvialuit Settlement Region (ISR). CWS sits on the Wildlife Management Advisory Council (WMAC) which deals with all significant wildlife issues relating to the ISR. CWS also provides advice in support of the Southern Beaufort Sea Polar Bear Management Agreement between the Inuvialuit of Canada and the Inupiat of Alaska.

Duration: Ongoing

Contact: Jim Hines

#### 2) Gwich'in Final Agreement (GFA)

Full implementation of this agreement, which was signed in 1992, will occur over a number of years. A CWS employee is a member of the Gwich'in Renewable Resources Board (GRRB) which deals with all significant wildlife issues relating to the Gwich'in Settlement Area.

Duration: Ongoing

Contact: Paul Latour

### **3) Nunavut Land Claims Agreement (NLCA)**

Full implementation of this agreement, which was signed in 1993, will occur over several years. A CWS employee is a member of the Nunavut Wildlife Management Board (NWMB) which deals with all significant wildlife issues relating to the Nunavut Settlement Area.

Duration: Ongoing

Contact: Kevin McCormick

### **4) Sahtu Final Agreement (SFA)**

Full implementation of this agreement, which was signed in 1994, will occur over a number of years. A CWS employee is a member of the Sahtu Renewable Resources Board (SRRB) which deals with all significant wildlife issues relating to the Sahtu Settlement Area.

Duration: Ongoing

Contact: Paul Latour

### **5) Dogrib Land Claim**

As the federal wildlife agency, CWS is part of the federal team negotiating a land claim with the Dogrib Treaty 11 Council. CWS represents federal wildlife interests, in particular migratory birds and their habitats.

Duration: Ongoing

Contact: Paul Latour

### **6) Deh Cho Land Claim**

The Deh Cho First Nation has expressed interest in negotiating some form of a land claim agreement.

Duration: Ongoing

Contact: Paul Latour

## **MIGRATORY BIRDS**

### **GEESE AND SWANS**

#### **7) Arctic Goose Joint Venture (AGJV) Coordinating Office**

CWS maintains the Coordinating Office for the AGJV. The office, located in Edmonton, receives project proposals and ensures that there is effective

liaison between the AGJV Technical Committee and Management Board, all participating partners, and other interested parties.

Duration: Ongoing

Partners: Governments of NWT, Manitoba, Saskatchewan and Alberta, DU, WHC, USFWS, U.S. state governments

Contact: Deanna Knudson

#### **8) Waterfowl Population Management in the NWT**

Waterfowl are an international resource shared by a number of political jurisdictions. The NWT waterfowl program ensures that residents receive full consideration in waterfowl management programs. This work entails establishing annual bag limits and hunting regulations, reviewing and developing waterfowl management plans, and evaluating the potential impact of development on waterfowl populations and habitat. Databases on waterfowl population trends, status, and harvest are maintained and analyzed for this purpose.

Duration: Ongoing

Partners: WMAC, federal, territorial, provincial, and state governments

Contact: Jim Hines, Mike Fournier

#### **9) Management of Expanding Snow Goose Populations**

Feeding activities by the rapidly expanding mid-continent population of Lesser Snow Geese have caused extensive damage to coastal marshes along west Hudson Bay. This has prompted wildlife managers to consider a variety of hunting measures to reduce that population. CWS, in cooperation with the territorial, provincial, and U.S. federal and state governments, is implementing numerous techniques to increase harvest of snow geese and stop further environmental damage.

Duration: Ongoing

Partners: Governments of NWT, Nunavut, Saskatchewan, Alberta, Ontario, and Quebec; USFWS, U.S. state governments, DU.

Contact: Dave Duncan

### **10) Populations and Habitat of Snow Geese in the Inuvialuit Settlement Region**

The growing colony of Lesser Snow Geese nesting on Banks Island is harvested throughout its migratory range and by nearly all of the communities in the Inuvialuit Settlement Region (ISR). Smaller, less secure colonies at Kendall Island and Anderson River on the mainland of the ISR are also widely harvested. The primary objective of this project is to gather information for a population and habitat management plan which would prevent Snow Geese from over-grazing the lowland habitats of Banks Island while still protecting the smaller goose colonies on the mainland of the ISR from over-harvest. The study is gathering information on goose habitat, harvest, and population size and distribution. The possible effects of the expanding Banks Island colony of Snow Geese on shorebirds and songbirds will also be investigated, and the feasibility of increasing the spring subsistence harvest of Snow Geese in the ISR is being evaluated.

Duration: 1999 to 2004

Partners: WMAC, PCSP, NEI

Contacts: Jim Hines, Paul Latour

### **11) Nutritional Ecology and Population Biology of Ross' Geese at Karrak Lake**

The largest known colony of Ross' Geese occurs at Karrak Lake, Nunavut. The objective of this project is to construct a model that describes fluctuation in the size of the spring and fall populations of Ross' Geese in North America. It is intended to determine which factors (e.g. spring nutrition, arctic weather) most affect the variation in sizes of goose populations.

Duration: Ongoing

Partners: PCSP, University of Saskatchewan, DU, GNWT, GNU, INAC

Contact: Ray Alisauskas

### **12) Monitoring Survival and Recovery Rates in Mid-continent White-fronted Geese**

Recent banding of mid-continent White-fronted Geese in the central and western arctic and in Alaska has yielded valuable information on their distribution during migration and in winter.

What were formerly considered eastern and western portions of this goose population show strong mixing outside of the breeding range. Estimates of annual survival are needed to assess the effects of changes in regulations and other management actions. A five-year banding effort is currently under way.

Duration: 1998 to 2002

Partners: Central and Mississippi Flyway Councils, PCSP

Contact: Ray Alisauskas

### **13) Inventory of Snow and Ross' Geese in Arctic Canada by Vertical Aerial Photography**

CWS has conducted air photo surveys of Snow and Ross' goose colonies in Arctic Canada since the early 1970s. CWS attempts to survey each of the major white goose breeding areas every five years to track changes in population size. This information is used to establish hunting seasons, bag limits, and for related management decisions.

Duration: Ongoing

Partners: PCSP, WMAC, USFWS

Contact: Dick Kerbes, Keith Warner, Kathy Meeres

### **14) Population Size, Distribution and Survival of Eastern Arctic Geese**

This project addresses several species of concern. CWS monitors the population size of Small Canada Geese, Lesser Snow Geese, Ross' Geese, Sandhill Cranes and Tundra Swans on the Great Plains of the Koukdjuak (west Baffin Island) and along the west coast of Hudson Bay. Marked birds are monitored during their migration and on their wintering areas to determine their distribution and survival rate. This information is used to establish harvest regulations. It also assists in the design of management actions that will increase the harvest of white geese.

Duration: 1991-2007

Partners: AGJV, GNWT, USFWS, PCSP, GNU, Government of Manitoba, Central and Mississippi Flyway councils, Wildlife Management Institute, NWMB, Arviat HTO

Contact: Dale Caswell

### **15) Greater Snow Goose Feeding Ecology and Habitat Relationships on Bylot Island**

Greater Snow Geese numbers have reached record levels in recent years and continue to increase. High densities could lead to habitat degradation on Bylot Island which supports a major portion of this population. This study will consider how goose feeding activity affects the quality of their habitat and how habitat quality (and other factors) influences goose productivity.

Duration: Ongoing

Partners: AGJV, PCSP, Université Laval

Contact: Austin Reed

### **16) Goose Studies in James Bay**

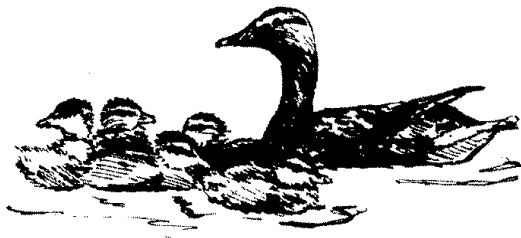
The coastal wetlands of James Bay are a major staging area for Atlantic Brant, Canada Geese, and Lesser Snow Geese, species important to the Cree and Inuit hunters of northern Quebec. Many Canada Geese also nest and rear young in nearby freshwater marshes. This study will provide information on the ecological requirements of the geese during their staging and breeding periods in order to assess, predict and mitigate impacts from development activities.

Duration: Ongoing

Partners: AGJV, James Bay Energy Corporation, Groupe Environment Shooner, Eeyou Corporation

Contact: Austin Reed

## **DUCKS**



### **17) Population Ecology of Lesser Scaup in the Boreal Forest of Western Canada**

Numbers of Lesser Scaup have declined well below continental population goals and there is considerable concern about the well-being

of this species. This study will evaluate factors which limit the reproductive success and potential growth of Lesser Scaup populations in an important part of their North American range - the boreal and subarctic region of the Northwest Territories.

Duration: 1985 to present

Partners: University of Saskatchewan, Delta Waterfowl Foundation, NWT Department of Transportation, DU.

Contact: Jim Hines, Mike Fournier, Bob Clark

### **18) Ecology of Horned and Red-necked Grebes**

Horned Grebes, Red-necked Grebes, and other aquatic birds are potential indicators of the health of aquatic ecosystems in boreal and sub-arctic regions. Environmental and behavioral factors which influence the reproductive success of grebes are being studied near Yellowknife, Northwest Territories.

Duration: 1999 to 2002

Partners: Simon Fraser University, NSERC

Contact: Mike Fournier, Jim Hines

### **19) Productivity of Boreal Forest Duck and Grebe Populations**

The boreal forest covers one-third of Canada and supports an estimated 25-50% of the continent's breeding ducks. This study is intended to: 1) document the long-term population trends and productivity of waterfowl in the boreal forest; 2) determine factors which might limit the growth of these populations; 3) determine the habitat preferences and requirements of northern waterfowl; and 4) evaluate methods for surveying northern aquatic birds. In conjunction with this study, CWS is investigating waterfowl, gull and tern populations using the North Arm of Great Slave Lake during migration, nesting and moulting periods.

Duration: 1985 to present

Partners: DU, INAC, AHSD/EC, University of Saskatchewan

Contact: Jim Hines, Mike Fournier



## **20) Harvest of King and Common Eiders at Holman**

Nearly all of the Canadian harvest of western Arctic eiders occurs near Holman, NWT. This study will further our understanding of the impact of the Holman hunt on eider populations. It will also test the usefulness of a migration count at this location to determine the proportion of the eider subpopulation being harvested. More specifically, data are being collected each spring on the number of eiders that migrate past Holman, timing of the migration, the number of eiders harvested (including those shot but not retrieved), and the sex, age, and body condition of harvested birds.

Duration: 1996-1999

Partners: WMAC, Holman HTC

Contact: Lynne Dickson

## **21) Distribution and Abundance of Pacific Common Eiders in the Central Arctic**

Surveys during spring migration suggest that >80% of the Pacific Common Eiders that breed in Canada occur in Dolphin and Union Strait, Coronation Gulf and Queen Maud Gulf. This study will document the size and location of Pacific Common Eider nesting colonies, provide a breeding population estimate for the Central Arctic, and establish a baseline for further monitoring of the eider population.

Duration: 1995-1999

Partners: EPB/EC, PCSP

Contact: Lynne Dickson

## **22) Pacific Common Eider Reproductive Ecology and Survival in the Central Arctic**

The Pacific Common Eider population that nests in central and western Arctic Canada declined by more than 50% between 1976 and 1996. Reasons for the decline are unknown. A study of their reproductive ecology, including identification of the factors

affecting productivity and survival, will help determine the cause of the recent declines. The study will be conducted in outer Bathurst Inlet.

Duration: 2000 to 2010

Partners: NEI, NWMB, PCSP

Contact: Lynne Dickson

## **23) Survival and Reproduction of King Eiders at Karrak Lake**

North American King Eiders are believed to have decreased by 75% over the last four decades. Basic information on changes in population size, breeding and wintering ecology of King Eiders is needed to develop a management and conservation strategy for this species. A study has been initiated at Karrak Lake which supports a "semicolonial" nesting aggregation of King Eiders.

Duration: 1995-2000

Partners: NWMB, PCSP, Institute for Waterfowl and Wetlands Research, Delta Waterfowl and Wetlands Research Stations, University of Saskatchewan, NSTP

Contact: Ray Alisauskas

## **24) Locations of Key King Eider Moulting and Wintering Areas in the Western Arctic**

It is suspected that the decline in the western Arctic population of King Eiders is linked to changes in the Bering Sea where the eiders moult and spend the winter. This study uses satellite transmitters implanted in King Eiders on their nesting grounds to locate the moulting and wintering areas. Aerial surveys near birds with transmitters will further pinpoint the location of key marine eider habitats.

Duration: 1997-2000

Partners: USFWS, North Slope Borough, PCSP, IGC, WWF

Contact: Lynne Dickson

## **25) Population Studies of Common and King Eiders Breeding in East Bay, Southampton Island**

Eiders are heavily hunted in maritime Canada, parts of the NWT and Nunavut, and south-west Greenland. East Bay supports one of the highest densities of Common and King Eiders in the eastern Canadian Arctic. Data collected on eider survival and reproduction from this site will provide baseline information needed to effectively manage the species.

Duration: 1996-2006

Partners: NSTP, Trent University, Coral Harbour HTO, NRI, Greenland Research Institute, Memorial University

Contact: Grant Gilchrist, Maureen Kay

## **26) Energetic Constraints during Incubation in Arctic Common Eiders: An Experimental Study**

As part of a long term study on population declines in common eiders at East Bay, Southampton Island, information is being collected on eider survival and reproductive success. A key component of eider reproductive ecology is the influence of body reserves on reproduction. Observation of incubating ducks has shown a relationship between nest attentiveness and body mass which may influence future fecundity, predation and egg development. This project will generate the first experimental and behavioral data on the affects of energy reserves on eider annual fecundity in the Canadian Arctic.

Duration: 1998-2000

Partners: Trent University

Contact: Grant Gilchrist, Erica Nol (Trent University)

## **27) Distribution and Abundance of the Northern Common Eider off Southern Baffin Island**

The northern subspecies of the Common Eider is subjected to heavy harvest throughout its range. Reliable population estimates do not exist and few key habitat sites have been identified. The southern coast of Baffin Island supports a large proportion of the eastern

Arctic breeding population, but detailed locations and breeding numbers are not known. In this study we conduct aerial surveys and ground searches of nesting colonies between Cape Dorset and Kimmirut. The study will provide the first detailed population estimate of eiders in the region and a baseline for monitoring future population trends.

Duration: 1997-1999

Partners: DU, NWMB, Mayukalik HTO, Cape Dorset HTO

Contact: Grant Gilchrist, Dave Kay (DU)

## **28) Winter Ecology of the Hudson Bay Eider in the Belcher Islands, Nunavut**

Hudson Bay Eiders are an economically important species to the community of Sanikiluaq. Eiders spend the winter in open water leads near the Belcher Islands and off the west coast of Quebec. Mass die-offs can occur when these open water leads freeze. This study examines the winter ecology and winter habitat use of the eiders which will provide a better understanding of the frequency, magnitude, and impacts of these die-offs.

Duration: 1998-2000

Partners: NWMB, WHC, WWF, Atlantic Cooperative Wildlife Ecology Research Network, Sanikiluaq, Satellite Imaging Centre of Alaska

Contacts: Grant Gilchrist, Greg Robertson

## **29) Population Delineation of King Eiders**

The eastward extent of breeding western Arctic King Eider is unknown. Preliminary information suggests that the breeding range extends across the eastern third of Victoria Island and west to Adelaide Peninsula. This study is using DNA to differentiate between the eastern and western populations. This information will help to define the breeding ranges of the two populations, and to assess the size of the subpopulation of eiders that is harvested at Holman, NWT.

Duration: 1996-2001

Partners: USGS, WMAC, NWMB

Contact: Lynne Dickson

## SHOREBIRDS

### 30) Ecology and Eco-energetics of High-arctic Shorebirds

Shorebirds undertake lengthy migrations every year from their breeding grounds in high-arctic Canada to wintering grounds in Europe and the Americas. This study will investigate the energy budgets of shorebirds during their annual cycle. The information will provide an understanding of how and where shorebirds accumulate the energy reserves necessary for their demanding life cycle. It will also help to predict how climate change may affect arctic shorebirds' distributions and their ability to complete their migrations.

Duration: Ongoing

Partners: University of Groningen (The Netherlands), Netherlands Institute for Sea Research, Joint Nature Conservation Committee (U.K.), DND

Contact: Guy Morrison

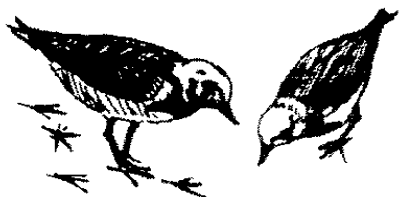
### 31) Population Studies of Shorebirds Breeding at East Bay, Southampton Island

The Canadian Arctic supports a large proportion of Canada's breeding shorebirds but their population trends and reproductive success are poorly known. On Southampton Island, local Inuit have reported recent population declines. This study will monitor long-term population densities at East Bay and identify factors influencing annual population variation and reproductive success.

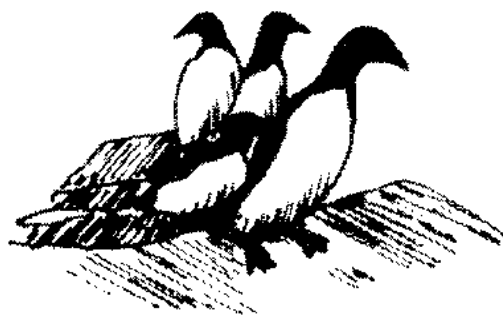
Duration: 1996 to 2006 (tentative)

Partners: NSTP, PCSP, Trent University, Coral Harbour HTO, NRI

Contacts: Grant Gilchrist, Erica Nol (Trent University)



## SEABIRDS



### 32) Population and Behavioural Studies of Sabine's Gulls, at East Bay, Southampton Island

The Sabine's Gull occupies an ecological niche different from other seabirds because it feeds in a variety of marine and fresh-water habitats. This study monitors long-term population densities at East Bay and identifies factors influencing annual population variation and reproductive success. Survival rates and fidelity of Sabine's Gulls to mates and nest sites will also be determined.

Duration: 1998 to 2001

Partners: NSTP, PCSP, Memorial University, Coral Harbour HTO, NRI

Contacts: Grant Gilchrist, Ian Stenhouse (Memorial University)

### 33) Population Surveys of Ivory Gulls Breeding on Ellesmere Island

The Ivory Gull which breeds in remote areas of the high arctic is considered vulnerable by COSEWIC because of its low numbers, few known breeding colonies, and intolerance of disturbance. The last population survey was in 1985. Recently, Inuit from Resolute Bay and Grise Fiord have reported fewer sightings of Ivory Gulls. This project will re-survey breeding colonies on Ellesmere Island, and will establish population trend data for the species.

Duration: 2000-2001

Partners: WWF, PCSP

Contact: Grant Gilchrist

### **34) Population Dynamics of Thick-billed Murres**

Thick-billed Murres are the second most-hunted migratory bird in Canada. Substantial mortality also occurs due to oiling and drowning in gill nets. In addition, aspects of murre breeding biology (diet, timing of laying, adult mass and chick growth) are affected by environmental conditions. Studying year-to-year changes in Thick-billed Murre ecology helps us to keep track of ongoing changes in local marine ecosystems. This study will increase our knowledge of Thick-billed Murre population dynamics so that more effective management strategies may be formulated.

Duration: 1984 to 2002

Partners: PCSP, University of Ottawa, Queen's University, NRI, NSTP

Contact: Tony Gaston

### **35) Eastern Arctic Seabird Population Monitoring**

In the late 1970's and early 1980's, population monitoring began at several eastern arctic seabird colonies. By comparing the populations of study plots over time, population increases and/or decreases of selected Thick-billed Murre, Northern Fulmar, and Black-legged Kittiwake colonies are monitored. Study plot assessment occurs at five-to-ten year intervals, rotating among colonies.

Duration: Ongoing

Partners: PCSP, NRI

Contact: Grant Gilchrist, Tony Gaston, Gilles Chapdelaine (Ungava Bay colonies)

### **36) Comparative Studies of Seabird Foraging and Reproductive Ecology at the Northwater Polynya, Baffin Bay**

The objective of this study is to determine the importance of the Northwater Polynya (NOW) to seabirds. Data were collected in July and August 1997 and 1998 on Coburg Island, Nunavut to assess seabird resource access, food consumption, and the role of seabirds in energy transfer. This information will be compared to similar data collected in Hakluyt Island, Greenland to determine whether these variables differ on the east and west margins of the NOW.

Duration: 1997-1999

Partners: Ornis Consult, Zoological Museum in Copenhagen, NSERC, PCSP

Contact: Grant Gilchrist, Keith Hobson

## **FOREST BIRDS**

### **37) North American Breeding Bird Survey**

This survey provides long-term trend information on many of the forest birds in the southern NWT. The NWT surveys are part of a larger program which is conducted across Canada and the United States.

Duration: Ongoing

Contact: Craig Machtans

### **38) Distribution and Abundance of Forest Songbirds With Relation to Forest Cover Type in the Liard Valley**

Development of forest and petroleum resources in the Liard Valley has progressed at an ever-increasing rate. Little is known about the forest bird communities in the area. This study will assess the abundance and distribution of forest bird species in the Liard Valley and work toward integrated management of the area.

Duration: 1998 to 2001

Partners: INAC, GNWT, Fort Liard Dene Band

Contacts: Craig Machtans, Paul Latour

## **SPECIES AT RISK**

### **MARINE MAMMALS**

### **39) Cooperative Management of Polar Bears**

CWS is responsible for the maintenance of a national data base of Polar Bear mark-recapture information. These data are used to estimate the size and movements of various Polar Bear populations in Canada.

Duration: Ongoing

Partners: Governments of NWT, Nunavut, Manitoba, Yukon, Ontario, Quebec; NSTP, WWF

Contact: Wendy Calvert, Ian Stirling

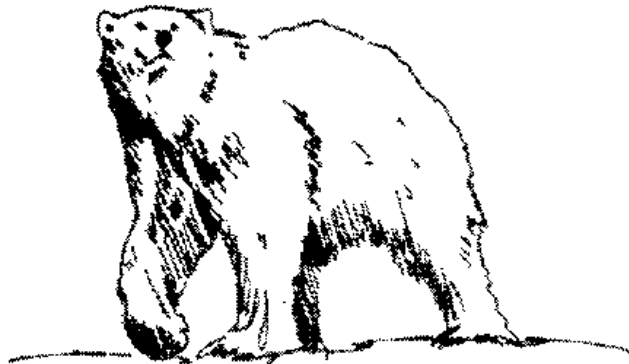
#### **40) Polar Bear Ecology and Behaviour**

This study analyzes the behaviour of undisturbed polar bears, evaluates the significance of polynyas to polar bears, and determines the relative importance of different habitat types to the bears.

Duration: 1991 to 2000

Partners: University of Alberta, PCSP

Contact: Ian Stirling



#### **41) Polar Bear Condition, Survival and Reproduction**

The reproductive status and condition of polar bears in western Hudson Bay has been monitored for approximately 20 years. During that time, the population has remained relatively stable although birth rates, and mean condition of bears in the summer have shown an overall decline. Breakup in western Hudson Bay is about 1.5 weeks earlier on average now than it was 20 years ago and this appears to have shortened the period of time bears can feed before coming ashore to fast. Possible additional effects on seals or other components of the ecosystem are unknown. Cub survival also declined for several years but, more recently, has improved. The reasons for this are not apparent. The monitoring study continues.

Duration: 1991 to 2003

Partners: Government of Manitoba, University of Alberta, NSERC, NWMB, PC

Contact: Ian Stirling, Nick Lunn

#### **42) Distribution of Seals and Other Marine Mammals in the Northwater Polynya**

This study is intended to determine the importance of the Northwater Polynya to seals and other marine mammals and to evaluate factors that affect their distribution. Shipboard surveys of the distribution and abundance of these animals were conducted in August-September 1997 and April-July 1998. Samples were collected from seals killed by Inuit hunters at Grise Fiord and in northwestern Greenland to compare physical parameters and food habits of seals on the east and west sides of the polynya. The data and specimens are currently being analysed. Similar observations will be collected in September-October 1999 during the final cruise for this research project.

Duration : 1997-1999

Partners: NSERC, PCSP, GNWT, University of Alberta

Contact: Ian Stirling, Meike Holst

#### **43) Genetic Diversity of Arctic Ice-breeding Seals in relation to Ecological and Life History Strategies**

This project will analyze the genetic diversity and population structure of ice-breeding seals in relation to life history strategies. Arctic ringed and bearded seals will be compared with seals occupying similar habitats in the Antarctic as part of the Antarctic Pack Ice Seal (APIS) study, an internationally coordinated program under the auspices of SCAR (Scientific Committee for Antarctic Research). The results will clarify aspects of the evolution of these species in polar ecosystems, and will help identify species that can be managed on a regional basis and those which must be considered on a broader geographic scale.

Duration: 1998-2002

Partners: NSERC, PCSP, GNWT, National Science Foundation, University of Alberta.

Contact: Ian Stirling, Corey Davis

#### **44) Selection of Maternity Den Sites by Pregnant Female Polar Bears in Western Hudson Bay**

It has been observed that pregnant females handled around their maternity dens in fall move to a different den for winter. This does not appear to have a negative effect on reproduction or cub survival. However, a study was undertaken to determine what the movements and behaviour of the females would be without being handled in the year they became pregnant. In 1997 and 1998, satellite radio collars were placed on adult females while they were ashore during the open water season. These females then came ashore alone and became pregnant the following summer, still carrying the satellite radio collars, which facilitated documentation of their movements and how they selected their denning sites, without the possible biases associated with being handled that year.

Duration: 1996-2000

Partners: Government of Manitoba, University of Alberta, NSERC, NWMB, PC

Contact: Nick Lunn, Ian Stirling

#### **45) Effect of Pattern and Timing of Ice Break-up on the Coastal Distribution of Polar Bears in Western and Southern Hudson Bay**

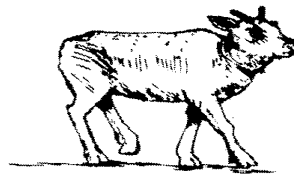
Aerial surveys of coastal regions of western and southern Hudson Bay have been conducted independently by the Manitoba Department of Natural Resources, Ontario Ministry of Natural Resources, and CWS for about 20 years. Mark-recapture studies and satellite tracking were undertaken to delineate the boundaries of the western and southern Hudson Bay populations. Studies are now being conducted to determine how the results of all previous aerial mark-recapture and satellite radio collar studies may be influenced by the timing and pattern of break-up of sea ice. These will be used to develop co-management agreements in both areas.

Duration: 1999-2000

Partners: Manitoba Department of Natural Resources, Ontario Ministry of Natural Resources, University of Alberta, NSERC, NWMB, PC

Contact: Ian Stirling, Nick Lunn

#### **PEARY CARIBOU**



#### **46) Conservation of Peary Caribou**

Peary caribou have suffered a significant decline in numbers over the past two decades, resulting in designation of populations as endangered (High Arctic) and threatened (Low Arctic) by COSEWIC. Their numbers are extremely low and incapable of sustaining annual harvests at any significant level. Inter-island movements, spring time use of range, and foraging strategies were studied on Bathurst Island between 1989 and 1996 to determine the influence of ice and snow conditions on the survival of this species. Recommendations for conservation efforts will be based on the results of this study.

Duration: 1990 to 1999

Partners: GNWT, PCSP

Contact: Frank Miller

#### **WOOD BISON**

#### **47) Recovery of Wood Bison**

Wood Bison are presently classified as "threatened" by COSEWIC. CWS, in cooperation with provincial and territorial governments and other interested parties, is working to establish at least four free-ranging herds of wood bison in suitable habitat within their historic range. Presently, the total population is estimated at 3000, including 2200 in six free-ranging, disease-free herds. CWS is a member of the Wood Bison Recovery Team which is preparing a Recovery Plan for the species.

Duration: Ongoing

Partners: PC, Governments of NWT, Alberta, Manitoba, Yukon, and British Columbia; USFWS, Government of the Republic of Sakha (Yakutia), Russia; First Nation governments

Contact: Hal Reynolds

## **WHOOPING CRANE**

### **48) Ecology of Whooping Cranes**

Annual surveys are undertaken to determine the extent of breeding areas in Wood Buffalo National Park (WBNP), numbers of nests, eggs and young, and the location of non-breeding birds. A joint project between CWS, WBNP and the University of Alberta is investigating food availability and chick survival on the breeding grounds.

Duration: Ongoing

Partners: USFWS, PC, University of Alberta

Contact: Brian Johns

## **HABITAT**

### **49) Management of Protected Areas**

CWS manages 17 MBSs and two NWAs in NWT and Nunavut. Primary management activities include the development of management plans, the review of permit applications and the production of public information. The NLCA requires management plans for all CWS protected areas in the Nunavut Settlement Area, and the negotiation of Inuit Impact and Benefit Agreements (IIBA) for many of them.

Duration: Ongoing

Partners: Wildlife co-management boards, local HTOs, NTI

Contact: Paul Latour (NWT),  
Mark Mallory (Nunavut)

### **50) Nirjutiqavvik National Wildlife Area**

The Nirjutiqavvik National Wildlife Area, on Coburg Island, was formally designated in 1995. It provides protection for large nesting populations of Thick-billed Murres, Northern Fulmars and Black-legged Kittiwakes. In 1996, a management committee was formed which assists CWS with day-to-day management of the NWA. IIBA negotiations are expected to begin in the near future and the management plan will be developed concurrently.

Duration: Ongoing

Partners: Iviq (Grise Fiord) HTO

Contact: Mark Mallory

### **51) Igaliqtuuq National Wildlife Area**

Isabella Bay on Baffin Island contains critical summer habitat for the eastern arctic population of Bowhead Whale. The community of Clyde River proposed the creation of an NWA at Isabella Bay for the protection of the Bowhead Whale and its habitat. Negotiations with respect to the IIBA are nearing completion. Formal designation is expected shortly thereafter.

Duration: Ongoing

Partners: Nangmoutaq HTO, INAC, DFO, GNT

Contact: Mark Mallory

### **52) CWS Permits Relating to NWT and Nunavut**

CWS issues permits with respect to activities within MBSs and NWAs, and the salvage or collection of birds in the course of scientific studies. Applications are reviewed in cooperation with impact review boards and other institutions under the various land claims.

Duration: Ongoing

Contact: Paul Latour (NWT),  
Mark Mallory (Nunavut)

### **53) Assessment of Mills Lake as a Protected Area**

The wetlands around Mills Lake are important staging habitat for migratory waterfowl moving up and down the Mackenzie Valley. Since 1994, CWS has conducted surveys to determine the number of waterfowl and shorebirds staging at Mills Lake during the spring and fall migrations. CWS is working with the Fort Providence Band and other interested parties to explore protection options for Mills Lake.

Duration: 1994 to 2000

Partners: Fort Providence Resource Management Board, GNWT, WWF, DFO

Contact: Paul Latour

#### 54) Coastal Habitat Monitoring in the Eastern Arctic

Increasing numbers of arctic nesting geese have raised concerns about their potential impact on nesting and brood-rearing areas. An intensive habitat monitoring program has been developed along the west coast of Hudson Bay and on the Great Plains of the Koukdjuak, Baffin Island. Vegetation composition and biomass is obtained from sample plots on an annual basis.

Duration: 1997-2007

Partners: AGJV, NWMB, Arviat HTO, PCSP, Mississippi and Central Flyway Councils

Contact: Andrew Didiuk

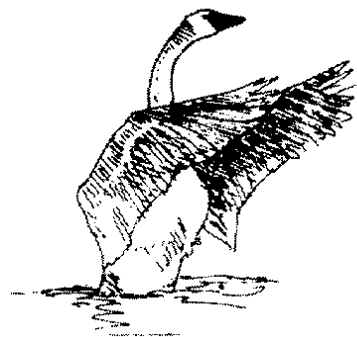
#### 55) Habitat Mapping of the Dewey Soper Bird Sanctuary

There is concern about the potential impacts of grazing by increasing numbers of geese in the Dewey Soper Bird Sanctuary. Land cover is being mapped by using satellite (Landsat TM) imagery. Field work will be conducted in 1999 and the maps will be developed thereafter.

Duration: 1999-2000

Partners: AGJV, PCSP, Mississippi and Central Flyway Councils

Contact: Andrew Didiuk



## CONTAMINANTS

#### 56) Contaminants in Arctic Seaducks

This study examines heavy metal levels in eider duck tissues at different localities in the arctic to determine if geographic variation occurs in the level of these contaminants and if there are sublethal effects in the birds associated with exposure to contaminants. By examining ducks collected from Holman, East Bay, and the Belcher Islands, we will also identify areas where populations have high contaminants levels and possibly pinpoint the origin of the contaminants.

Duration: 1996 to 2000

Partners: PCSP, NSTP, University of Saskatchewan

Contacts: Mark Wayland

#### 57) Effects of Contaminants on Polar Bears

This project investigates liver enzyme function, immune system effects and effects of PCB metabolites on vitamin A and thyroid hormone transport in individual Polar Bears. By determining the effects of these chemicals on individuals, it may be possible to predict effects at the population level. This project will also help to identify the potential for exposure of the human population to contaminants through ingestion of contaminated wild foods.

Duration: 1991 to 1999

Partners: Inuit hunters, University of Saskatchewan, University of Quebec in Montreal, University of British Columbia, Carleton University, GNWT, Norwegian Polar Institute, Norwegian Veterinary Institute.

Contact: Ross Norstrom

#### 58) Contaminants in Arctic Seabirds

Seabirds, by virtue of their position in the food chain, can be used as an indicator of the health of marine ecosystems through their degree of chemical contamination. There is increasing evidence that arctic biota are exposed to contaminant levels higher than expected. This is an ongoing project which has measured contaminant levels in selected arctic-nesting seabirds and eggs since the 1970's.

Duration: Periodic and ongoing

Partners: PCSP, INAC

Contact: Birgit Braune



### **59) Trophodynamics of Persistent Organic Contaminants in the Northwater Polynya**

This study is seeking to understand the degree and mechanisms of transfer of persistent organic pollutants in the polynya ecosystem. Samples of water, sediment, zooplankton, fish, seabirds and seals are presently being analysed. A comparison will be made between the use of stable isotopes and ratios of the two forms of optically active compounds as tracers of contaminant flow and source of contaminants in migratory bird species inhabiting the polynya.

Duration: 1997-2000

Partners: NSERC, DFO, NWRI, Carleton University, GNU

Contact: Ross Norstrom

### **60) Effect of Hydroxy PCB Metabolites on Vitamin A and Thyroid Hormone Balance in Polar Bears**

Polar bear blood plasma samples collected from the Resolute area (lower PCB contamination) and from Svalbard (high PCB contamination) in 1998 have been analysed for various free and bound thyroid hormones. In 1999 these samples will be analysed for vitamin A and PCB metabolites to test the hypothesis that circulating levels of these biochemicals are lowered by competitive binding of PCBs to the thyroid hormone plasma carrier protein. Interference with thyroid hormone and vitamin A transport may affect maintenance of healthy tissues and growth.

Duration: 1997-2000

Partners: NSERC, NWRI, Carleton University, University of Saskatchewan, Norwegian Polar Institute

Contact: Ross Norstrom

### **61) Role of Contaminants in Seaduck Population Decline**

This study uses archived tissue samples from oldsquaw ducks, which were collected from across their Canadian arctic breeding grounds during 1988-94, to determine the role of contaminants in declining populations of this species. Tissues will be analyzed for a

variety of metals. Stable isotope analyses will be used to determine whether birds from certain geographical areas of the Arctic are overwintering in freshwater (i.e., Great Lakes) or marine environments. This information could be used to determine if birds overwintering on the Great Lakes risk greater exposure to contaminants than those overwintering in marine environments.

Duration: 1999-2001

Partners: INAC, University of Saskatchewan

Contact: Birgit Braune

## **CLIMATE CHANGE**

### **62) Impacts of Climate Change on Migratory Birds**

This study investigates the sensitivity of arctic-nesting waterfowl and shorebirds to variations in weather and climate in their breeding, migration-staging and wintering areas. The study will identify species, regions and habitats that may be at risk from global warming.

Duration: Ongoing

Partners: AES; National Institute for Ecological Research, Denmark

Contact: Hugh Boyd

## **ENVIRONMENTAL ASSESSMENT**

### **63) Environmental Review of Development Activities**

CWS reviews Land Use Permit applications which have relevance to migratory bird population and habitat management. Large scale developments on Crown land (which encompasses large portions of the NWT and Nunavut) are subject to review under the various land-claim-based review processes, the Canadian Environmental Assessment Act (CEAA) or the Mackenzie Valley Resource Management Act (MVMRA).

Duration: Ongoing

Contact: Paul Latour (NWT),  
Mark Mallory (Nunavut)

#### **64) The Red-throated Loon as an Environmental Indicator**

Development of the oil and gas reserves in the Beaufort Sea may have a significant impact on the bird populations in the region. This study compares the breeding population and productivity of an indicator species, the Red-throated Loon, before and after development. The first five years of the study have been completed and the results have been analysed. The next phase of the project will depend on the timing of development.

Duration: 1985 to undetermined end point

Partners: PCSP, INAC

Contact: Lynne Dickson

### **ENFORCEMENT**

#### **65) Coordination of Enforcement Activities within NWT and Nunavut**

Enforcement of CWS legislation in the NWT and Nunavut is largely undertaken by GNWT and GNWT Renewable Resource Officers and the RCMP. The CWS Wildlife Enforcement Coordinator is responsible for ensuring appropriate enforcement of the MBCA, the MBS Regulations, the NWA Regulations, the CWA, the Game Export Act, and WAPPRIITA. The Coordinator is also empowered to assist territorial colleagues in enforcing the NWT Wildlife Act.

Duration: Ongoing

Contact: Neil Scott

### **ECOLOGICAL MONITORING PROGRAMS**

#### **66) Northern Bird Checklist Survey**

The Northern Bird Checklist Survey is a volunteer-based program that gathers data on the distribution and abundance of birds in the NWT and Nunavut. The Survey also collects historical bird data for use in environmental assessments.

Duration: Ongoing

Partners: PC, INAC, numerous other government and non-government agencies and individuals

Contact: Craig Machtans, Victoria Johnston

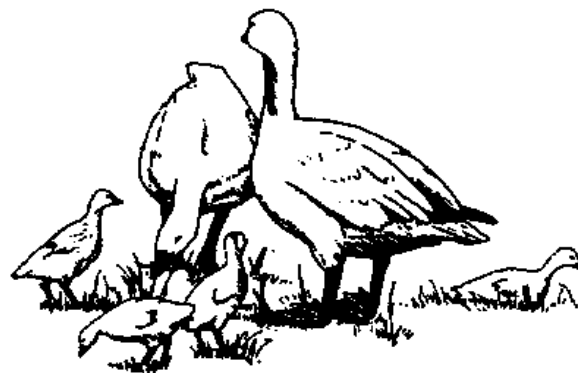
#### **67) Coordination of EMAN-NORTH Network**

The Ecological Monitoring and Assessment Network (EMAN) is a country-wide network of sites, agencies, and researchers who are engaged in long-term environmental monitoring. There is a network of 15 sites and numerous affiliated monitoring networks throughout the NWT and Nunavut. CWS is the coordinator of a steering committee which oversees the network.

Duration: Ongoing

Partners: PC, INAC, GNWT, GNU, NRI, ARI, NRCAN, numerous individual researchers

Contact: Victoria Johnston



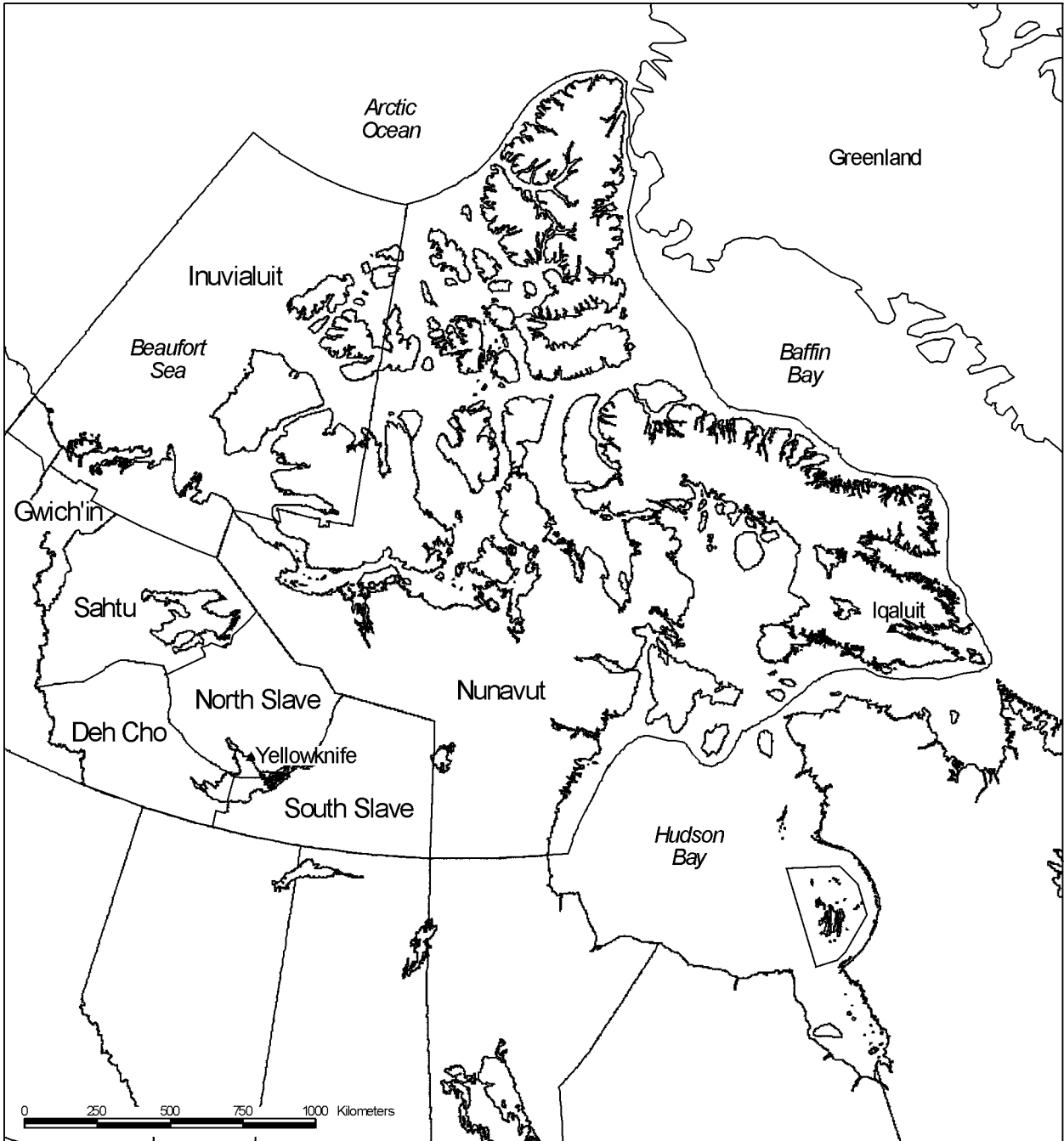


Figure 1. Land claim areas of the NWT and Nunavut.

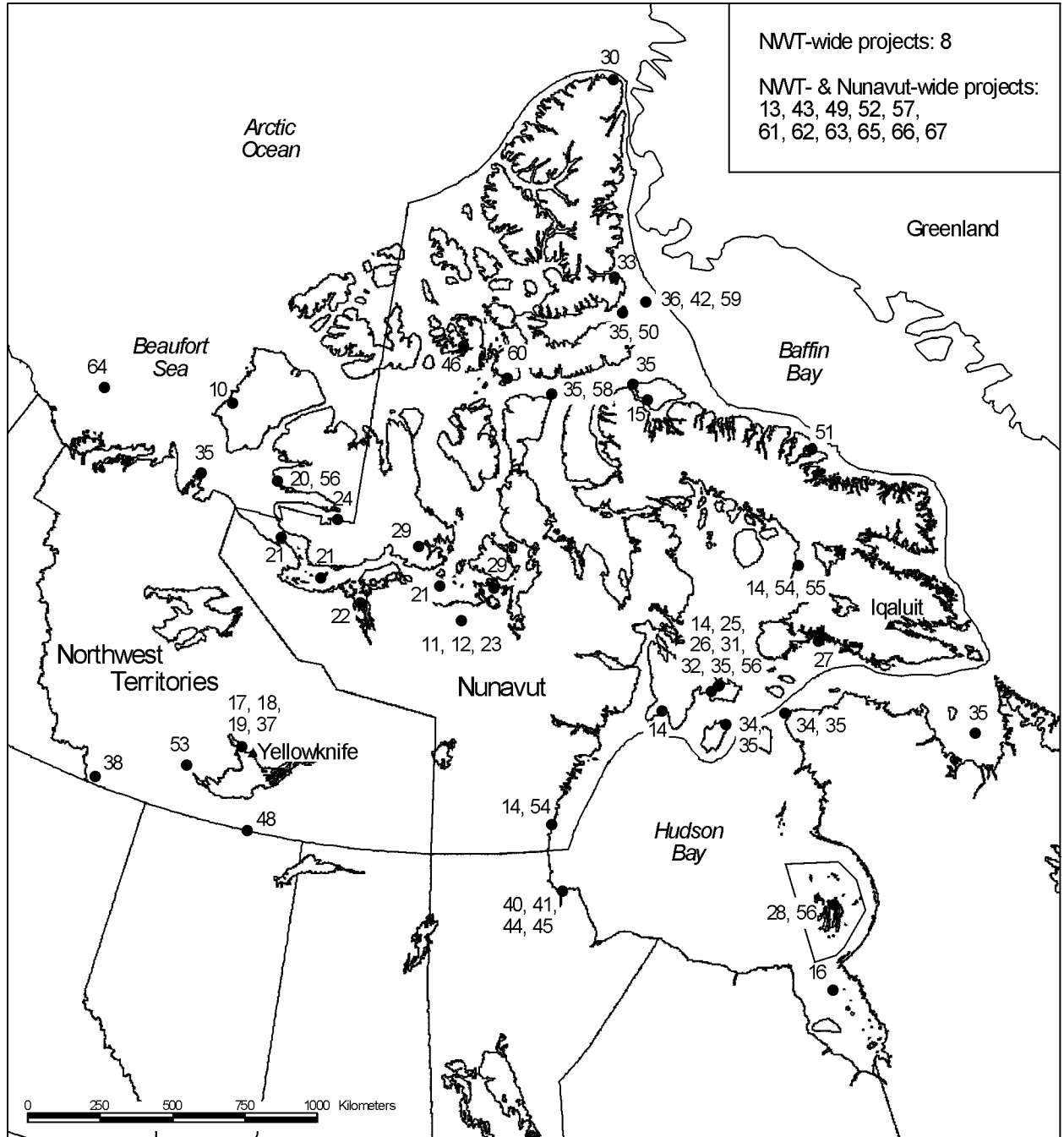


Figure 2. Location of CWS field projects in the NWT and Nunavut. (Ref: project numbers.)

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