POLAR CONTINENTAL SHELF PROJECT

NEWSLETTER
1996

Natural Resources Canada
Ressources naturelles Canada
Canada

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www: http://www.emr.ca/gsc/pcsp/pcsp.html

(version française disponible)

INTRODUCTION

Polar Continental Shelf Project's 1996 Newsletter provides a brief description of the programs which have applied to us for logistics support in the upcoming Arctic field season.

You may notice that the Newsletter is more modest in appearance this year - we are cutting expenses wherever we can.

In order that we have adequate time to translate this text, and to ensure this Newsletter is sent to you as early in the year as possible, we have stopped adding any new information which reached us after mid-November 1995. As you know, at this point we have not yet decided which programs we can support in 1996. It is not, therefore, possible to delete project descriptions of any cancelled programs, or to revise the text as field arrangements are updated or altered.

We urge you to use this information to coordinate your field activities with other programs and as an information tool to make contact with other research scientists conducting similar or complementary work.

Sincere thanks, once again, to Sonia Walker for compiling this Newsletter.

Wishing all of you a safe, successful year.

Bonnie Heyak

Director
PCSP

TABLE OF CONTENTS

ANTHROPOLOGY/ARCHAEOLOGY

Resolute Bay Archaeology Project **Project:** 508-96

Period: mid June - end August

Area: Resolute Bay

Name: McGhee, Robert

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As part of an ongoing program of archaeological work at a prehistoric Inuit site near Resolute Bay, test excavations will be undertaken and maintenance carried out on reconstructed structures.

Archeology of the Northern Yukon **Project:** 515-96

Period: 20 June - 10 July

Region: Yukon

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Archaeological Survey of Canada
Research
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The research scheduled for the summer of 1996 will primarily involve the evaluation (through surveys and test pits) of a region with great archaeological potential recently identified in the area of the (upper) Rock River, a few kilometers east of the Dempster Highway. The research is expected to take two to three weeks and will be carried out in close collaboration with Ruth Gotthardt (Yukon Heritage Branch) and Raymond Le Blanc (University of Alberta - Edmonton).

Amundsen Gulf Thule Archaeology **Project** **Project:** 637-96

Period: 21 June - 2 September

Area: Pearce Point

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The purpose of the Amundsen Gulf Thule Archaeology Project is to investigate the intra- and inter-dwelling socio-ecological manifestations of ringed seal exploitation during the early Classic Thule culture in the southern Amundsen Gulf region, through analysis of ringed seal bones and artifacts. Detailed mapping and excavation of three short-term occupation semi-subterranean dwellings at a small early Thule (A.D. 1000-1100) village at Pearce Point (NkRi-3) will be carried out.

Tukkuyuaq Archaeology Project **Project:** 636-96

Period: 26 June - 7 August

Area: Kittigazuit

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The second season of the Tukkuyuaq archaeology project involves excavations at the site of Kittigazuit at the mouth of the Mackenzie River. The goal of the project is to demonstrate through material culture how non-natives adapted to the North between 1890 and 1930.

Angiqqaqsimajug Enthnoarchaeology Project **Project:** 635-96

Period: 30 June - 13 July

Area: Hamlet of Resolute Bay

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A small enthnoarchaeological research project will be initiated in the Hamlet of Resolute Bay this summer. The data collected will be used in conjunction with archaeological data collected in 1994 and 1995. The intention is to document and compare changes in the spatial organization of Inuit households prehistorically, during the resettlement period of the 1950s, and into the present. I will be testing the idea that a correlation exists between economic and social change in Inuit culture, and change in the spatial organization of Inuit households. In the case of the relocation period in Arctic history, I intend to evaluate the hypothesis that Euro-Canadian prefabricated houses were incompatible with the lifestyles and cultural values of Inuit families.

The Pond Inlet Archaeology Project **Project:** 618-96

Period: 2 July - 27 August

Area: Iqaluit/Nunguvik/Bylot Island

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The Pond Inlet Archaeology Project is focused on the documentation and examination of long-term socio-economic trends and resource use patterns as a means of understanding the range and degree of economic sustainability and flexibility in a temporally sequential series of small-scale northern communities.

Kitigaaryuit Cultural Mapping Project **Project:** 302-96

Period: 4 - 15 July

Area: Kitigaaryuit

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Kitigaaryuit is an important Inuvialuit settlement at the mouth of the Mackenzie River which was nominated as a National Historic Site in 1978. The Inuvialuit Social Development Program (ISDP) is compiling information necessary for the commemoration of the site. As a component of this project, the Prince of Wales Northern Heritage Centre will assist with cultural mapping of the site during July of 1996. The objective is to combine information from the Inuvialuit oral tradition and from archaeological literature and surveys to produce a series of maps of the site which reflect the changes in its use over time.

Grizzly Bear Mountain and Scented Grass Hills Project **Project:** 507-96

Period: 8 July - 2 August

Area: Mackintosh Bay/McVicar Arm

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Field work will be conducted within the Scented Grass Hills and Grizzly Bear Mountain areas of Great Bear Lake. The project will be conducted in partnership with the Deline Band Council. The purpose of the project is to examine two areas as candidate areas for the establishment of a National Historic Site.

Origins of Mackenzie Inuit Beluga Whale Hunting **Project:** 630-96

Period: 25 July - 2 August

Area: Cache Point/Mackenzie River Delta

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This project seeks to understand the origins of Mackenzie Inuit beluga whale hunting through analysis of animal bones and artifacts from Cache Point, the earliest known beluga hunting site in the Mackenzie Delta. The 1996 season is planned to include both initial reconnaissance survey and community consultation in preparation for a full-scale field season in 1997.

BATHYMETRY

Hydrographic/Gravity Survey **Project:** 101-96

Period: 15 February - 25 April

Area: Bernard Harbour

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The Canadian Hydrographic Service (CHS) will be conducting a combined hydrographic and gravity program during the months of February, March and April. The survey operations will be based out of Bernard Harbour in Dolphin and Union Strait, NWT. Information collected by spot sounding techniques and TIBS (Towed Inflight Bathymetry System) will aid in determining a safe shipping route on navigational charts.

Nares Strait Gravity and Bathymetry Survey **Project:** 012-96

Period: 15 April - 6 May

Area: Alexandra Fiord

Name: Cooper, Roy

Natural Resources Canada
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This is the second year of a two-year cooperative project between Canada, Denmark and the U.S.A. to gather gravity data on the sea ice of Nares Strait between eastern Ellesmere Island and western Greenland. Gravity and bathymetry measurements will be collected on the sea ice at 12 km spacing using differential GPS for positioning. Data will be collected in areas of open water during the 1995 campaign. For the most part, the survey will be conducted in Canadian waters.

BIOLOGY

Organochlorine Kinetics in the Adipose Tissue, Plasma, and Milk of Free-Ranging Polar Bears

Project: 606-96

Period: 8 April - 20 May

Area: Resolute Bay

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Polar bears eat seals almost exclusively and are, therefore, at the top rung of the Arctic marine food chain. As such, they are subject to bioaccumulation of lipid-soluble organochlorine compounds that have been linked to reproductive failures in other marine mammals. Polar bears gain weight rapidly during peak feeding periods in spring and may have the highest dietary intake of fat of any mammal. Until now, assessment of contaminant loads in polar bears had been cross-sectional, from animals killed during the hunting season when most animals sampled are young males. Using innovative field and laboratory technologies, we propose to determine longitudinally the fate of organochlorine contaminants and their metabolites in the tissues of all classes of polar bears during the period of peak feeding and to determine the rate of transfer of these contaminants to nursing cubs.

Investigation of the Status of Caribou on Somerset and Prince of Wales Islands

Project: 203-96

Period: 24 April - 8 May

Area: Somerset and Prince of Wales Islands

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Conduct an investigation of the status of caribou on Prince of Wales Island and on Somerset Island during the late winter/spring period of the year. Aerial searches will be flown by helicopter and ground searches carried out by snow machine to determine relative numbers and the extent of distribution of caribou during April-May 1996. The findings will be used to evaluate how the caribou renewable resource can best be conserved and at the same time utilized at meaningful levels and in a sustainable way by the High Arctic Inuit of Resolute Bay.

Waterfowl Ecology - Central Arctic

Project: 300-96

Period: 20 May - 20 August

Area: Walker Bay Field Station/Kent Peninsula

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Long-term studies of dark geese have contributed to our understanding of annual productivity and population delineation in the central Arctic. New insights on the interpretation of aerial surveys of geese have been gained. The current emphasis of this project is to identify environmental and age-related factors which annually influence productivity and survival of central Arctic Canada and white-fronted geese.

Responses of Arctic Tundra Systems to Simulated Climate Change

Project: 624-96

Period: 22 May - 9 August

Area: Alexandra Fiord/Princess Marie Bay/
Sverdrup Pass/Eastwind Lake

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Long-term field experiments are established at Alexandra Fiord, Ellesmere Island, to investigate responses of tundra plants and communities to simulated climate change. The experiments simulate predicted warming using open-top chambers, and involve changing growing season length by snow addition and removal. New experiments examine the relative effects of warming, precipitation (watering) and nutrient addition on the plants. These studies are part of the Canadian contribution to the International Tundra Experiment (ITEX).

Population Biology Nutritional Ecology of Ross' Geese **Project:** 214-96

Period: 25 May - 15 August

Area: Karrak Lake

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Centered around nesting studies at Karrak Lake, south of the Queen Maud Gulf, this long-term study is addressing various factors that influence population size of Ross' geese. Spring nutrition, Arctic weather, and survival of young and adult Ross' geese over the annual cycle are the foci of this research.

Mechanisms Mediating Freezing Tolerance in Arctic Invertebrates **Project:** 603-96

Period: 29 May - 24 June

Area: Hazen Camp/Ekblaw Lake/Piper Pass

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The main objective of this study is to improve our understanding of how organisms survive freezing. Using Arctic invertebrates which survive at the physiological limits to life and sophisticated laboratory techniques, we are in the process of constructing a model for the mechanisms underlying freezing survival. The results relate directly to biomedicine (i.e. cryopreservation of tissues) and agriculture (i.e. frost resistance in crops).

Composition of Bathurst Caribou on their Calving Grounds

Project: 301-96

Period: 7 - 13 June

Area: Umingmaktok

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The Bathurst caribou herd was last surveyed in June 1990. Based on the trend in the number of breeding females on the calving grounds, the herd has been relatively stable since 1986. As part of our ongoing management program, we will conduct an aerial survey of caribou on the Bathurst calving grounds in June 1996. An essential component of the calving ground census technique is an accurate classification of the age, sex, and reproductive status of caribou.

Ecological Evaluation of the Foxe Basin

Project: 902-96

Period: 20 June - 30 July

Area: Prince Charles Island

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This project will study the distribution and abundance of small terrestrial bird species on Prince Charles Island in Foxe Basin. It will be done in cooperation with the Foxe Basin project initiated by Dr. A.J. Gaston in 1994. It will also aim at collecting baseline ecological data on one of the least known areas of the Canadian Arctic. On Prince Charles Island, there have been few ground-based surveys or research activity since its discovery from the air in 1946. We will map the abundance and distribution of the region's lowland tundra species. Many of these birds are invisible from the air, and hence have not been assessed in any previous aerial surveys. Systematic observations will determine preferred habitats. The data should also provide a baseline for future monitoring of changes in the biological diversity in this part of the Arctic and address a set of biological questions on dry tundra bird species (long spur lark, snow bunting, lesser golden plover) and lemmings, such as population abundance in relation to patterns of nest and adult predation or relation to population cycles in other parts of the Arctic.

Big Fish River Stock Enhancement Study **Project:** 103-96

Period: 1 - 10 July

Area: Big Fish River

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This is a multi-year project (started in 1994-95) which sets out to examine the feasibility of artificially enhancing the char population (i.e., increase recruitment) in the Big Fish River. One of the first objectives of the project is to establish the location and composition of the spawning habitat used by char in the Big Fish River. To do this, piezometers (n= 30+) will be installed at regular intervals throughout the 3-km spawning and overwintering site to determine the location of ground water upwellings (areas selected by char for spawning). These meters will also yield additional information throughout the year on changes in intergravel flow rate and water chemistry. This will be important in assessing the degree to which these factors affect the hatch success of the natural and artificially spawned eggs. The piezometers must be installed during the summer (July) prior to spawning in order to ensure that the installation does not interfere with fall spawning activity.

Hornaday River Char Radio Tagging **Project:** 105-96

Period: early July - late August

Area: Paulatuk

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The Hornaday River char radio tagging project was designed to increase our understanding of the life cycle and migration patterns of this char stock. Neither the community nor biologists know where the critical spawning areas are, and this is important to know the given imminent mining exploration activity in the area and the potential for increased subsistence harvests in the future. Twenty-one radio tags were successfully applied to char in 1995, with the 1996 efforts focussing on tracking and ground surveys for young of the year fish.

Population Dynamics and Movements of Coregonids in the Mackenzie River and Delta, N.W.T.

Project: 104-96

Period: 3 July - 30 August

Area: Arctic Red River/Peel River/Kugmallit Bay/ Liverpool Bay

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Examination of demography of coregonid fishes of the lower Mackenzie River is required to build paradigms for management of fisheries in the region. Results will be incorporated into a quantitative model and will partially fulfil requirements for a Ph.D thesis at the University of Alberta.

Effect of Neck Collars on Survival of Geese

Project: 218-96

Period: 10 - 25 July

Area: Perry River

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This project will examine the effect of neck collars on survival rates of geese. Neck collars are being used increasingly to update distribution of geese. This study will also enhance knowledge of the migration and winter distribution of white-fronted and Canada geese.

Genetic Stock Identification of Coastal Arctic Fish **Project:** 114-96

Period: 24 - 28 July

Area: Rat River area/Bell River

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1) Establish habitat use patterns of fish species in lakes on the upper Rat River drainage basin and the upper Bell River; 2) Search for and collection of resident and juvenile Dolly Varden char in the Rat River drainage.

Canada Goose Surveys and Banding on Baffin Island **Project:** 212-96

Period: 4 - 20 August

Area: Nikko Island/Cape Dominion Esker

Name: Caswell, Dale F.

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The objective is to develop the ability to determine a breeding population estimate, a production estimate and band/collar the geese in a single time period. Subsequent observations of these neck collars on the migration and wintering areas will provide data on distribution, survival, and other population parameters such as overall numbers for the effective management of this population of Canada geese. This project is part of an international program involving wildlife agencies and non-government groups in Canada and the United States.

Life History Variation in Juvenile Inconnu, Stenodus Leucichthys: Genetic or Environmental Basis?

Project: 626-96

Period: 11 September - 24 October

Area: Arctic Red River/Slave River

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Inconnu in the Mackenzie River system are two different life history types. Traits such as size at age and size at maturity have been found to differ between the anadromous and freshwater forms. It is not known, however, if these two forms of inconnu are genetically distinct, or if the observed life history differences are under genetic and/or environmental control. The degree of genetic differentiation within and between freshwater and anadromous forms of inconnu will be determined using protein (allozyme) electrophoresis. I will then determine the degree of genetic versus environmental control over early life history traits of freshwater and anadromous inconnu through the use of breeding experiments. Gametes will be collected in the field from each of 5 males and 5 females per life history type, and I will produce 25 families of each type in a 5 X 5 factorial design. Using the resulting juvenile inconnu, hatched and raised under a common laboratory environment, I will quantify various biological and life history traits; heritability of those traits can be calculated using half-sib correlations. By comparing life history traits of the laboratory-reared juveniles with life history variation observed in adults from the wild, I can assess the relative contributions of genetics and environment necessary to develop proper management strategies for inconnu.

BOTANY

Responses of Arctic Tundra Systems to Simulated Climate Change

Project: 624-96

Period: 22 May - 9 August

Area: Alexandra Fiord/Princess Marie Bay/ Sverdrup Pass/Eastwind Lake

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Long-term field experiments are established at Alexandra Fiord, Ellesmere Island, to investigate responses of tundra plants and communities to simulated climate change. The experiments simulate predicted warming using open-top chambers, and involve changing growing season length by snow addition and removal. New experiments examine the relative effects of warming, precipitation (watering) and nutrient addition on the plants. These studies are part of the Canadian contribution to the International Tundra Experiment (ITEX).

Primary Productivity of Peat Polygons on Bylot Island

Project: 628-96

Period: 23 May - 20 August

Region: Bylot Island

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The long-term objective of this project is to identify the factors limiting the growth of plants browsed by snow geese in their preferred feeding habitat (i.e., freshwater wetlands). This year, there will be two specific goals: 1) to determine the net primary productivity of different types of polygons on Bylot Island, in order to evaluate the capacity of these wetland ecosystems to feed snow geese; and 2) a second year of research to evaluate the role of climatic factors-precipitation, temperature and biotic factors (supply of N and P) - in the net primary productivity of polygon fens.

Comparison of the Stream Algae in Three Drainage Basins of Axel Heiberg Island

Project: 602-96

Period: 14 - 20 June

Area: Axel Heiberg Island

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Stream macroalgae and periphyton will be collected in three drainage basins of Axel Heiberg Island: one draining into Gibbs Fiord is non-glacial, the second draining into Buchanan Lake is largely glacial, and the third draining into Expedition Fiord has approximately 30 sulphur springs. At least 50 stream segments will be sampled and various physical and chemical characteristics measured.

Development and Function of Polar Desert Ecosystems

Project: 700-96

Period: 29 June - 27 July

Area: Truelove Lowland/Devon Island

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This research focuses on the interactive roles of soil development, cryptogamic crusts, and establishment of vascular plants and their function with the polar desert of Devon Island. The study concentrates on the mesoscale features of stone nets and stripes and the role these features play in soil weathering processes, establishment of cyanobacteria and their fixation and the transfer of nitrogen from crusts to soil to vascular plants.

Molecular Systematics of Arctic Grasses

Project: 511-96

Period: 4 July - 6 August

Area: Tuktoyaktuk/Resolute Bay/Eureka/
Hazen Camp

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This research focuses on systematic problems, hybridization and genetic variation in Canadian Arctic grasses. We are testing hypotheses of hybrid origin of several Poa taxa using molecular techniques combined with field observations on reproductive biology, ecology and distribution. We plan to use molecular tools to re-examine the taxonomic status of several problematic Arctic species of Puccinellia that are considered to be rare and endangered.

Molecular Population Genetics and Phytogeography of Arctic Flora

Project: 647-96

Period: 20 - 25 August

Area: Saglek Bay

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This project aims to study the past migrational history of two common and widespread Arctic species. *Dryas integrifolia* (Rosaceae) and *Eriophorum angustifolium* (Cyperaceae), using the molecular phylogeny of chloroplast DNA. We want to determine where they survived the last glaciation and how they recolonized the Arctic when the ice retreated.

CLIMATOLOGY

Ablation of Seasonal Snowcovers

Project: 650-96

Period: 10 April - 30 May

Area: Inuvik/Trail Valley Creek

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University of Saskatchewan
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The objective of this study is to quantify the magnitude of the role of net solar radiation in the melt of shallow seasonal snowcovers under patchy conditions. This study, which is being undertaken in association with other researchers as part of the Canadian GEWEX program, is intended to lead to better estimates of the timing and rates of snow melt. This work has implications for modelling snow melt, runoff, flooding and global climate change.

Hydrological Studies - Mackenzie Delta Area

Project: 205-96

Period: 10 April - 15 November

Area: Inuvik/Trail Valley Creek

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This study is aimed at improving our understanding of processes controlling snow accumulation, snowmelt, and rainfall runoff in permafrost environments, and the related hydrogeochemical fluxes. Collaboration through the Canadian GEWEX program will allow integration of land surface and atmospheric processes and models. This work has implications for predicting snow melt flooding, global change/climate change and the flux of nutrients and pollutants through northern ecosystems.

A Seasonal Sea Ice Monitoring and Modelling Site (SIMMS '96)

Project: 623-96

Period: 4 May - 15 July

Area: Lowther Island

Name: Barber, David G./LeDrew, Ellsworth

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SIMMS is a multi-year multi-disciplinary research program designed to develop methods by which visible and micro-wavelength remote sensing data may be used to monitor changes in ocean-ice-atmosphere processes. The remote sensing data are then used in modelling energy and mass fluxes at the ice surface. Observation and modelling programs are conducted coincidentally during the spring and fall seasonal transition periods.

Measuring and Modelling Evaporation and the Water Balance in Permafrost Regions of the Mackenzie Basin

Project: 616-96

Period: 1 June - 7 September

Area: Trail Valley Creek

Name: Rouse, Wayne R.

Department of Geography
McMaster University
Hamilton, Ontario
L8S 4K1

Tel.: (905) 525-9140 ext.: 24538
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Detailed measurements of evaporation from characteristic landscape units will be undertaken for calibrating evaporation-water balance models which can be used for examining times past, where a meteorological record is available, and for predicting impacts of climate change on the water balance of these terrain types in times future. Emphasis will be on both individual terrain types and on their interactions. Research will integrate closely with ongoing hydrologic investigations by other researchers in the Mackenzie Delta region under the aegis of the Canadian GEWEX Program.

Air and Ground Temperature Monitoring **Project:** 008-96

Period: 9 - 15 July

Area: Mackenzie Valley and Delta

Name: Nixon, Mark

Natural Resources Canada
Geological Survey of Canada
Terrain Sciences Division
Sedimentary & Marine Geoscience
601 Booth Street
Ottawa, Ontario
K1A 0E8

Tel.: (613) 992-2469
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E-mail: mnixon@gsc.emr.ca

Paired air and ground surface temperature records are being collected at thirty remote natural sites throughout the Mackenzie Valley and Delta at a frequency of 5 readings per day for a period of one year. The goal is to establish a relationship of air temperature to surface temperature for a number of representative natural environments. Complementary studies include thaw depth monitoring and investigation of heat transfer process in the active layer.

Canyon Creek Permafrost Station **Project:** 204-96

Period: 19 - 23 August

Area: Canyon Creek

Name: Goodison, B.E.

Environment Canada
Climate Research Branch
Climate Processes of Earth
Observation Division
4905 Dufferin Street
Downsview, Ontario
M3H 5T4

Tel.: (416) 739-9345
Fax: (416) 739-5700
E-mail: goodisonb@aestor.am.doe.ca

The permafrost/climate study was initiated in 1985 to study possible changes to the permafrost regime in response to climate variability and warming. Soil temperature profiles and other related measurements are taken across a network of stations including Shefferville, Churchill, Norman Wells (Canyon Creek) and Mayo. Data are collected on autostations which are usually serviced once per year. The data collected are used in climate studies and for testing and verifying land surface process models.

GENERAL

Thermal & Hydrological Investigation of Permafrost, Western Arctic Coast

Project: 649-96

Period: April - November

Area: Todd Lake/Illisarvik/Garry and Pelly Islands

Name: Burn, C.R.

Department of Geography
Carleton University
1125 Colonel By Drive
Ottawa, Ontario
K1S 5B6

Tel.: (613) 788-2600 ext.: 3784
Fax: (613) 788-4301
E-mail: crburn@ccs.carleton.ca

The growth of ice in aggrading permafrost is to be examined at Illisarvik, Richards Island. The temperatures at the bottom of lakes will also be examined to determine the effect such features have on permafrost.

Ellesmere Island National Park Reserve

Project: 500-96

Period: May - August

Area: Lake Hazen/Tanquary Fiord/Ward Hunt

Name: Bosse, Yves

Canadian Heritage
Parks Canada
Nunavut District
P.O. Box 353
Pangnirtung, Northwest Territories
X0A 0R0

Tel.: (819) 473-8828
Fax: (819) 473-8612

E.I.N.P.R. is the most northerly park in Canada's National Parks System. Its prime mandate is that of ensuring the ecological integrity of this 37 775 km^2 area which represents the eastern High Arctic glacier natural region.

Cryogenic Soils: Their Development and Mapping, and the Effect of Climate Change

Project: 502-96

Period: June - July

Area: Resolute Bay area/Lake Hazen area/ Ellesmere Island

Name: Tarnocai, Charles

Agriculture and Agri-Food Canada
Centre for Land and Biological Resources Research
K.W. Neatby Building
960 Carling Avenue
Ottawa, Ontario
K1A 0C6

Tel.: (613) 759-1857
Fax: (613) 759-1926
E-mail: tarnocaic@ncclot.agr.ca

The Cryosolic Working Groups of the International Permafrost Association (IPA) and the International Society of Soil Science (ISSS) have been jointly carrying out field research programs relating to permafrost soils (cryosols) in order to understand the different systems used by various countries to map soils and terrain in permafrost areas and to coordinate the classification of permafrost affected soils in order to generate a circumpolar map.

As Required Emergency Service

Project: 117-96

Period: June - November

Area: To be determined

Name: Côté, Ivan

Department of Fisheries and Oceans
Coast Guard
Northern Region
344 Slater Street, 5th Floor
Ottawa, Ontario
K1A 0N7

Tel.: (613) 998-6574
Fax: (613) 991-9261

During Coast Guard Arctic Icebreaker Operations, situations could arise where, during a shipboard emergency, aircraft use would be required for evacuation purposes.

Environmental Change, Truelove Lowland, Devon Island, N.W.T.

Project: 631-96

Period: 7 June - 18 August

Area: Truelove Lowland

Name: King, Roger H.

Department of Geography
University of Western Ontario
London, Ontario
N6A 5C2

Tel.: (519) 679-2111 ext.: 5019
Fax: (519) 661-3750
E-mail: king@sscl.uwo.ca

Soil development and spatial variability in the Truelove Lowland are being monitored and mapped within a series of toposequences located within the catchments of four of the larger freshwater lakes. This is part of a landscape-scale study of soil dynamics that is linked to the long-term performance of this High Arctic coastal ecosystem.

High Arctic Data Communication System Mark II (HADCS II)

Project: 506-96

Period: Late June

Area: Eureka/Resolute Bay

Name: Dion, Benoit

Project HADCS II
SRS Modernization Projects
National Defence Headquarters
MGen George R. Pearkes Building
Ottawa, Ontario
K1A 0K2

Tel.: (613) 990-9065
Fax: (613) 990-9620

HADCS II is a project to modernize and upgrade the existing communications link between CFS Alert and Ottawa. In 1995 a field survey of a proposed microwave route extension between Eureka and Resolute Bay was conducted and found suitable. However, for a number of reasons, including cost, it has been decided not to extend the existing microwave chain further south. As a result, the existing system will be replaced and upgraded in 1997.

1) Axel Heiberg Fossil Forest Monitoring and Surveying
2) Beechey Island Epoxy Resin Grave Marker Removal

Project: 510-96

Period: 28 June - 18 July

Area: Axel Heiberg/Beechey Island

Name: Strang, Thomas

Department of Canadian Heritage
Canadian Conservation Institute
1030 Innes Road
Ottawa, Ontario
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Tel.: (613) 998-3721
Fax: (613) 998-4721
E-mail: tom-strang@pch.gc.ca

The Canadian Conservation Institute has for several years been monitoring a number of Arctic sites of heritage interest. In connection with this, CCI has been investigating rates of erosion as well as the changes taking place in the Fossil Forest on Axel Heiberg Island. This year's project aims to complete a GPS survey begun in 1995 and to update readings from on-site monitors. Now that four wooden grave markers have been installed at the John Franklin gravesite on Beechey Island, CCI, in cooperation with the Prince of Wales Northern Heritage Centre, intends to remove the three remaining epoxy resin markers.

Bathurst Island New Park Feasibility Study

Project: 504-96

Period: July

Area: Walker River

Name: Harvey, Douglas

Parks Canada
25 Eddy Street, 4th Floor
Hull, Quebec
K1A 0M5

Tel.: (819) 997-4212
Fax: (819) 994-5140

Parks Canada is working with the Inuit of Resolute Bay to assess the feasibility of a new national park at northern Bathurst Island. The focus of this year's work will be a survey of the coastline for archaeological sites.

Biostratigraphy of a Tertiary Vertebrate Locality at Strathcona Fiord

Project: 513-96

Period: 3 - 31 July

Area: Strathcona Fiord

Name: Harington, C.R.

Canadian Museum of Nature
P.O. Box 3443, Station D
Ottawa, Ontario
K1P 6P4

Tel.: (613) 954-0351
Fax: (613) 954-4724

The object of this study is to add to our knowledge of the vertebrate fauna from this beaver-pond site near Strathcona Fiord by collecting bones and other fossils so as to better understand: 1) evolutionary relationships of previously unknown Pliocene vertebrates in the Arctic; 2) a unique "boreal forest" environment that existed in Pliocene time; and 3) the geological age of the deposit.

Mercury and Selenium in Beluga Whales

Project: 115-96

Period: 4 - 23 July

Area: Hendrickson Island

Name: Lockhart, W.L./Metner, D.

Department of Fisheries and Oceans
Science - Contaminants Research
501 University Crescent
Winnipeg, Manitoba
R3T 2N6

Tel.: (204) 983-5167
Fax: (204) 984-6587
E-Mail: metner@wpgdfo.wpg.dfo.ca

It is proposed to collect more samples of blood in 1996 to see whether the 1994 and 1995 results can be confirmed, and to explore whether these levels of mercury are toxicologically important to the whales.

Paleozoic Plants from Axel Heiberg and Ellesmere Islands, Canadian Arctic Archipelago

Project: 622-96

Period: 15 July - 15 August

Area: Axel Heiberg Island/Svartevaeg Cliffs/
McClintock Inlet/Ellesmere Island

Name: Lepage, Ben A.

Canadian Circumpolar Institute
University of Alberta
Old St. Stephen's College
3rd Floor, 8820-112 Street
Edmonton, Alberta
T6G 2E2

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On northern Axel Heiberg and Ellesmere islands, a number of Late Carboniferous and Permian deposits have recently been shown to contain well-preserved plant macrofossils. The Permian plants are part of an allochthonous assemblage and occur as leaf compressions in marine deposits. Carboniferous plants are known from only four localities and represent high-latitude floras relative to other contemporaneous floras. The older Carboniferous plants will provide us with a floral assemblage occurring at the start of one of the world's largest glaciation events, while the Permian plants are providing us with floral assemblage occurring at a time when global glaciation was ending. Consequently, we will be able to examine the long-term vegetational changes that are associated with global climate change during the Paleozoic (between 340-240 million years) and improve our understanding of past high-latitude environmental and climatic conditions during the Late Paleozoic in the Sverdrup Basin, Arctic Canada.

In Search of Franklin

Project: 800-96

Period: 17 July - 4 August

Area: Beechey and King William Islands

Name: Sheridan, Vincent

4326 Quebec Street
Vancouver, British Columbia
V5V 3L3

Tel.: (604) 688-1925
Fax: (604) 684-2534

To survey Franklin and Franklin-related sites on King William Island and at Beechey Island. To obtain a series of detailed drawings and photographs of landscape, monuments, cairns, graves and other artifacts at the Franklin sites. These data are essential to authenticate my historic/artistic project, "In Search of Franklin".

Geocryologic Processes, Western Arctic Coast **Project**: 601-96

Period: 25 July - 10 August

Area: Garry Island/Illisarvik

Name: Mackay, J. Ross

University of British Columbia
Department of Geography
1984 West Mall
Vancouver, British Columbia
V6T 1Z2

Tel.: (604) 822-2257
Fax: (604) 822-6150

The major objectives are to complete long-term studies on ice-wedge polygons at Garry Island, ice-wedge and aggradational ice at Illisarvik, and ventifacts at Paulatuk.

GEOLOGY

Permafrost Constraints on Hazards; Engineering Geology, Tuktoyaktuk Coastlands

Project: 009-96

Period: late March - 5 August

Area: Tuktoyaktuk/Richards Island

Name: Dallimore, S.R.

Natural Resources Canada
Geological Survey of Canada
Terrain Sciences
601 Booth Street
Ottawa, Ontario
K1A 0E8

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E-mail: dallimore@gsc.emr.ca

Strategic field work is proposed during the spring and summer of 1996 to: a) measure in site creep deformation of instrumented sites; b) describe and sample key Quaternary sections for comparison with corehole sites, and c) sample ground ice site for radiocarbon dating.

Effect of Climatic Change on Permafrost Geomorphology, Fosheim Peninsula, Ellesmere Island

Project: 645-96

Period: 26 May - 15 August

Area: Hot Weather Creek/Eureka

Name: Lewkowicz, Antoni

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University of Ottawa
Ottawa, Ontario
K1N 6N5

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The aim of the research is to establish links between climate and geomorphological processes so that predictions can be made about the effects of climatic change. Processes under investigation in the lowlands of the Fosheim Peninsula are solifluction, active-layer detachment and sediment transport in rivers.

Gold Showings, Keewatin Region

Project: 505-96

Period: June - August

Area: Rankin Inlet

Name: Goff, Stephen

Department of Indian Affairs and
Northern Development
Operations - Geological Mapping
Yellowknife, Northwest Territories
X1A 2R3

Tel.: (403) 920-8213
Fax: (403) 873-5763

To visit and sample for geochemical and petrographic analysis, gold showings in the Keewatin region.

Geological Mapping of Part of the Western Slave Structural Province

Project: 501-96

Period: June - August

Area: Kikerk Lake/Napaktulik Lake/
Kathawachaga Lake Areas

Name: Jackson, Valerie

Department of Indian Affairs and
Northern Development
Operations - Geological Mapping Division
P.O. Box 1500
Yellowknife, Northwest Territories
X1A 2R3

Tel.: (403) 920-8552
Fax: (403) 873-5763

The project involves geological mapping of part of the western Slave Structural Province, and was initiated in 1986. All fieldwork will be completed in 1996.

Environmental Change - Arctic Lakes

Project: 011-96

Period: 6 - 10 June

Area: Sophia Lake

Name: Egginton, P.

Natural Resources Canada
Geological Survey of Canada
Terrain Sciences Division
601 Booth Street
Ottawa, Ontario
K1A 0E8

Tel.: (613) 992-2451
Fax: (613) 992-2468
E-mail: egginton@gsc.emr.ca

Part of a sampling program to look at the variability in lake geochemistry through time.

EMILE RIVER

Project: 516-96

Period: 7 June - 15 September

Area: EMILE RIVER

Name: Pell, Jennifer

Department of Indian Affairs and
Northern Development
Operations - Geological Mapping
Box 1500
Yellowknife, Northwest Territories
X1A 2R3

Tel.: (403) 920-8216
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The EMILE RIVER project is a mapping program (1:30,000) concentrating on a belt of Archaean supracrustals linking the Russel Lake and Indin Lake basins. The EMILE RIVER belt was previously mapped @ 1:250,000 in 1938-1939. That portion of the belt lying in 85N/9 is now mapped at 1:30,000. Work in 1996 will focus on 85N/8.

Western Churchill NATMAP **Project:** 017-96

Period: 10 June - 31 August

Area: Rankin Inlet

Name: Tella, S.

Natural Resources Canada
Geological Survey of Canada
Continental Geoscience Division
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Ottawa, Ontario
K1A 0E8

Tel.: (613) 995-4926
Fax: (613) 995-7997
E-mail: subhas tella@cgd@gsc ottawa

Program objectives are to enhance our knowledge of the Archaean and Proterozoic geology, tectonic history, and mineral resource potential of the western Churchill Province, with focused studies on the Neoarchaean greenstone belts and their base and precious metal deposit potential. Studies include bedrock and surficial geological mapping, and thematic studies in targeted map areas along a 400-km northwest transect of the western Churchill Province from Arviat to Schultz Lake.

South Baffin Multidisciplinary Project - Structural Studies **Project:** 641-96

Period: 11 June - August 31

Area: South Baffin

Name: Carmichael, D.M.

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The south Baffin project is a three-year multidisciplinary project to investigate the geology of NTS sheets 25 K, L, M and N. Within the context of the regional project, structural studies will determine the modes and mechanisms of growth of a N 1.8 B.Y. mountain belt.

South Baffin Multidisciplinary Project (Bedrock Component)

Project: 007-96

Period: 11 June - 31 August

Area: South Baffin

Name: St-Onge, Marc

Natural Resources Canada
Geological Survey of Canada
Continental Geoscience Division
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Ottawa, Ontario
K1A 0E8

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E-mail: mstonge@cc2smtp.emr.ca

The south Baffin project is a three-year multidisciplinary project to investigate the geology of NTS sheets 25 K, L, M and N. Field aspects of the project in 1995 included bedrock geological mapping of 1500 km^2 at 1:100 000 scale between Lake Harbour and Iqaluit, mapping of surficial deposits at 1:250 000 scale and rock/mineral identification for local residents and Inuit carvers. Work in 1996 will centre on Markham Bay.

South Baffin Multidisciplinary Project - Structural Studies

Project: 642-96

Period: 11 June - 31 August

Area: South Baffin

Name: White, J.C.

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University of New Brunswick
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E3B 5A3

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Fax: (506) 453-5055
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The south Baffin project is a three-year multidisciplinary project to investigate the geology of NTS sheets 25 K, L, M and N. Within the context of the regional project, structural studies will determine the modes and mechanisms of growth of a N 1.8 B.Y. mountain belt.

Upper Paleozoic Basin Analysis, Sverdrup Basin, Canadian Arctic

Project: 014-96

Period: 22 June - 3 August

Area: Axel Heiberg Island

Name: Beauchamp, Benoit

Natural Resources Canada
Geological Survey of Canada - Calgary
3303 - 33rd Street NW
Calgary, Alberta
T2L 2A7

Tel.: (403) 292-7190
Fax: (403) 292-4961
E-mail: bbeauchamp@gsc.emr.ca

To gather stratigraphic information and to map units of Carboniferous and Permian age in the Sverdrup Basin, Canadian Arctic. Data acquired through this project will be useful for future hydrocarbon and mineral exploration, and will have a direct link to wealth generation for the local northern communities and Canadians in general.

Bedrock Geology and Resources Potential of Bathurst and Adjacent Small Islands

Project: 016-96

Period: 24 June - August 10

Area: Cameron & Byam Martin Islands/
Freeman's Cove/Bass Point area

Name: Harrison, Christopher J.

Natural Resources Canada
Geological Survey of Canada - Calgary
3303-33rd Street NW
Calgary, Alberta
T2L 2A7

Tel.: (403) 292-7137
Fax: (403) 292-5377
E-mail: charrison@gsc.emr.ca

ATV-supported bedrock geological mapping, stratigraphic and structural studies and assessment of potential mineral and hydrocarbon resources (a project initiated in 1992) will be completed from four fly camps in the Bathurst Island region. Localities for field work will include Cameron Island, Byam Martin Island and the Freeman's Cove and Bass Point areas on southeastern Bathurst Island.

Surficial Geology of Bathurst Island, Northwest Territories

Project: 004-96

Period: 26 June - 7 August

Area: Allison Inlet/Byam Martin, Cameron and North-Central Bathurst Islands

Name: Bednarski, Jan

Natural Resources Canada
Geological Survey of Canada
Terrain Sciences
3303 - 33rd Street NW
Calgary, Alberta
T2L 2A7

Tel.: (403) 292-7187
Fax: (403) 292-7034
E-mail: bednarski@gsc@emr.ca

As part of a Mineral and Energy Resource Assessment, Terrain Sciences, Geological Survey of Canada, began field investigations on the Bathurst Island group, southern Queen Elizabeth Islands. The objective is to map the surficial geology and gather data on Quaternary glaciations, till geochemistry, and sea level history.

Research on Bear Cave Mountain, Northern Yukon

Project: 633-96

Period: 27 June - 6 July

Region: Bear Cave

Name: Lauriol, B.

University of Ottawa
Department of Geography
165 Waller Street
Ottawa, Ontario
K1N 6N5

Tel.: (613) 562-5800, ext. 1050
Fax: (613) 562-5145

Study of endostromatolites on the slopes of Bear Cave Mountain; study of the loess and ice in the caverns.

Surficial Geology Mapping in the Slave Geological Province, NWT

Project: 003-96

Period: 1 - 21 July

Area: Lupin Gold Mine

Name: Kerr, Daniel E.

Natural Resources Canada
Geological Survey of Canada
Terrain Sciences
601 Booth Street
Ottawa, Ontario
K1A 0E8

Tel.: (613) 995-4523
Fax: (613) 992-2468

Mapping of surficial sediments and land forms, establishing glacial geological history, and till sampling to create regional database for land use, development and mineral exploration. Incorporates investigations of permafrost features and sediment sampling to determine basic engineering properties, in an area where such data are urgently needed.

Fossil Plants of Arctic Canada

Project: 612-96

Period: 1 - 31 July

Area: Bathurst Island

Name: Basinger, James F.

Department of Geological Sciences
University of Saskatchewan
114 University Place
Saskatoon, Saskatchewan
S7N 5E2

Tel.: (306) 966-5687
Fax: (306) 966-8593
E-mail: jim.basinger@sask.usask.ca

Fossil plants discovered in Silurian/Devonian rocks (400 million years old) on Bathurst Island represent the most diverse assemblage of very early land plants yet known from North America. Continuing study of these fossils is contributing significantly to our understanding of the origin and early diversification of land plants.

Permian and Triassic Stratigraphy in the Northern Yukon and Adjacent District of Mackenzie

Project: 015-96

Period: July - August

Area: Northern Richardson Mountains/Inuvik

Name: Dixon, James

Natural Resources Canada
Geological Survey of Canada - Calgary
3303-33rd Street NW
Calgary, Alberta
T2L 2A7

Tel.: (403) 292-7136
Fax: (403) 292-5377

The poorly known Permian and Triassic strata of the British and Richardson mountains are being studied in greater detail than presently known in order to better understand the stratigraphy and geological history. Data collected will be used to place the strata in a more regional context and to evaluate the economic potential of the rocks.

Slave Province Evolution and Metallogeny

Project: 503-96

Period: 4 July - 10 August

Area: Acasta Research Centre/Labrish Lake/
Point Lake/Cyclops Peninsula

Name: Padgham, W.A.

Department of Indian Affairs and
Northern Development
Geological Mapping
NWT Region
P.O. Box 1600
Yellowknife, Northwest Territories
X1A 2R3

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Fax: (403) 873-5763
E-mail: william.Padgham@x400.gov.ca

Sampling of rocks in and around the Slave Structural Province for geochronology, geochemistry and studies of conglomerates and quartz arenite and their provenance in various parts of Slave Province.

Palynology, Stratigraphy, Sedimentology and Rock-Eval Pyrolysis, Christopher, Hassel and Kanguk Formations, Arctic Canada

Project: 634-96

Period: 5 - 25 July

Area: Ellef Ringnes/Axel Heiberg/
Melville Islands

Name: Hills, Leonard Vincent

Department of Geology & Geophysics
University of Calgary
2500 University Drive N.W.
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(403) 220-5841
Fax: (403) 284-0074

The Cretaceous Christopher, Hassel and Kanguk formations are widespread throughout the Sverdrup Basin. Although much is known of their distribution, detailed sedimentological and biostratigraphical control is still evolving. This work is part of an ongoing project to provide a greater understanding of the tectonic history of the Sverdrup Basin during the Cretaceous and the petroleum generation potential of the Kanguk in particular.

Late Ordovician and Early Silurian Graptolites, Cape Phillips Formation, Cornwallis and Dundas Islands, NWT

Project: 615-96

Period: 9 July - 2 August

Area: Cape Phillips/Manning/Dundas Islands

Name: Melchin, Michael J.

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St. Francis Xavier University
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B2G 2W5

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E-mail: mmelchin@stfx.ca

This project is a study of the late Ordovician and early Silurian graptolites of the Cape Phillips Formation. There are three specific projects: 1) the late Ordovician and late Llandovery (Early Silurian) extinction events; 2) the morphology, systematics and evolution of Early Silurian graptolites; and 3) taphonomy of graptolites and their depositional environments. The quality of preservation of these invertebrate fossils in the Canadian Arctic is unparalleled worldwide, providing research opportunities unavailable anywhere else.

High Arctic Field Symposium, Working Group on Periglacial Processes and Environment, International Permafrost Association

Project: 644-96

Period: 10 - 14 July

Area: Eureka

Name: Lewkowicz, Antoni

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Ottawa, Ontario
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E-mail: alewkowi@acadvmi.uottawa.ca

This field meeting and symposium will be the first excursion within the permafrost community to be held in the Canadian High Arctic for two decades. Its theme is the influence of climate variability and change on geomorphic processes in High Arctic environments. Weather permitting, nine participants will have the opportunity to visit a variety of sites on Ellesmere, Axel Heiberg and Cornwallis islands.

Upper Silurian - Lower Devonian Graptolites, Arctic Islands

Project: 617-96

Period: 10 - 18 July

Area: West of Grant Point/Dundee Bight/ Snowblind Creek

Name: Lenz, Alfred C.

Department of Earth Sciences
University of Western Ontario
London, Ontario
N6A 5B7

Tel.: (519) 661-3195
Fax: (519) 661-3198
E-mail: aclenz@julian.uwo.ca

1) Uppermost Wenlock graptolites; their extinction and evolution. 2) Upper Silurian-Lower Devonian graptolite taxonomy and biostratigraphy of Arctic Canada (in part, in collaboration with Dr. Zhang Yuan-Dong, China). 3) Upper Silurian isolated retiolitid and monograptid graptolites: taxonomy, morphology, evolution (in part, in collaboration with Dr. Koren, Russia, and Dr. Kozlowska-Dawidziuk, Poland).

Ordovician Trilobite Faunas of Arctic Canada **Project:** 613-96

Period: 13 - 23 July

Area: Baumann Fiord/Dundas Harbour

Name: Westrop, Stephen R.

Earth Sciences
Brock University
St. Catharines, Ontario
L2S 3A1

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The project deals with the systematics, paleoecology and biostratigraphy of Ordovician trilobites of the central Arctic Archipelago. It is expected to provide new insight into the age and correlation of the Lower Ordovician Cape Clay and Eleanor River formations and the Upper Ordovician Irene Bay formation.

Neoproterozoic Reefs on Victoria Island **Project:** 605-96

Period: 18 July - 3 August

Area: Wynniat Bay/Victoria Island

Name: Narbonne, G.M.

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Kingston, Ontario
K7L 3N6

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Fax: (613) 545-6592

The Reynolds Point Formation on Victoria Island contains Neoproterozoic (probably ca. 800 million years old) stromatolite reefs that grew in a mid-shelf environment. Study of these reefs will provide information on the structure and ecology of Neoproterozoic reefs and their place in the evolution of reef ecosystems.

Mineral and Energy Resource Assessment, Northern Bathurst Island

Project: 018-96

Period: 21 - 31 July

Area: Bathurst Island

Name: Anglin, C.D.

Natural Resources Canada
Geological Survey of Canada
Mineral Resources
Room 679, 601 Booth Street
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K1A 0E8

Tel.: (613) 995-4656
Fax: (613) 996-9820
E-mail: anglin@gsc.emr.ca

Detailed geological mapping and lithogeochemical sampling of selected areas on Bathurst Island, and stream sediment and water geochemical sampling to complete survey begun in 1995. This project is part of the resource assessment of northern Bathurst Island undertaken on behalf of DIAND and Parks Canada.

Evolution and Interrelationships of Lungfishes

Project: 514-96

Period: 23 July - 15 August

Area: Anderson and Snake Rivers

Name: Cumbaa, Stephen L.

Canadian Museum of Nature
P.O. Box 3443, Station D
Ottawa, Ontario
K1P 6P4

Tel.: (613) 941-0051
Fax: (613) 954-4724
E-mail: scumbaa@mus-nature.ca

Our team proposes further exploration of a locality discovered in 1995 which produced a unique assemblage of Early Devonian lungfishes and other fossil fishes along the Anderson River, NWT. In addition, we plan to examine rocks of the same age along the Snake River, YT, to see if they also produce fossils representing a similar fauna and paleoenvironment. These field studies support our research on the evolution and interrelationships of early fishes and their paleoenvironments.

Coastal Impacts of Climate Change

Project: 002-96

Period: 25 - 31 July

Area: North Head

Name: Solomon, Steven

Natural Resources Canada
Geological Survey of Canada - Atlantic
Bedford Institute of Oceanography
P.O. Box 1006
Dartmouth, Nova Scotia
B2Y 4A2

Tel.: (902) 426-9459
Fax: (902) 426-4104
E-mail: ssolomon@agc.bio.ns.ca

The main objective of the field program is to improve our understanding of coastal processes in the Canadian Beaufort Sea and to acquire information which can be used to develop and calibrate predictive models of coastal change. The program in 1996 will focus on acquiring beach and nearshore morphological information and thaw depth data at sites of ongoing GSC monitoring.

ARKTOS Beta Project

Project: 116-96

Period: August

Area: Resolute Bay

Name: St-Pierre, Patrice

Coast Guard
Northern Region - Technical Directorate
344 Slater Street, 5th Floor
Ottawa, Ontario
K1A 0N7

Tel.: (613) 990-6369
Fax: (613) 991-9261

(Refer page 44, project 001-96)

ARKTOS Beta Amphibious Vehicle Geoscience Survey **Project:** 001-96

Period: 1 - 25 August

Area: Resolute Bay

Name: Blasco, Steve

Natural Resources Canada
Geological Survey of Canada - Atlantic
Marine Environmental Geoscience
Bedford Institute of Oceanography
1 Challenger Drive
P.O. Box 1006
Dartmouth, Nova Scotia
B2Y 4A2

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Fax: (902) 426-4104
E-mail: blasco@agc.bio.ns.ca

Joint GSC, PCSP, Coast Guard and Watercraft Ltd. project to use the ARKTOS Beta amphibious vehicle as a coastal geophysical/geological survey vessel to collect bathymetric, sidescan and subbottom profiles and seabed sediment samples of the nearshore zone off Resolute Bay. The initial survey conducted in August 1995 was successful at acquiring acoustic profile data. In 1996 additional profile data, as well as sediment core samples, will be collected. The survey is an integral component of the 'ice scour disturbance and structure of Arctic marine benthic communities' study lead by K. Conlan.

Origin and Stabilization of the Upper Mantle Beneath Canada **Project:** 643-96

Period: 13 - 21 August

Area: Somerset Island

Name: Francis, Don

Earth Planetary Sciences
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Tel.: (514) 398-4885
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E-mail: don_f@geosci.lan.mcgill.ca

This proposal requests logistics support for an expedition to sample mantle xenoliths in kimberlite pipes on Somerset Island, as part of a larger project studying the origin and stabilization of the upper mantle beneath Canada.

GEOPHYSICS

Hydrographic/Gravity Survey **Project:** 101-96

Period: 15 February - 25 April

Area: Bernard Harbour

Name: Biggar, Jon

Department of Fisheries and Oceans
867 Lakeshore Road
P.O. Box 5050
Burlington, Ontario

Tel.: (905) 336-4832
Fax: (905) 336-8916

The Canadian Hydrographic Service (CHS) will be conducting a combined hydrographic and gravity program during the months of February, March and April. The survey operations will be based out of Bernard Harbour in Dolphin and Union Strait, NWT. Information collected by spot sounding techniques and TIBS (Towed Inflight Bathymetry System) will aid in determining a safe shipping route on navigational charts.

Dolphin and Union Strait Gravity Survey **Project:** 013-96

Period: 20 February - 10 April

Area: Bernard Harbour

Name: Cooper, Roy

Natural Resources Canada
Geomatics Canada
Geodetic Survey
615 Booth Street, 4th Floor
Ottawa, Ontario
K1A 0E4

Tel.: (613) 992-6945
Fax: (613) 947-3323
E-mail: rcooper@gsc.emr.ca

To carry out a regional gravity survey of Dolphin and Union Strait as part of NRCan's program to map and explain the regional geological and tectonic framework of Canada's landmass and offshore area. This is a one-year survey and will be carried out in cooperation with the Canadian Hydrographic Service (central region).

Nares Strait Gravity and Bathymetry Survey **Project:** 012-96

Period: 15 April - 6 May

Area: Alexandra Fiord

Name: Cooper, Roy

Natural Resources Canada
Geomatics Canada
Geodetic Survey
615 Booth Street, 4th Floor
Ottawa, Ontario
K1A 0E4

Tel.: (613) 992-6949
Fax: (613) 947-3323
E-mail: rcooper@gsc@emr.ca

This is the second year of a two-year cooperative project between Canada, Denmark and the U.S.A. to gather gravity data on the sea ice of Nares Strait between eastern Ellesmere Island and western Greenland. Gravity and bathymetry measurements will be collected on the sea ice at 12 km spacing using differential GPS for positioning. Data will be collected in areas of open water during the 1996 campaign. For the most part, the survey will be conducted in Canadian waters.

Haughton Impact Structure Studies II: Geoscience at 24Km Impact Crater **Project:** 901-96

Period: 20 June - 12 July

Area: Haughton Impact Crater, Devon Island

Name: Sharpton, V.L.

Lunar and Planetary Institute
3600 Bay Area Boulevard
Houston, Texas 77058
U.S.A.

Tel.: (713) 486-2111
Fax: (713) 486-2162
E-mail: sharpton@lpi.jsc.nasa.gov

A group of three Canadian and two U.S. geoscientists of the Lunar and Planetary Institute, and the Geological Survey of Canada, will conduct a detailed geological mapping and sampling program, a study of the impact related deformation of target rock, and a gravity survey in and around the Haughton Impact Crater, Devon Island. Emphasis will be on breccia characterization, a study of shock metamorphism of sedimentary rocks and the establishment of a subsurface gravity model.

The Strand Fiord Large Igneous Province: A Multidisciplinary Investigation of its Origin and Paleomagnetic Record

Project: 702-96

Period: 25 June - 24 August

Area: Axel Heiberg Island/Expedition Fiord/ Agate-East Fiord

Name: Tarduno, John A.

Department of Earth & Environmental Sciences
University of Rochester
227 Hutchison Hall
Rochester, New York 14627
U.S.A.

Tel.: (716) 275-2410
Fax: (716) 244-5689
E-mail: john@skyline.earth.rochester.edu

We propose a multidisciplinary study of the Strand Fiord volcanics to address several questions of Arctic tectonic evolution and global change. Among these questions, our prime interest is in determining an exact age and duration of the Strand Fiord volcanics and determining whether they correspond with a global extinction event. In addition, we are interested in determining the relationship, if any, between Arctic volcanism and large scale Cretaceous phenomena such as the "superplume" volcanism observed in the Pacific and Indian Oceans.

Canyon Creek Permafrost Station

Project: 204-96

Period: 19 - 23 August

Area: Canyon Creek

Name: Goodison, B.E.

Environment Canada
Climate Research Branch
4905 Dufferin Street
Downsview, Ontario
M3H 5T4

Tel.: (416) 739-9345
Fax: (416) 739-5700
E-mail: goodisonb@aestor.am.doe.ca

The permafrost/climate study was initiated in 1985 to study possible changes to the permafrost regime in response to climate variability and warming. Soil temperature profiles and other related measurements are taken across a network of stations including Shefferville, Churchill, Norman Wells (Canyon Creek) and Mayo. Data are collected on autostations which are usually serviced once per year. The data collected are used in climate studies and for testing and verifying land surface process models.

GLACIOLOGY

A) Mass Balance of Queen Elizabeth Island Ice Caps
B) Depth and Surface Surveys of Penny Ice Cap (ICAPP)

Project: 010-96

Period: 7 March - 15 April

Area: Devon, Melville, Meighen, Agassiz and Penny Ice Caps

Name: Koerner, Roy M.

Natural Resources Canada
Geological Survey of Canada
Terrain Sciences Division, Glaciology
601 Booth Street
Ottawa, Ontario
K1A 0E8

Tel.: (613) 996-7623
Fax: (613) 996-5448
E-mail: koerner@gsc.emr.ca

The mass balance programme measures the health of Canadian Arctic ice caps and serves to monitor climatic change in that area. The Penny Ice Cap work is the beginning of an international programme designed to study past climatic change and pollutant influx to the circum-Arctic area. This programme is presently approved by the International Arctic Science Committee and will be put forward as a proposal to the Pages (Past climatic change) of the IGBP (International Geosphere/Biosphere Programme).

Hydrology and Dynamics of John Evans Glacier, Ellesmere Island

Project: 607-96

Period: 5 May - 6 August

Area: John Evans Glacier/Allman Bay/ Ellesmere Island

Name: Sharp, Martin J.

University of Alberta
Department of Earth and
Atmospheric Sciences
3-32 H M Tory Building
Edmonton, Alberta
T6G 2E3

Tel.: (403) 492-4156
Fax: (403) 492-7598
E-mail: msharp@geog.ualberta.ca

The overall aim of the project is to study the links between the hydrology and dynamics of a High Arctic glacier and to investigate its response to climate change. 1996 fieldwork will focus on: [a] shallow ice coring in the zone of superimposed ice formation for purposes of mass balance reconstruction; [b] testing and parameterisation of numerical mass balance simulation models, and [c] measurement of solute fluxes from the glacier catchment and determination of rates of chemical weathering and atmospheric CO_2 consumption in subglacial, ice-marginal and proglacial hydrological environments.

Mass Balance of White and Baby Glacier, Expedition Fiord, Axel Heiberg Island, NWT

Project: 640-96

Period: 14 May - 4 June

Area: Expedition Fiord/Axel Heiberg Island

Name: Ecclestone, Miles

Department of Geography
Trent University
P.O. Box 4800
Peterborough, Ontario
K9J 7B8

Tel.: (705) 748-1546
Fax: (705) 748-1205
E-mail: mecclestone@trentu.ca

A continuous mass balance record (time series) represents the direct connection between glaciers and climate. Such records are rare, particularly for the High Arctic which, outside of Greenland and Antarctica, contains a major share of the land ice on Earth. Our analysis shows the White (and Baby) Glacier to be representative to Canada's High Arctic glaciers and, as such, they provide a useful climate record, necessary for models and predicting impacts of climate change (i.e., warming) in the High Arctic.

HYDROLOGY

Ablation of Seasonal Snowcovers

Project: 650-96

Period: 10 April - 30 May

Area: Inuvik/Trail Valley Creek

Name: Gray, Donald M.

Division of Hydrology
University of Saskatchewan
57 Campus Drive
Saskatoon, Saskatchewan
S7N 5A9

Tel.: (306) 966-7828
(306) 966-7831
Fax: (306) 966-7829

The objective of this study is to quantify the magnitude of the role of net solar radiation in the melt of shallow seasonal snowcovers under patchy conditions. This study, which is being undertaken in association with other researchers as part of the Canadian GEWEX program, is intended to lead to better estimates of the timing and rates of snow melt. This work has implications for modeling snow melt, runoff, flooding and global climate change.

Hydrological Studies - Mackenzie Delta Area

Project: 205-96

Period: 10 April - 15 November

Area: Inuvik/Trail Valley Creek

Name: Marsh, Philip

Environment Canada
Hydrological & Aquatic Sciences
National Hydrology Research Institute
11 Innovation Boulevard
Saskatoon, Saskatchewan
S7N 3H5

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This study is aimed at improving our understanding of processes controlling snow accumulation, snowmelt, and rainfall runoff in permafrost environments, and the related hydrogeochemical fluxes. Collaboration through the Canadian GEWEX program will allow integration of land surface and atmospheric processes and models. This work has implications for predicting snow melt flooding, global change/climate change and the flux of nutrients and pollutants through northern ecosystems.

Snow Distribution and Snowmelt in a High Arctic Environment

Project: 609-96

Period: 1 May - 15 June

Area: Fosheim Peninsula/Resolute Bay

Name: Woo, Ming-ko

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L8S 4K1

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Special Sensor Microwave Imager passive microwave satellite data offer an opportunity to map snow distribution over large areas. The extensive snow survey to be carried out in Fosheim Peninsula will provide field data against which the satellite information can be calibrated to enable the development of an algorithm for snow mapping. The presence of dust on snow affects the melt process and an experiment will also be set up to enable a coupling of the melt with the snow distribution to assist in the spatial assessment of meltwater release during the Arctic snowmelt season.

Hydrology and Dynamics of John Evans Glacier, Ellesmere Island

Project: 607-96

Period: 5 May - 6 August

Area: John Evans Glacier/Allman Bay/
Ellesmere Island

Name: Sharp, Martin J.

University of Alberta
Department of Earth and
Atmospheric Sciences
3-32 H M Tory Building
Edmonton, Alberta
T6G 2E3

Tel.: (403) 492-4156
Fax: (403) 492-7598
E-mail: msharp@geog.ualberta.ca

The overall aim of the project is to study the links between the hydrology and dynamics of a High Arctic glacier and to investigate its response to climate change. 1996 fieldwork will focus on: [a] shallow ice coring in the zone of superimposed ice formation for purposes of mass balance reconstruction; [b] testing and parameterisation of numerical mass balance simulation models, and [c] measurement of solute fluxes from the glacier catchment and determination of rates of chemical weathering and atmospheric CO_2 consumption in subglacial, ice-marginal and proglacial hydrological environments.

Snowmelt Process at a High Arctic Watershed

Project: 652-96

Period: 24 May - 15 June

Area: Resolute Bay Area

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The primary objective is to monitor and to model the snowmelt process of a small basin of the High Arctic near Resolute Bay. Several snowmelt modeling approaches, ranging from the degree-day method to a heat balance approach, will be examined and compared with field observations to determine the level of data and the modelling details needed to describe the Arctic snowmelt process adequately.

Patterns of Water Flow on Nutrient Fluctuations and Ecological Response in High Arctic Wetlands Maintained by Late-Lying Snowbeds

Project: 621-96

Period: 20 June - 15 August

Area: Resolute Bay

Name: Young, Kathy Lynn

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Wetland sites in conjunction with late-lying snowbeds constitute important habitats for northern wildlife. The seasonal linkages between nutrients, soil water storage and plant response in three wetlands maintained by surface or subsurface meltwater from late-lying snowbeds will be compared with a wetland driven only by seasonal snow and ground ice melt. A present-day understanding of environmental interactions in these wetland types will be crucial in evaluating the possible implications of global change for these environments and the ramifications to animal grazing patterns.

ICE PHYSICS

A) Mass Balance of Queen Elizabeth Island Ice Caps
B) Depth and Surface Surveys of Penny Ice Cap (ICAPP)

Project: 010-96

Period: 7 March - 15 April

Area: Devon, Melville, Meighen, Agassiz and Penny Ice Caps

Name: Koerner, Roy M.

Natural Resources Canada
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601 Booth Street
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Fax: (613) 996-5448
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The mass balance programme measures the health of Canadian Arctic ice caps and serves to monitor climatic change in that area. The Penny Ice Cap work is the beginning of an international programme designed to study past climatic change and pollutant influx to the circum-Arctic area. This programme is presently approved by the International Arctic Science Committee and will be put forward as a proposal to the Pages (Past climatic change) of the IGBP (International Geosphere/Biosphere Programme).

LIMNOLOGY

Biogeochemistry of Lakes in the Mackenzie Delta **Project:** 648-96

Period: 1 May - 24 August

Area: Inuvik Research Centre

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Simon Fraser University
Burnaby, British Columbia
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To determine the interacting biogeochemical and hydrologic processes that are controlling the cycling of nutrients through aquatic ecosystems in the Mackenzie Delta. This study is part of a larger effort to develop a general understanding of the cycling of nutrients and control of primary production in aquatic ecosystems associated with the food plains and deltas of major world rivers.

Microbial Responses to Global Change in Arctic Lakes and Rivers **Project:** 646-96

Period: 20 May - 10 June

Area: Lake Hazen

Name: Vincent, Warwick F.

Université Laval
Département de biologie
Sainte-Foy (Québec)
G1K 7P4

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E-mail: w.vincent@bio.ulaval.ca

Microbial populations such as phototrophic and heterotrophic bacteria play a major role in the primary food chain processes of aquatic ecosystems. This research will examine the structure and activity of microbial communities in Lake Hazen, a large oligotrophic lake near the northern limit of polar freshwater environments. The research will be coupled to a detailed analysis of physical properties of the water column (spectral irradiance, thermal fine structure) to allow comparison with ice-covered lakes at similar latitudes in the south polar region, and to evaluate the implications of global warming and of changing solar ultraviolet-b radiation.

Climate Forcing, Environmental Impact, and Hindcasting of High Arctic Lake Ice

Project: 701-96

Period: 25 May - 4 June

Area: Expedition Fiord/Alert

Name: Wharton, Robert

University of Nevada
Desert Research Institute
Biological Sciences
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E-mail: wharton@maxey.unr.edu

This project has the goal of defining the climate forcing(s) necessary for the formation of a persistent lake ice cover in the High Arctic, and to calibrate ice conditions to lake bottom deposition so that inference to past climate can be determined from lake sediments. The project is an international effort involving scientists from both the U.S.A. and Canada.

Environmental Change - Arctic Lakes

Project: 011-96

Period: 6 - 10 June

Area: Sophia Lake

Name: Egginton, P.

Natural Resources Canada
Geological Survey of Canada
Terrain Sciences Division
601 Booth Street
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K1A 0E8

Tel.: (613) 992-2451
Fax: (613) 992-2468
E-mail: egginton@gsc.emr.ca

Part of a sampling program to look at the variability in lake geochemistry through time.

Limnology and Paleoecology of Arctic Lakes

Project: 614-96

Period: 15 July - 7 August

Area: Isachsen/Ellef Ringnes Island/
Resolute Bay

Name: Smol, John P.

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Queen's University
Kingston, Ontario
K7L 3N6

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Our limnological and paleolimnological studies are focussed on describing and correlating with environmental variables the algae and aquatic invertebrates of Arctic lakes. We then use the fossil assemblages of these organisms to interpret the paleoenvironmental histories of these lakes, centering on problems related to climatic change.

Taxonomic and Ecological Characterization of Freshwater Diatoms from Arctic Lakes and Ponds

Project: 620-96

Period: 23 July - 16 August

Area: Isachsen/Ellef Ringnes Island/Resolute Bay

Name: Douglas, Marianne

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The main objective of this research is to continue to describe and fine-tune the autecology of Arctic diatom taxa. Diatom microfossils have strong potential in paleoclimatic reconstructions. This particular project will examine diatom assemblage from shallow ponds and lakes on Somerset Island as well as from Ellef Ringnes Island.

MARINE BIOLOGY

Role of Sound in Ringed Seal Navigation and Disturbance **Project:** 705-96

Period: 15 March - 10 June

Area: Lowther Island

Name: Kelly, Brendan P.

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In winter and spring, the distribution of breathing holes in the sea ice limits the underwater range of ringed seals. Using an acoustic tracking system, we shall relate ringed seal movements and behaviour to 1) prey locations, 2) disturbance by predators, and 3) noise of known frequency and amplitude.

Inshore Marine Ecology Off Ivvavik National Park **Project:** 108-96

Period: 1 July - 1 August

Area: Ivvavik National Park

Name: Mathias, Jack

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Resource Development Research
Freshwater Institute
501 University Crescent
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R3T 2N6

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This project describes the ecology of the inshore marine ecosystem which lies off the Ivvavik National Park. It relates the productivity of the marine habitat to its use as a foraging area for species of fish which overwinter in the park, but run to sea in order to feed. It examines the food of fish caught in coastal areas and the productivity of the coastal ecosystems in terms of supplying that food.

Satellite Tagging of Beluga Whales Along the Coast of Somerset and Devon Islands

Project: 106-96

Period: 12 July - 12 September

Area: Somerset and Devon Islands

Name: Richard, Pierre

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Central and Arctic Region
Resources Management
501 University Crescent
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Beluga whales will be tagged with satellite-linked transmitters to study movements and dive behaviour. The first tagging operation in July at Somerset Island will be carried out to provide data in support of concurrent aerial surveys. The second tagging operation at Devon Island in September will be carried out to study migration of beluga whales into Baffin Bay.

Monitoring of Browne Island Seabird Colony/ Calibration of the SeaWifs Satellite

Project: 110-96

Period: 31 July - 28 August

Area: Browne Island

Name: Welch, H.E.

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Monitoring of the Browne Island Kittiwake colony for long-term population analysis and contamination. "Ground-truthing" of the SeaWifs Satellite.

Satellite Tagging of Beluga Whales in the Eastern Beaufort Sea

Project: 107-96

Period: 10 - 20 August

Area: Mackenzie River Estuary

Name: Orr, Jack

Department of Fisheries and Oceans
Central and Arctic Region
Resources Management
501 University Crescent
Winnipeg, Manitoba
R3T 2N6

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E-mail: orr@wpgdfo.wpg.dfo.ca

Beluga whales will be tagged with satellite-linked transmitters to study movements and dive behaviour. We are particularly interested in obtaining information on the fall migration patterns of this beluga whale stock.

MULTIDISCIPLINARY

Buoy Deployments for Environment Canada Arctic Buoy Program/International Arctic Buoy Program

Project: 201-96

Period: March - late April

Area: Mould Bay/Isachsen/Eureka

Name: Hudson, Ed

Environment Canada
Atmospheric Environment Branch
Operations - Arctic Weather Centre
Twin Atria Bldg, 2nd Floor
4999 - 98th Avenue
Edmonton, Alberta
T6B 2X3

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Fax: (403) 951-8872
E-mail: hudsone@edm.ab.doe.ca

Environment Canada purchases and/or assembles components to construct buoys for deployment on the Arctic Basin, deploys or arranges for deployment of these buoys and, on occasion, buoys provided by other agencies or countries. During 1995, for example, two Environment Canada and three U.S.A. National Ice Centre buoys were deployed. Buoys that are deployed provide position, pressure and temperature data that is used by meteorological and oceanographic agencies for real-time operational requirements and research purposes including support to the World Climate Research Programme and the World Weather Watch Programme. "Partners" and support are sought to add additional sensors to the buoys and to increase the number of buoys deployed.

North Water Polynya Project (Spring 1996)

Project: 651-96

Period: 21 April - 30 August

Area: Icebreaker Louis St-Laurent
(North Water Polynya)

Name: Fortier, Louis

GIROQ, Département de biologie
Université Laval
Ste-Foy (Québec)
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Arctic polynyas are recurring mesoscale areas (10-90 000 km^2) of open water or reduced ice cover surrounded by frozen seas. They serve as feeding, mating and spawning grounds for key species in the Arctic ecosystems, and have been compared to oases in terrestrial deserts. The International North Water Polynya project will study: 1) the oceanographic and meteorological processes responsible for the generation and maintenance of the North Water; 2) the hydrodynamic control of carbon cycling in general and, in particular, the intense exportation of primary production that must occur to support the large mammal and bird populations in the North Water; and 3) the role of the North Water in sequestering atmospheric carbon dioxide.

The Dissolved Organic Carbon Cycle in Sea Ice Communities

Project: 610-96

Period: 24 April - 8 May

Area: Arctic Ocean

Name: Smith, Ralph E.H.

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Waterloo, Ontario
N2L 3G1

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rsmith@biology.watstar.uwaterloo.ca

The Arctic Ocean plays an important role in global climate change, largely through its influence on carbon cycling. Micro-organisms living in and on sea ice are major contributors to the carbon cycle in polar oceans. The current project will provide information on the production, nature and fate of dissolved organic carbon in sea ice communities, which will improve our understanding of how sea ice organisms affect the carbon cycle of the Arctic Ocean.

Paleoenvironmental Change in the Canadian High Arctic

Project: 619-96

Period: 8 May - 7 August

Area: Cornwall Island/Raanes Peninsula/
Alexandra Fiord/Makinson Inlet

Name: England, J.

Department of Earth and
Atmospheric Sciences
University of Alberta
Edmonton, Alberta
T6G 2H4

Tel.: (403) 492-5673
Fax: (403) 492-7598
E-mail: englandj@geog.ualberta.ca

This research concerns the nature of past glacial activity, sea level fluctuations and Holocene environmental change. This is based on the analysis of terrestrial, marine and lacustrine sedimentary environments. The principal objective is to determine the nature and evolution of high latitude environments.

Paleoclimate from Arctic Lake Sediments

Project: 706-96

Period: 14 May - 20 August

Area: Lake C2/Nicolai Lake/Depot Point Lake

Name: Bradley, Raymond S.

Department of Geosciences
University of Massachusetts
Morrill Science Centre
Amherst, MA 01003
U.S.A.

Tel.: (413) 545-2120
Fax: (413) 545-1200
E-mail: rbradley@climatel.geo.unaa.edu

Meteorological, hydrological and limnological measurements will be made and sediment cores will be recovered from several lakes to determine the links between sediment deposition and processes governing sediment flux to the lakes. Lakes targeted are: Lake C2 (northern Ellesmere Island), Nicolai Lake (Cornwall Island) and Depot Point and Sophia Lake (Cornwallis Island).

Holocene Paleoecology and Paleoclimatology of the Central Canadian Arctic Islands

Project: 638-96

Period: 21 June - 8 July

Area: Victoria Island

Name: Gajewski, K.

University of Ottawa
Department of Geography
165 Waller Street
Ottawa, Ontario
K1N 6N5

Tel.: (613) 562-5800 ext.: 1057
Fax: (613) 562-5145
E-mail: gajewski@aixl.uottawa.ca

We are collecting lake sediment cores and analysing the pollen, diatoms and sediment characteristics, as well as basic limnological parameters of the lakes. We are coring a lake on Devon Island with varved sediments. On Victoria Island we are collecting modern sediment samples for use in pollen-climate calibrations. Holocene cores will also be collected to reconstruct the vegetation and climate history.

Impact of Increased Ultraviolet B Radiation on Aquatic Ecosystems

Project: 209-96

Period: 1 - 30 July

Area: Eureka/Resolute

Name: Lean, David

Environment Canada
Aquatic Ecosystem Conservation
P.O. Box 5050
Burlington, Ontario
L7R 4A6

Tel.: (705) 656-3621
Fax: (705) 656-1579

Aquatic impacts of increased UV-B radiation resulting from stratospheric ozone depletion will be investigated at sites near Eureka and Resolute Bay. Factors which influence UV-B penetration in ponds and lakes will be identified and predictive relationships found. Damage to organisms at the base of the food chain will be investigated and potential reduction in energy transfer to higher tropic levels (fish and birds) calculated. Influence of UV-B on mercury photoreduction and volatilization from Arctic aquatic ecosystems will be measured.

Waterfowl and Wetland Studies, Old Crow Flats, Yukon

Project: 210-96

Period: 20 July - 10 August

Area: Yukon

Name: Hawkings, James S.

Environment Canada
Canadian Wildlife Service
Pacific and Yukon Region
P.O. Box 6010, Mile 917.6 Alaska Hwy
Whitehorse, Yukon
Y1A 5L7

Tel.: (403) 667-3927
Fax: (403) 667-7962
E-mail: hawkings@yknet.yk.ca

This is a cooperative project between the Canadian Wildlife Service and the Vuntut Gwich'in Tribal Council. The project is designed to provide information useful in the management of the Old Crow Flats Special Management Area. The project focuses on the types, distribution, and dynamics of wetland habitats for waterfowl on the Old Crow Flats, and on the relationships between individual wetland characteristics and their use by molting waterfowl. Wetland habitats will be mapped and the succession patterns of wetlands studied using ground truth data, satellite imagery, and aerial photography. Duck populations and detailed wetland characteristics will be measured in a sample of wetlands to determine what characterizes wetlands that are used by large numbers of molting ducks. Ducks and white-fronted geese will be banded according to national and international protocols. Traditional knowledge of the Flats and its waterfowl will be documented.

Lougheed Island Scrap Metal Monitoring Program **Project:** 200-96

Period: 24 - 29 July

Area: Lougheed Island

Name: Harbicht, Steven

Environment Canada
Environmental Protection Branch
P.O. Box 370
Yellowknife, Northwest Territories
X1A 2N3

Tel.: (403) 920-6062
Fax: (403) 873-8185

To evaluate the environmental effects that may result from staging approximately 400 tons of scrap steel on land in the High Arctic.

DEVON-96: A Meteoritics Expedition to the Canadian High Arctic **Project:** 704-96

Period: 27 July - 4 August

Area: Haughton

Name: Lee, Pascal

Department of Astronomy
Cornell University
404 Space Sciences Building
Ithaca, New York 14853-6801
U.S.A.

Tel.: (607) 255-6237
Fax: (607) 255-9002
E-mail: lee@astrosun.tn.cornell.edu

DEVON-96 is a 6-person, privately sponsored (scientific societies and industry) field expedition to investigate the geological history of the Haughton impact structure on Devon Island, NWT, both to better understand the nature of this unusual crater set in a polar environment and to assess the structure's potential as a Mars Analog for geology and exobiology (climate in High Arctic today is much like that prevailing on Mars: cold, windy, and relatively dry). A helicopter will be flown by expedition members themselves from the United States to Devon Island, which will allow not only great operational flexibility for field activities at Haughton, but also offer an opportunity to do additional science while ferrying the aircraft, including further sampling of impact craters in Quebec (Clearwater, Lac Couture, New Quebec) and a search for meteorites on Arctic ice caps. The expedition will serve as an operational testbed for future named planetary exploration.

PACT (Paleoecological Analysis of Circumpolar Treeline) **Project:** 632-96

Period: 29 July - 8 August

Area: Casey Lake

Name: Edwards, Thomas W.D.

Department of Earth Sciences
University of Waterloo
200 University Avenue West
Waterloo, Ontario
N2L 3G1

Tel.: (519) 888-4567 ext.: 3236
Fax: (519) 746-0183
E-mail: twdedwar@sciborg.uwaterloo.ca

PACT (Paleoecological Analysis of Circumpolar Treeline) is a multidisciplinary project, funded by an NSERC Collaborative Special Project Grant, to document postglacial treeline fluctuations and associated paleoenvironmental changes along the boreal treeline in Canada and Russia. Pollen, diatoms, chrysophytes, chironomids, stable isotopes, elemental geochemistry, and other parameters in lake sediment and peat cores are being used to interpret climatic, botanic, hydrologic, and limnologic changes in response to changing climate. The results will ultimately contribute to testing and refinement of atmospheric GCMs (General Circulation Models) that are used to study and understand global climate processes.

Ice Scour Disturbance and the Structure of Arctic Marine Benthic Communities **Project:** 512-96

Period: 31 July - 28 August

Area: Resolute Bay

Name: Conlan, Kathleen E.

Canadian Museum of Nature
P.O. Box 3443, Station D
Ottawa, Ontario
K1P 6P4

Tel.: (613) 954-7677
Fax: (613) 954-7675
E-mail: kconlan@mus-nature.ca

A coastal segment of Barrow Strait near Resolute , N.W.T., is being studied repetitively to determine 1) intensity, distribution, and frequency of seabed disturbance by ice scour; 2) physical recovery; 3) impact on seabed flora and fauna; and 4) pattern and rate of biotic recolonization. The patterns found will be compared to observed community zonation patterns to determine whether coastal faunal structure is controlled by ice scour disturbance forces. The results will form a model for predicting impact and recovery from similar anthropogenic disturbances such as dredging, ocean dumping, trawling, and seabed mining. The August period will be used to conduct all operations that require a boat: acoustic profiling of the seabed, broad dive collections, and long range video surveys.

OCEANOGRAPHY

Ice Subsurface Characterization

Project: 102-96

Period: 23 March - 12 April

Area: Beaufort Sea

Name: Melling, Humfrey

Fisheries and Oceans
Science - Pacific
Ocean Science and Productivity Division
Institute of Ocean Sciences
P.O. Box 6000
Sidney, British Columbia
V8L 4B2

Tel.: (604) 363-6552
Fax: (604) 363-6746
E-mail: melling@ios.bc.ca

Moored subsea sonars are used to measure the movement, thickness and topography of drifting sea ice. Data see application to the safe and cost-effective design of offshore structures, to ice prediction and to the study of global climate.

Seawater Bio-Optics & Radionuclide Contamination

Project: 703-96

Period: 25 July - 22 August

Area: Barrow Strait

Name: Cota, Glenn F.

Centre for Coastal Physical Oceanography
Old Dominion University
Norfolk, Virginia 23529
U.S.A.

Tel.: (804) 683-4945
Fax: (804) 683-5550
E-mail: cota@ccpo.odu.edu

Our NASA SeaWifs research is aimed at developing and validating bio-optical algorithms for satellite remote sensing of ocean color at high latitudes. We hope to be able to determine phytoplankton biomass and productivity from space. Another component of our work involves assessing possible radionuclide contamination from the Former Soviet Union (FSU) in organisms consumed directly by humans. The FSU dumped radioactive waste, which may eventually become incorporated into marine foodwebs, in the Arctic Ocean and off Kamchatka.

SEA ICE

Ice Subsurface Characterization

Project: 102-96

Period: 23 March - 12 April

Area: Beaufort Sea

Name: Melling, Humfrey

Fisheries and Oceans
Science - Pacific
Ocean Science and Productivity Division
Institute of Ocean Sciences
P.O. Box 6000
Sidney, British Columbia
V8L 4B2

Tel.: (604) 363-6552
Fax: (604) 363-6746
E-mail: melling@ios.bc.ca

Moored subsea sonars are used to measure the movement, thickness and topography of drifting sea ice. Data see application to the safe and cost-effective design of offshore structures, to ice prediction and to the study of global climate.

A Seasonal Sea Ice Monitoring and Modelling Site (SIMMS '96)

Project: 623-96

Period: 4 May - 15 July

Area: Lowther Island

Name: Barber, David G./LeDrew, Ellsworth

Department of Geography
University of Manitoba
Winnipeg, Manitoba
R3T 2N2

Tel.: (204) 474-6981
Fax: (204) 275-8281
E-mail: dbarber@cuu.umanitoba.ca

SIMMS is a multi-year multi-disciplinary research program designed to develop methods by which visible and micro-wavelength remote sensing data may be used to monitor changes in ocean-ice-atmosphere processes. The remote sensing data are then used in modelling energy and mass fluxes at the ice surface. Observation and modelling programs are conducted coincidentally during the spring and fall seasonal transition periods.

TRADITIONAL KNOWLEDGE

Aulavik Oral History Project

Project: 391-96

Period: 23 June - 19 July

Area: Tuktoyaktuk/Sachs Harbour

Name: Nagy, Murielle

Consultant in Anthropology
21 Mont-Carmel, Apt. 4
Quebec, Quebec
G1R 4A5

Tel.: (418) 694-2214
Fax: (418) 694-1306

Inuvialuit elders knowledgeable about Banks Island will be interviewed during summer 1996 in Tuktoyaktuk and Sachs Harbour. Major camps on Banks Island occupied previous to the agglomeration of people in Sachs Harbour and Holman will also be visited by elders to record and film information regarding the history of the island.

Arctic Bay Community History

Project: 394-96

Period: 1 - 7 July

Area: Dundas Harbour

Name: Qaqqasiq-May, Leah

Community of Arctic Bay
General Delivery
Arctic Bay, Northwest Territories
X0A 0A0

Tel.: (819) 439-8843
Fax: (819) 439-8766

The history of Arctic Bay will be collected through oral histories from the elders. This "community based" project involves designing and implementing a collection of elders' stories to allow the community to interpret its history.

Pond Inlet Oral History Project **Project:** 393-96

Period: 10 - 22 July

Area: Alexandra Fiord/Craig Harbour

Name: Cousins, Panik Lynn

Tuniit Elders Group
Box 1484
Iqaluit, Northwest Territories
X0A 0H0

Tel.: (819) 979-6277
Fax: (819) 979-2246

This project is to continue collecting oral histories from elders in Pond Inlet. It is a community-based program to allow Inuit to interpret their history.

Grise Fiord Oral History Project **Project:** 395-96

Period: 22 - 27 July

Area: Alexandra Fiord

Name: Audlaluk, Larry

Community of Grise Fiord
General Delivery
Grise Fiord, Northwest Territories
X0A 0J0

Tel.: (819) 980-2286

This community-based project will encourage the collection of stories from the elders of Grise Fiord. This project will allow Grise Fiord to enhance its history and culture.

NUNAQPAK (Inland Life)

Project: 390-96

Period: 15 August - 15 September

Area: Sarcpa Lake

Name: Tapardjuk, Louis

Inullariit Society
c/o Box 210
Igloolik, Northwest Territories
X0A 0L0

Tel.: (819) 934-8910

The project has two major aims 1) to gather Inuit traditional knowledge about the inland areas of the northern Melville Peninsula; and 2) to teach land-based skills to Inuit youth, particularly skills pertaining to inland (summer-time) caribou hunting and survival. Inuit elders will give a series of interviews and demonstrations on, for example, the selection of animals, hunting techniques, skinning and skin preparation, meat drying and caching, local place-names, navigation, weather prediction and emergency shelter. The project, which will involve approximately 18 Inuit elders and youth from Igloolik, will use the facilities of the Igloolik Research Centre's field station at Sarcpa Lake.

ZOOLOGY

Polar Bear Population Ecology in the High Arctic **Project:** 627-96

Period: 5 April - 10 May

Area: Resolute Bay

Name: Messier, François

Department of Biology
University of Saskatchewan
112 Science Place
Saskatoon, Saskatchewan
S7N 5E2

Tel.: (306) 966-4421
Fax: (306) 966-4461

Population productivity, population estimates, space-use patterns, and sustained yield of polar bears are evaluated over two different sea-ice conditions; land-fast sea-ice (Viscount Melville Sound - M'Clure Strait area) and active sea-ice (Baffin Bay area). The project will provide ecological information on polar bear populations in the High Arctic, and the allocation of harvest quotas for bears compatible with international conservation policies for this species.

Assessment of Arctic Char of the Lake Hazen Area **Project:** 112-96

Period: 1 May - 21 August

Area: Lake Hazen

Name: Reist, J.

Department of Fisheries and Oceans
501 University Crescent
Winnipeg, Manitoba
R3T 2N6

Tel.: (204) 983-5032
Fax: (204) 984-2403
E-mail: reist@wpgdfo.wpg.dfo.ca

The project will determine if Lake Hazen Arctic char are anadromous. The project will also study basic population structure of Arctic char in lakes in the Lake Hazen area. Arctic char will be collected to study genetic and morphological variation between area lakes and in the Holarctic region.

Waterfowl Ecology - Central Arctic

Project: 300-96

Period: 20 May - 20 August

Area: Walker Bay Field Station/Kent Peninsula

Name: Bromley, Robert G.

Government of the N.W.T.
Renewable Resources
Wildlife Management
600, 5102 - 50th Avenue
Yellowknife, Northwest Territories
X1A 3S8

Tel.: (403) 920-6328
Fax: (403) 873-0293
E-mail: bobb@gov.nt.ca

Long-term studies of dark geese have contributed to our understanding of annual productivity and population delineation in the central Arctic. New insights on the interpretation of aerial surveys of geese have been gained. The current emphasis of this project is to identify environmental and age-related factors which annually influence productivity and survival of central Arctic Canada and white-fronted geese.

Lemming Population Dynamics in the Central and Western Arctic

Project: 604-96

Period: 20 May - 3 September

Area: Horton River/North Star Harbour/Nicholson Point/Anderson River/Shingle Point/Kaye Point/Walker Bay/Wilmot, Jamieson, Hurd, Breakwater and Cockburn Islands/ Hope Bay and Byron Bay

Name: Krebs, Charles J.

Department of Zoology
University of British Columbia
6270 University Blvd.
Vancouver, British Columbia
V6T 1Z4

Tel.: (604) 822-4595
Fax: (604) 822-2416
E-mail: krebs@bcu.ubc.ca

The 3-4 year population cycle of lemmings and their predators does not occur in synchrony over the entire Arctic. By doing regional surveys of lemming numbers in the western and central Arctic, we will address the question of how much these changes are in phase on islands and on mainland sites. By detailed studies of lemmings and their predators with a 10-ha enclosure at Walker Bay, we hope to find out more about what causes these cycles.

Research on Migration and Selection of Nest Sites in Greater Snow Geese

Project: 625-96

Period: 23 May - 20 August

Region: Bylot Island

Name: Giroux, Jean-François

University of Quebec in Montreal
Department of Biological Sciences
P.O. Box 8888, Centre-ville Station
Montreal, Quebec
H3C 3P8

Tel.: (514) 987-3353
Fax: (514) 987-4648
E-mail: giroux.jean-françois@uqam.ca

My research in the Arctic is on the greater snow goose (*Chen caerulescens atlantica*) and is divided into two components. I am initially studying the effect of the number and age of young geese in families during their migration between nest sites on Bylot Island and the St. Lawrence estuary. The families are caught individually in August and the adult females are fitted with conventional radio transmitters. The same birds are also followed in the spring to study the nest site selection mechanism, which is the second component of my research. We want to test the hypothesis that predators influence the choice of nest site, which can affect the reproductive success of the geese.

Studies on Breeding and Migration of Greater Snow Geese, Bylot Island

Project: 208-96

Period: 23 May - 22 August

Area: Bylot Island

Name: Reed, Austin

Environment Canada
Canadian Wildlife Service
Quebec Region
1141 Route de l'Église
Box 10100
Ste-Foy, Quebec
G1V 4H5

Tel.: (418) 649-6128
Fax: (418) 649-6475

An improved understanding of the ecology of this important species is required to ensure proper management. This study examines changes in breeding numbers over time, investigates interactions between geese and their habitats, and monitors reproductive success and other population parameters. Systematic surveys are conducted every 5 years (next due 1998). Observations on breeding ecology and banding of large numbers of geese are conducted annually.

Barren-Ground Grizzly Bear Studies **Project:** 303-96

Period: 27 May - 10 June

Area: Daring Lake/Coppermine/Bathurst Inlet/
Bay Chimo

Name: Case, Ray

Government of the N.W.T.
Department of Renewable Resources
Wildlife Management
600, 5102 - 50th Avenue
Yellowknife, Northwest Territories
X1A 3S8

Tel.: (403) 920-8067
Fax: (403) 873-0293
E-mail: rcase@inukshuk.gov.nt.ca

Studies are being conducted on barren-ground grizzly bears in the central Arctic to determine distribution, movement patterns, population counts, productivity, critical habitats, food habits, foraging behaviour and habitat use. This information will be used to assess potential impacts of non-renewable resource developments and to prepare a management program.

Breeding Ecology of Canada Geese in Ungava **Project:** 207-96

Period: late May - mid August

Area: Povungnituk/Kangirsak

Name: Reed, Austin

Environment Canada
Canadian Wildlife Conservation Service
Quebec Region
Box 10100
1141 Route De L'Église
Ste-Foy, Quebec
G1V 4H5

Tel.: (418) 649-6128
Fax: (418) 649-6475

This study investigates breeding success in Atlantic Flyway Canada Geese nesting in Ungava. The aim is to find possible causes of the poor breeding success this rapidly declining population has experienced over the last decade.

Population Studies of Seabirds in Northern Hudson Bay and Foxe Basin

Project: 202-96

Period: 3 June - 28 August

Area: Coats Island/Prince Charles Island

Name: Gaston, A.J.

Environment Canada
Canadian Wildlife Service
100 Gamelin Road
Hull, Quebec
K1A 0H3

Tel.: (819) 997-6121
Fax: (819) 953-6612
E-mail: gastont@nwrc.cws.doe.ca

Several internationally important populations of marine birds breed in Hudson Bay and Foxe Basin, an area that has been little explored by ornithologists. This programme is designed to map and census the marine birds of the area and study the demography of selected species.

Assessment of Creswell Bay, N.W.T., for Future Protected Area Designation

Project: 216-96

Period: 10 June - 1 July

Area: Creswell Bay

Name: Latour, Paul

Environment Canada
Environmental Conservation
Northern Conservation - CWS
Box 637
Yellowknife, Northwest Territories
X1A 2N5

Tel.: (403) 920-8532
Fax: (403) 873-8185

Creswell Bay is probably a very important nesting and staging area for shorebirds, waterfowl, and seabirds. At present, we have little information with which to accurately assess the importance of Creswell Bay. This program is designed to assess the importance of Creswell Bay to Arctic shorebirds, waterfowl, and seabirds in preparation for its consideration as a future protected area.

Population Ecology and Management of Arctic Waterfowl **Project:** 206-96

Period: 10 June - 20 July

Area: Tuktoyaktuk/Banks Island

Name: Hines, James E.

Environment Canada
Canadian Wildlife Service
Northern Conservation
Box 637
Yellowknife, Northwest Territories
X1A 2N5

Tel.: (403) 920-8533
Fax: (403) 873-8185
E-mail: hinesj@yel.nt.doe.ca

Waterfowl are of great socio-economic importance to subsistence hunters in the Canadian Arctic, and to sport hunters and naturalists further south. The specific objective of this project is to collect essential management-related information (population size, distribution, mortality, and productivity) on species harvested by the Inuvialuit: snow geese, white-fronted geese and brant.

Shorebird Distribution and Abundance in Northwest Foxe Basin **Project:** 217-96

Period: 20 June - 20 July

Area: Prince Charles Island

Name: Johnston, Victoria

Environment Canada
Canadian Wildlife Service
Northern Conservation
Box 637
Yellowknife, Northwest Territories
X1A 2N5

Tel.: (403) 920-6789
Fax: (403) 873-8185

The islands of northwest Foxe Basin are identified as a priority for further study prior to contemplation of protected status for the area. Nationally significant populations of Sabine's gulls, brant, and probably shorebirds are purported to nest on the islands. This study will determine the disturbance and abundance of shorebirds on Prince Charles and Air Force islands.

Ecological Evaluation of the Foxe Basin

Project: 902-96

Period: 20 June - 30 July

Area: Prince Charles Island

Name: Martin, Jean-Louis

Centre national de la recherche scientifique
Centre d'écologie fonctionnelle et évolutive
B.P. 5051
34033 Montpellier Cedex, France

Tel.: (+33) 67613269
Fax: (+33) 67412138
E-mail: martin@cefe.cnrs-mop.fr

This project will study the distribution and abundance of small terrestrial bird species on Prince Charles Island in Foxe Basin. It will be done in cooperation with the Foxe Basin project initiated by Dr. A.J. Gaston in 1994. It will also aim to collecting baseline ecological data on one of the least known areas of the Canadian Arctic. On Prince Charles Island, there have been few ground-based surveys or research activity since its discovery from the air in 1946. We will map the abundance and distribution of the region's lowland tundra species. Many of these birds are invisible from the air, and hence have not been assessed in any previous aerial surveys. Systematic observations will determine preferred habitats. The data should also provide a baseline for future monitoring of changes in the biological diversity in this part of the Arctic and address a set of biological questions on dry tundra bird species (long spur lark, snow bunting, lesser golden plover) and lemmings, such as population abundance in relation to patterns of nest and adult predation or relation to population cycles in other parts of the Arctic.

Life History Variation, Population Dynamics, of Char and Lake Trout in Peter Lake, N.W.T.

Project: 109-96

Period: 25 July - 8 August

Area: Peter Lake

Name: Tallman, Ross

Department of Fisheries and Oceans
Central and Arctic Region
Science Branch
Freshwater Institute
501 University Crescent
Winnipeg, Manitoba
R3T 2N6

Tel.: (204) 983-3362
Fax: (204) 984-2403

The Peter Lake system is the spawning area for char and lake trout harvested by the Rankin Inlet community. To test the hypothesis that char and lake trout resources are threatened by contaminants such as toxiphene, the life history and population dynamics of Peter Lake char and lake trout will be examined.

Wolf Behaviour and Ecology

Project: 900-96

Period: 26 June - 1 August

Area: Eureka

Name: Mech, David L.

U.S. National Biological Service
Endangered Species Research
Northern Central Forest Experiment Station
1992 Folwell Avenue
St. Paul, MN 55108
U.S.A.

Tel.: (612) 649-5231
Fax: (612) 649-5233
E-mail: mechx002@maroon.tc.umn.edu

Direct behavioral and ecological observations are made of a wolf pack which has been habituated to the investigator's close presence since 1986. Individual pack members are recognizable, and their breeding and survival history has been monitored each year along with food-provisioning, care of young, and social interactions.

Distribution and Abundance of Pacific Eiders in the Central Arctic

Project: 213-96

Period: 28 June - 21 July

Area: Bay Chimo/Cambridge Bay

Name: Dickson, Lynne

Environment Canada
Canadian Wildlife Service
Environmental Conservation
Northern Conservation
Room 200, 4999 - 98th Avenue
Edmonton, Alberta
T6B 2X3

Tel.: (403) 951-8681
Fax: (403) 495-2615
E-mail: dicksonlyn@edm.ab.doc.ca

The objective of the study is to determine the size and distribution of the breeding population of Pacific Eiders in Coronation Gulf and Queen Maud Gulf. In the first year of the study, aerial surveys for breeding pairs identified the key areas where the eiders nest. In the second year, a random sample of islands in each of the key areas will be searched on foot for Pacific Eider nests to obtain a more accurate population estimate.

Beluga Harvest Monitoring

Project: 100-96

Period: 1 - 30 July

Area: Tuktoyaktuk to King Point

Name: Robinson, Neil

Department of Fisheries and Oceans
Fisheries and Habitat
P.O. Box 1871
Inuvik, Northwest Territories
X0E 0T0

Tel.: (403) 979-3314
Fax: (403) 979-4330

Officers patrol beluga harvesters' camps along the shoreline of the Beaufort Sea from Tuktoyaktuk to King Point.

Habitat Characterization and Diving Behaviour of Beluga Whales

Project: 608-96

Period: 12 July - 10 September

Area: Cunningham Inlet/Wadworth Island and Cunningham Bay

Name: Smith, Thomas G.

McGill University
Department of Renewable Resources
Campus MacDonald
2e Anne de Bellevue
Quebec, Quebec
H9X 1C0

Tel.: (604) 756-7253
Fax: (604) 756-7053

Belugas migrate to specific deep sea areas in the High Arctic and appear to feed heavily at the locations. We will study the behaviour and characterize the habitats using satellite tags and recoverable packages attached to beluga whales.

Walrus Distribution in the Resolute Bay and/or Pond Inlet Area

Project: 111-96

Period: 24 July - 24 August

Area: Gregory Peninsula/Bylot Island

Name: Stewart, Rob

Department of Fisheries and Oceans
Fisheries Research
Freshwater Institute
501 University Crescent
Winnipeg, Manitoba
R3T 2N6

Tel.: (204) 983-5023
Fax: (204) 261-6218
E-mail: stewart@wpgdfo.wpg.dfo.ca

Walrus in the Bathurst/Cornwallis Island area and/or the Bylot Island area will be immobilized and fitted with satellite tags. Their movements will be monitored. Auxiliary behaviour data such as depth and duration of dives will also be collected.

Assessment of Fish Populations of Aulavik National Park (Banks Island) with Special Reference to Arctic Char

Project: 113-96

Period: 1 - 21 August

Area: Thomsen River area

Name: Reist, J.

Department of Fisheries and Oceans
501 University Crescent
Winnipeg, Manitoba
R3T 2N6

Tel.: (204) 983-5032
Fax: (204) 984-2403
E-mail: reist@wpgdfo.wpg.dfo.ca

The project will study basic population structure of fishes in lakes and rivers in Aulavik National Park. Fish, with emphasis on Arctic char, will be collected to study genetic and morphological variation between area lakes and in the Holarctic region.

Genetic Diversity in the Biota of Arctic Lakes

Project: 600-96

Period: 1 - 31 August

Area: Sarcpa/Baird Peninsula/North Baffin

Name: Hebert, Paul D.N.

University of Guelph
Department of Zoology
Guelph, Ontario
N1G 2W1

Tel.: (519) 824-4120
Fax: (519) 767-1656
E-mail: phebert@uoguelph.ca

My research program involves the survey of patterns and levels of molecular and biochemical genetic variation in populations of Arctic fish and zooplankton. This work aims to extend understanding of taxon diversity in Arctic aquatic habitats and to reconstruct postglacial dispersal routes from glacial refugia.

INDEX OF PRINCIPAL INVESTIGATORS