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POLAR CONTINENTAL SHELF PROGRAM ARCTIC OPERATIONS MANUAL

Updated August 2016



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Cover photograph: Field equipment awaits pickup by a Twin Otter aircraft on the Devon Ice Cap on Devon Island, Nunavut.

Section header image: A field camp at Lorillard River, Nunavut

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Part 1. Polar Continental Shelf Program

1.1 FOREWORD

The mission of Natural Resources Canada's (NRCan) Polar Continental Shelf Program (PCSP) is to provide safe, efficient and cost-effective logistics in support of science and federal government priorities. The PCSP provides logistics planning, coordination and advice for Canadian government, university, northern, independent and international researchers conducting field work, particularly in Canada's North. The PCSP delivers logistics support each year to scientific field projects in disciplines ranging from anthropology to zoology, in addition to federal operations and training projects. The latter include those conducted by the Department of National Defence's (DND) Canadian Armed Forces Arctic Training Centre (CAFATC).

The PCSP can provide the following types of logistics assistance:

- ▶ Chartered air transportation to and from remote field camps throughout the Canadian North.
- ▶ Field equipment for loan (including communications equipment and cold-weather clothing).
- ▶ Fuel for aircraft, field equipment and camps.
- ▶ Advice and coordination for shipping and receiving (including sealift and dangerous goods).
- ▶ Meals, accommodations and working space (including a multi-purpose laboratory) at the PCSP facility in Resolute, Nunavut.
- ▶ Scientific licensing and permitting advice.
- ▶ A communications network that links the PCSP with research teams in field camps throughout the Canadian Arctic.

Twin Otter aircraft at the PCSP Arctic logistics hub in Resolute, Nunavut





A helicopter is used for geological field research on Baffin Island, Nunavut.

The PCSP's clients and partners rely on the PCSP for expert advice that enables them to conduct field studies safely and successfully. More information about the PCSP is available on the PCSP's website at www.pcsp.nrcan.gc.ca.

This manual is based on the PCSP's many years of experience. It provides guidelines and information on what the PCSP expects of you and what you can expect from the PCSP. This manual also highlights important components of PCSP Arctic operations to make it easier for you to plan and conduct Arctic field studies and for the PCSP to help you to do this work.

Ultimately, you and each member of your team have the responsibility to be properly trained and prepared for working in the Arctic and accept responsibility for your personal health, safety and preparedness. Careful planning is essential to the success of your Arctic field project.

1.2 LOGISTICS REQUEST PROCESS

The PCSP supports researchers from Canadian federal, territorial, and provincial governments, universities, and northern organizations conducting field work in the natural or social sciences. Logistics are also available to international research organizations and private research institutions, subject to feasibility and overall demand for PCSP assistance. The PCSP also supports Arctic training activities, including those of the CAFATC, and federal government operational field work to service scientific equipment and perform inspections.

By coordinating multiple projects and seeking opportunities to share resources between projects, the PCSP creates synergies and increases the feasibility of individual projects. The deadline for submitting a request for Arctic logistics coordination assistance is in **late October** each year for field work during the following calendar year. This deadline allows sufficient time for the PCSP to develop a season plan that optimizes efficiencies and safety and reduces costs as much as possible, which is necessary for work in Canada's North.

Before you complete an Arctic logistics request form, you should plan your field work and have a thorough understanding of your logistics requirements. You will have to provide details about your needs for chartered aircraft, fuel, field equipment and accommodations at the PCSP Arctic logistics hub in Resolute. You will also be asked for information about your field camp location(s), field party, planned use and load details for each aircraft request. The PCSP also requests a project description, a health and safety plan, and information to conduct an environmental assessment pre-screening, which help the PCSP assess its ability to provide logistics support. It is important that you review this manual, including the PCSP's terms and conditions in the "Appendix," before you apply.

Although the PCSP may be able to provide advice, share best practices and help provide contacts, the PCSP **does not supply** (i.e. arrange, procure or provide) the following field program components, which may also be considered logistics:

- ▶ Commercial flights, accommodations or equipment rentals.
- ▶ Food and personnel for field camps.
- ▶ Training field party members and personnel.
- ▶ Wildlife monitoring services.
- ▶ Community liaison.
- ▶ Required licences and permits or environmental assessments.
- ▶ Scientific fieldwork planning.
- ▶ Firearms.
- ▶ Site cleanup and environmental remediation including removing fuel drums.
- ▶ Project endorsement.

PCSP planning and coordination is intended to reduce costs for projects while maintaining a focus on field safety. The PCSP provides advice, coordination and planning free of



A sling load is attached to a helicopter on Banks Island, Northwest Territories.



Researchers load field gear into inflatable boats on the Pelly River as part of geological studies in Yukon. Inflatable boats are part of PCSP's field equipment inventory.

2.1.1.1 Martin Bergmann Complex

The Martin Bergmann Complex has three wings for sleeping accommodations that can meet a variety of client needs:

- ▶ Shared bedrooms (two people to a room) that have two single beds, a closet, a desk, a chair and access to common washrooms and showers.
- ▶ Single bedrooms that have one double bed, a closet, a desk, a chair and an ensuite bathroom.
- ▶ Two wheelchair-accessible single bedrooms that each have a double bed and an ensuite, accessible bathroom.
- ▶ Shared bedrooms (four people to a room) that have two sets of bunk beds, lockers and an ensuite bathroom.

PCSP staff will assign a room to you upon arrival, according to operational and accessibility requirements. Every bed has a mattress with a cover and a pillow with a cover. You must bring



The main entrance to the Martin Bergmann Complex

your own sleeping bag; sheets and blankets are not provided. You will also need to bring a towel, washcloth and personal toiletries. Washers, dryers and laundry soap are available at the facility.



A shared bedroom at the facility



A lounge in the Martin Bergmann Complex

The Martin Bergmann Complex has lounges with satellite television, a library, a fully equipped fitness room, offices and meeting rooms, and a boardroom that may be reserved by contacting a PCSP Logistics Operations Officer on site.

The fitness room is not supervised; you use it at your own risk. Ensure that you know how to use the fitness equipment correctly and exercise at levels appropriate for your health.

Internet access is available at the facility. In the Martin Bergmann Complex, the Internet is available via wall outlets or wireless connection, depending on the area. Wired access is also available in the laboratory. **Internet bandwidth is limited**, and restrictions apply to the use of the Internet for live streaming, downloading large data files or using programs such as Skype™ or YouTube.

Two telephones in privacy booths are available for visitors to make personal calls, either by calling collect or using a calling card that you bring with you. The Co-op store in Resolute sometimes has calling cards for purchase.



The fitness centre at the facility

The dining hall
in the Martin
Bergmann
Complex



2.1.1.3 Food services

The PCSP serves three meals per day to clients staying at the Arctic logistics hub in Resolute. The facility has a dining room that can seat 100 people at a time. There are set meal times and our kitchen staff are able to accommodate allergies or dietary restrictions, if given sufficient notice. Inform the PCSP Logistics Operations Officers of any allergies or dietary restrictions before you arrive.

Box lunches are not routinely provided. Subject to operational requirements, the kitchen staff may prepare box lunches for clients with approval from the PCSP Logistics Operations Officers. For larger groups, at least 48-hours' notice is required.

Food supplies for field camps will not be issued from the PCSP kitchen, except in an emergency.

2.1.1.4 Dr. Roy M. “Fritz” Koerner Laboratory

The modern laboratory at the PCSP Resolute facility includes three laboratory areas, a walk-in freezer, a walk-in cooler, a -80°C freezer, fume hoods, a compressed air supply, a water purification system and sinks. The laboratory also has binocular microscopes, a centrifuge, balances and limited glassware. For more information about the laboratory, contact the PCSP for a copy of the *Procedures and Safety Guide for the Dr. Roy M. “Fritz” Koerner Laboratory*.

You must request use of laboratory areas when you initially request PCSP support through the Arctic logistics request form. Access to the laboratory is restricted to users authorized by the PCSP. Before using the laboratory, you must review the *Procedures and Safety Guide for the Dr. Roy M. “Fritz” Koerner Laboratory* and take an orientation tour. A project's Principal Investigator must provide the PCSP with copies of all Material Safety Data Sheets before bringing any chemicals into the laboratory.

2.1.6 Client responsibilities and code of conduct

■ Firearms

Firearms and ammunition must be transported and handled in accordance with the *Firearms Act*. When you are at the PCSP facility in Resolute, you must surrender all firearms and ammunition to the PCSP's Regional Firearms Custodian Officer for safe storage. You will be required to present your Possession and Acquisition Licence (PAL) when you surrender your firearm and before retrieving it. Ensure you have your PAL with you in the field at all times. **Firearms are NOT permitted in the Martin Bergmann Complex under any circumstances.**

■ Smoking

In accordance with the *Non-smokers' Health Act* and the Treasury Board of Canada Secretariat policy on smoking in the workplace, smoking is prohibited in NRCAN workplaces, including the PCSP facility in Resolute. "Smoking" includes, but is not limited to, using tobacco products, electronic cigarettes, electronic nicotine delivery systems or products that produce vapours.

Smoking is prohibited in any outdoor area in the vicinity of a perimeter building opening (i.e. air intake, window or other opening) where it is likely that smoke will have an impact on indoor air quality. Where indoor air quality is deemed to be impacted, smoking will be prohibited within 9 m of the building opening or from the property line, whichever is least.

Smoking is prohibited in any area adjacent to refueling operations for aircraft, other areas of heavy equipment operation and maintenance or adjacent to storage areas for flammable substances, such as fuel tanks and fuel drums.

■ Alcohol

In Nunavut, the regulations for purchasing, consuming and importing alcohol vary by community and fall under one of the following four systems: prohibited, committee, restricted or

unrestricted. Resolute is designated as restricted, and therefore, you must obtain a permit to bring alcohol into the community, including into the PCSP facility. Contact the Nunavut Liquor Commission for detailed information about applying for a permit, restriction regulations and local Alcohol Education Committees. Be aware that permit approval can take several weeks.

The PCSP facility in Resolute is an NRCAN workplace and, as per the *Canada Labour Code*, Part II, the abuse of any alcohol, illicit drugs or prescription or over-the-counter medications will not be tolerated at the facility.

■ Footwear

Following health and safety requirements, shoes must be worn in the NRCAN workplace, which includes the PCSP facility in Resolute. Boots and outdoor shoes may not be worn in the Martin Bergmann Complex. Wear indoor shoes or slippers at all times in this building. If needed, mud covers are available.

■ Attire

While dress at the PCSP facility in Resolute is casual, a dress code is in effect in the common areas of this federal government workplace. As a courtesy to all, wear appropriate attire (i.e. do not wear pajamas or undergarments) in the common areas of the Martin Bergmann Complex.

2.1.7 Medical services in Resolute

There is a health centre (also called the nursing station) in Resolute. However, the closest doctor is in Iqaluit, which is at least a four-hour flight away. You are responsible for bringing an adequate supply of all medication you will require during your stay in Resolute and during your field work, including enough to cover any unexpected travel delays. Prescription and over-the-counter medication cannot be purchased in Resolute, and, with the exception of medical emergencies, medications cannot be provided by the Resolute Health Centre to out-of-territory visitors.



Helicopters are tethered at a field camp at Johnson Point on Banks Island, Northwest Territories.

2.2 CHARTERED AIRCRAFT

The PCSP can charter, schedule and coordinate aircraft for your field requirements. See the “Appendix” for specific terms and conditions that apply to aircraft operations. This chapter provides additional information for planning purposes.

Note that the PCSP will not put anyone alone into the field. Also, every field party must include at least one person in the field at all times who has significant experience working in the Arctic. Significant experience is defined as a depth and breadth of experience normally acquired by having performed a broad range of related activities in the field for a period of at least three years.

2.2.1 Weather observations and forecasts

The PCSP Logistics Operations Officers at the PCSP Arctic logistics hub have access to satellite weather imagery nearly in real time. PCSP staff and pilots use this information to plan daily aircraft operations.

If you are expecting an aircraft at your camp or if an aircraft will be flying in the vicinity of your camp, you may be asked for weather information during the PCSP’s daily scheduled radio calls (see Section 2.6.3 Radio schedules and watch). This basic weather information will include variables such as cloud ceiling height, visibility distance,

type of precipitation falling (if applicable), and wind speed and direction. It is important that you be as accurate and knowledgeable as possible when providing weather information. During the radio call, PCSP Logistics Operations Officers can provide a general overview for your area to help you with planning your daily activities, if requested.



Researchers wait out a storm at a field camp on Devon Ice Cap, Nunavut.

2.2.3 Aircraft safety requirements

Check with your employer about aviation safety training, insurance requirements or waivers that may be required before you fly on aircraft arranged by the PCSP.

Air charter companies are required to brief passengers before they use any aircraft. Such briefings are a contractual obligation for the aircraft company. Notify the PCSP immediately if you do not receive the required briefing.

The pilot of the aircraft has full authority on matters of safety at all times. You must follow the pilot's directions on where to sit in the aircraft, and you must advise the pilot of any dangerous materials being carried on the flight.

The field party is responsible for obtaining the latest maps, charts and aerial photographs of the area(s) where the aircraft will operate for the project. In addition, field party members must carry a sleeping bag and emergency rations in the aircraft, in case of emergency.

2.2.4 Fuel caching

The PCSP does not take responsibility for project-specific fuel caches; this is the responsibility of the project's Principal Investigator. It is also the responsibility of the Principal Investigator to ensure that a contingency plan is in place to minimize the risk of a fuel leak or spill and to address any fuel leaks or spills that may occur.

It is the Principal Investigator's responsibility to identify the location of any required fuel caches to PCSP Logistics Operations Officers. Your pilot will try to leave required fuel where requested, but may deem the location unfeasible and choose another nearby location. The pilot will notify the PCSP Logistics Operations Officers of the new location, and they will, in turn, notify you.

If you need an unplanned fuel cache to be established in the field, fuel call out charges will apply (i.e. you will be charged for the aircraft hours required to move the fuel).



Pilots prepare to land an aircraft on Ellesmere Island, Nunavut.

All field parties are legally required to clean up fuel caches and campsites immediately when leaving the field site. The policy is "one bag (drum) in, one bag (drum) out." Removing drums from the field is part of your project planning and must be factored into the determination of the aircraft hours required for your project.

All spills of petroleum products or other hazardous materials over a certain quantity must be reported immediately to a PCSP Logistics Operations Officer and to the 24-hour spill report line for the territory in which you are working. See Section 2.5.1 Reporting fuel or hazardous materials spills for further details about reporting spills.



Refueling a helicopter at Johnson Point on Banks Island, Northwest Territories



All-terrain vehicles (left) and field equipment (right) at the PCSP Ottawa logistics hub

2.4 SHIPPING AND FREIGHT

2.4.1 General

The PCSP can help you to contact organizations responsible for receiving your equipment in locations other than Resolute. Your shipment details and the label on the cargo must include the following information:

- ▶ c/o the PCSP Resolute facility address or prearranged community-based destination
- ▶ your project number and the name of your project's Principal Investigator
- ▶ your (or a designated person's) contact information

You must pre-pay all shipments. The PCSP will not pay shipping charges or accept cash-on-delivery (COD) shipments. As well, shipments from the field must not be billed to the PCSP.

2.4.2 Shipping to and from Resolute

Every effort must be made to keep the weight of an individual unit or package below 90 kilograms (kg). All freight arriving at the PCSP facility in Resolute will be stored indoors, if possible. Shipments should be sent in sufficient time before your arrival for any missing items to be tracked and located.

The PCSP can receive your food shipments during the field season and will get them to your camp on the next available flight. Make sure all shipments are labelled appropriately and organized well in advance of your arrival.

Your equipment, instruments, samples and other field gear should be returned to your home organization at the end of every field season. You must box, secure and weigh your shipment before you leave Resolute. Both air freight and sealift to Halifax, Nova Scotia, or Valleyfield, Quebec, are options for shipping. The PCSP can help you make shipping arrangements for your gear and samples.

2.5 FUEL FOR FIELD CAMPS

Camp fuels are available from the PCSP facility in Resolute only. All fuel containers must be returned to the PCSP facility in Resolute. Clients are responsible for ensuring appropriate fuel containment at their field sites and using secondary containment, if applicable. All field camps must be equipped with a spill kit, and all field party members should know how to use it. The PCSP can provide fuel spill kits to field camps or provide advice on purchasing them.

Leftover fuel must not be disposed by dumping or burning. You are responsible for the safe disposal of any unused fuel. The removal and proper disposal of all fuel and fuel containers from your field site should be part of your field plan.

The camp fuels available to clients from the PCSP facility in Resolute include:

- ▶ **Diesel:** It is used in heating stoves and some generators and is available from the PCSP in bulk or in 205-litre (L) drums. A full drum weighs 190 kg.
- ▶ **Gasoline:** It is used in trucks, snowmobiles, some generators and all-terrain vehicles and is available from the PCSP in varying amounts up to 205-L drums. A full drum weighs 182 kg.

PCSP can supply fuels for various uses, including camp stoves, heaters and other field equipment.

- ▶ **Propane:** It is available from the PCSP in 11-kg and 45-kg tanks. The larger tank weighs 81 kg when full.
- ▶ **Naphtha (white gas):** It is sometimes used in camp stoves or catalytic heaters and is available in 1-L, 22-L or 45-L containers. One litre of naphtha weighs about 1 kg.

2.5.1 Reporting fuel or hazardous materials spills

All spills of petroleum products or other hazardous materials over a certain quantity must be reported immediately to a PCSP Logistics Operations Officer and to the 24-hour spill report line for the territory in which you are working.

Report spills that occur in Nunavut or the Northwest Territories to:

Nunavut and Northwest Territories 24-hour spill report line

Tel.: 867-920-8130

Report spills that occur in Yukon to:

Yukon 24-hour spill report line

Tel.: 867-667-7244

More information about reporting fuel or hazardous material spills in each territory can be found at the following websites:

Yukon

www.env.gov.yk.ca/environment-you/spills.php

Northwest Territories

www.enr.gov.nt.ca/programs/hazardous-materials-spills/reporting-spills

Nunavut

www.gov.nu.ca/environment/documents/spill-response



2.6 FIELD COMMUNICATIONS AND MAIL

2.6.1 Field party communications

Communications are essential to safe operations in the Arctic. Clients may request satellite telephones from the PCSP to ensure they can be reached by the PCSP or contact the PCSP for safety advice and in case of emergency while in the field. Each field camp must contact the PCSP at least once every 24 hours or the PCSP will initiate a search at the client's expense.

The PCSP uses PCX-250 high-frequency (HF) radios. These portable radios are small and effective and are used with an inverted V or a dipole antenna, which is easily erected in the field. If you are working out of Resolute, a radio will be issued to you from the facility before you go to the field. The antenna should be set up perpendicular to the direction of communication and raised as high off the ground as possible. Any portion of the antenna may serve as a receiving aerial, but you need the full length for transmitting. Your field party is obligated to treat the radio gear with great care.

The call sign for Resolute is XMH-26. Field camps usually use call signs that indicate their geographic locations.



A satellite telephone is used in the field.

Ensure that your field party has a plan in place for communicating with any groups who are separated from the main camp on day trips. Whether using satellite telephones, high-frequency radios or other communications equipment, your field party must ensure that enough devices are available for the main camp and each group of researchers that is working away from camp on day trips. Have a means of communication other than radio, in case issues arise with using the radio system. Field team members must be familiar with the daily communications routine with the main camp and with the PCSP.

An HF radio antenna at a field camp on Axel Heiberg Island, Nunavut



2.6.2 Radio frequencies and licences

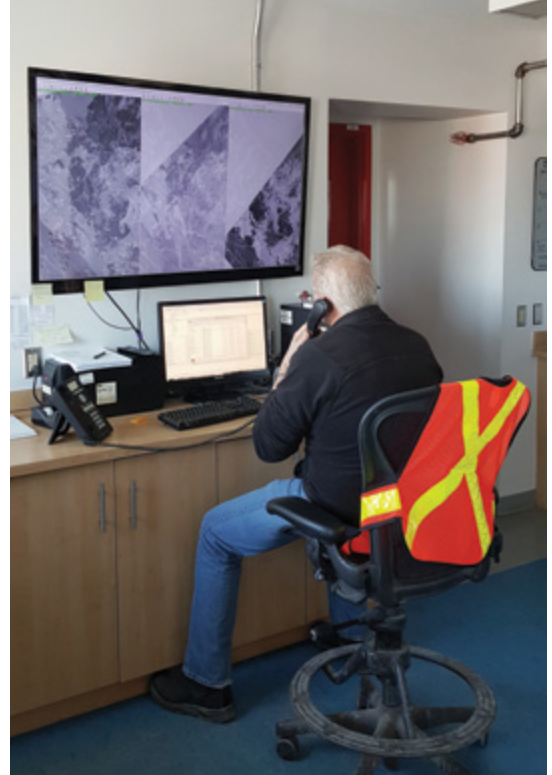
PCSP radios operate in the HF range. With HF radio, your communications may be heard clearly hundreds of kilometres away. The primary frequencies for communications between the PCSP and field parties are 4472.5 kilohertz (kHz) and 4441.0 kHz. The antennae that are supplied with PCSP radios will operate on either frequency.

If you want to use a frequency that has been assigned to a private company or an individual or if you want to install a PCSP frequency in your own radio, you must obtain prior written approval from the holder of the frequency. Parties using their own radio must obtain a licence and an assigned frequency to operate a radio in Canada, at their own expense. The PCSP may request proof of licensing. Contact Industry Canada for an Application for Licence to Install and Operate a Radio Station in Canada and a Mobile Radio Station Licence Application.

If your project is supported by the PCSP and a PCSP radio has been issued to you, a separate licence is not required. The PCSP holds the licence, and you will be covered by it.



An HF radio kit available from the PCSP



Field parties contact PCSP Logistics Operations Officers twice-daily during scheduled calls using HF radio and satellite telephones.

2.6.3 Radio schedules and watch

During twice-daily scheduled radio calls, also known as the radio “sked,” the PCSP will contact field camps in the order that they went into the field. Calls are made daily at 07:30 and 19:00 CT (UTC-6). If radio communications are not possible at your location and you are using a satellite telephone instead of a radio, call the PCSP facility in Resolute at the scheduled radio call times. You must make every effort to adhere to the programmed schedule. If you cannot make contact with the PCSP or any other field party, check your radio batteries and antenna and keep trying, or call in by satellite telephone. If you miss a radio “sked” for reasons beyond your control, call the PCSP facility in Resolute at your earliest opportunity.

PCSP Logistics Operations Officers monitor the radios from 07:00 to about 20:00 CT (UTC-6) each day. Note that Resolute is in the Central Time (CT) zone and observes daylight saving time. When aircraft are flying outside of these hours, either a PCSP Logistics Operations Officer maintains flight watch or the pilot communicates with Arctic Radio.

2.6.4 Mail service from Resolute on chartered aircraft

While you are in the field, staff at the PCSP facility in Resolute will pick up mail at the Resolute post office and forward it to you on the next PCSP flight to your camp. Postage-paid mail sent from your camp can be taken to the post office for mailing. The Principal Investigator for each project must send a list of names of all members of their field party to the PCSP before going to the field, which helps get mail and messages to their proper locations. Mail going to field camps should be addressed as follows:

Addressee's name
c/o the name of your project's Principal Investigator and your project number
c/o Polar Continental Shelf Program
Resolute NU XOA OVO

Before proceeding to the field, ensure that you have enough envelopes and stamps. The PCSP will not supply envelopes or postage for your mail.

2.7 FIELD EMERGENCIES AND RESCUE

2.7.1 Medical emergencies

The field party leader must document all injuries that occur at camp or in the field and report them to the PCSP. Discussion with the PCSP will determine if a medical evacuation is required. When a medical evacuation (also known as a "medevac") from camp is required, this early discussion with the PCSP allows for rapid transportation of the injured party.

Note that most employers will require that documentation of any incidents be provided immediately for occupational health and safety reporting and compensation claim process requirements. You should have a list of field participants and their emergency contact information with you and with your employer. You will also be required to provide a copy of this list to the PCSP Logistics Operations Officers.



A field camp on the Cumberland Peninsula of Baffin Island, Nunavut

2.7.2 Aircraft incidents

The safety of our clients and our air charter partners is of the utmost importance. The PCSP requires that any incident be reported immediately, including concerns regarding the pilot, the aircraft, procedures and missed pick-ups. The PCSP documents and follows up on all aircraft incidents. Receiving timely information is essential to this aspect of PCSP's safety framework.

Note that as soon as an aircraft is known to be in distress or two hours after it fails to land on schedule, the PCSP will initiate a search and rescue (SAR). During a SAR mission, continuous radio watch will be maintained and all field parties must stay off their radios, unless there is a new emergency, until the SAR mission is completed.



A rock saw is used to sample bedrock west of Wager Bay, Nunavut.

3.1.1 Insurance

You should be aware of and plan according to your organization's insurance and health and safety requirements and policies. Each field party member should ensure that he or she has adequate insurance coverage for personal travel, including coverage for flying in chartered aircraft, emergency medical evacuation, repatriation and disability. Field party members should check with their insurance providers and/or employer to determine if they have appropriate coverage.

For their part, all commercial aircraft operators will have a Certificate of Insurance detailing their coverage. You may wish to ask a PCSP Logistics Operations Officer about a particular aircraft operator's Certificate of Insurance.



3.1.2 First aid

All members of your field party should hold valid first aid training and cardiopulmonary resuscitation certificates. Wilderness first aid training is also strongly recommended for field party members, given the remote nature of much northern field work and lack of readily accessible health care services. It is also encouraged to have at least one person in camp certified as a Wilderness First Responder.

Each field party should carry a well-stocked field medical kit, and any small party doing field work separately from the rest of their field party should also be equipped with a first aid kit.

Field party members should bring an adequate supply of any required medication for the duration of field work, including enough to cover any unexpected travel delays. If you are allergic to bee stings, carry appropriate allergy medication because bees live as far north as Alert, Nunavut.



Standard (above) and portable (below) first aid kits are available through the PCSP.





Iqaluit, Nunavut

3.3 COMMUNITY ENGAGEMENT AND CONSULTATION

Field science can affect local people, communities and environments. Even when research does not directly involve local people, it may still have an impact on the land, water or wildlife of the region, which can influence residents directly and indirectly. The word “community” is not restricted to a settlement alone; the land that supplies resources for a settlement and the people who live on the land are part of the community.



Resolute, Nunavut

The unexpected arrival of researchers in a community may be disruptive. Well in advance of the planned field work, the Principal Investigator for each project should contact relevant groups to discuss the planned field research. This may include the hamlet council and the local hunters and trappers organization of the community closest to his or her study site. Give the community information about the type of research and field studies you plan to undertake and work with the community to build mutually respectful relationships.

Community engagement should be part of all aspects of your research from the conception, design and execution of your field studies to data analysis and publication of results. Consider how your research team can effectively disseminate the results of its research to northern communities and participate in outreach initiatives.

All researchers working in the Arctic must adhere to ethical principles while conducting their research. The Association of Canadian Universities for Northern Studies published *Ethical Principles for the Conduct of Research in the North* as a reference guide. It is available on its website. The principles promote co-operation and mutual respect among researchers and the people of the North. All field party members should read this

booklet, even if your research team is not working out of a settlement or is not doing research in a social sciences field. Your project must meet all ethical, environmental and legal requirements and regulations for conducting your field work, or you may not be allowed to undertake your field studies. Note that cultural products, artefacts and animal skeletons or parts must not be touched or moved without special permits or licences.

3.4 PROVISIONS

Each field party must be self-sufficient. Unless you are based in a community for field work, you will need to purchase most or all of the food for your camp and ship it to your staging community well in advance of leaving for the field. Stores in northern communities carry a limited selection of food products and hardware. You may want to supplement the camp food that you shipped with provisions from these stores.

Note that the kitchen at the PCSP facility in Resolute cannot provide food supplies for field camps (see Section 2.1.3 Food services).

Note that hunting and fishing in Nunavut, the Northwest Territories and Yukon are not permitted without proper licensing.

3.5 CLOTHING

Be sure to have field clothing that is appropriate to the time of year, location(s) of field studies and types of planned field activities. In general, multiple layers of clothing are warmer and more effective for adapting to changing weather conditions than a single, thick layer. Clothing should be selected to allow free movement, keep you warm, allow perspiration to disperse and be comfortable, regardless of the weather. Clothing and footwear size should be large enough to accommodate an extra layer of insulating clothing, and outerwear should provide protection from wind and water.

Staying dry is important for staying warm. If your clothing becomes wet, change into dry clothing. Weather conditions in the Arctic can change dramatically; plan ahead.

Specialized outerwear (e.g. parkas, boots, snow pants, insect protection jackets) may be borrowed from PCSP's field equipment inventory. Identify these items in your Arctic logistics request form.

3.6 FIELD CAMPS

3.6.1 Emergency evacuation procedures

All field party members should understand emergency and evacuation procedures and protocols for field sites. In an emergency evacuation of your camp, follow this order of priority for evacuation:

1. personnel
2. scientific data
3. equipment (set priorities based on value, weight and bulk)



Field clothing is part of the PCSP's field equipment inventory.



A longhouse tent at a field camp at Johnson Point on Banks Island, Northwest Territories

3.6.2 Campsite selection and maintenance

Selecting a campsite requires careful planning. You must combine safety considerations, environmental suitability, access to study sites and proper access for aircraft. Here are some suggestions:

- ▶ For the best radio reception, set up camp on flat land or a hilltop.
- ▶ Always look for a nearby source of water when selecting a campsite.
- ▶ To limit wind exposure, camp on the leeward side of a ridge, if possible.

- ▶ Never camp in a ravine or creek bottom because a sudden shower or warm weather may cause the release of a substantial amount of water into your campsite. Camping in a ravine also may cause poor radio and satellite telephone reception.
- ▶ On glaciers, check that the camp area is free of crevasses, and never camp near the snout of a glacier, where katabatic winds can damage camp gear.
- ▶ On sea ice, make camp in a stable area, on multi-year ice or on land fast ice. Separate fuel, tents, food, generators and communications equipment to avoid losing all camp gear at once because of ice fracture.

Organize material in your camp so you can locate it after a snowstorm by piling items in one location and covering them with a tarp. Poles or pieces of wood can mark the four corners of your cache.

Every effort should be made to minimize the human impact of scientific investigations and campsites on the environment:

- ▶ When leaving a campsite, try to return it to its natural state. For example, you can scatter rocks that were used to hold down tents, flatten snow mounds and remove all garbage, packing it in a suitable manner for transport out of the field.



A field camp at Lorillard River, Nunavut

3.7 WILDLIFE

During field work, you may encounter wildlife ranging from small birds and lemmings to Arctic wolves, muskox, polar bears and grizzly bears. All field party members must observe all game laws and avoid disturbing wildlife. Keep your camp clean, ensure waste is properly handled and contained, always be aware of your surroundings, and know how to handle wildlife encounters.

In most cases, unwelcome or hostile animals can be scared away by loud noises made by bear bangers, generators or vehicles. You may report the presence of a bothersome bear to a local Conservation Officer (in Nunavut and Yukon) or Renewable Resource Officer (in the Northwest Territories).

If you are working in a region known to have bears, hiring a bear monitor from a local community, at your expense, is recommended. You are advised to carry a firearm in areas of high bear concentration. It is common for field parties to be equipped with firearms whether in camp or during day trips. Every person who carries or uses firearms must have appropriate certification and carry their PAL with them in the field. For advice or specific information regarding bears or other wildlife in your study area, contact a Conservation Officer (in Nunavut and Yukon) or Renewable Resource Officer (in the Northwest Territories) in the community closest to your field site.

If a field party member kills an animal in self-defence, you must contact the appropriate officer (listed above) and turn in the animal's carcass.

Polar bears



3.7.1 Hunting and fishing

In Nunavut, everyone (except for Nunavut Land Claim Agreement beneficiaries) requires a hunting licence to hunt and a sport fishing licence to fish. Contact the Department of Environment (Government of Nunavut) for more information about territorial hunting and fishing regulations and how to obtain licences.

In the Northwest Territories, with some exceptions, all residents and non-residents require a hunting licence to hunt. Most residents and non-residents require a sport fishing licence to fish in the territory. Contact the Department of Environment and Natural Resources (Government of Northwest Territories) for more information about territorial hunting and fishing regulations and how to obtain licences.

In Yukon, a person must have a hunting licence to hunt and an angling licence to fish. Contact Environment Yukon (Government of Yukon) for more information about territorial hunting and fishing regulations and how to obtain licences.

Fishing in national parks requires licensing from Parks Canada.

A migratory game bird hunting licence, available from the federal government, is required for hunting migratory birds in Yukon, the Northwest Territories and Nunavut. Contact Environment and Climate Change Canada for more information.

Provincial hunting and fishing regulations vary by province. Contact the appropriate provincial authorities for more information.

3.8 INTERNATIONAL PARTICIPANTS

International clients must have appropriate personal identification documents and a visa, if applicable, to enter Canada and may require special clearance to move personnel and/or material into and out of Canada. Contact the nearest Canadian embassy or consulate for the most up-to-date advice and information.

Consult the Canada Border Services Agency for information regarding importing firearms to Canada. Scientists from outside Canada who want to bring firearms into the country must complete a Non-Resident Firearm Declaration. For more information about requirements for non-residents, contact the RCMP well in advance of arrival in Canada.

International visitors to the PCSP facility in Resolute or other Government of Canada facilities are required to be screened for security purposes. This screening may result in requests for additional personal information.

10. The client shall ensure that all field equipment is used and operated in accordance with manufacturers' operating procedures and only for the purpose for which it was intended. The client is accountable for exercising due diligence in complying with the health and safety requirements for the use of all field equipment issued. Also, the client shall ensure that the equipment is operated only by people who are qualified and trained to do so.
11. PCSP-issued satellite telephones are to be used only to contact the PCSP and for emergency calls.

Firearms

12. Any person in possession of a firearm must have their PAL with them at all times.
13. Upon arrival at the PCSP facility in Resolute, you must surrender all firearms to the PCSP's Regional Firearms Custodian Officer for safe storage. A PAL must be presented when you surrender and retrieve a firearm.
18. Any changes to planned aircraft use could result in additional costs for the project. If the project is cancelled or aircraft requirements are modified after aircraft commitments have been made, the client may be invoiced for daily minimums plus **cancellation fees** (if applicable).

Chartered aircraft

14. The client is not permitted to make aircraft arrangements (e.g. charter, schedule changes) and charge the expenses to the PCSP. The client must contact the PCSP to request any changes to the type of aircraft, flying schedule or number of flying hours required for PCSP chartered aircraft.
15. Aircraft-related prices may increase during the field season. If they do, the PCSP will notify the client and adjust the estimated costs.
16. Hourly aircraft rates calculated by the PCSP are comprehensive and include, as applicable, positioning of the aircraft to and from aircraft bases (normally in Inuvik in the Northwest Territories and in Resolute, Cambridge Bay, Eureka, and Iqaluit in Nunavut), fuel, landing fees, NAV Canada fees and pilot accommodation.
17. Many aircraft companies charge a fixed fee called a "daily minimum," which is based on the cost of a daily minimum number of hours of flight. The PCSP makes every effort to maximize the use of aircraft among projects. However, if applied, the client is responsible for expenditures related to daily minimums for the period the aircraft was associated with their project.
19. If a flight is turned back because of inclement weather, the time will be charged to the project. The client will be invoiced for the cost of additional hours flown in excess of the planned hours for the project.
20. Unless otherwise identified, the client is responsible for expenditures related to **fuel caching** for the project.
21. The client must receive approval from the PCSP before using fuel from commercial sources or existing fuel caches. Client-supplied fuel must meet or exceed aircraft companies' specifications. The client must also indicate on the daily flight report that client-supplied or commercial fuel was used.
22. The client is responsible for notifying pilots of any cargo that has a value exceeding \$50,000.

