

**CHAPTER 4:****Conservation, Permits  
and Science Cargo**

*Blood Falls is a unique feature where iron-rich brine from the subsurface of the Taylor Glacier is released at the terminus of the Taylor Glacier. Any work within the protected area of Blood Falls requires an ACA permit.*



*photo by Peter Rejcek*

Environmental conservation and waste management law applies in Antarctica. This chapter describes environmental impact assessment, the Antarctic Conservation Act, and explains how to get a permit for certain activities.

The chapter also discusses the shipment of science cargo, and it explains the permitting rules that apply to cargo, including specimens shipped from Antarctica.

**ENVIRONMENTAL IMPACT ASSESSMENT**

U.S. Federal Regulations require that proposed activities shall be subject to environmental impact assessment of those activities on the Antarctic environment, or on dependent or associated ecosystems.

Annex I of the Environmental Protocol to the Antarctic Treaty establishes the process for Environmental Impact Assessment (EIA). A Record of Environmental Review (ROER) will be completed by the environmental department for all USAP activities. If the ROER determines that the activity will have a less than minor or transitory impact, the activity may proceed without further review. If the ROER determines that impacts are no more than minor or transitory, additional review will be required according to Annex I. Depending on the expected level of impact, an Initial Environmental Evaluation (IEE) or Comprehensive Environmental Evaluation (CEE) will be prepared. Polar Programs will work with those who are planning to conduct the activity to ensure that all environmental review has been completed and appropriate mitigating measures are in place before the activity proceeds.

## ANTARCTIC CONSERVATION ACT

The Antarctic Conservation Act 16 U.S.C. § 2401, *et seq.* implements various requirements as delineated in the Antarctic Treaty and protocol on Environmental Protection to the Antarctic Treaty.

The Antarctic Conservation Act (ACA) applies to any person subject to the jurisdiction of the United States.

Violations of this law may result in civil fines, criminal fines and imprisonment for up to one year. Other penalties could include removal from Antarctica, rescission of a grant, or sanctions by your employer. It assigns the NSF and other agencies regulatory, permit and enforcement authority.

The Antarctic Conservation Act requires your involvement from the time you begin planning your trip until after you leave Antarctica. Your activities, on or off the job, must comply with the Antarctic Conservation Act. Much of your conservation planning will involve common sense – minimizing pollution, avoiding interference with animals – but the Act is complex, and you cannot rely solely on common sense.

The ACA and permit application instructions and form can be accessed online at: [www.nsf.gov/geo/plr/antarct/aca/aca.jsp](http://www.nsf.gov/geo/plr/antarct/aca/aca.jsp)

### Highlights of the Antarctic Conservation Act

**Taking** means to kill, injure, capture, handle or molest a native mammal or bird, or to remove or damage such quantities of native plants that their local distribution or abundance would be significantly affected.

**Harmful interference** means:

- flying or landing helicopters or other aircraft in a manner that disturbs concentrations of birds and seals.
- using vehicles or vessels, including hovercraft and small boats, in a manner that disturbs concentrations of birds and seals.
- using explosives or
- in a manner that disturbs concentrations of birds and seals.
- willfully disturbing breeding or molting birds or concentrations of birds and seals by persons on foot.
- significantly damaging concentrations of native terrestrial plants by landing aircraft, driving vehicles, walking on them, or by other means.
- any activity that results in the significant adverse modification of habitats of any species or population of native mammal, bird, plant, or invertebrate.

**Specially Protected and Managed Areas.** A number of precisely defined places in Antarctica are designated under the Antarctic Treaty as Antarctic Specially Protected Areas (ASPAs), which protect outstanding environmental, scientific, historic, or wilderness values. You must have a compelling need to enter one of these areas, and you must have a permit to do so. You must carry your permit with you while working in an ASPA. Some of these special areas are near stations, such as Arrival Heights next to McMurdo or Litchfield Island near Palmer. Other ASPAs include the historic huts in areas near McMurdo.

Antarctic Specially Managed Areas (ASMAs), have been established to assist in the planning and coordination of activities, to avoid possible conflict and to minimize environmental impacts and to improve cooperation between national programs. Entry into an ASMA does not require a permit, however all activities conducted within the ASMA must be in accordance with the ASMA management plan and any associated codes of conduct.

The areas and their management plans are described on the website maintained by the Antarctic Treaty Secretariat for the Committee on Environmental Protection at [www.ats.aq/e/ep\\_protected.htm](http://www.ats.aq/e/ep_protected.htm).

**Introducing species.** You need a permit to introduce non-native species to the Antarctic (south of 60 degrees South latitude). A clear need to introduce the items must be demonstrated. Laboratory animals and plants, as well as viruses, bacteria, yeasts and fungi may be permitted for introduction for scientific research purposes.

The ACA also allows the importation of food plants under special circumstances. Many Antarctic stations have hydroponic vegetable gardens, including South Pole Station.

If you have questions regarding the introduction of non-native species, contact the ACA Permit Office at [acapermits@nsf.gov](mailto:acapermits@nsf.gov).

**Import into and export from the United States.** In the United States it is unlawful, unless authorized by permit, to have or sell, or to import or export, Antarctic plants, mammals or birds. An application for a permit must demonstrate that the import or export would further the purposes for which the species was taken or collected, demonstrate that the import or export is consistent with the purposes of the ACA, and state which U.S. port will be used.

Mailing items to or from the United States constitutes import or export.

## Antarctic Conservation Act Waste Management

**Banned substances.** The ACA waste management regulations ban these substances, and others, from Antarctica:

- pesticides (except those required for science or hygiene; a permit is needed)
- polychlorinated biphenyls (PCBs)
- nonsterile soil
- polystyrene beads and plastic chips, and loose polystyrene packing material

**Designated pollutants.** The ACA identifies some substances as designated pollutants that must be used, stored, and disposed of in a way that prevents their release to or adverse impact on the environment. Designated pollutants include any substance listed by name or characteristic (flammable, corrosive, reactive, toxic) in the Clean Air Act, the Clean Water Act, and Resource Conservation and Recovery Act, and other U.S. regulations. Waste containing designated pollutants is Antarctic hazardous waste, and it has to be used, stored and disposed of in controlled ways. Many research and industrial supplies and common substances like lighter fluid and fingernail polish remover are designated pollutants. The support contractor holds the USAP Master Waste Permit which manages these substances. If you have any questions about the substances you intend to bring to Antarctica, please contact [Environmental@usap.gov](mailto:Environmental@usap.gov).

You need to pay attention when you pack for travel to Antarctica, at your work site and living area. When packing, ask yourself: How might I reduce the number/amount of such substances; are there benign substances that might be substituted for designated pollutants; and how should these substances be handled?

**Historic sites.** More than 90 historic monuments or sites have been designated during Antarctic Treaty meetings. Steps have been taken to restore and preserve monuments, including tombs, buildings and objects of historic interest. These sites must be protected from damage. If you go near historic sites, please take care not to damage or disturb them. If you come across a potentially historic artefact, you should not touch it, but should report the find and its location to an NSF representative or to support contractor management staff.

Five Antarctic Treaty historic sites are in the vicinity of McMurdo Station: Observation Hill, Scott's Hut, Vince's Cross, Richard E. Byrd Memorial, and a plaque commemorating the location of the former nuclear power plant. The U.S. Antarctic Program also commemorates historic events with plaques: Our Lady of the Snows Shrine, which was established in memory of Richard Thomas Williams, a Navy Seabee who drowned when his tractor broke through the sea ice in January 1956, and the Raymond Smith Monument, which commemorates BM1 Raymond

## Environmental Guidelines

Aspects of environmental protection are covered in many parts of this guidebook. It is your responsibility to know them. Here are a few more common sense examples of how you can do your part.

- Don't litter.** Use the appropriate receptacles and comply with the waste management program at your station and work site. Winds can turn litter into dangerous flying materials.
- Secure construction sites.** Pick up debris and dispose of properly. Protect outdoor materials from scattering by the wind.
- Handle waste properly.** If you handle waste, know the rules. If you do not know them, ask a supervisor, a lab manager, an ASC waste management employee, or an NSF representative.
- Leave only footprints.** Bring everything back to McMurdo, Palmer, South Pole or the ship from field camps. This includes human waste.
- Handle lab chemicals properly.** Pack, store and identify them correctly. Arrange for proper disposal according to instructions.
- Don't spill fuel.** Take the time and precautions necessary to avoid spills. Use secondary containment and absorbent spill pads when transferring fuel. Waste fuels and lubricants have to be labeled and stored for return to the United States. All spills must be reported.
- Help clean up.** Volunteers assemble from time to time to police an area. This is an opportunity to work with your colleagues to keep camp and station areas clean.
- Avoid disturbing wildlife.** In particular, do not walk on vegetation, touch or handle birds or seals, startle or chase any bird from its nest or wander indiscriminately through penguin or other bird colonies. If the wildlife are reacting to you, then you are too close.
- Do not introduce plants or animals** to Antarctica, or collect eggs, feathers or fossils. Clean your gear and clothing before arriving in Antarctica.
- Do not enter any of the ASPAs without a permit** and adhere to the area management plan when working in these areas and in ASMA's.
- Avoid interference with scientific work** and do not enter unoccupied buildings or refuges except in an emergency.
- Take care of Antarctic historic monuments.**

Thomas Smith, USN, who died in 1982 during an unloading accident at McMurdo onboard USNS *Southern Cross*.

Two Antarctic Treaty historic sites are located near South Pole Station: Amundsen's tent, erected in 1911, and Flag Mast, established in 1965. The locations of these monuments is unknown.

Capes Royds, Evans and Adare contain historic huts or their remains. Respect the basic rule prohibiting the removal or disturbance of any materials from these sites, for either souvenir or scientific purposes.

The historic huts at Hut Point, Cape Royds and Cape Evans have been designated as ASPAs by the Antarctic Treaty and require a permit to enter. There are opportunities for group visits to these huts from time to time. Information about visits can be obtained from the contractor staff in the Chalet at McMurdo Station.

**Enforcement officers.** ACA enforcement officers are federal officials responsible for ensuring compliance with the ACA and for issued permits. Enforcement officers help U.S. Antarctic Program participants understand their obligations to protected native plants and animals, and to prevent the release of pollutants. ACA environment officers are authorized to exercise the full array of law enforcement powers when performing their duties.

## PERMITS AND REPORTING

**Antarctic Conservation Act.** NSF will not allow work in Antarctica to commence until an ACA permit has either been approved or found not to be required. You may not do things that require a permit unless you have a permit. A permit cannot be retroactive.

You are the person who initially decides whether or not an ACA permit will be needed for proposed activities in Antarctica. If there is any doubt, contact the ACA Permit Officer at [ACApermits@nsf.gov](mailto:ACApermits@nsf.gov), or:

Permit Officer  
Division of Polar Programs, Room 755  
National Science Foundation  
4201 Wilson Boulevard  
Arlington, Virginia 22230  
Fax: 703-292-9081

Normally, 45 to 60 days are required for NSF to review and decide on an ACA permit. During that time, a summary of the application is published in the Federal Register so that the public can comment. The Foundation evaluates public comments and performs an internal review. It then approves the application, approves it with modifications, or rejects it.

**Postseason report.** At the end of the season, by April 1, a report of activities conducted under your ACA permit must be submitted to the permit officer at the Division of Polar Programs.

**Protected resources.** If your project involves any native mammal that is a marine mammal as defined by the Marine Mammal Protection Act of 1972 (16 U.S.C. 1362(5)), any species that is an endangered or threatened species under the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), or any bird that is protected under the Migratory Act (16 U.S.C. 703 et seq.), you may need to obtain permits from other federal agencies. NSF cannot issue an ACA permit until the Permit Office receives copies of valid permits issued under these regulations. The following websites provide information on the acts listed above:

- [www.nmfs.noaa.gov/pr/permits](http://www.nmfs.noaa.gov/pr/permits)
- [www.fws.gov/migratorybirds](http://www.fws.gov/migratorybirds)

**Meteorites.** A U.S. regulation governing Antarctic meteorites ensures that meteorites in Antarctica will be collected for scientific research purposes only. U.S. expedition organizers who plan to collect meteorites in Antarctica will ensure that any specimens collected must be properly collected, handled, documented and curated to preserve their scientific value. For more information on meteorite regulation, please visit [www.nsf.gov/geo/plr/antarct/meteorite\\_regs.jsp](http://www.nsf.gov/geo/plr/antarct/meteorite_regs.jsp).

## OTHER IMPORT-EXPORT REGULATIONS

Federal laws and regulations control the taking and importing into the U.S. of certain biological specimens, alive or dead. Other countries have rules for crossing their borders with some materials.

Responsibility for knowing these regulations, complying with restrictions, and obtaining clearances rests with the grantee. Keep your ASC science support POC informed by sending copies of relevant correspondence, actions and permits granted.

The NSF representative in Antarctica cannot provide the needed clearances from the field. It is your responsibility to obtain the necessary permits.

Import of animal-origin materials. The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), regulates the import of all animal-origin materials and soils that could be a disease risk to U.S. livestock. Animal-origin materials include animal products, animal by-products, and biological materials that contain or have been in contact with materials of animal origin (including cell cultures). You may not bring such materials into the country without a permit.

To verify your project's requirement contact [AskNIES.Products@aphis.usda.gov](mailto:AskNIES.Products@aphis.usda.gov), or:

USDA, APHIS, VS, NCIE  
Products Program  
4700 River Road, Unit 40 Telephone: 301-734-3277  
Riverdale, MD 20737-1231 Fax: 301-734-8226

**Foreign permit restrictions.** All countries have some restrictions against the importation of harmful plants or animals or of soil samples that might contain harmful seeds, insects, fungi, or bacteria. New Zealand has particularly stringent regulations (see below), and Argentina and Chile have similar rules. Chile does not currently restrict transshipment of specimens or technical equipment. For general information about materials sent by mail or shipped as retrograde cargo to the United States, the contact list below provides a first contact for information. It is important to obtain necessary foreign permits before you leave the United States. Otherwise, there may be difficulty in clearing customs, particularly when hand-carrying biological samples.

- For information about New Zealand Ministry of Primary Industries (MPI) regulations, visit their website: [www.biosecurity.govt.nz](http://www.biosecurity.govt.nz)
- For information about Chilean restrictions, contact the consulate in your region: [www.chile-usa.org/consular.htm](http://www.chile-usa.org/consular.htm)
- For information about Argentinean restrictions, go to the following website, click on the English link and then the Consulates in the U.S. link: [www.embassyofargentina.us](http://www.embassyofargentina.us)
- Please forward copies of correspondence to your ASC science support POC.

**New Zealand health and agricultural requirements.** New Zealand has strict regulations regarding importation or transshipment of biological and laboratory samples. A permit from the Ministry for Primary Industries (MPI) New Zealand must be obtained for entry of biological and laboratory samples. This applies to samples coming from the United States or Antarctica.

Please enter information regarding the movement of samples into POLAR ICE, the online database used to create the Science Information Packet (SIP). This outlines the science group's requirements for the season. During this process an application for an MPI permit will be created. Applications are gathered by the senior administrative coordinator at PAE (NZ) for processing. You must apply for a permit at least eight weeks before you leave the U.S. for Antarctica.

### Controlled Drugs, New Organisms, Genetically Modified Organisms

If your research requires movement from the United States to Antarctica of controlled drugs, new organisms or genetically modified organisms, permits from U.S. and N.Z. government agencies must be obtained and the process will take longer.

**Controlled Drugs.** Controlled drugs for research purposes require advance planning and documentation. ASC personnel will arrange for procurement and shipment of these items to Antarctica. Please notify your ASC Science Planner if you anticipate use of controlled drugs during your field season. Protocols set forth by the U.S. Drug Enforcement Administration (DEA) are applicable while in Antarctica.

**NOTE:** Personal prescription drugs are covered in Chapter 3.

**New Organisms or Genetically Modified Organisms.** To transship new organisms and genetically modified organisms (GMOs), approval must be obtained from the Environmental Protection Authority (EPA). This is part of the MPI process. For GMOs you must provide your approved ACA permit along with an application available through POLAR ICE. For new organisms, you must provide your approved ACA permit. You should expect the EPA/MPI process to take at least 6-8 weeks to complete.

PAE NZ holds an approval from the New Zealand EPA to transship new organisms and GMOs through New Zealand en route to or from Antarctica.

Provided the science group's organisms meet the definition of the 'Risk Groups' contained within the EPA Decision Document they are able to transship them. A copy of the Decision Document and applicable MPI permit can be requested from the Crary Lab supervisor, [Mcm-CraryLabSupv@usap.gov](mailto:Mcm-CraryLabSupv@usap.gov).

If an organism does not meet the definitions in the Decision Document, a new application must be made to EPA. The process to complete this is available on [www.epa.govt.nz](http://www.epa.govt.nz). The application could take 12 or more weeks to be completed.

## Importing Samples into New Zealand

If samples are being imported into New Zealand with New Zealand being the ultimate destination of the samples, that destination institution or agency must provide a copy of their *MPI Permit to Import* to accompany the samples. A copy must be sent to the grantee importing the samples, to the Crary Lab supervisor, [Mcm-CraryLabSupv@usap.gov](mailto:Mcm-CraryLabSupv@usap.gov), as well as to the [Chc-MPIpermits@usap.gov](mailto:Chc-MPIpermits@usap.gov) email group.

## Transshipping Samples through New Zealand

**United States to Antarctica.** If you are *shipping* samples from the United States through New Zealand on to Antarctica, a copy of your permit will be sent directly to you along with a letter from the Contract Manager of New Zealand Operations. If you plan to hand-carry your samples you must advise the Christchurch Hand carry email group of your intentions and all special handling requirements: [chc-handcarry@usap.gov](mailto:chc-handcarry@usap.gov). You will be advised in the letter from the Contract Manager New Zealand Operations that you need to carry your permit and your letter with you, and when you arrive in New Zealand, you must declare your samples and present the permit and letter to the Ministry for Primary Industries inspector at the border. If you also have GMOs or new organisms, you must present the additional paperwork provided to you by PAE (NZ).

If you are shipping your samples directly from the United States to Antarctica, you must attach the permit, and any other applicable paperwork, to the boxes being shipped.

**Antarctica to the United States.** If you are shipping samples from Antarctica to the United States, your permit will be sent to the Crary Lab in McMurdo. It will be held there until you are ready to leave the Ice. Additionally, all sample shipments need to be accompanied by a letter, on the proper **university's letterhead**, which answers the following three questions:

1. What is the source of the product?
2. If animal, what is the type and origin?
3. Does the product contain any animal by-products?

More information can be found in the **Packing and Shipping Instructions – TL-MAN-0002** on the USAP website. A copy can be sent to you by request. If you plan to hand-carry your samples, you must present a copy of your permit and declare your samples to the MPI Biosecurity officials when you enter New Zealand. If you are shipping, your permit will be available in the Crary Lab at McMurdo Station. When you are ready to ship your samples, contact the Crary Lab and Science Cargo supervisor with details of your shipment. If you are working in the Antarctic Peninsula area, get transport details from the NSF representative there, the ASC resident manager at Palmer, or the marine projects coordinator on your research vessel.

You will be required to identify the container as to content, relevant permits, special handling requirements (such as dry ice) and addressees. State whether the container will be hand-carried or shipped independently.

**NOTE:** If you plan to hand-carry samples and did not identify this in your SIP, you must let your ASC POC and ASC Travel ([travel@usap.gov](mailto:travel@usap.gov)) know immediately what the samples are and the name of the person who will be hand-carrying the samples. This will allow ASC Travel to ticket the individual appropriately through New Zealand. Australian law does not allow hand-carried samples.

## Radioactive Materials

Shipment and use of radioactive materials in Antarctica requires strict adherence to U.S. Antarctic policies and procedures to avoid contaminating the Antarctic environment, and to ensure safety. Approval by the NSF Division of Polar Programs to use radioisotopes in the Antarctic must be obtained before any radioactive material is shipped south. A hard-copy of the NSF/PLR approval should accompany all radioactive material shipments to and from Antarctica. PIs are responsible

for the procurement, packaging, transport and retrograde of NSF-approved radioactive materials required for their particular research project.

PIs must direct their requirements through the radiation safety officer of their institution to ensure compliance with state, national and international regulations pertaining to the packaging and shipment of radioactive materials. Consult with the Hazardous Material (HAZMAT) specialist in Christchurch by e-mail ([hazmat@iac.org.nz](mailto:hazmat@iac.org.nz)) or fax (+64-3-358-1479), for shipments to and through New Zealand. When shipping radioactive materials, or having them consigned from a vendor, please ensure that any material packaged within category “Yellow-II” does not exceed a transport index of 1.0, or that any “Yellow-III” packages do not exceed 3.0.

**It is against the law to hand-carry radioactive materials into New Zealand.**

Radioactive isotopes **cannot** be shipped to New Zealand without the appropriate Certificate of Authorization to Import Radioactive Materials. The HAZMAT specialist in Christchurch must receive importation documentation five business days before radioisotopes are shipped through/to New Zealand. Accordingly, if you are planning to order and ship radioisotopes directly from U.S. vendors to New Zealand, then you **MUST** adhere to the following instructions:

All orders must be marked by the vendor for:

National Science Foundation  
c/o PAE (NZ) Limited  
Gate 1, Orchard Road North  
Christchurch International Airport  
Christchurch, New Zealand

The project’s event number and PI’s name must also be included in the shipping instructions so that the HAZMAT specialist in Christchurch will know to whom to consign the shipment in Antarctica.

After the order is placed with the vendor, you **MUST** then send the HAZMAT specialist in New Zealand either an e-mail ([hazmat@usap.gov](mailto:hazmat@usap.gov)) or a fax (+64-3-358-1479) with the applicable following information:

Unsealed (Not shipped as an integral part of equipment)

1. Radionuclide
2. Activity per item
3. Number of items
4. Description of radioactive material
5. Country of origin
6. Expected departure date from country of origin (include country name, e.g., United States)/Arrival in Auckland, New Zealand

-OR-

Sealed (Shipped as an integral part of an instrument)

1. Radionuclide
2. Activity per item
3. Number of items
4. Year of manufacture (if known)
5. Source serial number (if known)
6. Instrument type (if part of an instrument or other equipment)
7. Model #
8. Serial #
9. Country of origin
10. Expected departure date from country of origin (include country name)/Arrival in Auckland, New Zealand

Additionally, you are required to follow up with confirmation of the Airway Bill and flight numbers and special handling instructions (e.g., DNF) as soon as the shipment is confirmed.

Upon receipt in Christchurch, the HAZMAT specialist will ensure that the shipment is consigned to the PI at a station in Antarctica or aboard a USAP research vessel at Port Lyttelton.

Please do not hesitate to contact the HAZMAT specialist with any questions on this procedure:

Cargo/Hazardous Coordinator, PAE (NZ) Limited  
Tel: +64-3-358-1417      Fax: +64-3-358-1479  
Mobile: 027-4357731      E-mail: hazmat@usap.gov

## SCIENCE CARGO

Many dollars have gone into the support of each science project and the facilities required for the projects. Data and their subsequent interpretation are the greatest single return on this investment. Data and specimens should be transported with the same care and forethought that went into planning the research.

The challenges presented in transporting cargo and passengers to and from Antarctica are diverse. Antarctic operations are divided roughly into two geographic areas, the Continental and the Peninsula areas, differentiated by the stations and the means of supplying those stations.

***Instructions on Packaging and Shipping***, provided by ASC, explains exactly how to package and ship your science cargo to and from Antarctica. This publication is kept current with recent methods of safe and damage-free shipping, examples of how to time your shipments, and the current name, address and phone number of the Port Hueneme representatives. This information can be found at [www.usap.gov/usapgov/logistics/index.cfm?m=4](http://www.usap.gov/usapgov/logistics/index.cfm?m=4).

### Sea and Air

Due to the unusual restrictions presented in getting cargo to Antarctica, requirements are analyzed and cargo loads are planned months in advance. Planning begins with information gathered from the SIP and ASC management.

Responsibility for cargo and passenger movement within the Continental Area rests with the ASC director of Transportation and Logistics and the ASC manager of Antarctic Terminal Operations (ATO). During the summer season at McMurdo, ASC's Terminal Operations department manages all cargo transported to McMurdo Station and onward.

**US Antarctic Program/Science Cargo** is the facility that focuses on the cargo related to **science** efforts, technical events, and hazardous cargo. At McMurdo Station, cargo is documented, packaged, and labeled for transport and then turned over to the Movement Control Center (MCC) staff for actual transport. All hazardous cargo to be transported is processed through the U.S. Antarctic Program Science Cargo office. Should you require assistance in determining the location of cargo you have shipped, these people can tell where in the U.S. Antarctic Program cargo system your particular items are located. It will assist them if you can provide a copy of the U.S. Antarctic Program shipping document, or, for commercial shipments, a copy of the bill of lading or airway bill.

Methods of cargo transport used each year in support of science are explained below.

**Palmer Station via research vessels.** Cargo must reach the NSF contractor representative in Port Hueneme, California, at least 90 days before it is to be loaded aboard the research vessel in Punta Arenas, Chile, for forwarding to Antarctica.

**McMurdo Station via charter resupply vessel.** A U.S. flag charter ship sails from Port Hueneme to McMurdo Station, arriving in mid-January. Cargo for this ship must be received in Port Hueneme by December 1. This ship is the preferred transport for delivering materials to McMurdo and the inland stations. Plan to get as much of your cargo as possible on it.

**McMurdo Station via U.S. Antarctic Program airlift.** U.S. Antarctic Program airlift refers to the scheduled movement of cargo and passengers from Christchurch to McMurdo via any aircraft capable and certified to operate in Antarctica. The airlift period is generally from the beginning of WINFLY to the end of the operating season. Airlift may be used with NSF approval to support funded science projects, prevent work stoppages, facilitate emergency repairs, and transport mail and fresh food. Most cargo is moved from Port Hueneme to Christchurch to await airlift to McMurdo. Commercial surface vessel shipment to Christchurch is the preferred transport mode for airlift cargo. Additional NSF approval is required to ship cargo from Port Hueneme to Christchurch via commercial air, and approval is based on the importance of accomplishing program objectives. In general, airlift cargo needs to arrive in Port Hueneme by 30 August. A link to the Packing and Shipping Instructions can be found at [www.usap.gov/usapgov/logistics/index.cfm?m=4](http://www.usap.gov/usapgov/logistics/index.cfm?m=4).

**Commercial air cargo.** If circumstances prohibit shipment by sea, ASC may be authorized by the NSF to ship your cargo by commercial air. Commercial air shipments need to provide sufficient benefit to warrant the added cost of this transport mode. This is the most expensive way to ship, and will be used only for essential material that cannot go by sea. Air cargo will not be authorized as a substitute for inadequate advance planning of material movements. ASC submits Air and Commercial Air Shipment requests to the NSF to gain authorization to use this mode of transportation.

**South Pole Station cargo.** Cargo to/from South Pole Station is transported almost entirely by LC-130 aircraft from McMurdo Station. These aircraft operate only from late October through mid-February. The station is isolated the rest of the year. ASC Science Cargo personnel in McMurdo and at South Pole determine cargo plans and schedules.

**Hazardous cargo.** Explosives, gases, flammables, oxidizers, poisons, radioactives, corrosives, and other hazardous materials are forbidden in personal baggage, mail or hand-carry and must be shipped as cargo. Hazardous cargo must be packaged, labeled, marked, and documented in accordance with the applicable federal, international, military, and U.S. Antarctic Program regulations. Contact the ASC Hazardous Cargo supervisor for more information.

**Emphasis on sea cargo.** The U.S. Antarctic Program is committed to maximize practical use of sea cargo – and to minimize use of air cargo, which is vastly more expensive. Shipping by sea is the preferred method for transporting grantee cargo and other materials to Antarctica. It is far cheaper than air cargo, and it is secure. Once your cargo is packed and labeled properly and on the ship, the next off-load stop is McMurdo Station. The ship also can be used to return gear and specimens to the United States.

Maximum use of sea transportation is possible only through planning by all concerned. Make every effort to allow sufficient time for shipment by sea. Plan to position cargo in Antarctica the season before field work.

**Transportation schedules** are available at [www.usap.gov](http://www.usap.gov) under the **Grantees Support Calendars and Schedules** link to facilitate cargo movement planning. Cut-off dates for shipping to the research vessels *Nathaniel B. Palmer* and *Laurence M. Gould* provide the dates when the cargo must be at Port Hueneme to meet the quoted delivery date at the ship. The R/V *Laurence M. Gould* is the primary vessel used to transport passengers and cargo between Punta Arenas and Palmer Station. The Continental Area Acquisition Schedule, located on the same website referenced above, provides the timeline for cargo movement to McMurdo and South Pole stations.

## Retrograde (Return) Science Cargo

Near the end of your stay in Antarctica, you will arrange to have your science cargo shipped to the United States with the U.S. Antarctic Program cargo representative at McMurdo Station or cargo personnel at Palmer or South Pole stations. This person will issue you the appropriate documents and accept the cargo for shipment. You are responsible for insuring, packing and crating the equipment, and for labeling the containers.

Use of ship, rather than air, cargo back to the United States, especially from McMurdo, is encouraged when the science will not be compromised by the slower delivery. Air cargo will be authorized when necessary.

Retrograde cargo is shipped to a U.S. entry point and onward to its ultimate destination. The grantee pays shipping costs from the U.S. entry point to the ultimate destination. Note that it is the shipper's responsibility to insure cargo against loss.

You are entirely responsible for any items you mail or hand-carry. All retrograde cargo will go by ship unless air shipment is fully justified and authorized by the NSF representative or designate at Palmer Station, or the NSF representative at McMurdo Station.

Refer to Chapter 6 for information on transporting personal cargo and boxes.

## TRAVEL WITHIN ANTARCTICA

Timeframes and transportation for work in remote locations is planned well in advance during the summer planning season. Working together, grantees, the NSF, implementers, and transport schedulers agree upon a field plan that is published in the Research Support Plan (RSP) six weeks before the participant deploys. All plans are subject to change given weather conditions and other unforeseen circumstances that may arise.

Any unauthorized travel on aircraft or ocean-going vessels may result in an employee's immediate termination and removal from Antarctica.

Grantees and ASC employees traveling to remote locations should read the **USAP Field Manual** available in PDF under the Travel and Deployment link at [www.usap.gov](http://www.usap.gov).

### Air Transport

Transportation to remote field camps is provided by fixed-wing aircraft, helicopters and ground transportation.

**Fixed-wing aircraft** include LC-130 ski-equipped airplanes, Baslers and smaller Twin Otter aircraft. LC-130s are operated by the 109th Airlift Wing of the New York Air National Guard. These airplanes provide heavy-lift capability to all inland stations, as well as Search and Rescue (SAR) for the entire continent. Science project team members must work with the science cargo staff to stage their cargo 72 hours before scheduled transport. Passengers must stage their personal luggage (except for one carry-on) the night before the scheduled flight. This is called "bag drag."

**Deep field camps** are managed by the ASC continental field manager.

**South Pole.** Grantees and employees traveling to the South Pole will coordinate their trip with the South Pole population specialist and the station supervisor at South Pole. Because of limited berthing, all participants going to this station must be approved by the NSF well in advance of the trip.

**Twin Otters** are twin-engine, high-wing aircraft, and **Baslers** are larger twin-engine low-wing aircraft, used for small field teams with moderate cargo loads deploying to more remote locations, generally without groomed landing areas. Science project team members must work with the science cargo staff to stage their cargo 72 hours before scheduled transport. The day of the flight, science team members and ASC camp staff will transport their personal bags to the airfield via the shuttle service where they will then assist the flight crews in loading the plane.

**NOTE:** Please provide accurate weights for all personal bags to the fixed-wing office.

**Helicopters** are used principally for logistical support in the Ross Island region and in the Dry Valleys. Anyone expecting to fly on a helicopter must attend safety and environmental training. Cargo capacity and range varies depending on the helicopter. Science team members work with the helicopter staff to arrange the cargo logistics.



photo by Peter Rejcek

*A Twin Otter at a deep field camp.*

For all airframes, hazardous cargo must be packaged and certified by U.S. Antarctic Program cargo personnel in accordance with applicable regulations. Detailed packing and planning guidelines, including field and mechanical equipment weights, are presented in the U.S. Antarctic Program Field Manual.

**Safety.** As with all operations in Antarctica, safety comes first. Mechanical problems and bad weather can delay missions.

- You must be manifested on any aircraft. Any unauthorized travel on aircraft may result in your removal from Antarctica.
- Be on time. Departures will not be delayed for persons arriving late.
- A brown bag flight lunch can be obtained by the passenger from the McMurdo cafeteria "grab and go" cooler prior to transport to the airfield.
- Do not consume alcoholic beverages before a flight. You will not be allowed to board the aircraft

if you appear to be under the influence of alcohol.

- Consumption of alcoholic beverages is not permitted onboard.
- You must wear certain items of the ECW clothing. The specific requirements will be posted in advance of your flight.
- Hazardous materials must be packed and certified by U.S. Antarctic Program cargo personnel. You may not carry unauthorized hazardous material in your baggage or on your person.

Anyone flying on a USAP aircraft (other than South Pole flights) must attend the Field Safety Training. More details on this are provided in Chapter 6. ■