

A stylized map of Indonesia is shown in dark blue against a white background. The text "ENVIRONMENTAL POLICIES" is centered over the island of Sumatra. A yellow triangle with a red dot is located in the upper right, and another yellow triangle is on the eastern coast of Sumatra. A dashed white line curves across the bottom of the map.

ENVIRONMENTAL POLICIES

Policy and Designations

Environmental stewardship and protection in Antarctica are essential. The U.S. is a signatory to the Antarctic Treaty (1959) and the Protocol on Environmental Protection to the Antarctic Treaty (Antarctic-Environmental Protocol; 1991). These agreements are implemented under the “Antarctic Conservation Act” (ACA; 16 U.S.C. 2401 et seq.).

The Antarctic Treaty sets Antarctica aside for peaceful purposes, primarily scientific research, cooperation and the exchange of information. The Antarctic-Environmental Protocol commits to comprehensive protection of the Antarctic environment, including a ban on commercial mineral exploration. Through its six annexes, it requires an environmental impact assessment of all proposed actions and the conservation of native fauna and flora, including management activities to limit introduction of non-native species. The Antarctic-Environmental Protocol also establishes procedures for waste disposal and waste management, prohibits marine pollution and establishes a process for area protection and management. USAP participants’ adherence to it relies on educational programs in each of these areas.

U.S. federal regulations implementing the ACA can be found in 45 C.F.R. §§ 641, 670–674. For more information, contact Antarctic Support Contract (ASC) Environmental at Environmental@usap.gov.

Antarctic Specially Managed Areas

Antarctic Specially Managed Areas (ASMAs) are areas in which careful planning and coordination are required to avoid activity conflicts, improve coordination among field parties and reduce the risk of cumulative environmental impacts.

There are two ASMAs that are typically visited on the continental side: McMurdo Dry Valleys (ASMA 2) and Amundsen-Scott South Pole Station (ASMA 5). Ensure you understand the management objectives and requirements for working there by reviewing the ASMA management plans on

the Antarctic Treaty website at <https://www.ats.aq/devph/en/apa-database>.

Antarctic Specially Protected Areas

Antarctic Specially Protected Areas (ASPAs) are areas designated to protect outstanding environmental, scientific, historic, aesthetic or wilderness values. This includes protecting ongoing scientific research from inadvertent disruption or contamination. ASPAs require an ACA permit to enter. As with ASMAs, it is your team's responsibility to ensure you know and abide by the rules of each ASPA, whose management plans are available on the Antarctic Treaty website at <https://www.ats.aq/devph/en/apa-database>.

Historic Sites and Monuments

In addition to ASPAs and ASMAs are Historic Sites and Monuments (HSMs) designated by the Antarctic Treaty. Information on HSMs can be found on the Antarctic Treaty website at <https://www.ats.aq/devph/en/apa-database>. **You are responsible for knowing the latest restrictions and guidelines for all locations you plan to visit.**

Visitor Site Guidelines

Visitor site guidelines provide specific instructions for conducting activities at frequently visited Antarctic sites. This includes practical guidance on visiting the sites, considering their environmental values and sensitivities. Permission to conduct recreational visits to sites with visitor site guidelines must be requested from NSF, and if approved, reported in your environmental end-of-season (EOS) report. For more information and a list of sites, visit <https://www.ats.aq/devAS/Ats/VisitorSiteGuidelines>. For more information on ASMAs, ASPAs or HSMs, visit the Antarctic Treaty website at <https://www.ats.aq> or contact the ASC Environmental team at Environmental@usap.gov.

ACA Permits

Without an ACA permit, it is illegal to (1) take native mammals, birds or terrestrial plants, (2) engage in harmful interference of native mammals, birds or terrestrial plants, (3) enter ASPAs, (4) introduce non-native species to Antarctica, (5) introduce substances to Antarctica designated as waste, (6) discharge designated waste or (7) import certain Antarctic items into the U.S. or export them to another country. It is important to know that the term “take” also applies to dead mammals or birds, including parts (e.g., teeth, feathers, bones) or eggs.

The processing time for an ACA permit averages three months. Violations of the ACA or conditions of a permit can result in fines. Research with marine invertebrates, marine plants or fish does not require an ACA permit if it does not occur within an ASPA.

An ACA permit is not needed for entry into an ASMA. However, personnel entering or working in an ASMA are required to know and follow the code of conduct specified in the applicable ASMA management plan. If there are questions regarding ASMAs, ASPAs or ACA permits, refer to the permit language, consult with the field supervisor or commercial project coordinator or contact the NSF ACA permit officer at ACApemits@nsf.gov.

Specimen Collection and Permits

Teams should refer to the project’s permit regarding specific specimen collection. The following applies to all research conducted in the Antarctic:

- Collecting souvenirs is not allowed. Do not remove any specimens from Antarctica, including feathers, rocks or shells, without an ACA permit and/or permission from NSF. This includes historical evidence of humanity’s presence (e.g., whale bones from early whaling expeditions).
- Do not take, handle or remove items that could potentially be historic artifacts. The Antarctic Treaty

guidelines state “[i]f there is uncertainty as to the age of a newly discovered historic artifact/site it should be treated as a pre-1958 artifact/site until its age has been established.” If a USAP participant finds something that **may** have historical significance, they must note the location with global positioning system (GPS) coordinates, take a photo of the artifact and notify the ASC Environmental team of the artifact’s presence at Environmental@usap.gov.

- The “Marine Mammal Protection Act of 1972” prohibits U.S. citizens from taking or importing marine mammals or parts of marine mammals into the U.S. without a permit. The take or harmful interference of marine mammals requires permits from both the National Oceanic and Atmospheric Administration and NSF.

Environmental Training

All personnel deploying to the field or conducting field work are required to attend environmental trainings provided at McMurdo Station prior to field deployment to ensure they understand what is expected under the ACA and the Antarctic Treaty.

Wildlife

Personnel must not interfere with wildlife unless they have an ACA permit to do so and are specifically trained for the activity being conducted. In general, always maintain a distance of at least three meters (15 feet) from animals. If an animal’s behavior is altered or disturbed, increase that distance. Incidental disturbance of wildlife is not allowed unless specifically permitted. This means that if your project is not wildlife focused, you may not disturb wildlife while conducting your project, including on any routes to access your field sites.

Highly Pathogenic Avian Influenza

Highly pathogenic avian influenza (HPAI) H5N1 outbreaks were first detected in the Antarctic Peninsula region in December

2023 and have occurred in subsequent seasons. While most outbreaks have concentrated around the Peninsula, there continues to be a high risk that HPAI will spread within the continent. In response, USAP requires enhanced biosecurity protocols in Antarctica, including prelanding surveillance, decontamination of boots and gear between wildlife colony visits, use of appropriate personal protective equipment when in contact with potentially infected animals, reporting of suspected HPAI outbreaks to the NSF Office of Polar Programs (OPP) Environmental team at OPP-ENV@nsf.gov and enhanced management of areas impacted by HPAI. The status of HPAI outbreaks in Antarctica may change rapidly, and certain USAP field activities may be impacted by HPAI outbreak status.

Non-native Species

No non-native plant or animal species may be introduced onto land, on ice shelves or into water in the Antarctic Treaty area, except in accordance with an ACA permit. To avoid introducing non-native species, personnel must clean all science gear and personal equipment before arriving in Antarctica. To avoid cross-contamination, personnel must also clean all gear and personal equipment before transiting between Antarctic field sites. If a suspected non-native species is observed in Antarctica, immediately report it to ASC Environmental.

Sample Site Markings and Equipment Installation

If a research group needs to mark sample sites, it must use reusable, recoverable flags. If flags cannot be used, the only acceptable paint marker is chalk paint, which can be washed or worn away. Prior approval for using paint markings must be obtained from the OPP Environmental team. If a group needs to install equipment with the use of mechanical fasteners (e.g., bolts drilled into rock), prior approval from the OPP Environmental team is required and use of such fasteners must be minimized.

Spill Prevention, Cleanup and Reporting

All fuels, chemicals and hazardous liquid wastes must be stored with secondary containment (e.g., berms). Where secondary containment is not feasible, employ best management practices to protect the environment from a release. These practices include regular inspections of all liquid stores during transport, using absorbent materials, using two people for transfers, ensuring spill response capabilities are available and using any other means as necessary or prudent.

Primary storage containers must be of durable construction and sealed when not in use. Appropriate secondary containment and spill kits must be available for any fueling operation to reduce the occurrence of spills. All spills of designated pollutants (e.g., fuel, glycol, transmission fluid) must be immediately reported upon discovery, regardless of the volume spilled. At camps with a camp manager, report spills directly to the camp manager. At McMurdo-based camps without a camp manager, report spills to Central Comms. All spills must be cleaned to the greatest extent practicable and disposed of through the hazardous waste system.

Waste Management

Releases of human waste or gray water are permitted only in accumulation zones (i.e., areas where snow and ice are thickening relative to the surrounding area). Releases onto sea ice, onto blue ice, into crevasses or on ice-free land are forbidden. Any release to the environment in the McMurdo Dry Valley ASMA or within ASPAs is also forbidden. All hazardous waste (e.g., fuel-contaminated material, lab waste, chemical containers, aerosols, radioactive material) requires special handling and labeling. Direct questions about hazardous waste management to the applicable station's Waste department.

Protocols may vary by camp type and location (e.g., if the camp is in or near an ASPA). In general, everything taken into the field must be brought out. Waste generated at field camps is removed by camp staff, grantees and support staff. It is

transported back to McMurdo for disposal. To expedite the camp takeout process, consolidate or compress items to make packing easier. See the Field Camp Operations section for more details on separating waste.

Hazardous Waste

The ACA has strict guidelines on hazardous waste, which requires special handling and labeling. Remove all hazardous waste from the field at the end of each season. The following are examples of hazardous waste:

- Fuel and fuel-contaminated material
- Lab waste
- Chemical containers
- Aerosols
- Radioactive material
- Batteries
- Biohazardous waste

Human Waste

Human waste must not be discharged onto ice-free land, onto sea ice or in blue ice areas. Discharge can occur only in snow accumulation areas and only if permission has been obtained first.

Discharging urine on land is not allowed anywhere in Antarctica. If urine discharge is specifically approved, it may be discharged only to the subsurface (e.g., into a pit or hole). Personnel must carry and use a pee bottle when bathrooms or outhouses are unavailable. **Used pee bottles must be emptied and cleaned by the user upon return and before they leave the station.** McMurdo Station has dedicated pee-bottle cleaning stations at the Science Support Center (SSC) and BFC.

Human waste and gray water must be returned to McMurdo Station. For planning purposes, the table below provides estimates of volumes generated. Typically, human waste

is collected in five-gallon buckets lined with plastic and sometimes biodegradable bags. The bags are then placed into a five-gallon drum, and the plastic buckets continue to be used throughout the season.

Bucket Use Rates

Waste	Container	Persons/Days
Human Solid Waste	one 5-gallon bucket	5 people for 5 days (minimum)
Urine	one 5-gallon bucket	1 person for 5 days
Gray Water	one 5-gallon bucket	1 person for 5 days

Environmental EOS Report

At the conclusion of field activities, all field-going USAP-supported science groups must submit an environmental EOS report to Environmental@usap.gov. ASC Environmental will contact groups that must complete an environmental EOS report. Groups can also email the department at Environmental@usap.gov to receive a copy of the Microsoft Excel template for the report. To ease the process and increase accuracy, populate the report with information throughout the season.

The following information must be tracked and quantified in the EOS report: camp site location and information, fuel use, hazardous materials used, waste disposition, scientific equipment installed, materials remaining and any spills. See the template for specifics. If desired, ASC Environmental will also provide one-on-one training before field deployment on how to complete the EOS report.

