

Antarctica Tourism (ANTARCT)

CASE NUMBER: 80
CASE MNEMONIC: ANTARCT
CASE NAME: Antarctic Tourism Impacts

A. IDENTIFICATION

1. The Issue

A few decades ago no one would have dreamed of spending their vacation at the world's coldest and most desolate place: Antarctica. Times have changed. As early as the late 1950s, organized tourism to Antarctica began. In recent years, the growing number of tourists has placed increasing strains on Antarctica's ecological systems. Tourism affects the Antarctic in three principle ways. First, they interfere with very delicate science that is carried out on the continent by researchers from around the globe. Second, they had an impact on the unique environment and ecosystem. Third, they pose a potential hazard to themselves, as accidents and people getting lost in this wilderness are not uncommon, and the research bases simply do not have the resources or time to provide large-scale search and rescue efforts.

While the specific environmental impacts of tourism are still debated, it is possible to examine what many scientists have feared for years: humans are ruining Antarctica.

2. Description

In 1989, the issue of tourism in Antarctica was pushed to the forefront of scientific discussion. The reason: the grounding of an Argentine supply vessel carrying more than 80 tourists. Considering that most tourists to the Antarctic are from the United States, it could not have happened at a worse time in a worse place. Just as scientist and tour companies were beginning to discuss the future of tourism in Antarctica, the freighter Bahia Paraiso, carrying 250,000 plus gallons (946,350 liters) of diesel fuel, rammed itself onto some rocks less than 2 miles (3 kilometers) from Palmer Station, the U.S. research base on Anvers Island.

For most people, Antarctica is a thin white strip on the bottom of their maps. Actually, it is a 5.4 million-square mile (13.9 million square kilometers) disk, almost completely covered by ice that averages 1.9 miles thick (3 kilometers), locking up 90 percent of the world's fresh water. The Antarctic peninsula trails off one side of this disk, reaching to within 620 miles (1000 kilometers) of South America and shadowed by a scattering of islands. It is here, in a comparatively balmy climate, where summer temperatures can reach 60F (15C), that most of the Antarctic wildlife gathers.

It is these very pristine features -- plus a concentration of wildlife and relatively easy access to the rest of the world via South America -- that attract research stations. For these same reasons, this is also where tourism concentrates.

Tourism in Antarctica is a growth industry. The first cruises to the Antarctic Peninsula took place between 1959 and 1962. During the 1960s and 1970s, the number of tourist cruises to the region increased, and there were regular sightseeing flights over the land. These flights ended suddenly after an Air New Zealand

aircraft crashed on Mount Erebus in 1979, but fly-overs are beginning again in the Atlantic and Ross Sea sectors. In the 1970s only a trickling of people made their way to the continent, but by 1988, more than 800 visitors had made the ice cap their vacation destination. A record of 6,600 people visited Antarctica during the austral summer of 1992-93 (November-March), and nearly 8,000 visitors were expected for the 1993-94 season.

It is not entirely clear what kind of impact tourists are having on Antarctica, and it seems that no clear cut answer will be found soon, as scientist and tour guides, visitors and members of Congress continue to debate the question. However, several possible effects can be pinpointed and discussed.

The first argument comes from scientists and researchers. Partly because of its dangers, but primarily because of its scientific and ecological importance, many scientists feel that Antarctica should be dedicated to research only. During the austral summer, there are some 3,500 scientists and support personnel manning 38 research bases; this gives a ratio of eight tourists to every three scientific personnel. Antarctica has the lowest population density on earth and those working there would like to keep it that way. The official argument is that tourists are unwanted interlopers who siphon off valuable time and resources when visiting the research stations and interfere with experiments and research facilities. With a great deal of laboratory work being done, heavy emphasis is placed on controlled experiments, including temperature. Sometimes, by simply opening a door, one may wreck an experiment. Some experiments may be sensitive to vibrations, which is a problem if somebody accidentally bumps an instrument.

There is some validity to the charge that unstructured visits by tourists can interfere with scientists' schedules. With such a short season, any undue time away from the lab or the field can mean missed opportunities. An occasional visit by a cruise ship is a welcome break from routine for researcher bases, but it can be a burden when cruise ships carrying between 80 and 450 visitors stop twice a week at a place like Palmer Station, a U.S. base that has a maximum summer compliment of 45. The tourists' stops there became so disruptive to the staff during the 1989-90 season that officials refused to let visitors from some cruise ships into the buildings.

Another charge often hurled at tourists is that they wreak havoc on the Antarctic environment. It has been suggested groups, such as Greenpeace that tourists litter beaches, stress animals and destroy delicate mosses and lichens that will take a century to grow back. Worse yet, a cruise ship accident, such as that of the Bahia Pairiso in 1989, could cause a catastrophic oil spill that would have disastrous effects on the environment and would also pose serious cleanup problems.

The vast oil slick caused by the grounding of the ship killed thousands of krill, the tiny shrimp-like crustaceans that are a major food source for fish, birds and whales, and actually is the base of the Antarctic food chain. Cormorants that normally feed on the krill apparently ingested oil while preening themselves, and many died when their stomachs hemorrhaged. Oil soaked penguins froze to death, and nearly all of the skua chicks in the area died as a result of the oil. Equally troubling was the effect the spill had on scientific research. For example, a five-year project on kelp gulls or penguins was seriously disrupted. Also, scientists have noticed changes in animal behavior after the spill. It could be something as simple as acting a bit differently or their timing

or productivity being off. While scientists admit it may or may not be a result of the oil: they simply do not know. An event such as the oil spill can take several years before the ramifications are truly known. In the meantime, certain experiments are all but lost.

Tourists leave permanent marks on the environment in the form of trash and garbage they leave behind. This is a hotly debated item, as some scientists claim the only pollution problems in Antarctica result from the permanent visitors. On the shore of Cape Royds, about 20 miles up the coast from a U.S. base at McMurdo Sound, stands the hut built in 1907 by British explorer Ernest Shackleton. For insulation, food supplies were stacked along the outside wall. They are still there, with labels plainly legible and contents unspoiled after more than eight decades' exposure to the weather. In an environment where temperatures can reach as low as -70 centigrade in the winter, it is well understood that nothing decomposes.

Each year, more than 2,000 million tons of cargo and food and seven million gallons of petroleum products are transported to U.S. bases in Antarctica alone. Virtually all these materials are ultimately disposed of there as well. At most research stations, neither sewage treatment nor controlled incineration is required, resulting in vast garbage dumps, raw sewage being pumped into the ocean, and urine being placed in 55 gallon drums and being dropped off ships only a short distance from shore. Other drums containing waste oil are deposited in one of the makeshift landfills, have sprung leaks, and are spilling the waste into streams that flow directly into McMurdo sound. While some agreements exist with regard to waste disposal, most have been ignored by those countries with research bases in Antarctica. Only recently, under pressure from environmental groups, have concerted efforts begun to clean up the landscape.

While environmental groups and governments who are party to various treaties on Antarctica debate the merits of tourism, it is clear that the industry is going to continue growing. As recently as 1991, seven North American tour operators banded together and established an association aimed at promoting tourism as well as environmental protection in Antarctica. The association set its own guidelines with regard to tourism, and expects that all visitors traveling through one of their charter member tour operators will adhere to the guidelines, in addition to hoping that other operators will do the same. The International Association of Antarctic Tour Operators (IAATO) has determined that a maximum of 100 visitors at a time should be allowed on shore in Antarctica.

The IAATO sees no problem in implementing their guidelines, especially considering the costs of most tours. Most visitors pay anywhere between \$10,000 and \$15,000 each for a complete tour package. It makes sense, then, that most tourists tend to be wealthy and influential. Because of the type of visitors Antarctica attracts, many groups, such as the IAATO hopes that they will serve as goodwill ambassadors for the preservation of the delicate environment.

3. Related Cases

Key Word Clusters

- | | |
|---------------------------|-------------------------|
| (1) Trade Product | = TOURism |
| (2) Bio-geography | = POLAR |
| (3) Environmental Problem | = Pollution Land [POLL] |

4. Author: James Grall

B. LEGAL Clusters

5. Discourse and Status: DISagreement and INPROGress

While it is largely agreed that the environment is seriously endangered by scientific as well as tourist related activities, no official agreements or treaties exist with regard to regulating the tourism industry. Several international treaties do exist which lay out guidelines for scientific activities in Antarctica and which aim to protect the continent.

6. Forum and Scope: TREATY and MULTILateral

Due to the fact that Antarctica is a "land without a country," the forum for imposition of guidelines, regulations, etc. is multi-lateral in scope. Some federal governments, e.g. the United States Congress, have moved to enact legislation that will set laws and regulations for that country's specific bases. This type of regulation is not binding on other parties in Antarctica.

7. Decision Breadth: 16

From 1908 to 1943, the United Kingdom, New Zealand, France, Australia, Chile and Argentina, in that order, laid claim to 85 percent of Antarctica. These claims were based at least in part on early explorations and scientific expeditions. The United States and the Soviet Union declined to claim specific portions of the continent based on their early activities in the region and never recognized the territorial sovereignty of the seven claimant states. Moreover, the claims of several countries, including Chile, Argentina and the United Kingdom overlap. The 1940s and 1950s saw various flare-ups among the states with overlapping claims in Antarctica, as well as conflicts between the United States and Soviet Union during the height of the Cold War. Several working groups and cooperative procedures among the countries involved evolved into the Antarctic Treaty that was signed on December 1, 1959, and entered into force on June 23, 1961. The treaty has two primary objectives: (1) to maintain Antarctica for peaceful uses only, prohibiting all military activities, weapons testing, nuclear explosions and disposal of radioactive waste and (2) to promote freedom of scientific investigation in Antarctica and international cooperation to that end.

As now, 16 decision-making or "consultative" states are party to that treaty. Any country that has acceded to the treaty can become a consultative party during such time as it demonstrates interest in Antarctica through establishment of a scientific station, dispatch of a scientific expedition or other substantial activity. Sixteen more countries have acceded to the treaty but do not hold "consultative status."

The 12 original signatories were: The United Kingdom, South Africa, Belgium, Japan, United States, Norway, France, New Zealand, Soviet Union, Argentina, Australia, and Chile. As of February, 1993, there were 41 members of the Antarctic Treaty System. Parties to the Treaty in addition to the original signatories include: Poland, Germany, Brazil, India, China, Uruguay, Sweden, Italy, Spain, Finland, Peru, Korea, Netherlands, and Ecuador, among others.

Since the signing of the Antarctic Treaty in 1959, other treaties and conventions that deal with the Antarctic, albeit not necessarily with tourism, have been concluded. These include:

- * 1972 - Convention of the Conservation of Antarctic Seals
- * 1980 - Convention of Antarctic Marine Living Resources
- * 1982 - United Nations Law of the Sea Convention
- * 1988 - Convention of the Regulation of Antarctic Mineral Resource Activities (The Madrid Protocol)

In addition to the countries listed above, several Non-Governmental Organizations have taken a stake in the protection

of Antarctica. Some of these include the following.

- * International Institute for Environment and Development (IIED)
- * International Union for the Conservation of Nature and Natural Resources (IUCN)
- * Antarctic Project and the Antarctic and Southern Ocean Coalition (ASOC)
- * World Meteorological Association (WMO)
- * Intergovernmental Oceanographic Commission (IOC)
- * Food and Agriculture Organization (UN - FAO)

8. Legal Standing: TREATY
- C. GEOGRAPHIC Clusters
9. Geographic Location
 - a. Geographic Domain: ANTARCTica
 - b. Geographic Site: ANTARCTica
 - c. Geographic Impact: ANTARCTica

The geographic domain and site of the dispute and activity is confined to the continent of Antarctica. However, the continent has a profound impact upon the entire planet. Scientists estimate that 70 percent of the world's fresh water is locked away in Antarctica's icecap, and, if it were ever to melt, sea levels might rise by as much as 200 feet, inundating coastal lands together with their major cities. The continent's vast ice fields reflect sunlight back into space, preventing the planet from overheating. The cold water that the breakaway icebergs generate flows north and mixes with equatorial warm water, producing currents, clouds, and ultimately creating complex weather patterns. The frigid waters that lap the continent's edge are home to species of birds and mammals that are found nowhere else on earth. The 1984 discovery of a longtime gap high over the South Pole in the ozone layer that protects the planet from the sun's harmful ultraviolet rays makes Antarctica a pivotal center for climate research and an early warning system for possible global warming (see [See MONTREAL Case](#) case).

Thus, it is clear that any significant change in Antarctica, even over hundreds of years, will undoubtedly affect the rest of the planet.

10. Sub-national Factors: NO
11. Type of Habitat: POLAR
- D. TRADE Cluster
12. Type of Measure: REGSTD

The issue of environmental impact of tourism and even of permanent scientists and researchers is a complex one. The types of measures that could be implemented to deal with the tourists problem are licensing of tour operators, guides, etc., limiting the number of tourists allowed to visit Antarctica, and regulatory standards.

13. Direct vs. Indirect Impacts: DIRECT
14. Relation of Trade Measure to Environmental Impact
 - A. Directly Related: YES Tourism
 - B. Indirectly Related: NO
 - C. Not Related: NO
 - D. Process Related: YES HABITat Loss

One would like to think that any sort of measure aimed at restricting the flow of tourists to Antarctica will improve the current state of environmental degradation. However, the problem is twofold. First, it appears as if Antarctica simply cannot handle the amount of people that are visiting each year. One must keep in mind that Antarctica has no infrastructure to speak of, and has been designed almost solely as a research base. Secondly,

the behavior of people is a problem. In other words, the amount of visitors can be regulated, but unless they act more responsibly while in Antarctica, there will still be adverse environmental impacts.

15. Trade Product Identification: TOURism

The product is tourism, which includes travel agents, flights, boats, hotels restaurants, embarkation fees, miscellaneous fees, etc.

16. Economic Data

17. Impact of Measure on Trade Competitiveness: LOW

18. Industry Sector: Services

19. Exporters and Importers: MANY and ANTARctic

E. ENVIRONMENTAL Clusters

20. Environmental Problem Type: HABITat Loss

The environmental problems facing Antarctica fall into the categories of species loss, pollution and global climate change. The influx of tourists and scientists alike has led to the general destruction of the habitat in Antarctica.

21. Name, Type, and Diversity of Species

Name: Many

Type: Many

Diversity: NA

The following species might be impacted by substantial increases in tourism.

Weddell Seals - *Lepronychotes Weddelli*

Crabeater Seals - *Lobodon carcinophagus*

Leopard Seals - *Hydrurga leptonyx*

Arctic Fulmar Albatross - *Fulmarus glacialis*

Southern Giant Fulmar Albatross - *Macronectes giganteus*

Baleen Whales - *Cetacea Mystacoceti* (Six Species)

Toothed Whales - *Cetacea Odontoceti* (Six Species)

Skua Gulls - *Choradriiformes stercoraniidae*

Dolphin - *Cetacea Delphinidae*

Penguin - Emperor - *Aptenodytes forsteri*

- King - *Aptenodytes patagonica*

- Adelie - *Pygoscelis adeliae*

- Chinstrap - *Pygoscelis antarctica*

Petrel - *Thalassoica antarctica*

Cormorant - *Phalacrocuraz harrisi*

Shearwater

Sheathbill - *Charadriiformes chionidae*

Krill

Plankton - *Euphausia superba*

22. Resource Impact and Effect: LOW and PRODUCT

Pollution problems in all are rather low. None of the animal species face extinction because of scientific or tourist activities. However, this is not to dismiss the devastating effects these groups have upon animal life. The problems of waste and pollution, as well as oil spills have been discussed at length.

These problems pose the main threat to the depletion of animal resources on the continent.

23. Urgency and Lifetime: MEDIUM and 100s of years

The urgency of the problem in Antarctica is hotly debated. While most governments have admitted that their practices at research stations have severely polluted the environment, no one can seem to agree on the complete impact of Antarctic tourism.

24. Substitutes: Ecotourism [ECOTR]

No substitutes for these species exist. No substitutes for "natural experiences" of Antarctica exist, but tourist impact

could be far less.

F. OTHER Factors

25. Culture: YES

This constitutes a unique opportunity for humans and a special experience.

26. Trans-Boundary Issues: NO

27. Human Rights: NO

28. Relevant Literature

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[ENDNOTES WILL BE ADDED]

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