

A POLICY FOR ANTARCTIC TOURISM: CONFLICT OR COOPERATION?

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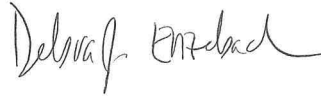
DECLARATION

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Cambridge, June 1991

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Abstract

The Antarctic tourism industry is described and assessed. Tourist numbers are established. The regulatory framework for Antarctic tourism is explained and problems for policy makers are identified. Tourism policies of the British Antarctic Survey, United States Antarctic Program and other Treaty Parties are reviewed to reveal problems which arise when national science programs and tour operators attempt to coexist in Antarctica. Faraday Base (UK) is offered as a case study of tourism's effect on an Antarctic scientific research station. The nature of conflict and cooperation between National Antarctic Programs and tourist operations in Antarctica is explained and conclusions are drawn.

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Foreword

"Travel for pleasure - otherwise known as tourism - makes up two-thirds to three-quarters of all world travel by volume; far more to some destinations." (Elliott, 1991, p. 4). American Express recently commissioned a consulting firm, WEFA, to assess the world's travel and tourism industry. The results name 'travel and tourism' as the biggest industry in the world. 1987 sales reached \$2 trillion with 6.3% of the global workforce involved. Figures from the World Tourist Organization (WTO), a United Nations agency, broadly confirm those of WEFA (ibid., p. 5). The trend to travel to all parts of the globe continues and this study addresses one specific segment of the tourist industry, tourism in Antarctica.

"Antarctic tourism has increased rather dramatically over the past five years." (Manheim, 1990, p. 1). The number of tourists visiting Antarctica increased by more than 600% between 1985 (782 tourists) and 1990 (4842 tourists) (Table 2.2). "More than 50% of total international travel expenditure is accounted for by nationals of just five countries: Germany, America, Britain, Japan and France." (Elliott, 1991, p. 5). Statistics regarding the nationalities of tourists visiting Antarctica are difficult to gather with great accuracy, but existing evidence (as reported in the annual exchanges of information provided for under terms of the Antarctic Treaty and tour operator cruise attendance lists), tends to support this trend. At present, Americans comprise the largest percentage of Antarctic tourists (Beck, 1990b, p. 346), which may in part be attributed to the marketing strategies of existing Antarctic tour operators as well as other

factors including size of disposable income, opportunity, and size of the U.S. population base.

While it is difficult to gauge the rate at which Antarctic tourism may increase, "the WTO now projects that international tourist arrivals will grow by about 4.2% in the 1990s." (Elliott, 1991, p.4). This growth was not explained further but probably represents an average annual rate of growth (Elliott, personal communication). Tourism trends are likely to be affected by the rise in percentage of those within a population aged over 55. Their impact on the travel business overall is expected to be considerable. Also, "some specific kinds of holiday will benefit - cruises, for example." (Elliott, 1991, p.9). "Mainly, however, the ageing of the population will just add to the demand for holidays." (ibid.). Past and present numbers of Antarctic tourists are estimated and examined in chapter two of this study.

The impact Antarctic tourism as an industry has on National Antarctic Programs is very real and as such has been addressed within the framework of the Antarctic Treaty System (ATS). "Massive though it is, the [global tourism] industry is unloved, and knows it." (Elliott, 1991, p.5). Antarctic tourism may be in its infancy but its implications for National Antarctic Programs continue to vex Antarctic policy planners. In attempting to assess the current size of the Antarctic tourism industry it is important to bear in mind the problems, whether real or perceived, which influence the thinking of Antarctic policy planners. These problems create a barrier to a unified tourism policy agreed by all Antarctic Treaty Parties (ATPs).

Commercial cruiselines currently bring the greatest number of tourists to Antarctica. From the 1982-83 austral summer season through the 1990-91 season more than 92% of known tourists traveled to Antarctica by seaborne vessels. During the latest season, 1990-91, this figure climbed to more than 97% (Table 2.2). Airborne services have increased the total number of tourists which visit the Antarctic, but at present aircraft bring far fewer tourists to Antarctica than seaborne vessels.

As yet, no comprehensive management plan or uniformly applied tourism policy has been devised to address the needs posed by increasing numbers of tourists visiting the Antarctic. This study describes the nature of Antarctic tourism and the number of tourists involved (past and present), and assesses the extent to which the self-regulatory nature of the Antarctic tourism industry has satisfied existing guidelines and policy measures devised by ATPs and Antarctic tour operators. National Antarctic Programs vary in their approaches to tourism and these differences can create conflict within the Antarctic Treaty System. Conflict also arises when tourist operations disrupt Antarctic science programs. Conflicts over tourism issues need to be identified and minimized if cooperation is to prevail.

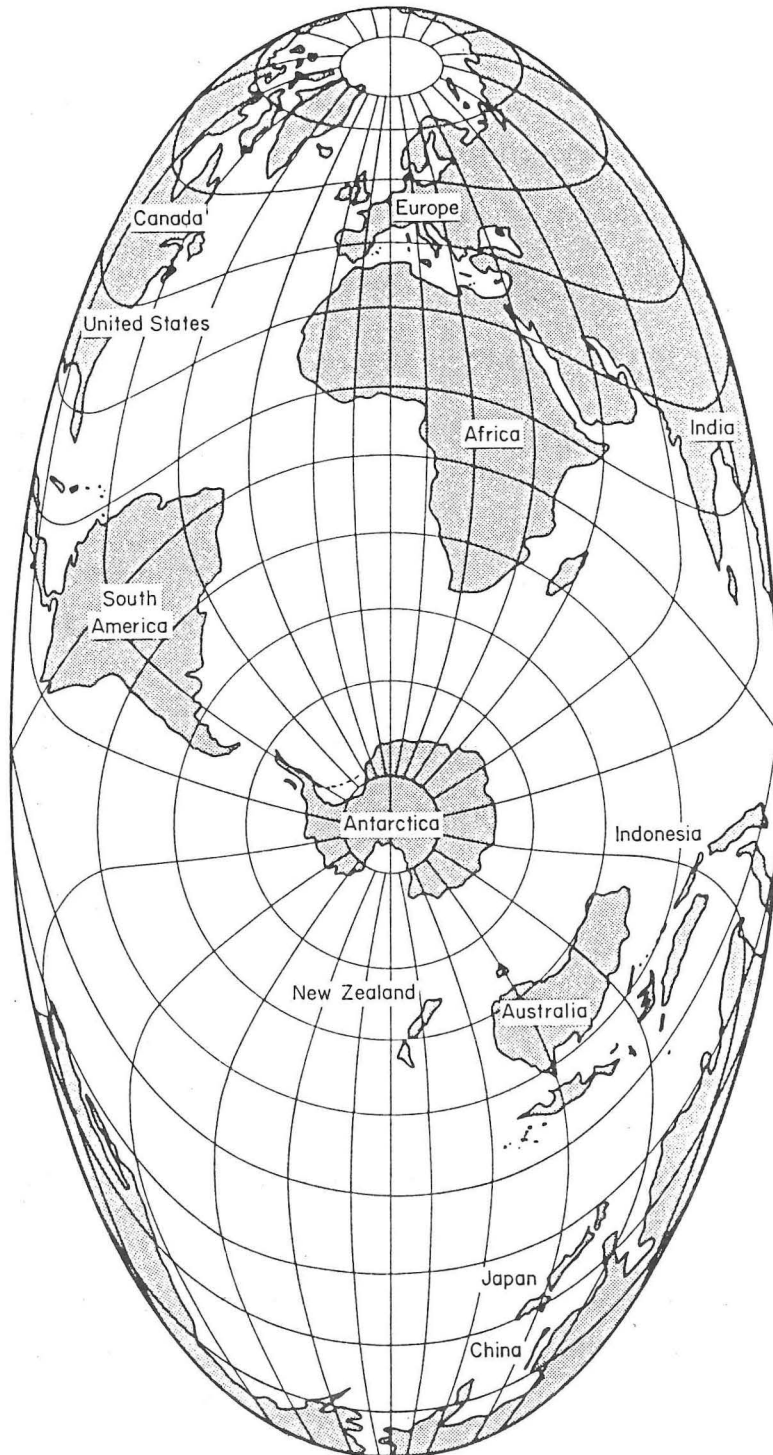
Chapter 1 The Antarctic tourism industry: definitions and parameters

1.1 Antarctica as a tourist destination

Antarctica is unique among the world's continents. Its fragile environment can be better appreciated when its remote geographical location (Figure 1.1) and lack of an indigenous population are considered. "The Antarctic was totally devoid of human presence until it was discovered and its exploration began some 150 years ago." (Wilkniss, 1989, p.44). Nearly 98% of Antarctica is covered with ice; the remaining 2% provides breeding and nesting grounds for the abundant wildlife found in this part of the world, including seals, penguins and other seabirds. Covering 14 million km², Antarctica is twice the size of Australia and roughly as large as the U.S. and Mexico combined.

Tourists are drawn to Antarctica for a variety of reasons. Some have heard of its wonders from previous visitors or have seen photos and/or films depicting the natural beauty of the continent. Media attention on Antarctica has increased in recent years. The greenhouse effect, depletion of the ozone layer, other environmental concerns and private adventure expeditions have all played a role in enhancing Antarctica's media profile. As a result, many more people will have become aware of Antarctica as a tourist destination. Others may have read accounts from the continent's early explorers and desire to see such inhospitable terrain firsthand. Still others may "not have scientific ability or other suitable skills to enable them to work in the Antarctic, and they therefore have sought other means to see the continent for themselves." (Reich, 1979, p.17). Affluent

Figure 1.1. Map of Antarctica in relation to the world. Source: Beck, 1990a, p. 249.



travelers may simply wish to check off Antarctica on their list of continents to visit.

One early reference to the bringing of tourists to the continent appeared in a New Zealand newspaper on 4 November 1910. The (Christchurch) Press reported that, "There is a possibility of the Antarctic regions being visited by a party of tourists next year" (Antarctic, 1966a, p.292). Thomas Cook Travel was unable to confirm that the trip ever took place (Swinglehurst, 1991). Passengers were reported to have been aboard the *Fleurus*, the Falkland Islands Dependencies Government Mail Service vessel, which sailed regularly between the Falkland Islands, South Georgia and the South Shetland Islands from December 1924 until 1933 (Headland, 1989, p.273). Also, in 1933, a party of tourists was reported to have sailed in *Chaco*, an Argentine naval vessel dispatched to relieve a meteorological station on Laurie Island, South Orkney Islands (ibid., p.292).

Antarctica emerged as an established tourist destination only 35 years ago. Once the continent was opened up for scientific purposes and it was clear that a continual presence would be maintained by ATPs, the tourism industry was quick to add Antarctica to the list of new tourist destinations. The first Antarctic tourist flight was made by the Chilean National Airline in a Douglas DC 6B with 66 passengers on 22 December 1956 (Headland, 1989, p.363). The first commercial flight to land in Antarctica was a Pan American Boeing Stratocruiser which departed Christchurch, New Zealand for McMurdo Sound on 15 October 1957 (ibid., p.371). From 1958-59, Argentina and Chile ran four tourist cruises and more than 500 tourists to the South Shetland Islands (ibid., pp.379 and 385).

Cruise ship tourism resumed when the first American tourist cruise to the Antarctic was offered by Lindblad Travel of New York aboard the chartered Argentine Navy vessel *Lapataia* during January-February 1966 (Headland, 1989, p. 432). Lindblad began to run regular cruises to the Antarctic after the initial success of the *Lapataia* excursion. In 1977, Qantas (Australia) and Air New Zealand (ANZ) offered overflights of the Antarctic continent. After an ANZ DC-10 crashed on Mt. Erebus (Ross Island) on 28 November 1979, with no survivors amongst the 257 passengers and crew, ANZ tourist overflights soon ceased. The last Qantas tourist flight over Antarctica was made on 16 February 1980 (ibid., p. 526). A list of acronyms and abbreviations used in this text appears in Appendix 1.

During the 1980s, Lindblad Travel and Society Expeditions, both American tour operators, offered the majority of cruises to Antarctica and the Argentinians began regular cruises aboard the *Bahía Paraíso*, a naval resupply vessel. During the 1983-84 season the Chileans began annual tourist flights from Punta Arenas to Teniente Rodolfo Marsh Station (62°12'S, 58°54'W) on King George Island, South Shetland Islands. These tourists were accommodated there in the first Antarctic 'hotel' (Headland, 1989, p. 562). Adventure Network International (ANI), based in Vancouver, B.C., has organized expeditions using ski-equipped aircraft, ships and skis to many destinations in the Antarctic since 1984 (Swithinbank, 1988; ANI, 1991). A record nine month flying season (July-April) was achieved by ANI during 1989-90 operations (Swithinbank, 1990). Tourists currently have a wide-ranging choice of land or sea-based services if Antarctica is their travel destination.

1.2 Definition of tourist and description of area under study

A tourist is here defined as any visitor to the Antarctic who is not affiliated in an official capacity with an established National Antarctic Program. Off-duty Antarctic personnel may, in effect, act as tourists; equally, VIP's and distinguished visitors may be considered to be tourists even though they travel to Antarctica at the invitation of a host government having a research facility in the Antarctic, but they will not be included in the count of tourists made herein. Nor will observers on Antarctic inspection teams who visit sites officially.

Tourists include all known fare-paying passengers whose numbers are usually reported by established Antarctic tour operators, private expeditions and adventurers aboard sea or airborne vessels described in Section 1.3. Tour operator crew and staff members will be reported when known (Table 1.1), but will not be counted in estimates of the overall size of the Antarctic tourism industry (Chapter 2).

The area under discussion in this study, delimited in Article VI of the Antarctic Treaty, is the area south of 60° South Latitude (Heap, 1990a, p. xiv). Places outside of the Treaty Area are referred to in descriptions of the nature of Antarctic tourism, but only for comparison.

1.3 Modes of travel to and within Antarctica

The modes of transportation that have been or are currently available for travel to the Antarctic include private, government, charter or commercial aircraft and seaborne vessels, including cruiseliners and yachts. Table

1.1 provides a list of seaborne tour vessels which have operated in Antarctic waters.

Once tourists arrive in the Antarctic, several additional methods of transportation are available depending on the nature of the tourist visit. Tourists may travel on foot, skis, snow machines, wheeled and over-snow vehicles, in Zodiacs, helicopters or aircraft to destinations in and around the Antarctic continent. When compared to overflights which do not allow tourists to set foot on the continent, the logistical difficulties entailed in offering the current range of choice to tourists may be better appreciated.

Inflatable Zodiacs, sturdy expeditionary boats that make it possible to explore nearly any shore, have proved to be indispensable to cruise operators. They provide safe and reliable transport to inaccessible areas, and limit the number of tourists landing at a particular site at any given time. At locations where visitor impact is carefully scrutinized, this capability is crucial. Carrying an average of 12-14 passengers, Zodiacs land directly onto beaches and extend the range of cruise ships by allowing tourists to see sights of interest they would not otherwise be able to see (Society Expeditions, 1991a, p.6).

Adventurers and expeditioners have used skis, dog teams, sledges, over-snow vehicles, snow machines, and even parachute sails to travel on or across the continent (National Geographic, 1990, pp.94-5). Helicopters also extend the range of travel possibilities for tourists in Antarctica. "It is only a short step now for ships with helicopter capabilities, like the *Frontier Spirit*, to be spiriting tourists in helicopters into the Dry Valleys" (Antarctican Society, 1991, p.8). ANI confirmed that plans to

Table 1.1. List of tour vessels operating in Antarctic waters (past and present).

Note: Tour operator affiliations are subject to change and often several tour operators have used the same vessel during one austral summer season.

N/A - information not available

SHIP NAME	TOUR OPERATOR	TOURIST CAPACITY	CREW SIZE	NOTES
<i>Antonina Nezhdanova</i>	Lindblad Travel	100	100	
<i>Aquiles</i> (renamed <i>Pomaire</i>)	N/A	40	40	
<i>Bahia Buen Suceso</i>	Transportes Navales (Arg)	70	N/A	
<i>Bahia Paraiso</i>	Antartur S. R. L. (Arg)/ Mountain Travel/ Condor Expeditions	65	124	
<i>Cabo San Roque</i>	Ybarra (Spain)	800	N/A	
<i>Cabo San Vicente</i>	Ybarra	800	N/A	
<i>Capital Luis Alcazar</i>				
<i>Enrico C</i>	Costa Lines (Italy)	700	N/A	
<i>Frontier Spirit</i>	Salen Lindblad Cruising	184	80	helo pad
<i>Illiria</i>	Lindblad Travel/ Discovery Tours/ Travel Dynamics	125	85	
<i>Lapataia</i>	Lindblad Travel	58	N/A	
<i>Les Eclaireurs</i>	Transportes Navales (Arg)	100	N/A	
<i>Libertad</i>	Direccion Nacional del Turismo (DNdelT) and Empresa Lineas Maritimas Argentinas (ELMA)	400	N/A	
<i>Magga Dan</i>	Lindblad Travel	25	N/A	
<i>Navarino</i>	Empresa Maritima del Estado (Chile)	84	N/A	
<i>Neptune</i>	Forum Travel International	40	N/A	
<i>Nordbrise</i>	Mountain Travel	39	10	
<i>Ocean Princess</i>	Ocean Cruise Lines	480	250	
<i>Piloto Pardo</i>	(Chile)	46	N/A	
<i>Polar Circle</i>	Travel Dynamics	120	45	helo pad
<i>Pomaire</i>	Marinsular/ANI	40	40	
<i>Regina Prima</i>	DNdelT and ELMA	474	N/A	
<i>Rio Baker</i>	Sobek Expeditions/ANI	22	N/A	
<i>Rio Tunuyan</i>	DNdelT and ELMA	394	N/A	
<i>Society Explorer*</i>	Society Expeditions	110	60	
<i>World Discoverer</i>	Society Expeditions	150	75	
<i>Yapeyu</i>	Transportes Navales (Arg)	260	N/A	
<i>Yelcho</i>	(Chile)	40	N/A	

*formerly *Lindblad Explorer*

Sources: (USAP, 1986-9), (USAP, 1990a), (USARP, 1983-5), (Reich, 1980), (Chile, 1988), (Chile, 1990), (U. S. Department of State, 1986b-e), (U. S. Department of State, 1989), (Rieber Shipping A/S, 1990?), (Colwell, 1991), (La Prensa, 1991), (Monteiro, 1991), (Society Expeditions, 1991a).

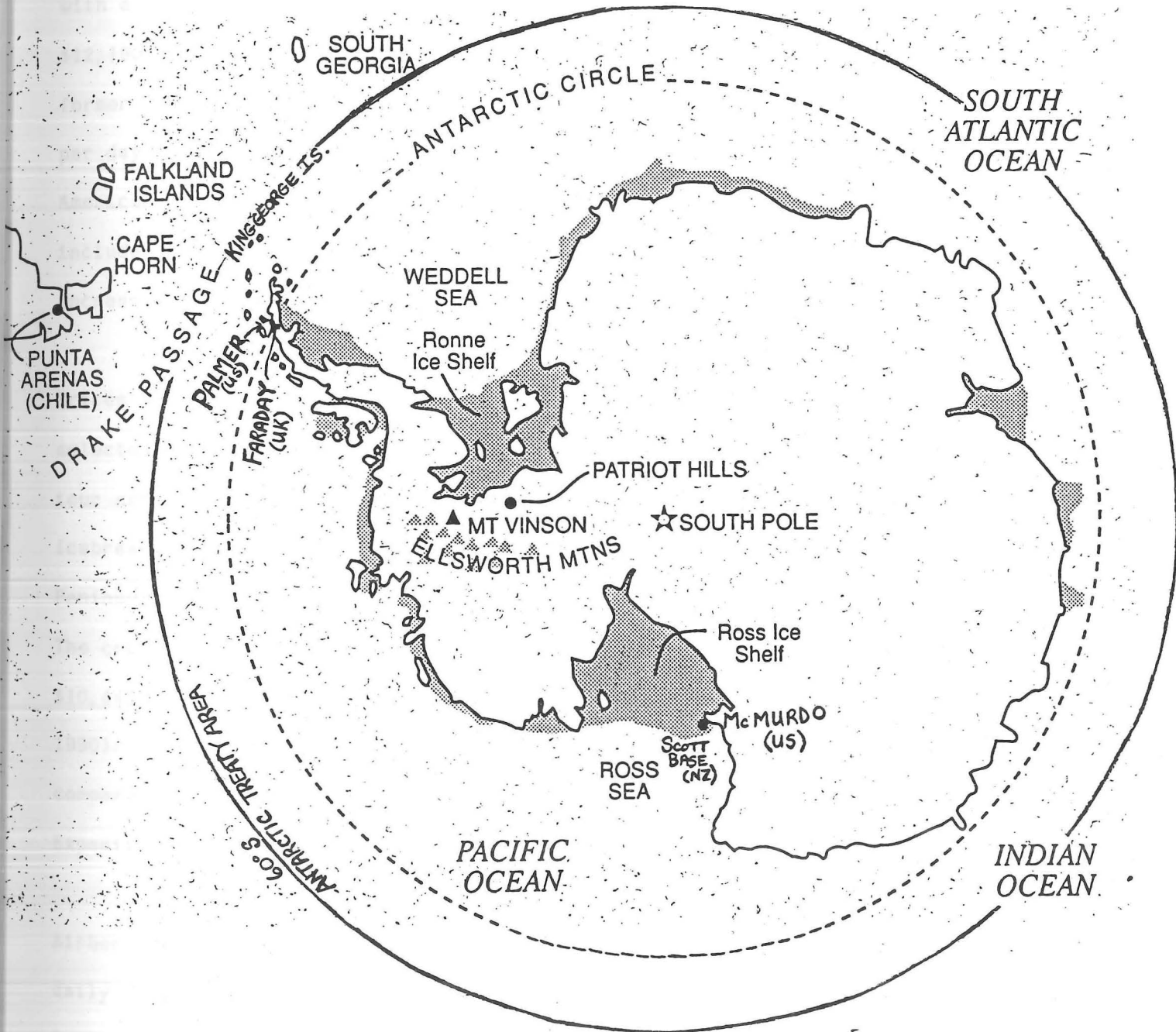
offer tourist visits to the Ross Sea region are under "consideration for the future." (Layland, 1991). Hovercraft are now used by the U.S. Antarctic Program to transport scientists to field sites across the frozen sea ice at McMurdo Station, thereby freeing precious helicopter time each season. Tour operators could employ Hovercraft vehicles in order to expand and improve existing tours by reaching areas which are inaccessible by ship or Zodiac.

1.4 Description of Antarctic tourism

As with tourism in other parts of the world, the nature of tourism in Antarctica has evolved in response to customer demand, tour operator investment, improvements in technology, and refinements within the tourist industry itself. To date, the most frequently visited area of Antarctica has been the Antarctic Peninsula. Popularity may be attributed to: 1) the proximity and abundance of South American ports; 2) a milder summer climate than elsewhere in Antarctica; 3) diverse and abundant wildlife offering photo opportunities; 4) relative freedom from pack ice for landings compared with other parts of the Antarctic coast; and 5) the largest concentration of Antarctic research stations, visits to which are included in most tours. Refer to Figure 1.2 for a map showing Antarctica's major tourist destinations.

The costs of operating transport equipment in the Antarctic are high and passengers are limited to a relative few who are able to afford a holiday in this part of the world. Antarctic cruises typically cost more than cruises of similar length and standard of service offered in more temperate latitudes, but the profit margin per passenger for Antarctic tour operators

Figure 1.2. Map of Antarctica showing tourist destinations. Source: ANI, 1991.



is not necessarily higher. For example, the advertised price range of a 17 day cruise to the Amazon and Gold Coast of Brazil aboard Society Expeditions' *Society Adventurer* in 1991 is \$4,750 - \$8,190 (USD), compared with a 15 day cruise aboard the same ship bound for Antarctica at \$6,990 - \$12,190 (Society Expeditions, 1991a, pp.26-7). The daily cost of the former cruise is \$279 - \$482 and the Antarctic cruise costs from \$466 - \$813 per day or 40% more than the Amazon cruise. Transportation to the South American port city serving as the cruise departure point is normally not included in the price of these expeditions (ibid., p.31), further increasing the cost of an Antarctic holiday.

Prices vary considerably, depending on the type of berthing unit a tourist selects. For example, Travel Dynamics of New York offered a 23 day study tour arranged by the Smithsonian National Associate Program aboard the icebreaker *Polar Circle* in February 1991. The itinerary included Antarctic Peninsula, South Orkney Islands, South Georgia and the Falkland Islands. The cruise carried approximately 80 passengers at a minimum price of \$10,445, and maximum of \$12,245 (USD) per person, double occupancy (SNAP, 1990). The daily cost of the cruise amounted to \$454 - \$532 per day, which compares to the lower range fares for the above-mentioned Society Expeditions Antarctic cruise.

Airborne tours offered by ANI of Canada are equally or more expensive on a daily basis. Ellsworth Mountain 'Ski Safaris' entail a return flight from Punta Arenas, accommodation at the Patriot Hills Camp, and ten days of skiing and camping outside of the base camp. The 19 day program costs \$9,500 (USD), or \$500 per day. The shorter programs lasting ten days cost \$6500, or \$650 per day (ANI, 1991). The most expensive Antarctic tour to

date has been ANI's nine-day South Pole excursion which cost \$34,950 (USD), or more than \$3800 per day (Hotz, 1987).

Some tour operators currently offer a combination cruise/flight visit to Antarctica. Under this plan, tourists have the option to fly one way, which reduces both cost and the amount of time needed for an Antarctic holiday while avoiding a second crossing of the Drake Passage (rough seas) by ship. These shorter visits prove lucrative for tour operators (ASOC, 1989, p. 3) while allowing a larger tourist market to be targeted.

1.5 Antarctic tour operators

"Between 10 and 15 companies offer trips to the Antarctic. Nobody knows exactly how many." (Hotz, 1987). American based tour operators currently bring the greatest number of tourists to Antarctica. Among these operators are: Condor Expeditions (Delaware), Discovery Tours (New York), International Expeditions (Alabama), Mountain Travel (California), Ocean Cruise Lines (Florida), Salen Lindblad Cruising (Connecticut), Society Expeditions (Washington), Travcoa (Illinois) and Travel Dynamics (New York) (Manheim, 1990, p. 5). Zegrahm Expeditions (Washington), led by a former vice president of planning and operations for Society Expeditions, is the latest entry into the market, with planned cruises for the 1991-92 season.

During the 1970-80s, tourist passage aboard Antarctic-bound vessels was offered by firms in the United States, "West Germany, Italy, Spain, Chile, the United Kingdom, Australia and New Zealand"; and from 1966 until the early 1980s, Lindblad Travel offered the largest number of Antarctic cruises by far, while closely followed by Society Expeditions (Quigg, 1983,

p. 99). That trend reversed itself during the past decade. From the 1982-83 austral summer through the 1990-91 season Society Expeditions offered 84 Antarctic cruises compared to Lindblad's 25 (Table 2.1). As of 1990, Society Expeditions had operated more than 110 tourist cruises in Antarctica (Claus, 1990). In contrast, Travel Dynamics has offered 23 cruises since the 1988-89 season (Table 2.1).

Tour operators may charter or own and operate the vessels used on their cruises or contract services (government or private) in order to conduct cruise operations. Since 1958, the Argentine government has offered Antarctic cruises aboard the following ships: *M/S Les Eclaireurs*, *Lapataia*, *Libertad*, *Rio Tunuyan*, *Regina Prima*, *ARA Bahia Buen Suceso*, and *ARA Bahia Paraiso*, the last two being naval auxiliary transports (Hart, 1988, p. 96). *Bahia Paraiso* was charterable by organizations and had been used for tourist trips during the 1986-87/1987-88 seasons until it ran aground two miles from Palmer Station (Anvers Island) on 28 January 1989. The ship was carrying more than 300 passengers and crew at the time (AJUS, 1989, p. vii). The *Bahia Paraiso* incident has become a focal point for discussion of Antarctic tourism issues. The effects the event has had on government, tour industry, and general public perceptions of tourism in Antarctica are not yet fully understood. Refer to Section 5.2 for a detailed account of the *Bahia Paraiso* incident.

Chile has employed government vessels for Antarctic tourist operations since 1959. *Capital Luis Alcazar* has been available for charter by organizations and has taken limited numbers of tourists on short visits. Some other Chilean vessels employed in the Antarctic include the *Navarino*, *Yapeyu* and *Aguiles* (sic) (Hart, 1988, pp. 96-7). *Aguiles* was recently renamed *Pomaire* (La Prensa, 1991, p. 1). Both Chile and Argentina have

combined supply operations with tourism in order to defray the cost of their Antarctic programs.

Overflights using B-707s, DC-10s and B-747s are not offered by commercial airlines at present, but if they ever resume, airlines "must impose far higher standards" than those of the past (Quigg, 1983, p.103) especially in view of the 1979 Mt. Erebus disaster. The Canadian firm ANI currently offers the most extensive air charter service in Antarctica and will enter its eighth season of operations during the 1991-92 austral summer.

Chapter 2 Establishing tourist numbers

2.1 The importance of establishing tourist numbers

The precise number of tourists that have travelled to Antarctica is difficult to establish with absolute certainty, but an attempt to determine tourist numbers is necessary to an evaluation of the industry as a whole. Accurate estimates may reveal tourism trends, form a basis from which to conduct tourist impact assessments and facilitate the formulation of ATP tourism policy responding to issues of size and impact.

Tourist numbers may not reveal much information in themselves, but when considered along with other factors such as 1) the mode of transportation employed in travelling to Antarctica; 2) the length and type of tourist stay; 3) the behavior patterns and number of tourists aboard each vessel; and 4) tour operator policies in effect for the duration of the visit, a picture begins to emerge which allows for an evaluation of tourist activity in Antarctica. Examined individually, each factor mentioned above sheds further light on the nature and size of the Antarctic tourism industry.

The various modes of transportation available to tourists bound for Antarctica need to be considered along with tourist counts because each method of transportation impacts the environment differently. Overflights of Antarctica, popular in the 1970s, brought plane loads of tourists that never set foot on the continent. From February 1977 to December 1980, Qantas and Air New Zealand offered 44 flights which carried a total of more than 11,000 passengers (Reich, 1980, pp.210-11). In marked contrast, tourists flying to Marsh Base for a three day stay at the Chilean-run 'hotel' require accommodation, meals, water and basic services, all of

which produce impacts on the local environment before, during and after their procurement. Environmental impact is minimized when tourists board self-contained vessels which provide transportation, accommodation, meals and services and spend far less time ashore overall than land-based tourists.

"There is no evidence to support the existence of a relationship between aircraft and cruise passengers, apart from the fact that they are both called tourists, and it is therefore dangerous to assume that the members of the two groups are interchangeable." (Reich, 1979, p.85). Sea and airborne tourists may not be 'interchangeable' since some tourists prefer to travel either one way or the other, but efforts to restrict certain forms of tourism or a resultant decline in interest in one particular form of tourism may not necessarily result in a reduction of tourist numbers overall. For example, if land based tourism were restricted because it was viewed to create too great an impact on the Antarctic environment, the total number of tourists visiting the Antarctic would not necessarily decline if seaborne tour operators managed to enlarge their existing tour schedules or charter extra vessels and recruit more passengers. Market saturation can only occur when no further tourists are found to be willing to pay to travel south on the available modes of transport. Therefore, any attempt to regulate tourist activity in Antarctica requires the consideration of many factors affecting environmental impact and any assessment of tourist numbers should take the various forms of tourism into account.

The length and type of tourist stay also affect how Antarctica is impacted. Off-duty personnel acting as tourists may have more opportunities to travel further afield from a given base in the Antarctic, whereas shipborne

tourists may only have two hours ashore at a given landing site. Yachts visiting a number of islands and research stations in the peninsula region during the austral summer months impact Antarctica differently than yachts wintering-over in Antarctic waters.

The behavior patterns and number of tourists aboard Antarctic bound vessels also vary enormously. Private yachts have been manned solo (*Ice Bird*, 1972) or may carry up to twenty with fare paying passengers on board (UAP, 1990). Pilots in small craft have flown solo (Max Conrad, 1970) over the continent (Reich, 1980, p.211). Twin Otters and DC-4s used by Adventure Network carry between 10-25 passengers whereas C-130s to Marsh Station typically transport 40 tourists per trip (Chile, 1988, p.8). Cruise ships such as *Society Explorer*, *World Discoverer* and *Society Adventurer* carry from 98-160 passengers (Society Expeditions, 1991a). The Spanish cruise aboard *Cabo San Roque* in January 1973 carried about 900 tourists (Headland, 1989, p.478). The Argentine cruises conducted from 1958 until 1976, when fuel costs deterred further tourist operations, "could generally accommodate 400 or 800 passengers, and one cruise is believed to have carried 1,250 persons." (Quigg, 1983, p.99). The *Ocean Princess* operated by Ocean Cruise Lines, first used in Antarctica during the 1990-91 season, can carry 480 passengers but is not ice-reinforced (USAP, 1990a, p.124; Antarctic Century, 1991, p.6). Precise numbers of Antarctic visits made by small or non-commercial expeditions are more difficult to obtain than those of scheduled commercial cruises or flights which are normally reported to home governments of the respective tour operators and later shared under the exchange of information provision of Antarctic Treaty Article VII(5).

The number of passengers offloaded at any given landing site also varies among tour operators and may hinge on the nature of permission granted for

tourist visits by Antarctic research station officials. The behavior of tourists may be influenced by their knowledge of the Antarctic environment and this level of awareness may vary among passengers before, during and after visiting the region. The distribution of informative booklets, pamphlets and condensed guidelines concerning tourist behavior and environmental matters may increase tourist awareness of the sensitive nature of the Antarctic environment and its habitats.

Tour operator policy plays a key role in the overall impact tourist visits make on Antarctica. Operators strictly following the current guidelines created within the industry (Table 3.2) reduce the potential for impacts on the environment. Shipborne tourists aboard self-contained vessels following responsible management practices may have minimal impact on Antarctica's environment. Notable efforts to educate shipborne tourists include lecture series designed to increase passenger awareness about areas being visited and the provision of guides at landing sites to minimize local impacts on the environment. Less conscientious tour operators do not provide guides at landing sites, informative lectures, or behavioral guidelines for tourists; as in the case of Marinsular operating *Pomairé* during the 1990-91 austral summer (Colwell, 1991). A high level of experience and awareness among vessel crew and staff members is also crucial if impacts are to be minimized. "A ship full of educated passengers will not do damage to the environment, whereas a ship of uncontrolled crew can definitely do a great deal of harm." (Zehnder, 1989, p. 4). Suggestions for improving Antarctic management plans in environmentally sensitive areas of Antarctica were described in Keage, Hay and Russell (1989) which included discussion of a protected site visitation monitoring system.

Cruise vessels carrying fewer than 180 passengers are considered optimal (Zehnder, 1989, p.4) since they allow small groups to offload at landing sites that are capable of reboarding expeditiously if need be. On the other hand large vessels are controversial as: "Many believe that there are few landing sites in [Antarctica] that can accommodate 400 passengers per visit, even if such visits are staggered over the course of a whole day", (Antarctic Century, 1991, p.6) as in the case of *Ocean Princess*.

Suggestions generated within the Antarctic tourism industry have included a call for regulations covering vessel specifications which would apply to all tour vessels as well as supply vessels carrying tourists. The matters to be regulated include:

- 1) the size of the vessel,
- 2) the maximum number of passengers (180 suggested),
- 3) an ice-hardened hull, and
- 4) a crew trained in ice navigation.

(Zehnder, 1989, pp.3-4).

Waste disposal practices are an important element in reducing impacts on the Antarctic environment and vary from operators taking meticulous care to remove waste generated at tourist sites (Adventure Network) to chartered cruise vessels reported to have crew members dumping trash overboard into Jones Sound (Marinsular's *Pomaire*) (Colwell, 1991). All of the above factors affect how Antarctica is impacted. That is why it is important to consider each influence in conjunction with established tourist numbers. By themselves, the above factors describe aspects integral to the size of Antarctica's tourist industry, but when they are considered collectively and along with tourist numbers, a more informed assessment of tourist activities and their associated impacts on Antarctica becomes possible.

2.2 Past numbers of Antarctic tourists

Previous attempts to assess the size of the Antarctic tourism industry include work done by R.J. Reich/Codling (1979, 1980, 1982) and B. Manheim (1990). Table 2.1 lists tour ships known to have operated in Antarctic waters from the 1982-83 austral summer season up through and including the latest season 1990-91. Estimates of known sea and airborne tourists during the same time frame appear in Table 2.2. Airborne tourist information is acknowledged to be incomplete and corrections are invited. Table 2.3 lists numbers of tourists in Antarctica as calculated by Reich (1980) and Manheim (1990). The following graphs show tourist numbers based on data gathered for this study (Figure 2.1) and numbers of tourists estimated in previous works (Figure 2.2). A discrepancy exists between Manheim's figure for 1985-86 (2865) and the figure calculated for this study (782). Manheim (1990:26) listed the annual exchanges of information prepared by the United States as his source. These documents were also used for this study and no reason is apparent for the disparity in numbers.

Precise tourist numbers are difficult to calculate as information is often scattered, ambiguous or incomplete and often inconsistently reported by ATPs. The tourist numbers provided herein are estimates and may not include all tourists that made their way to Antarctica during specified years. There is no single port of entry or customs authority in Antarctica and tourist landings occur at numerous locations making it impossible to gather precise statistics. Tourists as defined in Section 1.2 were counted for this study and estimates are based on information and/or statistics provided by tour operators, Antarctic Treaty exchanges of information (Article VII, paragraph 5), personal communications with COMNAP representatives, various reference articles and publications and the

General Base Reports for Faraday Station compiled by the British Antarctic Survey.

Table 2.1. A list of tour ships known to have operated in Antarctic waters during the 1982-83 austral summer season up through and including the 1990-91 season. Dates provided denote departure date from South American ports or the date ships were reported to have visited a National Antarctic Program research facility. Numbers of passengers reported are actual unless denoted as estimates.

N/A - information not available.

Date	Tour Operator	Ship	Number of Passengers	Cruise Number
1982-83				
25 Nov 82	Salen Lindblad Cruising	<i>Lindblad Explorer</i>	98	LS6260
7 Dec 82	Society Expeditions	<i>World Discoverer</i>	90	WD27
23 Dec 82	Salen Lindblad Cruising	<i>Lindblad Explorer</i>	70	LS6262
27 Dec 82	Society Expeditions	<i>World Discoverer</i>	105	WD28
9 Jan 83	Society Expeditions	<i>World Discoverer</i>	130	WD29
20 Jan 83	Salen Lindblad Cruising	<i>Lindblad Explorer</i>	104	LS6263
20 Jan 83	Society Expeditions	<i>World Discoverer</i>	110	WD30
1983-84				
19 Nov 83	Salen Lindblad Cruising	<i>Lindblad Explorer</i>	93	LE3114
29 Nov 83	Society Expeditions	<i>World Discoverer</i>	111	WD39
13 Dec 83	Salen Lindblad Cruising	<i>Lindblad Explorer</i>	95	LE3122
16 Dec 83	Society Expeditions	<i>World Discoverer</i>	100	WD40
5 Jan 84	Society Expeditions	<i>World Discoverer</i>	130	WD41
6 Jan 84	Salen Lindblad Cruising	<i>Lindblad Explorer</i>	105	LE4012
18 Jan 84	Society Expeditions	<i>World Discoverer</i>	85	WD42
29 Jan 84	Salen Lindblad Cruising	<i>Lindblad Explorer</i>	103	LE4014
1984-85				
22 Nov 84	Society Expeditions	<i>Lindblad Explorer</i>	85	SEB
6 Dec 84	Society Expeditions	<i>Lindblad Explorer</i>	55	SEC
17 Dec 84	Society Expeditions	<i>Lindblad Explorer</i>	90	SE2
5 Jan 85	Society Expeditions	<i>Lindblad Explorer</i>	92	SE3
15 Jan 85	Society Expeditions	<i>Lindblad Explorer</i>	92	SE4
26 Jan 85	Society Expeditions	<i>Lindblad Explorer</i>	92	SE5

1985-86

4 Dec 85	Society Expeditions	<i>World Discoverer</i>	131	WD223
19 Dec 85	Society Expeditions	<i>World Discoverer</i>	86	WD2124
6 Jan 86	Society Expeditions	<i>World Discoverer</i>	135	WD2125
17 Jan 86	Society Expeditions	<i>Society Explorer</i>	110	EX126
28 Jan 86	Society Expeditions	<i>Society Explorer</i>	116	EX127

1986-87

16 Nov 86	Lindblad Travel	<i>Society Explorer</i>	89	LT6584
25 Nov 86	Society Expeditions	<i>World Discoverer</i>	140	WD250
5 Dec 86	Lindblad Travel	<i>Society Explorer</i>	79	LT6585
11 Dec 86	Society Expeditions	<i>World Discoverer</i>	130	WD251
16 Dec 86	Lindblad Travel	<i>Society Explorer</i>	98	LT6586
27 Dec 86	(Argentina)	<i>Bahia Paraiso</i>	37	N/A
29 Dec 86	Society Expeditions	<i>World Discoverer</i>	140	WD252
29 Dec 86	Society Expeditions	<i>Society Explorer</i>	101	EX153
9 Jan 87	Society Expeditions	<i>World Discoverer</i>	150	WD253
9 Jan 87	(Argentina)	<i>Bahia Paraiso</i>	120	N/A
11 Jan 87	Society Expeditions	<i>Society Explorer</i>	110	EX154
20 Jan 87	Society Expeditions	<i>World Discoverer</i>	150	WD254
21 Jan 87	(Argentina)	<i>Bahia Paraiso</i>	80	N/A
22 Jan 87	Society Expeditions	<i>Society Explorer</i>	110	EX155
2 Feb 87	Society Expeditions	<i>Society Explorer</i>	110	EX156
20 Feb 87	Society Expeditions	<i>Society Explorer</i>	110	EX157

1987-88 *denotes estimated number of passengers

13 Nov 87	Society Expeditions	<i>Society Explorer</i>	110*	EX182
18 Nov 87	Society Expeditions	<i>World Discoverer</i>	140*	WD267
3 Dec 87	Society Expeditions	<i>Society Explorer</i>	110*	EX183A
7 Dec 87	Society Expeditions	<i>World Discoverer</i>	140*	WD268
10 Dec 87	Lindblad Travel	<i>Illiria</i>	125*	LT6590
14 Dec 87	Mountain Travel	<i>Bahia Paraiso</i>	90	N/A
16 Dec 87	Society Expeditions	<i>Society Explorer</i>	110*	EX183B
18 Dec 87	Society Expeditions	<i>World Discoverer</i>	140*	WD269
29 Dec 87	Society Expeditions	<i>World Discoverer</i>	140*	WD270
29 Dec 87	Society Expeditions	<i>Society Explorer</i>	110*	EX184
5 Jan 88	Lindblad Travel	<i>Illiria</i>	125*	LT6591
9 Jan 88	Society Expeditions	<i>World Discoverer</i>	140*	WD271
11 Jan 88	Society Expeditions	<i>Society Explorer</i>	110*	EX185
18 Jan 88	Lindblad Travel	<i>Illiria</i>	125*	LT6592
20 Jan 88	Society Expeditions	<i>World Discoverer</i>	140*	WD272
24 Jan 88	Society Expeditions	<i>Society Explorer</i>	110*	EX186
24 Jan 88	Mountain Travel	<i>Bahia Paraiso</i>	87	N/A
31 Jan 88	Society Expeditions	<i>World Discoverer</i>	140*	WD273
31 Jan 88	Lindblad Travel	<i>Illiria</i>	125*	LT6593
11 Feb 88	Society Expeditions	<i>Society Explorer</i>	110*	EX187
11 Feb 88	Society Expeditions	<i>World Discoverer</i>	140*	WD274
22 Feb 88	Society Expeditions	<i>World Discoverer</i>	140*	WD275
N/A	Sobek Expeditions	<i>Rio Baker</i>	22*	N/A
N/A	Sobek Expeditions	<i>Rio Baker</i>	22*	N/A

1988-89

*Antartur S. R. L. tours were offered in conjunction with Mountain Travel and Condor Expeditions.

19 Nov 88	Society Expeditions	<i>Society Explorer</i>	89	EX1110R
19 Nov 88	Society Expeditions	<i>World Discoverer</i>	122	WD299R
5 Dec 88	Society Expeditions	<i>Society Explorer</i>	70	EX1111
11 Dec 88	Society Expeditions	<i>World Discoverer</i>	144	WD2202R
12 Dec 88	Lindblad Travel	<i>Antonina Nezhdanova</i>	62	LT6620
16 Dec 88	Society Expeditions	<i>Society Explorer</i>	102	EX1112
21 Dec 88	Lindblad Travel	<i>Antonina Nezhdanova</i>	77	LT6621
24 Dec 88	Travel Dynamics	<i>Illiria</i>	120	9000
29 Dec 88	Society Expeditions	<i>Society Explorer</i>	90	EX1113
29 Dec 88	Society Expeditions	<i>World Discoverer</i>	143	WD2203
1 Jan 89	Lindblad Travel	<i>Antonina Nezhdanova</i>	80	LT6622
9 Jan 89	Society Expeditions	<i>World Discoverer</i>	121	WD2901
10 Jan 89	Lindblad Travel	<i>Antonina Nezhdanova</i>	74	LT6623
11 Jan 89	Travel Dynamics	<i>Illiria</i>	120	9020
11 Jan 89	Antartur S. R. L. *	<i>Bahia Paraiso</i>	90	N/A
11 Jan 89	Society Expeditions	<i>Society Explorer</i>	100	EX1901
20 Jan 89	Society Expeditions	<i>World Discoverer</i>	128	WD2902
20 Jan 89	Travel Dynamics	<i>Illiria</i>	120	9021
22 Jan 89	Lindblad Travel	<i>Antonina Nezhdanova</i>	95	LT6624
24 Jan 89	Society Expeditions	<i>Society Explorer</i>	100	EX1902
28 Jan 89	Antartur S. R. L. *	<i>Bahia Paraiso</i>	81	N/A
30 Jan 89	Lindblad Travel	<i>Antonina Nezhdanova</i>	62	LT6625
31 Jan 89	Society Expeditions	<i>World Discoverer</i>	135	WD2903
1 Feb 89	Travel Dynamics	<i>Illiria</i>	120	9022
11 Feb 89	Society Expeditions	<i>Society Explorer</i>	107	EX1903
11 Feb 89	Lindblad Travel	<i>Antonina Nezhdanova</i>	76	LT6626
13 Feb 89	Travel Dynamics	<i>Illiria</i>	120	9023
18 Feb 89	Society Expeditions	<i>World Discoverer</i>	134	WD2904
22 Feb 89	Society Expeditions	<i>Society Explorer</i>	95	EX1904
25 Feb 89	Travel Dynamics	<i>Illiria</i>	120	9024

1989-90

*denotes estimated number of passengers

26 Nov 89	Society Expeditions	<i>Society Explorer</i>	110*	EX1927
7 Dec 89	Society Expeditions	<i>Society Explorer</i>	110*	EX1928
15 Dec 89	Society Expeditions	<i>World Discoverer</i>	140*	WD2931
21 Dec 89	Society Expeditions	<i>Society Explorer</i>	110*	EX1929
29 Dec 89	Travel Dynamics	<i>Illiria</i>	120	2009
4 Jan 90	Society Expeditions	<i>World Discoverer</i>	140*	WD2001
6 Jan 90	Travel Dynamics	<i>Illiria</i>	128	2011
7 Jan 90	(Chile)	<i>Piloto Pardo</i>	46	N/A
8 Jan 90	Society Expeditions	<i>Society Explorer</i>	110*	EX1001
15 Jan 90	Travel Dynamics	<i>Illiria</i>	95	2012
17 Jan 90	Society Expeditions	<i>World Discoverer</i>	140*	WD2002
24 Jan 90	Travel Dynamics	<i>Illiria</i>	100	2013
25 Jan 90	Society Expeditions	<i>Society Explorer</i>	110*	EX1002
28 Jan 90	Society Expeditions	<i>World Discoverer</i>	140*	WD2003
2 Feb 90	Travel Dynamics	<i>Illiria</i>	114	2014
10 Feb 90	Society Expeditions	<i>World Discoverer</i>	140*	WD2004
11 Feb 90	Travel Dynamics	<i>Illiria</i>	109	2015
12 Feb 90	Society Expeditions	<i>Society Explorer</i>	110*	EX1003
13 Feb 90	(Chile)	<i>Yelcho</i>	40	N/A
20 Feb 90	Travel Dynamics	<i>Illiria</i>	125*	2016
23 Feb 90	Society Expeditions	<i>Society Explorer</i>	110*	EX1004

1990-91

*All tour ship cruises listed for this season were planned but confirmation has not been received that they all took place. The list has been updated to reflect all known cancellations. All passenger numbers for this season have been estimated.

18 Nov 90	Society Expeditions	<i>Society Explorer</i>	110*	EX1026
Nov 90	Marinsular	<i>Pomairé (ex Aquiles)</i>	40*	N/A
8 Dec 90	Society Expeditions	<i>World Discoverer</i>	140*	WD2024
9 Dec 90	Society Expeditions	<i>Society Explorer</i>	110*	EX1027
17 Dec 90	Travel Dynamics	<i>Polar Circle</i>	75*	PC0100
22 Dec 90	Society Expeditions	<i>Society Explorer</i>	110*	EX1028
23 Dec 90	Society Expeditions	<i>World Discoverer</i>	140*	WD2025
23 Dec 90	Ocean Cruise Lines	<i>Ocean Princess</i>	480*	1
30 Dec 90	Travel Dynamics (National Audubon Society)	<i>Polar Circle</i>	75*	PC0101
30 Dec 90	Travel Dynamics	<i>Illiria</i>	125*	2090
Dec 90	Forum Travel Intl	<i>Neptune</i>	40*	N/A
4 Jan 91	Society Expeditions	<i>Society Explorer</i>	110*	EX1101
7 Jan 91	Ocean Cruise Lines	<i>Ocean Princess</i>	480*	2
8 Jan 91	Travel Dynamics (chartered by APSARA Voyage, Paris)	<i>Illiria</i>	125*	1100
11 Jan 91	Society Expeditions	<i>World Discoverer</i>	140*	WD2101
12 Jan 91	Salen Lindblad Cruising	<i>Frontier Spirit</i>	184*	6
17 Jan 91	Travel Dynamics (American Museum of Natural History)	<i>Polar Circle</i>	75*	PC1900
17 Jan 91	Travel Dynamics	<i>Illiria</i>	125*	1101
19 Jan 91	Ocean Cruise Lines	<i>Ocean Princess</i>	480*	3
22 Jan 91	Society Expeditions	<i>Society Explorer</i>	110*	EX1102
26 Jan 91	Travel Dynamics	<i>Illiria</i>	125*	1102
Jan 91	Marinsular	<i>Pomairé</i>	40*	N/A
2 Feb 91	Society Expeditions	<i>Society Explorer</i>	110*	EX1103
3 Feb 91	Salen Lindblad Cruising	<i>Frontier Spirit</i>	184*	7
4 Feb 91	Travel Dynamics (Smithsonian Institution)	<i>Polar Circle</i>	75*	PC1901
4 Feb 91	Travel Dynamics	<i>Illiria</i>	125*	1103
6 Feb 91	Society Expeditions	<i>World Discoverer</i>	140*	WD2102
13 Feb 91	Travel Dynamics (chartered by Mountain Travel, El Cerrito, CA)	<i>Illiria</i>	125*	1104
20 Feb 91	Society Expeditions	<i>Society Explorer</i>	110*	EX1104
22 Feb 91	Travel Dynamics	<i>Polar Circle</i>	75*	PC1902
22 Feb 91	Travel Dynamics	<i>Illiria</i>	125*	1105
26 Feb 91	Salen Lindblad Cruising	<i>Frontier Spirit</i>	184*	8
Feb 91	Marinsular	<i>Pomairé</i>	40*	N/A
3 Mar 91	Society Expeditions	<i>Society Explorer</i>	110*	EX1155
Mar 91	Marinsular	<i>Pomairé</i>	40*	N/A

Sources: (USAP, 1986-9), (USAP, 1990a), (USARP, 1983-5), (U. S. Department of State, 1986b-e), (U. S. Department of State, 1989), (Chile, 1988), (Chile, 1990), (Colwell, 1991), (Swithinbank, personal communication), (La Prensa, 1991).

Table 2.2. Estimated numbers of tourists in Antarctica from 1982-83 through 1990-91 inclusive and their totals. The estimate of airborne tourists is acknowledged to be low. Tourists aboard flights to Marsh Base are not reflected in all of these estimates.

Year	Total number of tourists	Total number of seaborne tourists	Total number of airborne tourists
1982-83	721	719	2
1983-84	1099	834	265
1984-85	636	544	92
1985-86	782	631	151
1986-87	1827	1797	30
1987-88	3026	2782	244
1988-89	3516	3146	370
1989-90	2581	2460	121
1990-91	4842	4698	144
Totals	19,030	17,611	1,419

Sources: (USAP, 1986-9), (USAP, 1990a), (USARP, 1983-5), (U.S. Department of State, 1986b-e), (U.S. Department of State, 1989), (Chile, 1988), (Chile, 1990), (United Kingdom, 1984), (United Kingdom, 1985 a-b), (United Kingdom, 1986), (Lewis and George, 1987), (Society Expeditions, 1990b), (Colwell, 1991), (La Prensa, 1991), (Layland, 1991), (Swithinbank, personal communication).

Table 2.3. Numbers of tourists in Antarctica from 1957-89. Sources: Reich, 1980, pp.207-8; Manheim, 1990, p.26.

Year	No. of Tourists
1957-58	194
1958-59	344
1965-66	58
1966-67	94
1967-68	147
1968-69	1312
1969-70	972
1970-71	943
1971-72	984
1972-73	1175
1973-74	1876
1974-75	3644
1975-76	1890
1976-77	1068
1977-78	845
1978-79	1048
1979-80	855
1980-81	figures not available*
1981-82	960
1982-83	707
1983-84	822
1984-85	598
1985-86	2865
1986-87	1517
1987-88	2350
1988-89	2865

Note: Figures for travel from 1957-1980 are from Reich, 1980. Manheim's data for the period after 1980-81 are based on information found in the annual exchanges of information prepared by the United States. Figure 2.2 depicts these numbers in graph form. The absence of tourist activity from the end of the 1958-59 season until the 1965-66 season is noted.

*The number of tourists in Antarctica during 1980-81 was not calculated for Manheim's study. An estimate of 756 tourists for the 1980-81 season has been made by this study based on information contained in unofficial documents.

Figure 2.1. Estimated numbers of tourists in Antarctica from austral summer season 1982-83 through 1990-91 inclusive. (Data from Table 2.2.)

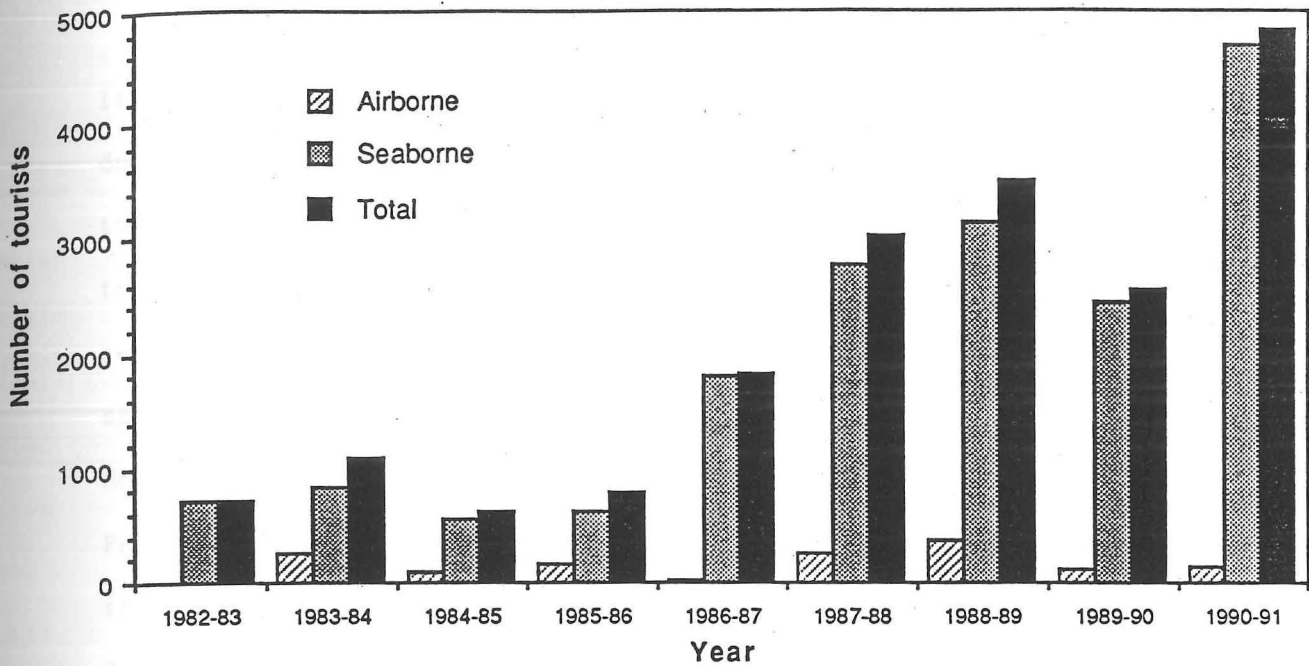
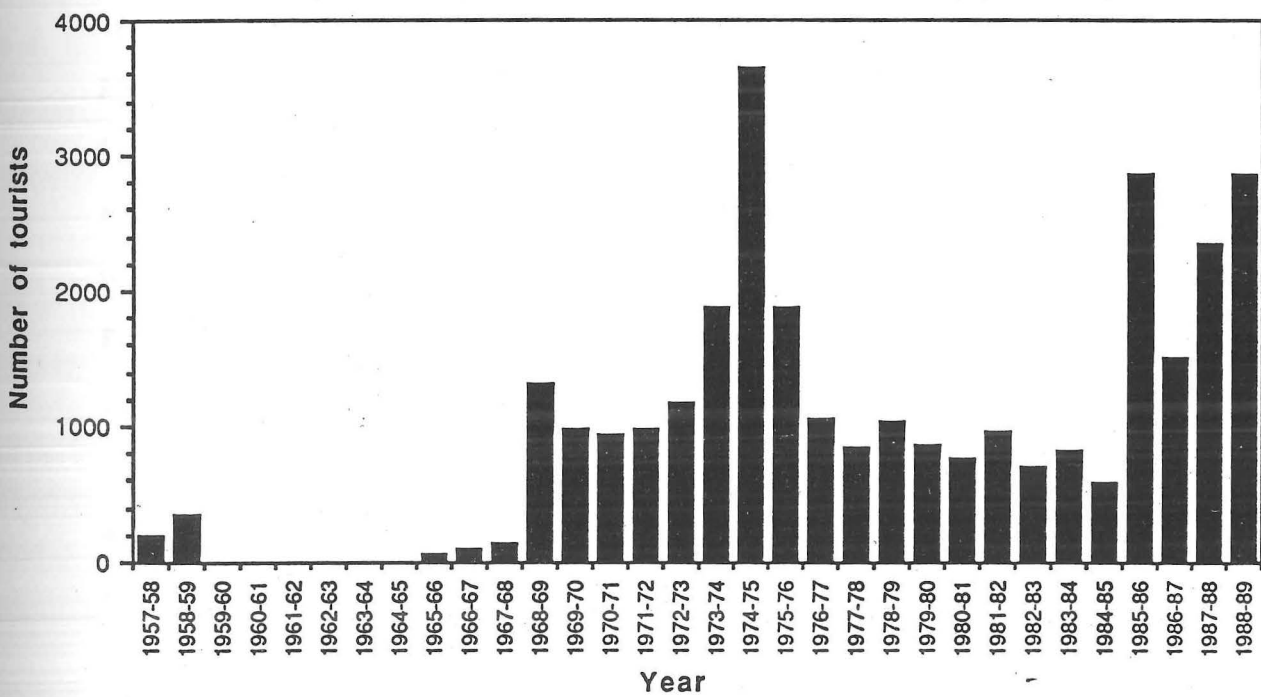


Figure 2.2. Numbers of tourists in Antarctica from 1957-89. (Data from Table 2.3.)



2.3 The current size of the Antarctic tourism industry

It is estimated that more than 4800 tourists made their way to Antarctica during the recent 1990-91 austral summer season. Nearly 4700 of these tourists arrived on ships (Table 2.2). This total represents the largest tourist presence ever to have occurred in the Antarctic. The previous record of 3644 tourists occurred during the 1974-75 season when six of the seven offered cruises averaged 474 passengers each (Reich, 1980, p.208). Hodgson (1990:19) estimated the combined staffs of National Antarctic Programs at 4,000. Tourists visiting Antarctica during the 1990-91 season therefore outnumbered science personnel by a significant margin (Table 2.2).

Seaborne tourism planned for the 1990-91 season included 35 cruises offered by eight tour operators using eight different ships (Table 2.1). The previous season (1989-90) offered 21 tour ship visits to Antarctica or 40% fewer cruises than were available during the 1990-91 season. Tourist activity planned for the 1990-91 austral summer included the following tour operators: Adventure Network International, APSARA Voyage, Discovery Tours, Forum Travel International, Marinsular, Mountain Travel, Ocean Cruise Lines, Quark Expeditions, Salen Lindblad Cruising, Society Expeditions, Travcoa and Travel Dynamics. Add to this list the unconfirmed yacht visits and tour offerings from South American and Australian or New Zealand operators and the growth of the Antarctic tourism industry becomes even more evident. Confirmation of these tourist activities should appear in upcoming exchanges of information between ATPs. The U.S. Antarctic Activities report is normally issued during the final quarter of each year.

Five ships known to have operated on the South American side of the Antarctic during the latest tourist season (1990-91) include: *Society Explorer* (Society Expeditions), *Illiria* and *Polar Circle* (Travel Dynamics), *Ocean Princess* (Ocean Cruise Lines) and *Pomairé* (Marinsular). Two ships which operated from the Australia/New Zealand side were *Frontier Spirit* (Salen Lindblad Cruising) and *World Discoverer* (Society Expeditions) (Antarctic Century, 1991, p. 6; Colwell, 1991). Salen Lindblad Cruising also chartered space on board the motorized yacht *Abel J* which headed south from the Falkland Islands (de la Bernardie, personal communication).

While it remains uncertain whether the increase in tourist numbers which occurred during the 1990-91 season signifies a level of tourist activity that will either be sustained, increase further or decline, at least one major tour operator, Society Expeditions, plans to offer more ship tours than ever before in the coming 1991-92 season. It's newest ship, *Society Adventurer*, is scheduled to conduct eight cruises in addition to the normal company offerings on *Society Explorer* (8 cruises) and *World Discoverer* (9 cruises) during the 1991-92 season. Society Expeditions alone plans to offer 25 cruises to Antarctica next season (Table 2.4) or nearly the same number of tourist cruises offered by all the tour operators from 1982-83 through 1985-86 inclusive. This planned level of activity more than doubles the number of Antarctic cruises offered by Society Expeditions during the 1990-91 season. Tourist numbers may well match or exceed current levels in upcoming tourist seasons if this type of growth in the Antarctic tourism industry continues.

Given the current record size of the Antarctic tourism industry, the need for an effective regulating mechanism with which to guide tourist activities has perhaps never been greater. A consistent and uniformly

Table 2.4. Antarctic cruises planned by Society Expeditions for the 1991-92 austral summer season (Society Expeditions, 1991b-d).

Society Expeditions plans the following 25 cruises for the 1991-92 austral summer season:

Ship	Ship Departs	Ship Days	Tour Days	Days in Antarctica
<i>World Discoverer</i>	11 Nov 91	18	22	5
	29 Nov 91	10	14	5
	9 Dec 91	13	17	5
	22 Dec 91	13	17	5
	4 Jan 92	13	17	5
	17 Jan 92	18	22	4
	4 Feb 92	11	15	5
	15 Feb 92	11	15	5
	26 Feb 92	16	20	5
<i>Society Adventurer</i>	*new ship with launching date of 4 January 1991			
	4 Nov 91	19	22	3
	23 Nov 91	18	22	4
	11 Dec 91	11	15	5
	22 Dec 91	13	17	Charter
	4 Jan 92	18	22	Charter
	22 Jan 92	11	15	5
	2 Feb 92	18	22	4
20 Feb 92	22	25	4	
<i>Society Explorer</i>	31 Oct 91	16	20	details not provided
	16 Nov 91	11	15	details not provided
	27 Nov 91	13	17	details not provided
	10 Dec 91	11	15	details not provided
	21 Dec 91	18	22	details not provided
	8 Jan 92	11	15	details not provided
	19 Jan 92	13	17	details not provided
	1 Feb 92			charter to be arranged

Summary: *World Discoverer* 9 cruises 139 pax each registry: Liberia
Society Adventurer 8 cruises 160 pax each registry: Liberia
Society Explorer 8 cruises 98 pax each registry: Liberia

Total: 25 cruises with 3315 passengers at full capacity.
 Prices range from \$4,990 to \$25,990 (USD) plus airfare, double occupancy.

applied policy for Antarctic tourism will help regulate tourist activities in the future. One new tour company gearing for the future is Zegrahm Expeditions which announced a "New Year's 2000 Antarctica Expedition". Bookings (100 maximum) are now being taken with a \$500 (USD) deposit that is insured and fully refundable up to six months before departure (Zegrahm Expeditions, 1991). As tour companies plan for the future, the regulatory mechanisms guiding tourist activity in Antarctica can be assessed. Having established the current size of the Antarctic tourism industry, an examination of its regulatory framework will reveal the problems facing tourism policy makers and provide insight into the question of whether or not Antarctica's environment is adequately protected against existing levels of tourist activity.

Ch. 3 - The regulatory framework for Antarctic tourism

At present, the regulatory framework for Antarctic tourism is comprised of 1) Antarctic Treaty System tourism recommendations, 2) various guidelines created by each of the following bodies: Managers of National Antarctic Programs (COMNAP), SCAR's subcommittee of the Working Group on Biology, Antarctic tour industry officials and Antarctic naturalists/expedition leaders (Oceanites); and 3) ATP national legislation. Each instrument will be examined in order to describe how Antarctic tourist activities are currently regulated.

3.1 Tourism and the Antarctic Treaty System

The Antarctic Treaty System (ATS) refers to the collective body of agreements governing Antarctica including the Antarctic Treaty, all recommendations made subsequent to the date the treaty entered into force (23 June 1961), juridical acts within Antarctica, agreed measures, and all supplementary instruments. The term is employed by treaty parties "to indicate the permanent and coherent character of their framework of cooperation" (Beck, 1986, p. 149). The Antarctic Treaty was signed on 1 December 1959 by the twelve nations which conducted Antarctic research during the International Geophysical Year (IGY) of 1957-58. At present there are 39 treaty parties; 26 are Consultative Parties (ATCPs) and 13 are Non-Consultative Parties (NCPs). Refer to Appendix 2 for a complete listing of Treaty signatories and dates of accession. All parties are invited to attend Antarctic Treaty Consultative Meetings (ATCMs) held biennially and take part in resulting discussions, but only ATCPs have a vote in the decision making process.

In addition, Special ATCMs are convened to discuss various topics. The first session of Special ATCM XI met in Vina del Mar, Chile from 19 November to 6 December 1990 to develop comprehensive measures for the protection of Antarctica's environment (NSF, 1991, p.2). The second session met in Madrid from 22-30 April 1991 and drafted a Protocol comprising 24 Articles and four annexes on measures for comprehensive environmental management (Antarctic Treaty, 1991). A further annex is planned to address tourism and non-governmental activity (NGA). The third session is scheduled to convene in Madrid in June 1991 for the technical drafting of the document in the four official treaty languages and signatures of ATCPs. Ratification of the Protocol is planned to coincide with the next regular ATCM (XVI) to be held in Bonn during October 1991.

The ATS has been effective in implementing the ideas put forward by signatory nations, many of which have disparate political and/or cultural orientations. Regardless of these differences, all ATPs take part in the joint discussions at ATCMs which cover a multitude of topics relevant to Antarctica. Some dissatisfaction has been expressed by non-signatory nations which do not recognize the authority of the ATS claiming it does not represent the interests of all nations, but the Treaty is open to accession by any State which is a member of the United Nations or which is invited to accede by unanimous consent of ATCPs (Article XIII). (The full text of the Antarctic Treaty appears in numerous sources including Heap, 1990a, p.xiv-xvi).

A number of issues now current were not addressed during original Treaty negotiations because they were either unforeseen or viewed as too controversial to have reached consensus at the time. Peterson (1988:97) noted that the only recommendations made during the first decade of ATCMs

dealing with questions not explicitly mentioned in some provision of the Antarctic Treaty concerned pelagic sealing and tourism. The treaty has allowed for subsequent change with Article XII which states: "The present Treaty may be modified or amended at any time by unanimous agreement of the Contracting Parties" (Heap, 1990a, p. xvi). This built-in flexibility allows further recommendations to be agreed at ATCMs, permitting ATPs to respond to issues affecting Antarctica on an ongoing basis. Tourism is one such issue which was not mentioned in the text of the Antarctic Treaty that has since commanded the attention of ATPs. Having described the nature of the ATS it is now possible to discuss how the system has responded to issues related to tourist activities.

3.2 The response of the Antarctic Treaty System to tourism

Table 3.1 summarizes ATCM recommendations which apply to specific tourist related issues. The effects of tourism in the Antarctic Treaty Area have become a regular agenda topic at ATCMs since commercial cruise operations resumed in 1966.

The first recommendation relevant to tourism was made at ATCM IV in 1966. Recommendation IV-27 stated, "the effects of tourist activity may prejudice the conduct of scientific research, conservation of fauna and flora and the operation of Antarctic stations". ATPs agreed that information regarding tourist and non-scientific expeditions should be provided in advance of the event by the home government concerned to the government whose station the expedition intends to visit (Heap, 1990b, p. 2601). This recommendation provided the foundation for regular exchanges of information of tourist-related activities between ATPs.

Table 3.1. Treaty Recommendations involving tourism. Source: Heap, 1990b, p. 2601.

Recommendation Number	Summary
IV-27(1)	Information about tourist and non-governmental expeditions should be provided in advance.
IV-27(2), VI-7(2) and VIII-9(2)(a)	Conditions for visits to stations should be made known.
IV-27 and VI-7	Scientific research activities should not be prejudiced.
VII-4(2), VIII-9 and X-8 Part I	Visitors to Antarctica not sponsored by a Consultative Party should be aware of the relevant provisions of the Treaty, Recommendations and accepted practices.
VII-4(3) and VIII-9(3)	The environmental effects of tourism should be monitored.
VII-4(3) and VIII-9(2)(b)	Provision exists to concentrate the impact of tourism if this should be considered environmentally prudent (Refer also to extracts from Reports of the IXth and XIIth ATCMs).
X-8 Part III	Tour operators should be encouraged to carry experienced guides.
X-8 Part II	Consultative Parties should consult each other about non-governmental expeditions organized in one country and requesting assistance from another.
X-8 Part II	Non-governmental expeditions should be self-sufficient and carry adequate insurance.

Recommendation VI-7 noted a recent increase in the number of tourists and non-sponsored visitors to the Treaty Area and stipulated that 24-72 hours advance notice be given by such parties before arriving at a research station and that any conditions or restrictions made by the station commander to promote safety and safeguard scientific experiments must be abided by. Notice of any tourist or visiting party organized in, proceeding from or calling at a contracting party's territory should be provided to all treaty parties (Heap, 1990b, pp.2601-2). This recommendation enlarged upon IV-27 which required notification be given only to ATPs that would be visited.

In June 1975, at ATCM VIII, the treaty parties acknowledged that tourism in the Antarctic was a "natural development" and recognized "the necessity to restrict the number of places where large numbers of tourists may land so that the ecological effects may be monitored". Tour operators were then requested to land only within the Areas of Special Tourist Interest (ASTIs) to be listed in an Annex of the Recommendation. To date, no ASTIs have been designated, although this Annex may be reviewed in the future (Heap, 1990b, pp.2602-5). Codling (1982) examined the ASTI proposal and noted that zoning does not always provide the perfect solution its advocates suggest. Irreversible damage may result from a concentration of pressures and unbalanced attitudes may arise. The 'positive attitude' which formed the basis for the designation of SPAs and SSSIs to protect specific areas did not match the tone of comments made regarding ASTIs which were "based on a negative attitude of exclusion" (Codling, 1982, p.7). Codling concluded that ASTIs "would serve no positive purpose" and that: "Monitoring of sites could establish more clearly the effects of visits to the continent" (ibid., p.9). An investigation into the viability of the ASTI recommendation would be enhanced if a tourist impact assessment were

conducted and its results were made available for additional study of the issues involved. Problems involving impacts need to be understood before they may be solved.

Annex C of Recommendation VIII-9 stipulated the matters which should be reported by tour organizers operating in the Antarctic Treaty Area. The reports should be made at the end of the season to the Consultative Parties whose stations have been visited and include the following information:

- 1) Name and nationality of ship;
- 2) Name of captain;
- 3) Itinerary of each separate cruise;
- 4) Number of tourists accompanying each cruise; and
- 5) Places and dates at which landings were made in the Antarctic Treaty Area, with the number of persons landed on each occasion (Heap, 1990b, p.2605).

Few, if any, ATPs comply in full with this recommendation. Kimball notes that, "it would be useful to establish a rational structure for submission of all the different notification, reporting, and public information requirements under the Antarctic Treaty - what, when, how, to whom - and to develop more standardized formats for these submissions." (Kimball, 1991, p.9). An accurate assessment of tourist visits would be possible if standardized reporting methods existed. At present, the information provided in the ATS annual exchanges of information is piecemeal at best. Tourist data required for this study have been difficult to obtain as some ATPs have failed to report tourist visits and others have provided little if any detail. "Precise data on the development of Antarctic tourism are difficult to obtain and the existing information is rather incomplete and sometimes contradictory." (Boczek, 1988, p.457). Improvements in the collection and distribution of material concerning tourist activity can work to clarify misconceptions about existing tourist operations. Policy makers might then be able to manage tourism using reliable statistics

regarding the scale of tourist activity in Antarctica. Comprehensive tourist data should be available as a matter of record since its release would allow an accurate accounting of Antarctic tourist numbers and dispel misinformation as in unsubstantiated reports of tourist booms.

X-8 recommended that tour operators carry guides with experience of Antarctic conditions. Non-governmental expeditions were urged to carry adequate insurance and commercial aircraft operators were notified that the present level of tourist overflight activity exceeds existing ATP capabilities for air traffic control, communications and search and rescue operations in the Antarctic (Heap, 1990b, p.2606). This recommendation reinforces the need for tour operators to remain self-sufficient when operating in Antarctica and expresses the concern that increased air traffic in the region may carry with it a higher risk of incident. ATPs aim to avoid becoming embroiled legally, politically and morally in situations which they view to be avoidable. The lawsuits filed in U.S. courts after the DC-10 crash on Mt. Erebus have heightened fears of legal implications resulting from tourist activities. To date U.S courts have not awarded damages to the families of Flight 901 victims and ATPs stress the need for all Antarctic visitors to be self-supporting.

In October 1989, at ATCM XV, agreement was reached that a comprehensive review of tourism was required. Germany and Chile each presented a working paper on the topic. Treaty parties "noted that the scale of tourism and non-governmental activities in Antarctica continued to increase." (Antarctic Treaty, 1990, p.35). A review may reveal the weaknesses in existing tourist policy and provide a basis for addressing unresolved issues.

ATS recommendations relating to tourism attempt to respond to tourist activity in Antarctica, but may not carry the weight they might were they codified into one comprehensive set of agreed measures on tourism. Such a document could combine ATS tourism policies currently scattered within the system and allow them to be more easily understood by and distributed among commercial tour operators and the general public. If made available in the home language of each ATP an even wider audience could be reached.

The ATS has enabled agreement to be reached on a number of issues which emerged after the Treaty was negotiated. Four ATS documents which merit particular attention are: 1) The Agreed Measures for the Conservation of Antarctic Flora and Fauna (1964); 2) the Convention for the Conservation of Antarctic Seals (1972); 3) the Convention on the Conservation of Antarctic Marine Living Resources (1980); and 4) the Convention on the Regulation of Antarctic Mineral Resource Activities (1988). These documents attest to the achievements which are possible within the ATS, namely detailed, substantive and consensus agreements on often sensitive issues. Tourism, at least for the foreseeable future, is here to stay in Antarctica. The ATS is flexible enough to strengthen any weaknesses in its tourism policy. Sensitive issues can be dealt with and agreed upon by ATPs and tourism policy needs to be among them.

3.3 The role of SCAR in the management of Antarctic tourism

Under the ATS, individual governments contribute to discussions on tourism, but outside influences are also exerted on the ATS decision and policy making process. Perhaps the most influential body is the Scientific Committee on Antarctic Research (SCAR), a committee within the

International Council of Scientific Unions (ICSU) designated to initiate, promote and coordinate scientific activity in Antarctica. There are three categories of membership in SCAR; 1) Full members include national organizations adhering to ICSU which represent scientific communities of countries having active and continuing independent research programs in the Antarctic that form National Committees to communicate with SCAR, 2) Associate members are national organizations which choose to participate in SCAR for scientific reasons but do not qualify for full membership, and 3) Union members include ICSU Unions which desire to participate in SCAR on an ongoing basis (SCAR, 1987, p.5). SCAR provides ATPs with informed advice on pertinent scientific and environmental matters and all 28 of its member states have signed the Antarctic Treaty. ATPs are not required to join SCAR, but at present, more than 70% have done so. SCAR has 24 full and 4 associate members. All 26 Consultative Parties have joined SCAR and all but two are full members (Peru and Ecuador are associate members). For a list of SCAR members and dates of admission refer to Appendix 3.

The SCAR Conservation Subcommittee of the Working Group on Biology prepared *A visitor's introduction to the Antarctic and its environment* in 1980. This 28 page booklet was designed to inform all Antarctic visitors, scientists and tourists alike, about Antarctica's environment and life forms on land and at sea (SCAR, 1980, p.3) and was not copyrighted to encourage its wide distribution. Its contents urge visitors to take a common sense approach to Antarctica's environment, wildlife and vegetation and include eight points of conduct to guide visitor behavior. Japan, Brazil, Australia and the United Kingdom have each published their own version of the publication. "Neither SCAR nor Treaty publications are readily accessible to the public; nor are they phrased for busy expeditioners or wondering tourists." (Stonehouse, 1990, p.58). There is a

need for greater efforts to disseminate visitor information which must be in a form suited to the largest possible audience to have the desired effect. A wide distribution of the eight points of conduct among Antarctic tour operators, media sources and harbor masters at departure points for Antarctica would provide a start for such an effort.

In September 1989 the SCAR Group of Specialists on Environmental Affairs and Conservation (GOSEAC) had extensive discussions on Antarctic tourism. It was concluded that there was need to provide greater guidance for tourists and a sub-committee was formed to revise the text of the SCAR *Visitor's introduction* (SCAR, 1990a, p. 4). This revision will be published after the October 1991 ATCM in order to incorporate the latest developments in Antarctic environmental policy which may emerge from the meeting (Clarkson, personal communication). Treaty nations have in SCAR's booklet the basis for a simple and straightforward introductory guide for Antarctic newcomers. If the booklet were available in all ATP languages and distributed accordingly to tourists heading to Antarctica, environmental awareness would be greatly enhanced and tourist impacts could be minimized.

The Council of Managers of National Antarctic Programs (COMNAP) is federated to SCAR and serves to exchange information and review operational matters on a regular basis. The Standing Committee on Antarctic Logistics and Operations (SCALOP) is a COMNAP sub-group which replaces the SCAR Logistics Working Group. Both COMNAP and SCALOP hold annual meetings to coincide with the SCAR Delegates' Meeting and deal with the subject of Antarctic tourism.

Tourism was discussed at the October 1989 COMNAP meeting, where representatives agreed the complex issues must be addressed at ATCMs and

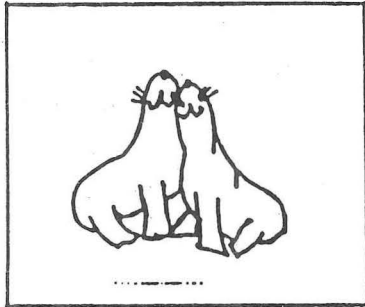
that limitations or quotas are currently applied in some cases. Tourism was considered a legitimate use of Antarctica, although visits to stations may disrupt science programs. Different perspectives concerning government operated or sponsored tourism were noted. China reported 400-500 tourists visit Great Wall Station each year with one instance of 100 in one day. COMNAP established a sub-group to prepare a set of draft guidelines for visits to scientific stations in Antarctica. Program managers agreed to distribute copies of these instructions among station leaders (SCAR, 1990b, p.2).

At the July 1990 COMNAP meeting, the sub-group on tourism which convened in 1989 reported to the Council and a condensed 'Visitors' Guide to Antarctica' was reviewed and revised. The July 1990 version was adopted and is being distributed by COMNAP for use by national Antarctic programmes (SCAR, 1991, p.2). The guide deals with: 1) care for the environment; 2) litter and human impact; 3) safety; and 4) science stations and programs (Figure 3.1). A wider distribution of the COMNAP 'Guide' to all known tour operators and tourists would increase awareness of the issues.

This condensed COMNAP 'Guide' complements the SCAR Visitor's Introductory booklet which provides greater detail about the Antarctic environment and its wildlife habitats. The availability of information in a variety of forms serves a useful purpose because some Antarctic visitors may desire more background information than others. The condensed guidelines allow visitors a more immediate form of information and may in practice prove more practical in promoting specific behavior patterns among visitors to an environmentally sensitive area.

VISITORS' GUIDE TO THE ANTARCTIC

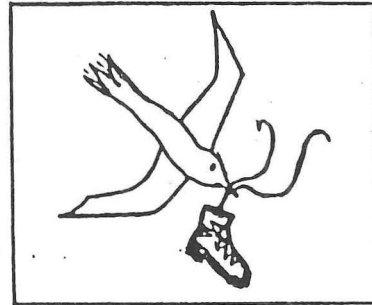
CARE FOR THE ENVIRONMENT



The Antarctic environment can easily be damaged. Please respect it.

- Plants are rare, fragile and slow growing. Avoid walking on moss and lichens. It takes years for these to recover.
- Do not collect organic matter such as lichens and mosses.
- If birds or seals react to your presence, you are too close. Keep your distance!
- Allow fossils and rocks to remain undisturbed.
- Keep to established tracks or trails. Avoid walking on undisturbed ground.
- Be sensitive in the way you take photographs. Do not disturb plants or animals to enhance your pictures.

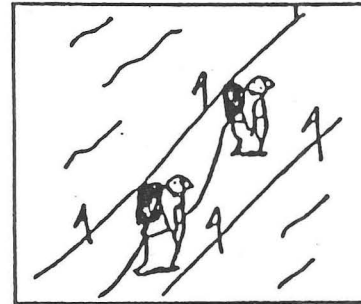
LITTER AND HUMAN IMPACT



In Antarctica it can take decades for human trash or artifacts to break down.

- Take all your litter with you.
- Do not throw litter overboard from ships.
- The Antarctic Treaty's Code of Conduct on Waste Management provides solid guidance on minimizing adverse effects of human presence.
- Avoid trampling of sites.
- Please respect historic sites. They are protected by the Antarctic Treaty.
- Emergency depots and refuges must not be disturbed.

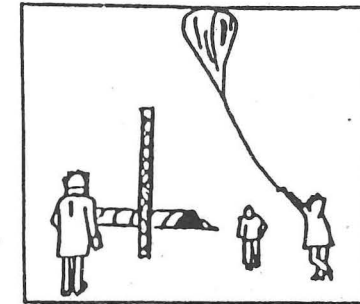
SAFETY



Antarctica is a very hazardous place.

- Be alert!
- Plan your activities with safety in mind at all times.
- Be prepared to survive in the cold.
- Be self-sufficient in your plans and the equipment you carry.
- Do not expect a rescue service.
- Learn about Antarctic hazards
- Always stay with your group.

SCIENCE STATIONS AND PROGRAMS



Research in Antarctica is making a special contribution to international understanding of the globe.

- Check with the station managers in the area you are visiting before you visit Antarctica. They can inform you of their activities.
- Stations are home for antarctic personnel. Please respect their property and privacy.
- Do not disturb sites where scientific research is going on.
- Check on the research activities that are underway in the area you are visiting.
- Do not automatically expect support from research stations. They are not set up as visitor hostels.

Figure 3.1. Council of Managers of National Antarctic Programs (COMNAP) tourist guidelines. Source: COMNAP, 1990.

Visits to Scientific Stations in Antarctica

Stations in Antarctica are established for scientific research and are managed by a national scientific organization in each country. Visitors should be aware that their visit may be disruptive to science.

- A prior request for a visit, including anticipated day of visit and number of persons should be made prior to the beginning of the operating season. Such a request enhances the possibilities for a positive reply.
- Visitors should confirm their arrival directly to the station manager 24-72 hours before arrival. Permission to visit the station could be denied.
- The use of the station facilities is subject to invitation or prior approval from the station manager. Treaty rules permit station managers to deny visits or to determine the manner in which they are conducted.
- The visitors must stay together as a group and follow the instructions given by the guide. There must be no disruption of scientific programs.
- Private expeditions must be self-sufficient and are encouraged to carry adequate insurance coverage against the risk of incurring financial charges or material losses in the Antarctic. If emergency assistance is required, an agency involved in rescue may reserve the right to seek, in accordance with international and its domestic law, recovery of all direct and indirect costs of any such emergency search and rescue.
- Measures adopted within the Antarctic Treaty System are in force, and require compliance by member states and their citizens. See Section 2.2, Handbook of the Antarctic Treaty System, Part 2, "Expeditions and Visitors"; Sixth Edition, 4/89.
- Do not touch or steal from any depot, hut, or refuge. Peoples' lives might be jeopardized.
- Do not approach any wildlife. Much of it is in its breeding cycle in the tourist season. You might cause animals to abandon their young. Also, some animals can be a direct physical threat.
- If you have a marine band radio, remember that marine channel 16 is for primary contact only.
- If you are operating an aircraft, a Traffic Information Broadcast by Aircraft (TIBA) frequency of 129.7 MHZ has been established in the Antarctic Treaty Area. (TIBA is described in ICAO Annex 11.)

The Council of Managers of
National Antarctic Programs
July, 1990.

The following eleven nations affirmed that there was some incidence of tourism or NGA, or both, at their Antarctic facilities: Australia, Brazil, China, France, Italy, Korea, New Zealand, USSR, UK, USA and Uruguay (Fowler, 1991). Argentina and Chile are notably absent from the list. Argentina was not represented at the meeting and the reason Chile did not respond is uncertain, but may possibly be attributed to its marketing of government-sponsored tourism. In effect, all national Antarctic programs are affected by tourism since the topic is repeatedly discussed within the ATS framework. Although some programs may not actually receive tourists, no program is immune from a future request to provide emergency assistance (ibid.).

SCAR's provision of informed advice on pertinent Antarctic issues such as tourism allows the ATS to benefit from input offered by a neutral entity unbound by the internal political pressures which may influence members of national delegations at ATCMs. The COMNAP guide provides a tangible example of SCAR's continuing effort to reduce environmental impacts caused by tourist activity. Guidelines have also been created within the Antarctic tourism industry. Both SCAR and tour industry efforts to establish practical guidelines contribute to the regulatory framework for Antarctic tourism.

3.4 Tour industry guidelines for Antarctica

Prompted by concern for Antarctica's environment and the future of tour operations, representatives from Society Expeditions, Travel Dynamics, and Mountain Travel met in 1989 to establish Antarctic *Visitor guidelines* (Table 3.2) and *Tour operator guidelines* to be followed on a self-



Antarctica Visitor Guidelines

Antarctica, the world's last pristine wilderness, is particularly vulnerable to human presence. Not only must life in the Antarctic contend with one of the harshest environments on earth, but an ever-increasing human presence is adding a greater amount of stress to the fragile and unique ecosystem.

Recognizing this, the following Visitor Guidelines have been adopted by all of the U.S. ship tour operators and will be made available to all visitors traveling with them to Antarctica. With your cooperation we will be able to operate environmentally-conscious expeditions which will protect and preserve Antarctica, leaving the continent unimpaired for future generations. We ask you to thoroughly study and follow these guidelines. By doing so, you will make an important contribution towards the conservation of the Antarctic ecosystem, and avoid potentially harmful and long-lasting damage.

1. Maintain a distance of at least 15-20 feet from penguins, nesting birds and crawling seals, and 50 feet from fur seals. Most of the Antarctic species exhibit a lack of fear which allows you to approach closely; however, please remember that the austral summer is a time for courting, mating, nesting and rearing young. If you approach the animals or birds too closely you may startle and disturb them sufficiently that they will abandon the nesting site, leaving eggs or chicks vulnerable to predators. And even from the recommended distance you will be able to obtain fantastic photographs.

You should also remember that wild animals, especially seals, are extremely sensitive to movement and a person's height above the ground in relation to their size. Approach wildlife slowly when preparing to take photographs. And it is important to remember that your photography is not over when the shutter clicks — make your retreat from the subject in the same way you approach. The key point to remember is not to cause the animals any distress. You should be careful to avoid altering their natural behavior.

2. Be alert while you are ashore! Watch your step in order not to stumble upon an aggressive fur seal or a nesting bird that is unaware of your presence. And pay attention to the behavior of flying birds, as well as those on the ground. For example, when a tern or skua becomes excited or agitated and starts "dive-bombing" you, it is a good indication that you are walking too close to its nest, though you may have not have spotted it.

3. Do not get between a marine animal and its path to the water, nor between a parent and its young. Never surround a single animal, nor a group of animals, and always leave them room to retreat. Animals always have the right-of-way!

4. Be aware of the periphery of a rookery or seal colony, and remain outside it. Follow the instructions given by your leaders.
5. Do not touch the wildlife. The bond between parent and young can be disrupted, and the survival of the young jeopardized.
6. Never harass wildlife for the sake of photography. Our intention is to observe wildlife in its natural state.
7. Keep all noise to a minimum in order not to stress the animals.
8. Avoid walking on, stepping on, or damaging the fragile mosses and lichens. Regeneration is extremely slow and the scars from human damage last for decades.
9. Take away only memories and photographs. Do not remove anything, not even rocks or limpet shells. This includes historical evidence of man's presence in Antarctica, such as whalebones seen at some sites, which resulted from the whaling industry's activities.
10. Return all litter to the ship for proper disposal. This includes litter of all types, such as film containers, wrappers, and tissues. Garbage takes decades to break down in this harsh environment.
11. Do not bring food of any kind ashore.
12. Do not enter buildings at the research stations unless invited to do so. Remember that scientific research is going on, and any intrusion could affect the scientists' data. Be respectful of their work.
13. Historic huts can only be entered when accompanied by a specially-designated governmental representative or properly authorized ship's leader.
14. Smoking is prohibited when ashore!
15. When ashore stay with the group and/or one of the ship's leaders. For your own safety, do not wander off on your own.
16. Listen to the Expedition Leader, Lecturers and Naturalists. They are experienced and knowledgeable about Antarctica. If you are not sure about something, please don't hesitate to ask your leaders and guides.

Protection of the environment and conservation of the wildlife are addressed in the **Agreed Measures for the Conservation of Antarctic Fauna and Flora**, which is an annex to the Antarctic Treaty of 1959. Citizens of any government that has ratified the Antarctic Treaty are legally bound by the following guidelines of conduct in the area below latitude 60° South:

Conservation of Wildlife

Animals and plants native to Antarctica are protected under the following five instruments outlined in the Agreed Measures:

1. Protection of Native Fauna

Within the Treaty Area it is prohibited to kill, wound, capture or molest any native mammal or bird, or any attempt at such an act, except in accordance with a permit.

2. Harmful Interference

Appropriate efforts will be taken to ensure that harmful interference is minimized in order that normal living conditions of any native mammal or bird are protected. Harmful interference includes any disturbance of bird and seal colonies during the breeding period by persistent attention from persons on foot.

3. Specially Protected Species

Special protection is accorded to Fur and Ross Seals.

4. Specially Protected Areas (SPAs)

Areas of outstanding scientific interest are preserved in order to protect their unique natural ecological system. Entry to these areas is allowed by permit only.

5. Introduction of Non-Indigenous Species, Parasites and

Diseases. No species of animal or plant not indigenous to the Antarctic Treaty Area may be brought into the Area, except in accordance with a permit. All reasonable precautions have to be taken to prevent the accidental introduction of parasites and diseases into the Treaty Area.

Additionally, 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. Both accidental or deliberate disturbance of seals or whales may constitute harassment under the Act.

Further, the Antarctic Conservation Act of 1978 (Public Law 95-541) was adopted by the United States Congress to protect and preserve the ecosystem, flora and fauna of the continent, and to implement the Agreed Measures for the Conservation of Antarctic Fauna and Flora. The Act sets forth regulations which are legally binding for U.S. citizens and residents visiting Antarctica.

Briefly, the Act provides the following:

In Antarctica the Act makes it unlawful, unless authorized by regulation or permit issued under this Act, to take native animals or birds, to collect any special native plant, to introduce species, to enter certain special areas (SPAs), or to discharge or dispose of any pollutants. To "take" means to remove, harass, molest, harm, pursue, hunt, shoot, wound, kill, trap, capture, restrain, or tag any native mammal or native bird, or to attempt to engage in such conduct.

Under the Act, violations are subject to civil penalties, including a fine of up to \$10,000 and one year imprisonment for each violation. The complete text of the Antarctic Conservation Act of 1978 can be found in the ship's library. Our ship's staff will make certain that the Antarctic Conservation Act and the above guidelines are adhered to.

By encouraging your fellow expeditioners to follow your environmentally-conscious efforts you will help us to ensure that Antarctica will remain pristine for the enjoyment of future generations. Thank you in advance for your cooperation.

regulatory basis within the tour industry, although they "do not necessarily apply to all U.S. tour operators in Antarctica." (Manheim, 1990, pp. 5 and 30). One source names Lindblad Travel as a fourth participant in the guideline development project (Antarctic Century, 1990, p. 12). "With more tour operators coming to Antarctica, we saw a need for the development of visitor guidelines in order that all of the tour operators would follow our example and operate environmental-friendly tours." (Claus, 1990). The guidelines need not conflict with the commercial interests of tour companies and are offered in a spirit of voluntary compliance for all tour operators to emulate.

The visitor guidelines were designed for distribution among all tourists, crew and staff members bound for Antarctica. The tour operator guidelines are intended for crew and staff members of Antarctic tour companies. The agreed principles contained within these guidelines aim to increase awareness and establish a code of visitor behavior to minimize Antarctic tourism impacts on the environment.

The major tour companies promote the concept of operator responsibility in Antarctica. "Over the past few years we have been involved in Antarctic policy meetings, US Congressional hearings and scientific conferences, not only in the US but in Australia and New Zealand as well, where we have taken a leading role in the environmental protection of Antarctica." (Claus, 1990). The voluntary nature of these guidelines makes tour operator compliance essential if Antarctica's environment is to be safeguarded from tourist activities.

A separate effort has been made to create an 'Antarctic Travelers' Code' under the auspices of Oceanites, an American non-profit foundation that

promotes low impact tourism. Designed by four naturalists/tour expedition leaders, the 'Code' was announced and released on 31 July 1989. Free copies of the code are available to all interested parties, both in the U.S. and abroad. The code is aimed for distribution among Antarctic tour companies, national Antarctic programs, the travel and tourism trade press, the broadcast and print media, as well as national and international conservation organizations. Available in English, Spanish, German, and French with a Japanese translation in preparation, the code has been endorsed by Salen Lindblad Cruising, Victor Emanuel Nature Tours (VENT) (Antarctic Century, 1989b, p.7), and Adventure Network of Canada, the first non-American travel company to adopt it. The code was distributed informally at ATCM XV in October 1989 and has received press coverage in the United States (Antarctic Century, 1990, p.12). A copy of the code appears in Antarctic Century, 1989b. A detailed discussion of the code can be found in Stonehouse, 1990.

All three attempts by COMNAP, Oceanites and Antarctic tour operators to create and distribute a practical set of guidelines for Antarctic visitors serve a useful purpose in increasing awareness of Antarctica's environment. The proliferation of different texts, although quite similar in content and overall message, points to the need for a more unified approach to inform Antarctic visitors of current tourist regulations. Even more pressing than the problem of assuring a wide distribution of existing guidelines to spread awareness is the question of how effective the current self-regulated tourism industry is in addressing Antarctica's environmental needs.

3.5 Antarctic tourism as a self-regulating industry

"Most professionals in the travel and tourism industry...would not object to tougher regulation of what tourists can do, when and how. They know better than most that unregulated tourism can kill the goose that laid their golden egg." (Elliott, 1991, pp.24-6). Antarctic tourism is not completely unregulated, but to date a comprehensive regulatory mechanism generated within the ATS has not been formulated. While ATPs continue to debate tourism issues, the cumulative environmental impacts of tourist activity rely solely on the voluntary compliance of tour operators with existing guidelines (USAP, 1990b, p.5-121).

Given the commercially competitive nature of the tourist industry, is it appropriate that tour operators devise their own guidelines? Do tour operators know best or are they likely to serve their own interests in determining priorities? The current self-regulated system combines visitor and tour operator guidelines with the more formal instruments of treaty recommendations and applicable national legislation, both of which may be difficult to enforce. Treaty recommendations are a start, but they may fail to reach the larger tourist audience. The average tourist may not command knowledge of the ATS and relevant public laws. Tourist guidelines therefore have their advantages. They are practical and offer immediate guidance in simple form, outline minimum standards of behavior required to protect environmentally sensitive areas and drive home key points to Antarctic visitors.

Other self-regulating measures include efforts made by some companies to inform tourists about the Antarctic environment. Society Expeditions provides an expedition notebook (100+ pages) full of details about the

geography, wildlife, history, politics and science of Antarctica as well as profiles of tour destinations (Society Expeditions, 1990a). Passengers receive a copy of the visitor guidelines along with ship information, itineraries, and daily issues of a 'plan of the day'. These efforts promote the self-regulatory nature of Antarctic tourism and are to be encouraged if the present system is to remain viable.

Adventure Network advises prospective customers of the hazards entailed in Antarctic tourism. "Antarctica, the most remote continent, is one of the most inhospitable and undeveloped regions of the planet. Logistics problems are enormous, the weather ferocious and unpredictable. Distances are immense, facilities scarce. There are no corner-stores, gas-stations, TV weather forecasts, emergency out-patient units, pay phones or tourist information booths. Safety and self-sufficiency are the paramount rules. We acknowledge and respect this." (ANI, 1991). Awareness is an essential component of safeguarding tourists from mishaps, but the present self-regulatory nature of Antarctic tourism does not require tour operators to meet even minimum standards in providing a reasonable safety net. The companies that do insure their operations and provide for emergency back up do so of their own volition. Companies may establish safety standards in order to fulfill insurance requirements, not because regulatory provisions so require.

Tour operators are not required to use vessels specifically built for use in ice. Society Expeditions claims to have the only passenger vessels in the world with ice-hardened hulls. "We hope that tour operators from other nations will follow our lead, as we strongly believe that tourism and Antarctica can coexist to the benefit, not detriment, of each other." (Claus, 1990). After the *Bahia Paraiso* shipwreck, the U.S. proposed ATPs

re-evaluate the existing system and determine the need for measures to prevent future widescale devastation of the environment resulting from marine pollution. The implementation of design and construction standards for vessels employed in Antarctic waters was considered along with the efficacy of maintaining adequate marine navigation charts and data systems for weather and ice conditions (Manheim, 1990, pp. 14-15). No new ATS tourism policy has yet emerged as a result of these proposals and the difficulty entailed in enhancing existing regulations is appreciated. Further regulatory implements could go far in preventing a repeat of previous incidents involving vessels in the Antarctic.

Cooperation between Antarctic program officials and tour operators may also fortify the self-regulatory nature of tourism as in the first meeting between the National Science Foundation (NSF) and ship tour operators. The success of the initial meeting led to the establishment of an annual NSF-tour operator meeting in which participation is voluntary. Regular dialogue between tour operators and NSF officials allows a free flowing exchange of information which may result in more consistent reporting of details concerning upcoming tourist activities in Antarctica. Beck (1990b: 348) noted "the effective management of any activity is primarily a function of information" and the flaw in the existing system which prevents a consistent reporting of advance details about tourism and private expeditions in Antarctica. The NSF's ability to improve the exchange of information with tour operators also serves as an example of how national efforts can enhance Antarctic tour industry practices.

Self-regulation appears to be effective among the major Antarctic cruise operators and Adventure Network's flight operations, but how does the existing system regulate private yachts, adventure expeditions and other

tourists making their way to Antarctica? In response to the need for increased awareness among private yachts traveling to Antarctica, Sally Poncet of *Damien II* (Falkland Islands) renown, the first yacht to winter-over in Antarctic waters, plans to distribute yacht guidelines to harbor masters of all the known yacht departure points in the southern hemisphere, especially in the Falkland Islands, Puerto Williams, Ushuaia, New Zealand, Australia, and South Africa as well as to each Antarctic research station receiving yacht visits and the major cruise operators in Antarctica (de la Bernardie, personal communication). This initiative is welcome since it fills a gap in the current regulatory system. The distribution of appropriate guidelines to adventure expeditions and other tourists unreached by existing efforts has yet to be systematically addressed.

Self-regulated guidelines when adhered to may succeed in reducing tourist impacts to a bare minimum, but they need to be supplemented by stronger measures which provide an enforcement mechanism to back them up. The spirit of cooperation evident among major tour operators has gone a long way to protect Antarctica and needs to continue. Further ATS regulations or national legislation which incorporated industry-generated guidelines might result in a more equitable system of burden sharing for tourist activities were they to provide the muscle only legislation or enforceable regulations possess to ensure uniform compliance. The role national legislation can play in backing and reinforcing existing tourist guidelines in Antarctica may prove to be considerable.

3.6 National legislation applicable to Antarctic tourism

"At this point in time, mechanisms to ensure compliance with existing Treaty Articles and Recommendations...are lacking. Each nation must police itself as there is no international enforcement mechanism under the Antarctic Treaty. The United States has taken the approach of leading by example and, through proper diplomatic and other channels, urging other nations to follow this example." (Wilkniss, 1989, p.60). ATP national legislation provides perhaps the most muscle in enforcing existing regulations for tourist activities in Antarctica. Legislation supplements existing guidelines and treaty recommendations, but only covers nationals of the respective ATP concerned. The legislative umbrella does not provide full cover for all Antarctic tourist activities. "Some nations devote more resources and effort to enforcement than others." (ibid.). The result is that Antarctica is not uniformly protected from tourist operations.

Australians are subject to the 1954 Australian Antarctic Territory Act which provides for the application of national laws to Australian Antarctic Territory representing more than 40% of Antarctica (Beck, 1990b, p.346); the Antarctic Treaty Act of 1960; the 1980 Antarctic Treaty (Environment Protection) Act; the Antarctic Marine Living Resources Act of 1981; the Environment Protection (Sea Dumping) Act of 1981; the Protection of the Sea (Prevention of Pollution from Ships) Act of 1983; and the 1987 Sea Installations Act (Australian House of Representatives, 1989, pp.35-7).

Because the overwhelming majority of Antarctic tour operators are based in the United States, legislation enacted in the U.S. can go a long way in regulating Antarctic tourism, especially if further agreements are unable

to be reached within the ATS. The majority of Antarctic tourists at present are American (Beck, 1990b, p.346) and are subject to terms of the Antarctic Conservation Act of 1978 (Public Law 95-541) which for the first time extended the rules governing the behavior of U.S. personnel participating in the U.S. Antarctic Program to all American nationals in Antarctica. Subpart K of the Act which provides enforcement and hearing procedures to address possible tourist infractions was adopted in 1989. Maximum penalties of up to \$10,000 and one year imprisonment for each violation are in effect (NSF, 1989, p.v). "Several individuals have received reprimands for technical violations of the NSF regulations but no fines have been levied yet." (Wilkniss, 1989, p.60).

NSF has made Antarctic Conservation Act booklets available to ship's officers and cruise staff in an attempt to increase awareness of applicable U.S. laws while operating in the region. Society Expeditions keeps a copy of the Act in ship libraries to enable passenger access to the document while in Antarctica.

At the direction of NSF and with the full cooperation of tour ship operators, the U.S. support contractor Antarctic Support Associates, for the first time hired and trained professional observers to travel aboard Antarctic tour ships during the 1990-91 season. The observers were designated to "document and report environmentally significant actions and behavior. U.S. citizens found to violate the Antarctic Conservation Act will be subject to further investigation and possible prosecution based on these reports. Citizens of other nations will be subject to action by those nations." (NSF, 1991, p.2). This development demonstrates the ability of national measures to bolster existing tourism guidelines and recommendations.

National legislation enables ATPs to exercise authority over their respective citizens while in Antarctica. The importance of this empowerment should not be underestimated. Citizens of ATPs are accountable for their actions in Antarctica provided there exists legislation to cover this ground. Peer pressure within the ATS might improve efforts to boost ATP national legislation where it is most needed. Until an international enforcement mechanism exists under treaty auspices, Antarctica relies on national legislation to provide the muscle the existing regulatory framework for Antarctic tourism needs.

3.7 Problem areas for policy makers

The ATS has not yet responded to all tourist related issues because problem areas exist for policy makers. One major impediment to formulating effective tourism policy concerns the use of language employed in ATS documents. Recommendations often contain words which are ambiguous or fail to describe matters in sufficient detail. Boczek (1988:465) discussed the inadequacies of ATP terminology employed in tourism recommendations: "The Consultative Parties usually distinguish tourists from non-governmental expeditions, but the dividing line is not clear" and points to "the need for clarifying and sharpening these concepts as well as harmonizing the relevant provisions in a consistent and comprehensive codification."

Antarctic waste disposal practices present problems which concern tour operators, ATPs and the general public. Treaty Recommendation XV-3 addressed the subject of waste disposal and human impact on the Antarctic environment, but incredibly failed to include the terms 'tourist', 'tour operator' or 'tourist vessel'. Instead, each point is directed at

'Governments', 'Governments carrying out Antarctic activities', 'Those carrying out Antarctic activities' or 'Vessels engaged in supporting Antarctic activities' (Antarctic Treaty, 1990, pp.48-53). Tourism is an Antarctic activity and therefore would seemingly be covered under the recommendation, but no consistent application of waste management policy may result until semantic and linguistic obstacles are overcome. An example of the broad nature of the terminology employed in Recommendation XV-3 follows:

6. Those carrying out activities in Antarctica shall ensure that members of their expeditions receive training designed to limit the impact of their operations on the Antarctic environment and to inform them of required practices (Antarctic Treaty, 1990, p.50).

The nature of the training required is not specified, nor are the terms 'limit' and 'inform' elucidated, rendering the provision less meaningful than it might have been were it worded more explicitly. Many provisions within the ATS have no relevant application to tourist activity, but those which do should include 'tourists' in the text to avoid confusion and loose interpretations of existing Antarctic policy.

Recommendation XV-20 addressed air safety in Antarctica but never directly referred to tourist activity even though private, government and commercial aircraft have all transported tourists to Antarctica (Antarctic Treaty, 1990, pp.101-3). The absence of a reference to tourist operations is even more noticeable when one considers that the greatest air disaster in Antarctica's history involved a commercial tourist flight in 1979. Each treaty recommendation applicable to tourist activities should bind tourists and tour operators to its conditions. This would go a long way in strengthening ATS recommendations which are currently ambiguous.

Under the ATS, 32 sites have been designated Sites of Special Scientific Interest (SSSIs) and 20 sites have been listed as Specially Protected Areas (SPAs) (Heap, 1990c) because they were deemed significant for purposes of science or conservation. The sites or areas may serve as breeding grounds for birds and sea mammals, contain abundant plant life or remain important to a major ongoing scientific program (Peterson, 1988, p.97). There are currently 16 SPAs because four designations have been terminated. Refer to Appendices 4 and 5 for lists of current SSSIs and SPAs.

In 1989, treaty parties created two new categories of protected areas: Multiple-use Planning Areas (MPAs) and Specially Reserved Areas (SRAs). The existing permit system for SPAs and SSSIs has proved to be problematic for tour operations in Antarctica. Each major U.S. tour operator has violated the Antarctic Conservation Act in this respect. For example, during the 1988 austral tourist season, 21 visits were made without NSF permission to Harmony Cove on Nelson Island by Travel Dynamics, Lindblad and Society Expeditions (Manheim, 1990, p.11). "This area was internationally designated as an SSSI in October 1985 but not added to the U.S. list of SSSI's until July 1988." (ibid., p.38). Additional violations are described in Manheim, 1990, pp.11 and 38-9. NSF has since advised the major Antarctic tour operators that permits must be obtained prior to entering SPAs and SSSIs but concern has been expressed over how tour companies will comply with standards governing entry into these areas (ibid., p.39).

Manheim (1990:11) suggested the U.S. State Department "should initiate international efforts to ensure that these areas are clearly marked as off-limits to those without authorization." Enforcement may always be a problem but all tour operators and tourists need to be made aware of

existing regulations before full compliance may result. A mechanism, such as a secretariat, within the ATS dedicated to this task could provide the basis for a start of consistent and regular dissemination of information to Antarctic tour operators and tourists.

The lack of an international enforcement mechanism under the ATS creates perhaps the greatest impediment to progress when devising Antarctic tourism policy. Treaty recommendations establish a framework for dealing with tourism issues, but continue to provide "no means to enforce rules of behavior that private individuals or groups may choose to ignore" (Quigg, 1983, p.103) unless national laws enacted and enforced to cover these activities exist. Non-signatories have made it clear that policies formulated under the aegis of the ATS do not legally bind nationals of non-signatory nations. The "rules of the Antarctic Treaty System cannot be enforced against third parties since a well established principle of international law holds that a treaty does not create obligations (or rights for that matter) for any third party without that party's consent." (Boczek, 1988, pp.466-7).

Infringements made by ATPs themselves present an even greater challenge to the problem of enforcement. Often the gap between a necessary and a realistic tourism policy is considerable. Beck (1990b:348) noted "the hortatory nature of recommendations means that ATPs have to rely upon persuasion and exhortation rather than compulsion." The difficulties in enforcing Antarctic tourism regulations were a violation to occur, may be appreciated when the following hypothetical illustration is considered:

Recognizing the international nature of Antarctic tourism, "what is the responsible flag state in the case of an incident involving, say, a Panamanian registered vessel, with a Greek captain, a Philippine crew, carrying an international party of tourists on a charter tour organised by

a travel agent in the United States under a joint arrangement with travel agents in Britain, France and [Germany] and departing from New Zealand for the Ross Sea and the Antarctic Peninsula?" (Nicholson, 1986, p.201).

Further problems arise within the ATS owing to the different national perspectives of Contracting Parties. Tourism issues 'provoked sharp division' when "efforts to develop even a rudimentary international code to govern Antarctic tourism produced nothing more than acrimonious debate" at recent treaty meetings (Hotz, 1987). "The major impediments to an agreement on tourism were Argentina and Chile, who view their Antarctic claims as integral parts of their countries" noted Jack Talmadge, a senior official with NSF's Division of Polar Programs. "In their minds, it is like the Russians telling the United States that we can't send visitors to Alaska." (ibid.). The sensitive nature of treaty negotiations for tourism policy should not be underestimated and can be better appreciated when the history of the continent's territorial claims is considered.

Seven nations have claimed portions of Antarctica. Some of the claims overlap and in a few cases do so in several places although all territorial claims are held in abeyance under terms of the Antarctic Treaty. Political tension has resulted "when, for example, the United States and Great Britain have attempted to restrict Antarctic tourism. Although they have overlapping and, therefore, competing territorial claims, Chile and Argentina have worked together to impede restrictions on tourism" (USAP, 1990b, pp.5-120 - 5-121) since both nations have been involved in government-sponsored tourist activities. Argentina and Chile "have often been accused of being more concerned to record a sovereignty presence rather than to perform science *per se*." (Beck, 1990c, p.124). The issue of sovereignty therefore provides Argentina and Chile one instrument "to counter the scientific and logistical weight of the superpowers in

Antarctic matters." (Beck, 1990c, p. 117). These conflicts internal to the ATS create barriers to the formulation of a uniformly applied tourism policy. Until the barriers are removed, tourism policy will be burdened by the weight of these conflicts. The political motivations of each treaty signatory influence decisions made regarding tourism activities and therefore need to be considered when examining the overall effectiveness of existing tourism policy.

Domestic politics within ATP nations may also affect tourism policy in Antarctica. Pressure from non-governmental organizations (NGOs) is exerted in varying degrees on ATPs. NGOs have traditionally applied outside pressure on the ATS in the search for improved environmental policies and for participation at ATCMs (Beck, 1986, pp. 150-1). With the latter aim fulfilled, the NGO role in attaining the former may well be considerable. Peterson (1988:177) noted: "The increased scale of scientific activity and the impact of tourism might have attracted environmentalist attention in time, but resource possibilities greatly accelerated the process." NGO representation within Antarctic delegations has increased since the U.S., New Zealand and Australia started the practice in the 1980s. Denmark, France, Chile and Argentina also permit NGO representatives to attend treaty meetings. Overall, more than 25% of existing ATCP delegations allow NGO representation.

All of the aforementioned problem areas and influences on ATS negotiations combine to provide the context within which all tourist policy decisions are taken. Existing treaty recommendations may not adequately address all aspects of tourist activities, but do provide a basis for expansion of ATS tourism policy. The ATS response to tourism is supplemented by self-imposed regulations drafted by Antarctic tour operators. The combined

efforts of the member states of the ATS and commercial tour operators along with national legislation implemented by ATP home governments provide the regulatory framework for Antarctic tourist activities. With this framework in mind, it is possible to examine how it is implemented by National Antarctic Programs.

Chapter 4 National Antarctic Programs and tourism

Since there is no uniformly applied tourism policy in Antarctica each nation operating a research facility in the region approaches the tourist question in its own way. There is no centralized authority empowered to enforce current guidelines or direct tour operator behavior. Various National Antarctic Programs have expressed tourism policy through official as well as less formal means. An examination of the positions maintained by National Antarctic Programs such as the British Antarctic Survey (BAS) and the U.S. Antarctic Program (USAP) and their determining factors will reveal how various nations have responded to tourism issues.

4.1 British Antarctic Survey tourism policy

BAS policy on tourism has evolved out of its discussions held with representatives from the British Foreign Office and has been enacted in response to tour operator requests to visit British research stations in Antarctica. Policy statements have been released in the past (Table 4.1) but no current policy is available for distribution by either BAS or the British Foreign Office. Access to internal memoranda and correspondence between BAS officials and tour operators has provided this study insight into the detailed workings of BAS policy on tourism.

BAS has been affected by tourism since January 1968 when the first tour vessel visited Faraday Base on the Antarctic Peninsula (Table 4.2). The first yacht known to have visited Antarctica was seen the previous summer and yacht visits have increased markedly since then (Drewry, 1990). Tour ships and yachts have visited three of the four BAS stations (Faraday,

CONDITIONS ATTACHED TO PERMISSION FOR TOURISTS TO VISIT
BRITISH ANTARCTIC SURVEY STATIONS IN THE ANTARCTIC TREATY
AREA

Recommendation IV-27 of the Fourth Antarctic Treaty Consultative Meeting, which has become effective in accordance with Article IX paragraph 4 of the Antarctic Treaty, calls on Governments notified through diplomatic channels of impending visits to their stations "to provide on request information ... regarding the conditions upon which it would grant permission for tourist groups to visit Antarctic stations which it maintains". The British Antarctic Survey are prepared to accept the proposed visits to their station in the Argentine Islands subject to the conditions set out below, which are based on Recommendation VI-7 of the VIth Antarctic Treaty Consultative Meeting:-

(a) that, except in an emergency, final arrangements to visit British Antarctic Survey stations are made direct with the station to be visited not less than 48 hours in advance of the expected time of arrival;

(b) that a visit cannot be accepted while a British Antarctic Survey ship is discharging cargo;

(c) that visitors comply with any conditions or restrictions on their movements which the station commander may stipulate for their safety or to safeguard scientific programmes being undertaken at or near the station;

(d) that visitors comply with the provisions of the Antarctic Treaty and the Agreed Measures for the Conservation of Antarctic Fauna and Flora;

(e) that visitors do not enter Specially Protected Areas and that they respect historic monuments designated under Recommendation VII-9. (A copy of the list of historic monuments annexed to this Recommendation is attached at Annex A.) The Specially Protected Areas in the Antarctic Peninsula area are:

(i) Green Island, Berthelot Islands, Antarctic Peninsula
Lat 65°19'S Long 64°10'W

(ii) Cape Shireff, Livingston Island, South Shetland
Islands, Lat 62°28'S, Long 60°43'W

(iii) Coppermine Peninsula, Robert Island, South
Shetland Islands, Lat 62°23'S Long 59°42'W

(The designation of Fildes Peninsula and Byers Peninsula as Specially Protected Areas has been withdrawn in accordance with Recommendation VIII-2).

(f) that ships visiting the Argentine Islands station should not enter the Meek Channel where they would pass close to the magnetic observatory on the North shore of Galindez Island and thus cause disturbance to the instruments. The approach

should be made from the west or the ship should lie in Penola Strait while parties are sent ashore by motor boat through Meek Channel;

(g) that if a tourist vessel visits unoccupied British stations, the tour organiser ensures that tourists do not enter the buildings except in an emergency.

In addition to the Specially Protected Areas listed in sub-paragraph (d) above, it should be noted that under Recommendation VIII-1 of the Eighth Antarctic Treaty Consultative Meeting a new Specially Protected Area was designated. This is

Litchfield Island, Arthur Harbour, Palmer Archipelago,
Lat 66°16'S Long 64°06'W.

The attention of tour operators is drawn to the provisions of Recommendation VIII-5, which provides that no-one should enter a Specially Protected Area except in accordance with a permit issued under the Agreed Measures for the Conservation of Antarctic Fauna and Flora.

Under Recommendation VIII-4 a number of Sites of Special Scientific Interest were designated; the following are those in the Antarctic Peninsula area:

- (i) Fildes Peninsula, King George Island (see map at Annex B)
- (ii) Byers Peninsula, Livingston Island, South Shetland Islands (see map at Annex C).

If a tour vessel wishes to visit either of these sites it is hoped that the tour operator will inform the British Antarctic Survey.

Attention is also drawn to the provisions of Recommendation VIII-7. Although this Recommendation is not in force, it would be helpful in reviewing the Annexes to this Recommendation if tour operators were able to provide the information listed at Annex C to the Recommendation which is requested in accordance with paragraph 3 of the Recommendation.

Finally, no permission can be given for a call at Signy Island owing to the danger of accidental interference with the intensive biological experiments there.

Rothera and Signy), with Halley yet unvisited. BAS allows four tour ship visits to each station during the austral summer season. Tour operators indicate their preference for visitation months in advance and coordinate their requests to allow supply ship visits and other BAS priorities to take place as scheduled. Given the unpredictable nature of Antarctic weather and sea ice, these dates may be altered slightly if agreed with the base commander with at least 48 hours notice. The relative inaccessibility of BAS stations helps to reduce visitor pressure to some degree (Drewry, 1990). When the strict BAS tourism policy is combined with unpredictable sea and ice conditions which cause scheduled cruise ship visits to be cancelled, BAS tourist visits are kept to a manageable number.

Current BAS policy stipulates the size of any given tour ship group in one day should not exceed 150, 120 being better. Groups of 20 ashore are preferred though groups of up to 30 are allowed on base at one time. No visits are allowed ashore at Signy Island due to the nature of scientific research conducted there. Typically a short slide presentation is provided by Signy staff on board the tour ship followed by a visit to Shingle Cove on Coronation Island. This arrangement seems to work well for BAS and tour operators since the passengers are pleased to learn about the research being conducted at Signy and meet station personnel while learning about the surrounding area.

BAS stresses its policy of no direct support (food, fuel, accommodation) to tour groups or private expeditions, while at the same time extending courtesy to prearranged visitors. This may not always be an easy policy to uphold in practice since humanitarian assistance would most likely be rendered if needed and where possible. Base officials may be forced to walk a fine line in balancing the needs of the station i. e. adhering to the

principle that project budgets should yield the best science possible while handling requests to visit their facilities. Tourism policy at Rothera has worked well and to date no visits have occurred without base consent.

Recognizing that private yacht visits are difficult to monitor and prevent, some base personnel seem to prefer these visits to tour ships although the reason is not exactly clear. Perhaps the smaller numbers are preferred. The uncontrolled nature of yacht visits causes concern for program officials, especially given the trend to charter yachts and carry fare-paying passengers. BAS is currently working to address this type of tourism with the aim to control the effect yachts have on the environment (Drewry, 1990).

BAS tourism policy has been extremely effective in striking the necessary balance between capitulating to tour operator requests for visitation privileges and allowing minimum disruption to scientific research programs during the summer season. The success of BAS tourism policy may be largely attributed to its consistency, unbending as it is to the increased pressure brought upon it by tour operators who have attempted to increase their allotment of visits to the station. Base commanders have remained adamant that existing policy must be respected and it is this unwavering stance that has allowed BAS science to be conducted with minimum interruption over the years. Existing policy has served BAS well over time. Provided tour operator pressures or increased visitation in the region do not overturn the present system, BAS science programs may continue to operate with few disruptions.

4.2 Tourism at Faraday Station: a case study

How does tourism affect an Antarctic research station in practice? An examination of tourism at Faraday Station (UK) reveals the nature of relations between tour operators and scientists. BAS permitted this study access to all of the annual Faraday Base General Reports from 1966 (the year the first tourist ship was sighted off Faraday, *Lapataia*) to the present. The 1990-91 report was not yet available. The base reports provided a record of all tour ships and private yachts known to have visited Faraday during this period and insight into specific experiences with tour operators and yacht owners. While some reports provided more detail than others it is possible to formulate a picture of the nature and frequency of tourist visits to the station. Faraday may be considered representative of other Antarctic stations in the Peninsula region in that it is regularly visited by established tour operators, however each station experiences different levels of visitation according to annual sea ice conditions, station policy and the amount of overall tourist activity each season.

Table 4.2 provides a comprehensive list of tourist ships and yachts that have visited Faraday Station. Visit numbers confirm the consistent policy BAS has maintained in granting permission to tour ships desiring to visit the station. The first tour ships visiting the station did not provide any notice they were coming but subsequent arrivals have met the current requirement to arrange visits in advance. The number of yacht visits vary according to sea ice conditions as well as the level of yacht activity in Antarctica in any given season. Yachts may radio ahead to seek permission to tour the station but do not necessarily provide advance notice that passengers will come ashore.

Table 4.2. Tour ship and yacht visits to Faraday Station from 1966-1990. compiled from information found in Faraday annual Base Reports. Sources: BAS, 1967-75; BAS, 1976a-b; BAS, 1977; BAS, 1979; BAS, 1980a-b; BAS, 1981-5; BAS, 1987a; BAS, 1988; BAS, 1990a.

Note: No annual reports were submitted for the following seasons: 1977-78, 1985-86 and 1988-89. Passengers, anchorages and other details were supplied when known.

1989-1990

1989-1990 Summary: 2 official tour ship visits by Society Expeditions. 7 yachts visited, 3 with fare paying passengers.

*Denotes fare paying passengers (pax) aboard yachts.

Arrival	Ship	Purpose of visit	Departure
2 Jan 90	<i>Skookum 1</i>	Yacht arrival. 2 pax	6 Jan 90
2 Jan 90	<i>Illyria</i>	Anchored at Drum Rock overnight.	
7 Jan 90	* <i>Damien II</i>	Yacht arrival. 8 pax incl film crew	10 Jan 90
8 Jan 90	* <i>UAP</i>	Yacht arrival. 20 pax	9 Jan 90
10 Jan 90	<i>Illyria</i>	Anchored at Drum Rock overnight.	
11 Jan 90	<i>Jantine</i>	Yacht arrival. 2 pax	19 Jan 90
16 Jan 90	<i>Scherzo</i>	Yacht arrival. 2 pax	19 Jan 90
19 Jan 90	<i>Illyria</i>	Anchored at Drum Rock overnight.	
23 Jan 90	<i>World Discoverer</i>	Visits party at Petermann Island.	
25 Jan 90	<i>Jantine</i>	Yacht arrival. (2nd visit)	28 Jan 90
27 Jan 90	* <i>Damien II</i>	Yacht arrival. (2nd visit)	28 Jan 90
2 Feb 90	<i>World Discoverer</i>	Tour visit.	
6 Feb 90	<i>Illyria</i>	Anchored in Yalour Islands.	
8 Feb 90	<i>Society Explorer</i>	Tour visit.	
8 Feb 90	* <i>Sol</i>	Yacht arrival. 13 pax	11 Feb 90
9 Feb 90	<i>Theodos</i>	Yacht arrival. 2 Pax	14 Feb 90
15 Feb 90	<i>Skookum 1</i>	Yacht arrival. (2nd visit)	19 Feb 90

1988-1989

*Information for this season was provided by an inter-office BAS memorandum dated 30 May 1989 from P. Stark to the Director.

1988-89 Summary: Four tour ship visits were allocated but Lindblad Travel's two visits never took place due to ice conditions in one instance and their request to change a pre-arranged arrival date which was denied.

Arrival	Ship	Purpose of Visit	Departure
26 Jan 89	<i>World Discoverer</i>	Tour visit.	same day
17 Feb 89	<i>Society Explorer</i>	Tour visit.	"

1987-1988

1987-88 Summary: 1 official tour ship visit by Society Expeditions.
2 yacht visits with fewer yachts around in general.

*Denotes fare paying passengers (pax) aboard yacht.

Arrival	Ship	Purpose of visit	Departure
30 Jan 88	* <i>Kotick</i>	Yacht arrival. 8 pax	1 Feb 88
16 Feb 88	<i>Society Explorer</i>	Tour visit.	
12 Mar 88	<i>Pelagic</i>	Yacht arrival. 9 pax (Film crews)	18 Mar 88

1986-1987

1986-87 Summary: 1 official tour ship visit by Society Expeditions.
4 yacht visits, total number down on 1985-86 season.

Arrival	Ship	Purpose of visit	Departure
23 Dec 86	<i>Society Explorer</i>	Base members visit ship.	
5 Jan 87	<i>World Discoverer</i>	Tour visit.	
9 Feb 87	<i>Kotick</i>	Yacht arrival. 7 pax (Film crew)	13 Feb 87
12 Feb 87	<i>Damien II</i>	Yacht arrival. 9 pax	15 Feb 87
20 Feb 87	<i>Matahiva</i>	Yacht arrival. 4 pax	23 Feb 87
21 Feb 87	<i>Northanger</i>	Yacht arrival. 6 pax	24 Feb 87

1985-1986

1985-86 Summary: 1 yacht visit (information provided in 1986-87 report).
No annual reports compiled for this time period.

Arrival	Ship	Purpose of visit	Departure
19 Mar 86	<i>Aomi</i>	Yacht arrival. Anchored in Penola Bay.	4 Apr 86

1984-1985

1984-85 Summary: 4 official tour ship visits by *Lindblad Explorer*.
4 yachts visited.

Arrival	Ship	Purpose of visit	Departure
10 Dec 84	<i>Lindblad Explorer</i>	Drum Rock anchorage.	
8 Jan 85	<i>Lindblad Explorer</i>	"	
18 Jan 85	<i>Lindblad Explorer</i>	"	
22 Jan 85	<i>Sundowner</i>	Yacht arrival. Stella Creek	27 Feb 85
	<i>Ksar</i>	Yacht arrival. "	"
	<i>Kotick</i>	Yacht arrival. "	"
30 Jan 85	<i>Lindblad Explorer</i>	Drum Rock anchorage.	
24 Feb 85	<i>Basile</i>	Yacht arrival. Stella Creek	27 Feb 85
12 Mar 85	<i>Basile</i>	Yacht arrival. Stella Creek (2nd visit)	15 Mar 85

1983-1984

1983-84 Summary: 3 official tour ship visits.
3 yachts visited.

*Indicates ship was unable to visit base due to adverse ice conditions.

Arrival	Ship	Purpose of visit	Departure
7 Dec 83	* <i>Lindblad Explorer</i>	Penola Straight	
8 Dec 83	* <i>World Discoverer</i>	Penola Straight	
18 Dec 83	* <i>Lindblad Explorer</i>	Penola Straight	
31 Dec 83	* <i>World Discoverer</i>	Penola Straight	
11 Jan 84	<i>World Discoverer</i>	Drum Rock	
19 Jan 84	<i>Damien II</i>	Yacht arrival. StellaCreek	24 Jan 84
23 Jan 84	<i>World Discoverer</i>	Drum Rock	
25 Jan 84	<i>Northern Light</i>	Yacht arrival. StellaCreek	31 Jan 84
4 Feb 84	<i>Lindblad Explorer</i>	Drum Rock	
14 Feb 84	<i>F'murr</i>	Yacht arrival. Penola Bay	19 Feb 84
25 Feb 84	<i>Damien II</i>	Yacht arrival. Penola Bay (2nd visit)	29 Feb 84

1982-1983

1982-83 Summary: 4 official tour ship visits.
3 yachts visited.

Arrival	Ship	Purpose of Visit	Departure
21 Dec 82	<i>World Discoverer</i>	Arr 2145 Dep 1130	22 Dec 82
1 Jan 83	<i>World Discoverer</i>	Arr 1400 Dep 2300	1 Jan 83
16 Jan 83	<i>Williwaw</i>	Yacht arrival. Arr 1600 dep 1130	17 Jan 83
26 Jan 83	<i>World Discoverer</i>	Arr 1830 Dep 2230	26 Jan 83
26 Jan 83	<i>Damien II</i>	Yacht arrival. Arr 2200 dep 1045	29 Jan 83
27 Jan 83	<i>Lindblad Explorer</i>	Arr 1600 Dep 2030	27 Jan 83
31 Jan 83	<i>Graham</i>	Yacht arrival. Arr 2300 dep 1745	2 Feb 83
8 Feb 83	<i>Williwaw</i>	(2nd visit) Arr 1700 dep 0845	11 Feb 83
12 Feb 83	<i>Williwaw</i>	(3rd visit) Arr early dep 0900	12 Feb 83

1981-82

1981-1982 Summary: 1 official tour ship visit.

Arrival	Ship	Purpose of Visit
19 Jan 82	<i>World Discoverer</i>	Tour visit. Arr and Dep same day.

1980-1981

1980-1981 Summary: 1 official tour ship visit.
2 yachts visited.

Arrival	Ship	Purpose of Visit	Departure
27 Dec 80	<i>World Discoverer</i>	Tour visit. Approximately 100 pax ashore.	
2 Feb 81	<i>Kim</i>	Yacht arrival (14m). 4 crew	8 Feb 81
17 Feb 81	<i>Isatis</i>	Yacht arrival (17m). 2 crew	23 Feb 81
2 Mar 81	<i>Kim</i>	(2nd visit)	10 Mar 81
7 Mar 81	<i>Isatis</i>	(2nd visit)	10 Mar 81
13 Mar 81	<i>Kim</i>	(3rd visit)	23 Mar 81
1 Apr 81	<i>Kim</i>	(4th visit)	2 Apr 81
4 Apr 81	<i>Kim</i>	(5th visit)	6 Apr 81

1979-1980

1979-80 Summary: 1 yacht visit.

Arrival	Ship	Purpose of Visit	Departure
11 Feb 80	<i>Momo</i>	Yacht arrival.	14 Feb 80

1978-1979

1978-1979 Summary: 2 yacht visits.

Arrival	Ship	Purpose of Visit	Departure
15 Feb 79	<i>Isatis</i>	Yacht arrival. 3 pax	19 Feb 79
3 Mar 79	<i>Damien II</i>	Yacht arrival. Sally and Jerome Poncet.	5 Mar 79

1977-1978

1977-78 Summary: 1 yacht visit (information provided in 1978-79 report).
No annual reports compiled for this time period.

*1st yacht to winter-over in Antarctica.

Arrival	Ship	Purpose of Visit	Departure
9 Mar 78	* <i>Damien II</i>	Yacht arrival. Sally and Jerome Poncet winter in Marguerite Bay.	16 Mar 78

Note: Reports compiled before 1978 were based on the calendar year.

1977

1977. Summary: 1 official tour ship visit.

Arrival	Ship	Purpose of Visit
14 Jan 77	<i>Lindblad Explorer</i>	Tour visit.

1976

1976 Summary: 3 official tour ship visits.
1 yacht visit.

Arrival	Ship	Purpose of Visit	Departure
12 Jan 76	<i>Lindblad Explorer</i>	Tour visit.	13 Feb 76
29 Jan 76	<i>Lindblad Explorer</i>	Tour visit.	30 Jan 76
5 Feb 76	<i>Trismus</i>	Yacht arrival.	10 Feb 76
14 Feb 76	<i>Lindblad Explorer</i>	Tour visit.	

1975

1975 Summary: 4 official tour ship visits.

Arrival	Ship	Purpose of Visit	Departure
2 Jan 75	<i>Lindblad Explorer</i>	Dep same day at 1430	same day
29 Jan 75	<i>Lindblad Explorer</i>	Arr 1500 Dep 2030	"
14 Feb 75	<i>Lindblad Explorer</i>	Arr 1430 Dep 2130	"
23 Dec 75	<i>Lindblad Explorer</i>	Arr 1030 Dep after 1700	"

1974

1974 Summary: 3 official tour ship visits.

Arrival	Ship	Purpose of Visit	Departure
18 Jan 74	<i>Lindblad Explorer</i>	Arr 0130 Dep 1500	same day
1 Feb 74	<i>Lindblad Explorer</i>	Arr 1400 Dep 2200	"
25 Dec 74	<i>Lindblad Explorer</i>	Arr 1100 Dep 2230	"

1973

1973 Summary: 5 official tour ship visits.

Arrival	Ship	Purpose of Visit	Departure
4 Jan 73	<i>Lindblad Explorer</i>	Tour visit. Arr 1200 Dep 2000	same day
18 Jan 73	<i>Lindblad Explorer</i>	Tour visit. Arr 1300 Dep 2200	"
31 Jan 73	<i>Lindblad Explorer</i>	Tour visit. Arr 1300 Dep 2200	"
13 Feb 73	<i>Lindblad Explorer</i>	same as above	"
27 Feb 73	<i>Lindblad Explorer</i>	Small party visited base.	

1972

1972 Summary: 1 official tour ship visit.

Arrival	Ship	Purpose of visit
21 Jan 72	<i>Lindblad Explorer</i>	Arr 1300 Dep 1600. Approximately 100 tourists came ashore.
5 Feb 72	<i>Lindblad Explorer</i>	Arr 1300 Dep 2400

1971

1971 Summary: No official tour ship visits reported.

1970

1970 Summary: 2 official tour ship visits.

Arrival	Ship	Purpose of Visit
7 Feb 70	<i>Lindblad Explorer</i>	no details provided.
21 Feb 70	<i>Lindblad Explorer</i>	no details provided.

1969

1969 Summary: 1 tourist ship visit.

Arrival	Ship	Purpose of Visit
20 Jan 69	<i>Aquiles</i>	Tourist visit, no details provided.

1968

1968 Summary: 2 tour ship visits. *Aquiles* visit unannounced.

Arrival	Ship	Purpose of Visit
20 Jan 68	<i>Aquiles</i>	Tourist visit. Arr 1630 Dep 2115. 110 tourists ashore. No prior warning provided for visit.
21 Jan 68	<i>Navarino</i>	Tourist visit. Arr 0900.

1967

1967 Summary: 1 tour ship sighted, no official visit ensued.

Arrival	Ship	Purpose of Visit
19 Jan 67	<i>Lapataia</i>	No contact made with the ship, but ship was believed to be anchored in Penola Strait.

1966

1966 Summary: 1 tour ship sighted, no official visit ensued.

Arrival	Ship	Purpose of Visit
27 Jan 66	<i>Lapataia</i>	Ship spotted in French Passage, tourists went ashore on Petermann Island.

Tour ship and yacht visits to Faraday can be assessed in terms of the positive and negative effects they have had on the station. Base member response to tourist visits varies on an individual basis and certain crews have been more receptive to tourists than others. Some of the benefits derived from these visits include a break from the routine of base life, the opportunity to meet new people and see new faces in an isolated place, the delivery of personal mail, gifts of books, fresh fruit, vegetables and meats, invitations to dine, drink and socialize on board, the provision of entertainment, videos or slide shows, or excursions aboard the vessels to other local areas.

Some of the drawbacks to these visits include first and foremost, the interruption to science programs and work schedules, the distraction caused to work crews with strict schedules and limited summer personnel, even the feeling of being a form of entertainment for wealthy tourists. While the boost to station morale is not overlooked there exists a general perception among station managers and some personnel that although these visits may provide a healthy diversion, ultimately they detract from the goals strived for at a scientific research station. Since tour operators are requested to provide 48 hours notice before visiting Faraday, the anxiousness experienced by base members may be viewed as a distraction resulting in a decline in station efficiency and/or productivity.

In one case a tour ship radioed Faraday in need of medication for a seriously ill passenger which was then supplied. The patient was reported to have made a 'good' recovery. While BAS expresses no interest in generating income from tourism, the sale of postcards, stamps and booklets can bring considerable revenue from tourists. In one season Lindblad tourists posted between 3-4,000 postcards at Faraday. The benefits of

tourism tend to be reciprocal as some vessels transport base personnel to check on BAS survival depots in the vicinity or mail items for base members upon departing Faraday.

The 1985 U. S. Antarctic Observer Team Report noted that at Faraday "an increasing number of visits by private yachts has coincided with losses of supplies at outlying camps, food depots and refuges." (U. S. Department of State, 1986a, p. 7). Antarctic personnel rely on these survival caches; therefore any pilfering may result in serious consequences. The majority of yacht owners appear to be responsible in Antarctica, yet it is difficult to regulate or prevent the few choosing to tamper with emergency caches.

Faraday has managed tourist visits extremely well since its first visitors came ashore in 1968. There is no indication that station policy will change significantly in the near future. The staunchly held position of limiting tour ship visits to four per season in the face of increased tour operator pressure has worked to the benefit of BAS science and the credit of policy makers. A prophetic comment made in the 1966 base report by D. L. Hughes upon spotting a cruise ship in the vicinity embodies the essence of Faraday's tourism dilemma: "The weather that day was perfect, and the coastal scenery was magnificent. On the reports that that party of tourists must have made of that day alone, we may expect to see many more touring vessels in the summers to come!" (BAS, 1967, p. 5). Tourists continue to visit Antarctica and each National Antarctic Program must deal with tourism issues. A look at how other NAP tourism policies address tourist activity will highlight the differences between these policies and the challenges they pose to program officials.

4.3 United States Antarctic Program tourism policy

Tourism policy applied by the U.S. Antarctic Program (USAP) has evolved with time in response to tourist demands and program needs. Jack Talmadge, a senior official with the Division of Polar Programs at NSF summarized the tourism quandary: "Our concerns about Antarctic tourism are threefold, ... that it will interfere with science, that there will be an impact on the Antarctic environment, and that there might be a need for search and rescue, which our program is really not set up to provide." (Cardozo and Hirsch, 1989, p.289). The U.S. position, exemplified by this view, strongly advocates that tour operators remain self-sufficient by providing insurance and an adequate safety net for all operations. Humanitarian assistance is rendered where and whenever possible but should not be relied upon by tour operators or expeditioners. Table 4.3 describes U.S. policy for private expeditions to Antarctica.

Tourists visit all three of the main U.S. facilities in Antarctica: McMurdo, Palmer and Amundsen-Scott South Pole Station. During the 1990-91 austral summer four tour ships planned visits to McMurdo, Ross Island, for the first time since 1987. Palmer (Anvers Island) has been visited the most frequently due to its location in the Peninsula region. South Pole Station was first visited by airborne tourists in January 1988 when 19 ANI passengers arrived in Twin Otters. These visits are now an annual occurrence.

During the 1989-90 austral summer non-USAP aircraft visited the South Pole on 15 occasions. Two overland expeditions also arrived that season and stayed in the vicinity respectively for five and two days. Palmer reported that 12 tour ships visited within a seven week period, each bringing an

Table 4.3. United States Policy on private expeditions to Antarctica.
Source: USAP, n. d.



UNITED STATES OF AMERICA ANTARCTIC PROGRAM

U.S. POLICY ON PRIVATE EXPEDITIONS TO ANTARCTICA

The objectives and level of activity of the United States Antarctic Program (USAP) are set forth in President Reagan's directive of February 5, 1982. Achievement of USAP objectives, which center upon the conduct of a balanced program of scientific research, and include cooperative activities with Antarctic programs of other governments, requires the full commitment of the operational and logistics capabilities available to the USAP. The U.S. Government is not able to offer support or any other services to private expeditions, U.S. or foreign, in Antarctica.

In emergency situations, the U.S. is prepared to attempt, in accordance with international law and humanitarian principles, the rescue of private expedition personnel provided that there are no unacceptable risks posed to U.S. personnel and the rescue can be accomplished within the means available to the United States. Such emergency assistance would be limited to the rescue of private expedition personnel and their evacuation would be undertaken in a manner which, in the judgment of the United States, offered the least risk to U.S. personnel, equipment, and scientific programs. Once such rescue had been effected, the U.S. would consider its assistance terminated and would under no circumstances provide support for the continuation of the expedition.

Private expeditions, therefore, should be self-sufficient and are encouraged to carry adequate insurance coverage against the risk of incurring financial charges or material losses in the Antarctic. The National Science Foundation, as manager of the USAP, reserves the right to seek, in accordance with international and domestic law, recovery of all direct and indirect costs of any such emergency search and rescue.

The Senior U.S. Representative in Antarctica may authorize such actions or activities that, in his judgment, best fit this policy guidance under circumstances and conditions prevailing at the time of application.

average of 120 tourists ashore. McMurdo reported no tourists during the 1989-90 season (USAP, 1990a, pp.58-60).

During the 1987-88 season Palmer Station limited tourist visits to four per ship and kept visitors out of laboratories. Program officials were concerned that the integrity of the science being conducted at Palmer was jeopardized by frequent tourist visits therefore 'sample' tanks filled with live krill were displayed. Tourists not going ashore were visited by station personnel selling souvenir t-shirts on the ship (Cardozo and Hirsh, 1989, p.289). Palmer officials attempted to restrict tour visits and control visitation more carefully in order to minimize disruption to the station's science program.

Tourists were not pleased with the restrictions because they desire to see scientists at work, but visits conflict with the nature of some research. A tour ship lecturer, Frank Todd, explained what happens: "In the old days, when there were just one to two ships a year, any visit to a station was greatly looked forward to by station personnel...over the years, the type of projects has changed. There's a lot of laboratory work now, with greater emphasis, at least at Palmer, on controlled-temperature work inside buildings. Sometimes, by simply opening a door, you may wreck an experiment. Some of these experiments may be sensitive to vibrations, which is a problem if somebody accidentally bumps a sensitive instrument." (Cardozo and Hirsch, 1989, p.290).

American policy has perhaps been the most sensitive of the National Antarctic Program positions on tourism. NSF policy considerations are rooted in complex issues, some of which involve bending to pressures applied by influential American tourists voicing dissatisfaction with the

treatment tourists get at U.S. stations in Antarctica. In the past tourists have written to their congressional representatives to inform them of the 'cold shoulder' treatment they received at an American station, which contrasted with the warm reception at Arctowski, Poland's Antarctic base (Cardozo and Hirsch, 1989, p.289).

During the 1988-89 season NSF responded to these pressures by lifting the restrictions provided visitors did not interfere with scientific research and gave the recommended 24-72 hours notice. The more open policy was deemed successful in providing American tourists with what they wanted to see. NSF now engages in regular dialogue with tour operators in order to balance the demands of Antarctic science programs and tourism.

Due to the popularity of Palmer Station visits, USAP officials have worked to cooperate with tour companies in managing tour ship visits. "Under voluntary guidelines, tour operators request visits 6 months in advance and confirm their reservations to visit the station at least 72 hours in advance. The station accepts tourists on weekdays and Saturdays, but only between 8 a.m. and 12 noon and between 1 and 5 p.m., to avoid interfering with regular meal times. A typical visit to Palmer begins with an NSF representative and other USAP personnel going on board the tourist ship to give a presentation on the station and its purpose. The tourists are then brought ashore in groups of 35 to 40. These groups are split in half, and each group is led by USAP personnel on an outdoor tour of the station. The groups then go inside for refreshments and to buy souvenirs." (USAP, 1990b, p.4-15). Tourists are not allowed into living quarters or laboratories.

Tour operators and NSF officials both have it in their interest to foster positive relations as they attempt to coexist peacefully in Antarctica. A

spirit of cooperation is crucial given the lack of an ATS enforcement mechanism to back existing regulations. Placing trained observers aboard tour ships is the latest American initiative to provide NSF insight into issues of tourist impact. Tour operator compliance with existing regulations is essential to the protection of the Antarctic environment but responsive policies will also enable tourism to be conducted alongside National Antarctic Program science projects with a minimum of disruption.

The lack of an enforcement mechanism for ATS measures places even greater emphasis on the need for American legislation to cover tourist activities in Antarctica. The Antarctic Conservation Act which was passed on 28 October 1978 binds American tourists and tourists aboard American vessels to its terms. NSF adopted new enforcement procedures to administer the Act and its accompanying regulations on 16 February 1989. The new rules allow complainants to file papers which start the enforcement process (Antarctic Century, 1989a, p.5). Other legislation also applies to Americans in the Antarctic. (For a list of the primary pollution control and wildlife conservation laws that apply to Americans in Antarctica see Wilkniss, 1989, pp. 55-6.)

The rise in Antarctic tourist numbers (Table 2.2) will likely increase current pressures on U.S. legislation and limited USAP facilities. Consistent policies uniformly applied will go far in managing tourist visits at American research stations in Antarctica. NSF efforts to maintain regular dialogue with tour operators and the recent adoption of enforcement procedures for U.S. legislation applicable to American tourists in Antarctica both enhance ATS regulations covering tourism. Regular review of tourist impacts in Antarctica by newly placed observers and the

continued cooperation of U.S. tour operators will assist USAP policy makers in meeting the challenges posed by tourist activity.

NSF officials have determined that "USAP policies and procedures on tourism and voluntary guidelines followed by U.S. tour operators appear to be effective in avoiding significant impacts at the present time. Potential cumulative impacts could result from the activities of tourists from other nations and U.S. tourists over time, however. Such potential impacts can only be avoided or minimized by the ongoing efforts of the [ATCMs]." (USAP, 1990b, p. 5-119). USAP tourism policy has been described, but various positions are held by other National Antarctic Programs which affect the overall impact tourist activity has on Antarctica. An examination of these policies points to the conflicting approaches taken to tourism and underscores the difficulties inherent in attempting to reach ATS consensus on tourism issues.

4.4 Other National Antarctic Program tourism policies

Most National Antarctic Programs have expressed tourism policy through either official or informal means. Contact made with officials from Antarctic programs for this study yielded mixed results. Some programs provided policy statements while others failed to respond. There is no central source which outlines the tourism policies of all National Antarctic Programs. The following discussion of tourism policies reflects information obtained for this study from COMNAP representatives along with published material.

Chile and Argentina

Chile and Argentina sponsor government tourism in Antarctica as a means to support their research programs in the region. Reich reported the *Lapataia*, an Argentinian naval cruise ship, earned for Argentina roughly \$500,000 (US) in 1967 alone (Reich, 1980, p.208). It is difficult to calculate the total contribution tourists make to local economies before leaving South American ports aboard cruise ships bound for Antarctica, but the amount is likely to be considerable. The Argentinians and Chileans do not view their Antarctic programs to be in conflict with tourism and aim at promoting both enterprises with vigor.

From 1984 Chile has developed an airborne tourism program supervised by the 'Servicio Nacional de Turismo' (SERNATUR) with support and backing from 'Fuerza Aerea de Chile' (FACH). Tourists are transported aboard a FACH C-130 from Punta Arenas to Chile's Teniente Rodolfo Marsh Base on King George Island where arrangements may be made to visit the other eight bases operated by different National Antarctic Programs. While at Marsh tourists normally stay at the hostel 'Estrella Polar' for four days and three nights (Wilkniss and Romero, 1989, p.6).

Marsh Base visitors receive a briefing from a scientist specially designated to travel with them and a booklet of guidelines printed by SERNATUR. Tourist compliance with guidelines is "controlled 'in situ' by officers of SERNATUR, scientists or specialized guides, who accompany the tourists at all moments. This type of controlled tourism, in our opinion, causes less environmental damage than government expeditions" (Wilkniss and Romero, 1989, p.6). Chile concurs with the proposal to establish an agreed system for authorizing selected tourism and NGA to be conducted in harmony

with Antarctic program activities. Tour operators are entirely responsible for their passengers and crew and should be held liable to pay any expenses incurred for search and rescue operations conducted on their behalf by National Antarctic Programs (Wilkniss and Romero, 1989, p.6).

Chile also conducts a small amount of shipboard tourism in the Treaty Area. When compared to the amount of shipboard tourism organized in other countries which departs from Chile, the numbers are minimal. During the 1989-90 season the Chilean vessels *Yelcho* and *Piloto Pardo* brought tourists to the Peninsula area to visit Palmer station (USAP, 1990a, pp.59-60). On both occasions approximately 40 visitors landed (Table 2.1). *Aquiles* was renamed *Pomaire* and planned four tourist cruises during the 1990-91 austral summer season (Chile, 1990; La Prensa, 1991; Monteiro, 1991).

Argentina offered tours aboard *Bahia Paraiso* for at least three seasons until it ran aground and sank in January 1989 leaking 180,000 or more gallons of oil intended for Esperanza Station. Up until the accident, tourists helped to defray the running costs of the resupply ship. The 'Director Nacional del Antartico' reported that tourist activity has always been conducted under ATS guidelines and does not affect Argentina's scientific program in Antarctica. No other contract has been agreed for tour operations since the *Bahia Paraiso* incident (Leal, 1991).

Brazil

Visitors to Brazil's 'Comandante Ferraz' station are welcomed with a copy of SCAR's "Visitor's Guide to Antarctica" translated into Portuguese. Tourists are advised of the research programs underway and the sites where

they should not interfere with work being carried out. "So far, we have had no problems with tourists in 'Ferraz'." (Monteiro, 1991).

Australia

The Australian House of Representatives Standing Committee on Environment, Recreation and the Arts concluded: "The Committee supports tourism to the Antarctic provided it is conducted within a regime which ensures proper protection of the wilderness values of the continent." (Australian House of Representatives, 1989, p. 45). Australia and France have proposed that Antarctic tourism be subject to more comprehensive environmental regulation (Cook, 1990, pp. 98 and 101). The Australian House Committee proposed the following items be considered in a comprehensive management plan which would include a permit system for entry into the Antarctic Treaty Area: nature of tourist vessel, qualifications of tour leaders, education program for passengers and sites to be visited.

A recommendation was made that a secretariat be established and operated under ATS auspices to distribute and collect applications from tour operators. A committee with representatives from each signatory could review applications and accept or reject them according to established criteria. A secretariat could serve the tourism convention as the CCAMLR secretariat serves CCAMLR in Australia (Christensen, 1990, pp. 60-1). Argentina and other South American countries fear a diminished role in the ATS if a secretariat were to be established (ibid., p. 60).

New Zealand

New Zealand's Scott Base attracts tourists and is situated two miles from McMurdo Station (US). All tourism is viewed to affect the base as normal activities are interrupted during visits. The 1979 Air New Zealand DC-10 crash on Mt. Erebus severely disrupted the Scott Base program (Rudge, 1991). The New Zealand government's policy on tourism and private expeditions going to Antarctica is spelled out in a 29 page document (NZARP, 1990). Written assurance is required that provisions set forth in Table 4.4 are met before permission is granted to visit New Zealand stations.

In short, the policy requires advance notification from entirely self-supporting tourists or private expeditions. Any vessels intending to land in the Ross Dependency must be accompanied by a representative of the New Zealand Government who serves as a guide and provides site interpretation. The representative also carries keys to historic huts and ensures compliance is met with issued permits. Tours of Scott Base may be arranged which last approximately 1 1/2 hours. Visitors are allowed to purchase souvenirs in the small base shop and are invited to take refreshment in the canteen at the end of their tour. Tourist procedures during visits to the Ross Dependency appear in Appendix 6.

Poland

The Polish station Arctowski has received tourists since it was established in February 1977. Initially two to four ships visited each summer. Nine visits were expected during the 1990-91 season. Tour operators seek

**CONDITIONS APPLICABLE TO TOURIST GROUPS AND
PRIVATE EXPEDITIONS VISITING NEW ZEALAND ANTARCTIC STATIONS**

9. In considering requests to visit its stations in Antarctica the New Zealand Government requires assurances in writing from the expedition organisers that:
 - a. They will comply with the provisions of the Antarctic Treaty, the Recommendations then effective and the conditions applicable to the stations to be visited.
 - b. Tourists and other visitors do not engage in any activity in the Treaty area which is contrary to the principles and purposes of the Antarctic Treaty or Recommendations made under it. The relevant principles and Recommendations are attached.
 - c. The proposed tourist or private expedition is entirely self-supporting and that adequate safety precautions, including the establishment of adequate telecommunications procedures, are being undertaken.
 - d. They are covered by adequate insurance to compensate for any costs involved in rendering assistance in an emergency.
 - e. They agree to provide the New Zealand Government with a report at the end of the visit covering their activities within the Treaty area.
10. Requests should normally be lodged with the Manager, DSIR Antarctic, Christchurch, or a New Zealand diplomatic post at least three months prior to departure for Antarctica.
11. Once New Zealand Government approval in principle has been granted through the Manager, DSIR Antarctic, the SENZREP at Scott Base is the responsible authority for finalising details of visits to New Zealand bases and other areas where visitors may have some impact on scientific programmes in progress.
12. The safety of all visitors is the responsibility of the tour or expedition leader. Whilst all reasonable precautions will be taken to ensure the safety of those visiting New Zealand bases, the New Zealand Government will not accept any liability for accident or injury sustained by visitors at any time within the Antarctic.
13. Normal courtesies and limited hospitality will be extended to any tourist and private expedition visiting New Zealand Antarctic stations in accordance with these conditions. Operational limitations and commitments to supporting the New Zealand Antarctic Programme may, however, limit the extent of services from time-to-time.
14. Tourist and private expeditions are expected to furnish the SENZREP, Scott Base with at least 24 hours notice, preferably 48 hours, of expected time of arrival in order to minimise disruptions to Base routine and as a matter of courtesy.
15. For their own safety or to safeguard scientific programmes being undertaken at or near the station all tourists and other visitors are asked to comply with any conditions or restrictions on their movements which the SENZREP may stipulate.
16. In order to minimise disruption to station activities the SENZREP may have to limit the number and length of visits to any particular base by a tourist or private expedition. Scott Base will determine these limits depending on the situation at the particular time of the visit.
17. Since the tourist or private expedition is expected to be entirely self-sufficient, the New Zealand Government will not assist with transportation, operational support, food or shelter. Such assistance may be provided only in an emergency. Reimbursement by the tour organiser will be required where goods and services beyond those used during humanitarian rescue efforts are provided.
18. Visits by personnel from New Zealand stations to an expedition base or ship may only be arranged through the SENZREP, Scott Base.
19. The New Zealand Government has on behalf of the Antarctic Treaty nations undertaken care and custody of certain historic monuments in the Ross Dependency in order to protect the structures and their contents. Visits to and permission for entry into these historic monuments by tourist and private expeditions should be made only with the assent of the SENZREP, Scott Base and, where appropriate, with a suitable guide.
20. In the event of any member of the visitor group as whole not complying with any of the conditions applicable in the above, the SENZREP, Scott Base may cancel all arrangements made without notice.

permission in advance to tour the station and the places which may be visited are specified. The number of tourists visiting from each ship ranges from 60-150 depending on the cruise and weather. Private yachts have also visited Arctowski. "Generally there is a very friendly atmosphere for tourists and guides during the visit." (Lipski, 1991). No official statement on tourism has been issued by the Polish government.

The financial benefits derived from tour ship visits help support base personnel. Souvenirs were traded informally at first but soon emerged into a thriving small business. "Polish scientists sell patches, stamps, pennants, shirts, pins, and maps." (Cardozo and Hirsch, 1989, p.287).

The logistical costs incurred in implementing well-planned scientific research are considerable, particularly in Antarctica. At times, very small windows of time and opportunity allow scientists the rare chance to gather data for critical experiments. If tourist-related problems inhibit or prevent the collection of such data the quality of NAP science programs may diminish. If limited National Antarctic Program facilities are taxed by unprepared tour groups meeting with difficulty, the personal safety and well-being of program personnel may be jeopardized if emergency assistance is required. The above mentioned National Antarctic Program responses to tourism vary to some degree but the overriding theme remains that tour operators and private expeditions coming to Antarctica must do everything in their power to uphold Treaty provisions and safeguard the Antarctic environment. An assessment of the Antarctic tourism industry may enable better understanding of how National Antarctic Program tourism policies relate to tourist activity.

Chapter 5 An assessment of the Antarctic tourism industry

Given tourist numbers and the current regulatory framework for Antarctic tourism, an assessment of some of the primary concerns of the tourist industry provides insight into the question of how effective tourism regulations are in handling the current level of tourist activity.

5.1 The hazards of Antarctic tourism

Safety is a prime concern of Antarctic visitors because travel in the region entails varying degrees of risk. "Some scientists believe that tourism in Antarctica should be banned as hazardous, distracting to them, and burdensome to the environment." (Quigg, 1983, p.103). The hostile environment, remote location and lack of a built in safety net which exists in more northerly latitudes requires Antarctic operators to carefully plan logistics and prepare for emergencies. Resources are limited in Antarctica and ATPs have insisted that tourist operations remain self-sufficient while in the Treaty Area. Any search and rescue mission conducted on behalf of tourists by ATPs leaves vulnerable personnel from the Antarctic station providing emergency assistance as well as rescue team members themselves.

The extent to which travel risks may be mitigated largely depends upon the approach taken by tour operators. At present, tour operators are not required to follow the voluntary guidelines established by industry officials or COMNAP representatives, but reduce the chance of incurring incident by adhering to practical measures aimed at averting hazards. Tour operators which stress tourist safety minimize the risks involved in traveling within the region, but hazards still exist (Table 5.1).

Table 5.1. Partial list of incidents involving Antarctic tourism sea and airborne vessels (in chronological order).

Date	Vessel/ Aircraft	Tour Operator/ Party Involved	Occurrence
14 February 1967	<i>Lapataia</i>	Lindblad Travel	26 tourists stranded on Half Moon Island
January 1968	<i>Navarino</i>	"	Steering engine failure
22 January 1968	<i>Magga Dan</i>	"	Ship ran aground off Hut Point, McMurdo Sound
22 January 1969	<i>Aquiles</i>	"	Approximately 70 tourists stranded at Palmer Station
23 January 1970	Piper Aztec twin engine	Max Conrad (U.S.)	Plane crashed during take off at South Pole, pilot survived
24 December 1971	<i>Lindblad Explorer</i>	Lindblad Travel	Ship grounded in Gerlache Strait, tourists rescued by Chilean Navy
11 February 1972	<i>Lindblad Explorer</i>	"	Ship grounded on rocks in Admiralty Bay, King George Island
29 November 1972	<i>Ice Bird</i>	David Lewis (New Zealand)	Yacht capsized and dismasted, later reconstructed at Palmer Station in 1973
22 December 1972	<i>Ice Bird</i>	David Lewis	Second capsize of yacht
1973	<i>Libertad</i>	DNT/ELMA	Damage of ship
28 November 1979	DC-10 Flight 901	Air New Zealand	Plane crash on Mt Erebus, Ross Island, no survivors among the 257 passengers and crew
24 December 1979	<i>Lindblad Explorer</i>	Lindblad Travel	Ship grounded on rocks off Wiencke Island
1 December 1983	DC-3	7 Summit 1983 Antarctic Expedition	11 member team requested fuel from Siple Station to assure safe return home, remained 5 days at the U.S. station, 250 gallons of fuel provided

21 January 1985	<i>Lindblad Explorer</i>	Society Expeditions	Ship call to Faraday requesting medication for seriously ill passenger, request was granted
31 December 1985	aircraft	Chilean tourist flight	Plane crash on King George Island, all 10 men on board killed
10 January 1986	<i>Southern Quest</i>	"In the Footsteps of Scott" expedition	Ship crushed by pack ice, 21 crew members rescued by U. S. helicopters from McMurdo, ship sank 4 mi. east of Beaufort Island
28 January 1989	<i>Bahia Paraiso</i>	Argentine government supply/tourist ship	Ship ran aground off Anvers Island then sunk leaking 180,000+ gallons of fuel
21 February 1990	<i>World Discoverer</i>	Society Expeditions	Person brought ashore to BAS station for x-ray of suspected fracture
21 January 1991	<i>World Discoverer</i>	Society Expeditions	Ship grounded during approach to Cape Evans
February 1991	BAE-146	LAN Chile	Puerto Williams air crash, 20 tourists killed
February 1991	<i>Pomare</i>	Marinsular	Ship grounded in Jones Sound

Sources: (Reich, 1979), (Reich, 1980, p.208), (Headland, 1989), (Carl, 1988, p.67), (Lewis, 1975), (Swithinbank, personal communication), (Colwell, 1991), (USARP, 1984), (USAP, 1986), (AJUS, 1989), (AP, 1991), (Howard, 1968).

The major tour operators have adopted responsible approaches to operations in the Antarctic. Small scale tourist activity causes concern since operators may cut corners to offer occasional excursions to Antarctica. In early 1991, Marinsular's *Pomairé* was chartered by ANI to transport barrels of fuel to Jones Sound for their tourist operations. Marinsular decided to minimize its operating expenses for the trip by offering forty tourists a three week cruise to Jones Sound, Rothera Station (UK) and King George Island for \$400-\$660 (USD) per person double occupancy, meals and a complimentary bar open three hours each evening included. Tourists were unsupervised for the duration of the cruise and no attempt was made to brief passengers or provide guidelines. During the cruise a crew member and a small group of tourists boarded a Zodiac and moored directly onto an iceberg in order to observe a group of Weddell seals sitting atop the iceberg (Colwell, 1991). While this Marinsular cruise represents a worst case scenario, existing recommendations and guidelines do not prevent this form of tourism from occurring even though passengers are placed at far greater risk when unsupervised. Conflicting government approaches to Antarctic tourism create barriers to a uniformly applied tourism policy generated within the ATS. Fortunately, most tourist activity conducted in Antarctica is overseen by responsible tour operators and passenger safety is a key consideration.

Some factors which influence tourist safety in Antarctica include:

- 1) Tour operator experience, including ship captains and aircraft pilots, crew and staff members training;
- 2) Weather conditions and the obtainment of continually updated weather reports;
- 3) Radio communications and quality of propagation;
- 4) Quality of maps and navigational aids, updated contacts with area base personnel and/or other operators in the vicinity;
- 5) Emergency plans, backup system, and crew redundancy;
- 6) Crew, staff member and tourist awareness of existing dangers and appropriate response to emergency situations;
- 7) Quality of emergency and rescue equipment and/or survival gear;

- 8) Condition and appropriateness of transport equipment used, level of preventive maintenance practised on equipment and operational precautions taken by tour operator; and
- 9) Extent of medical facilities and available first aid personnel.

Recognizing there are risks inherent in Antarctic tour operations, the following recommendations may serve as a checklist for potential visitors to the region wishing to minimize risks of incident or injury:

- 1) Choose an experienced tour operator with a reputation for acting responsibly in the Antarctic.
- 2) Ascertain the credentials and experience of the ship's captain or aircraft's pilot, staff and crew members.
- 3) Learn which vessel(s) or craft(s) will be used for travel in the region.
- 4) Ask about the tour operator's emergency planning system.
- 5) Establish the safety record of the tour operator if possible.
- 6) Ask for customer referrals and contact previous customers when possible.
- 7) Learn about the area you plan to visit and anticipate your response to unexpected or emergency situations.
- 8) Ascertain whether experienced first aid facilities and personnel will be available during each portion of the tour.
- 9) Learn what survival gear and equipment is available to each tourist.
- 10) Be prepared mentally and physically for the type of tour you plan to take.

Safety guidelines have also been generated within the tour industry. The German cruise operators Neckermann & Reisen have recommended the following standards be met by cruise operators in the Antarctic:

Permission for Antarctic expedition cruises should be granted to operators who can give proof of the following:

- 1) Capable ship and crew
- 2) Insurance
- 3) Educational programme
- 4) Survival programme
- 5) Limited number of passengers - up to 300 and no more
- 6) Control of group movements

(Reich, 1979, p.137).

Neckermann & Reisen further recommended that ATPs establish an administrative authority to grant permits to charterers of expedition vessels intending to enter Antarctic waters. This authority would judge

competence and distribute application materials to all nations concerned. Also, shipowners and charterers should accept an observer (against payment) on each cruise (Reich, 1979, pp.138-9). Further discussion of these recommendations may be found in Reich, 1979, pp.136-40.

An increase in tourist numbers need not result in an increase in incidents involving tour vessels. Sound operating policies and responsible management can go a long way in protecting tourists from the hazards of the Antarctic environment. Yet safety is not the only concern to consider when assessing the Antarctic tourism industry. Environmental concerns weigh heavily on the minds of policy makers, tour operators, tourists and the general public alike. A discussion of the impact tourist activities have on Antarctica's environment may reveal weaknesses in existing tourism policy.

5.2 Antarctic tourism and environmental concerns

"Travel and tourism is an industry that has a necessarily close connection with governments. That truth applies particularly to the environment - one more challenge, and perhaps the biggest, facing the world's travel and tourism industry." (Elliott, 1991, p.17). Environmental concerns affect ATP tourism policy considerations, but does the existing regulatory framework for tourism adequately protect Antarctica's environment? If so, is it able to prevent significant impacts? If not, how should the ATS fill in the existing gaps?

"Over the recent past, much attention has been focused on the potential environmental impacts of an emerging tourist industry in Antarctica."

(Manheim, 1990, p.1). Thousands of tourists visit the Antarctic each year. According to Manheim (ibid.) tourist "visits are often localized, repetitive, and frequently occur at breeding grounds for seals, penguins, and other seabirds." Efforts are made by some tour operators to avoid breeding grounds and reduce environmental impacts. "Clearly, the potential for such impacts would increase dramatically if large cruise liners began to operate on a regular basis in Antarctic waters or if there were significant development of guest facilities on the continent" (ibid.). Dave Geddes, New Zealand's senior representative in Antarctica during the 1990-91 season observed: "Tour companies are generally keen to minimise their environmental impact but such numbers do emphasise the need for adequate controls on tourism." (New Zealand News UK, 1991, p.12).

At present, "tourists indirectly generate impacts to marine ecology, terrestrial ecology, and historic sites and monuments. Tourist visits may also affect other countries' research programs scientifically, logistically, legally, and politically. Of the 13 most visited places in Antarctica in 1988-89, five were national stations on the Peninsula" (USAP, 1990b, p.5-119) (Table 5.2). Meetings held between NSF and tour operators yielded a policy which reduced the number of visits to Palmer Station to four per ship each season in order to minimize disruption of science projects (Zehnder, 1989, p.10). Such a policy does not reduce the total number of tours offered by cruise operators, it merely results in tour ships increasing visits to other areas in Antarctica, some of which may produce undesirable environmental impacts. Should the visitation schedule to all places in Antarctica frequented by tour vessels be regulated?

Table 5.2. The five national research stations with the most tourist visits in 1988-89 (USAP, 1990b, p.5-120 [Source: Manheim, 1990, p.361]).

Station	No. of visits	No. of tourists
Palmer (U.S.)	13	1,421
Arctowski (Poland)	10	912
Almirante Brown (Argentina)	8	771
Commandante Ferraz (Brazil)	7	749
Teniente Rodolfo Marsh (Chile)	7	633

Palmer Station's population of 35 was visited by 1,421 tourists during the 1988-89 austral season (USAP, 1989, p.71). Tourists thereby outnumbered station personnel 40:1 over the course of the summer. Even though tour operators provide advance notice and the size of landed tourist groups may be limited to a manageable number, these "visits have an impact on the base as well as a potential impact on the fragile Antarctic environment" (New Zealand News UK, 1991, p.12).

The largest Antarctic environmental disaster occurred when the Argentine supply vessel *Bahia Paraiso* ran aground two miles from Palmer after visiting the station on 28 January 1989. The *Bahia Paraiso* incident merits detailed discussion because it demonstrates how complex the political, environmental and tourism issues can become and the difficulties ATS officials face in formulating policy which aims at preventing the occurrence of similar incidents in the future. There were 81 tourists on board and though all escaped injury, at least 180,000 of the 250,000 (U.S.) gallons of diesel oil and fuels intended for Argentina's Esperanza station spilled into nearby waters killing hundreds of birds and disrupting local science projects. Dr. William Fraser of California's Point Reyes Bird Observatory noted the "spill coincided with the feeding, fledgling and migration of the area's six most abundant seabird species exposing between

36,000 and 43,000 chicks and adults to the oil." (Antarctic, 1990, p.22). Other tour operators in the vicinity provided rescue assistance along with Palmer station staff. This tourist-related incident has served to heighten environmental concerns relating to human activities in Antarctica in general and tourism in particular (Antarctic, 1989, p.441; AJUS, 1989, p.vii; Manheim, 1990, p.17).

No oil containment equipment was on site or in the vicinity when the oil spill occurred. By the time equipment dispatched from the U.S. reached Palmer Station most of the oil had spilled and the remaining 70,000 gallons continue to leak from the sunken ship (Manheim, 1990, p.17). If regulations were in place to restrict the type of vessels allowed to transport tourists in Antarctic waters this incident may have been avoided and others may be prevented in the future.

The argument has been made that the *Bahia Paraiso* incident would have occurred regardless of its carrying tourist passengers. Resupply vessels and tankers operating in Antarctic waters under contract to National Antarctic Programs do run the risk of incident, but several factors set this particular case apart from the others. In this case the accident occurred as the ship departed a tourist destination, a place the ship would not have visited had tourists not been on board. "That ship was not scheduled to visit Palmer base, but many of the tourists on board urged the captain to make a stop so that they could observe U.S. scientific research efforts there." (Manheim, 1990, p.17). U.S. officials urged crew members not to depart using the channel the ship had entered. The warnings went unheeded (ibid.). The fact that a government-sponsored tour vessel was involved complicated matters further, but should not preclude a policy

response aimed to prevent a similar vessel from devastating another section of Antarctica's fragile ecosystem.

Environmental concerns dominated the agenda of the first two sessions of Special ATCM XI, yet to date no systematic attempt has been made to assess the impact of Antarctic tourist activity. A tourist industry spokesman recently stated: "Shipboard tourism is, in my opinion, the only type of tourism which can be environmentally controlled, provided of course that the ships are properly equipped and operated." (Zehnder, 1989, p.5). Ships are self-contained and are able to land tourists "in different areas to ensure that overvisitation of any one site does not occur" (ibid., p.6). However sound certain types of tourism may be environmentally, regulating what types of tourism may be conducted would prove an enormous task for Antarctic policy makers.

Airborne tourism impacts Antarctica differently than does shipborne tourism. The Chilean-built 1300m hard rock runway on King George Island is currently used by Antarctic programs either located on the island or en-route to other parts of Antarctica and tour operators bringing tourists to the Chilean-run 'hotel' or further afield on the continent. The Marsh station commander reported that roughly 500 people stay at Estrella Polar over the summer but the length of stay of individual visitors is not known. The 'hotel' can accommodate up to 80 guests. "This makes it difficult to relate population data to visitor pressure on services and the environment and also limits the extent to which trends in use over time can be analysed." (Harris, in press).

Despite extensive efforts by some tour operators to safeguard the Antarctic environment, violations of the Agreed Measures have been witnessed.

Recreational helicopters carrying tourists have routinely flown over Ardley Island to view penguin rookeries even though this action violates existing measures and penguins have been seen to scatter in terror on each landing (ASOC, 1989; Manheim, 1990, p.5; Harris, in press). Research indicates that populations at "frequently visited rookeries tend to decline, while more remote ones have not changed or are increasing in size." (Muller-Schwarze, 1984, p.158). Similar work has been done on this topic by Stonehouse, 1965; Culik and others, 1990; and Wilson and others, 1990.

A cruise "lecturer reportedly brought a King Penguin on board the ship for viewing because the tourists could not make a safe landing by zodiacs." (Manheim, 1990, p.31). Ship's crew "have been seen kicking seals and hugging penguins for photographs." (ibid., p.5). A passenger aboard *Marinsular's Pomaire* during a March 1991 cruise reported seeing a crew member throwing pebbles at Weddell seals in order to improve photographic possibilities. Crew members were also witnessed to attempt touching seals. "I felt disturbed at the lack of understanding and instruction shown by *Marinsular*." (Colwell, personal communication). One tourist reported the highlight of a travel-packed life was "holding a penguin in my arms, stroking his chest and observing him relax and even enjoy being petted." (Antarctic, 1966b, p.299). Fragile mosses, lichens and grasses have also been disturbed by human footsteps which may take more than a century to regenerate (Antarctic Century, 1988, p.4). Education and awareness are essential if Antarctica's wildlife and vegetation are to be protected.

"Tourism from all countries has cumulative impacts on the environment that could affect all national research programs in Antarctica." (USAP, 1990b, p.5-119). Difficult questions remain: Should tourist activity be concentrated in one particular area in order to limit the extent of

environmental impact or should tourist visits be spread to a greater number of areas to avoid the repeated use of the same space? If the number of areas that tourists are allowed to visit is limited, then entire areas may be preserved. Despite recognition of cumulative impacts in the region, NSF environmental regulations governing U.S. tourists in Antarctica do not appear to be imminent (Manheim, 1990, p.5).

Given the existing regulative framework for Antarctic tourist activities, perhaps the most effective protection of the Antarctic environment will result from a consistent application of pressure within the tour industry urging full compliance with existing guidelines, the dissemination of informational booklets and condensed guidelines to all types of tourists bound for Antarctica, the uniform application of all national legislation governing human activities in Antarctica and an ATS commissioned tourist activity impact study which delved deeply into the effects tourism has on the Antarctic environment. Tourism policy may only address environmental issues insofar as they are understood or made known. Efforts to increase current understanding of the impact tourist activity has on Antarctica will serve this end. Once this understanding is obtained it may be possible to emphasize the positive aspects of Antarctic tourism and remove some of the drawbacks.

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5.3 Positive and negative aspects of Antarctic tourism

"Antarctic tourism is not controversial," according to an ANI spokesman. "Everyone agrees it's inevitable. What's controversial is how it's done." (Parfit, 1988). Whether Antarctic tourism is perceived in a positive or negative light depends upon the bearer's point of view. Tourism presents an extremely difficult set of policy problems. What is viewed positively by one may be considered a negative aspect by another. Tourism involves human behavior and it is the nature of human conduct and past tour operations that have prompted so much controversy over Antarctic tourist activities. From an Antarctic program administrator's point of view tourism may be considered a nuisance which must be dealt with. The weight of other considerations affecting the proper running of a national program mean that administrators are under great pressure to make sure their program results in the best value for expenditures possible. Program officials are responsible to taxpayers if their program is funded by public money or to more senior government authorities if they are not. Tourist activities affecting the proper running of research programs may create great stress during the limited operating season in Antarctica.

From a scientist's viewpoint, tourism may represent a disruption to planned research activity, time away from equipment or a compromise in scheduling data collection. Or it may represent a welcome diversion to scientists and support personnel isolated in a cold remote place with few new or friendly faces. From a tourist's point of view, Antarctica may represent fair game for everyone, not just scientists. One might insist on seeing just how taxpayers money is being spent in the region or ensuring that the continent's environment is not being abused by careless scientists.

Whatever the perspective, positive and negative aspects exist for Antarctic tourism and provide insight into an assessment of the tour industry.

By far the strongest criticism of tourist activity concerns its resultant environmental impact on Antarctica. In considering the negative impacts of tourism, Reich (1979:55) employed a checklist which was adopted from the 1963 SCAR VII study on the consequences of man's influence on the Antarctic environment:

- 1) General pollution by sewage, waste, oil, fuels and noise; Uncontrolled dumping of solid and liquid waste in inshore waters.
- 2) Introduction of non-native unsterilised soils, microbes, plants and animals.
- 3) Travel on foot or by vehicle and aircraft.
- 4) Disturbance of local bird or seal breeding colonies.
- 5) Non-scientific collecting.

1. Efforts to curb pollution generated by tourist activities vary among tour operators. Improvements in waste disposal methods can go far in protecting Antarctica's environment insofar as they are observed and enforced. Tourists can affect ship waste disposal practices as evidenced by two documented cases wherein tourist censure of disposal methods resulted in "swift disciplinary action against the crew member involved" and passengers urging "the captain to cease such dumping activities." (Manheim, 1990, p. 44).

2. Health risks exist for isolated research personnel visited by tourists carrying viruses or diseases. Precautions should be taken by all tour operators wherever possible to minimize the introduction of foreign materials into the Antarctic.

3. Tour vessel wreckage in the sea (*Southern Quest*, *Bahia Paraiso*) or on land (DC-10 on Mt. Erebus, Piper Aztec at South Pole) may prove impossible to remove. Other concerns include tourists treading on patches of lichen, mosses or grasses which may take decades to regenerate.

4. Tour operator and passenger observance of existing guidelines will go far in preventing disturbance to wildlife habitats. Policing efforts and reports of infractions by tourists, operators and scientists alike serve to protect the environment in Antarctica. Tourists reported a low-flying U.S. Coast Guard helicopter caused Chinstrap penguins to abandon their nests on Elephant Island in December 1986. The incident was investigated and revealed the Antarctic Conservation Act had been violated although no criminal or civil penalties were levied (Manheim, 1990, p.26).

5. The need to prevent tourists from removing artifacts from Antarctica is critical. Fortunately, the majority of tourists exhibit a very responsible attitude in this regard and seek to protect the environment (Norris, 1974, p.64; Manheim, 1990, p.2). As more tourists are made aware of regulations protecting historic sites and huts more watchdogs may emerge to keep tour operators and fellow passengers in line.

Threats to the Antarctic environment will exist as long as human activity continues in the region, but strict adherence by all Antarctic visitors to existing guidelines will minimize the potential for tourist activities to create impacts. Yet strong voices emerge to voice critical tones which vary from: "there are some places tourists shouldn't go" (Roszak, 1988, p.63), to: "Any increases in human population in the Antarctic, even if of a temporary nature, will add to general pollution, and provisions to control and treat the problem will have to be made." (Reich, 1979, p.55).

The former sentiment was expounded upon: "As for any wilderness that still remained pristine, I would never seek it out unless I could meet it on its own rugged terms, leaving behind all the comforts of home, all means of convenient access, all professional assistance. Because I am not a hiker, camper, climber or outdoorsman, this I cannot do. So I simply leave the wilderness alone. It is enough for me to know that it is there, at least for as long as it survives defilement. I will not be among the gawping, pampered passers-through who violate its endangered grandeur. That is my small, private gesture of respect for the wild things that will not long be with us." (Roszak, 1988, p.64).

Another complaint voiced against Antarctic tourism concerns the potential tourist activities have to interfere with science. Scientists and Antarctic program officials contend that the disruption tourist activity imposes on the limited science season may threaten the integrity of Antarctic research. "While we are showing tourists through the base, little other work can be done" (New Zealand News UK, 1991, p.12). The advance notification system which currently requires tour operators to seek permission from base commanders and verify arrival times 24-72 hours before visiting has alleviated many of the pressures which affected research stations unaware that tourists would be descending upon their limited facilities without notice. Still, conflict may arise as Richard Laws (personal communication), former Director of the British Antarctic Survey remarked: "One day's visit produces three day's disruption", noting that station personnel need to prepare for a visit and require a readjustment period before returning to their normal routines. Antarctic science programs are conducted on strict schedules due to the brevity of the summer season. Receptiveness to tourism varies among base members, but the

sentiment is often expressed that scientists are 'here to work, not receive tourists'.

Having addressed the issue of tourist visits to research stations, the ATPs seek policies which minimize the likelihood of tour vessel incidents. Tourist vessels having met with difficulty have been known to place considerable strain on the limited facilities of research stations and vessels providing assistance (AJUS, 1969, pp.82-3). U.S. Antarctic Program officials have perhaps been the most vehement in insisting that tour operators remain self-sufficient and carry adequate insurance. The 1979 DC-10 crash on Mt. Erebus and 1989 wreck of the *Bahia Paraiso* both "forced deferral or cancellation of research in order to provide search, rescue, cleanup and other operations." (Guthridge, 1991). The huge costs entailed in the U.S. clean up effort and environmental assessment of the damage caused by the *Bahia Paraiso* incident have not yet been reimbursed to the American government (Scully, 1989, p.44). Still no regulations exist to restrict which tourist vessels may visit Antarctica.

"Critics of Antarctic tourism argue that some nations with overlapping claims, particularly Chile and Argentina, encourage tourism and host visitors at their stations as an act of national sovereignty and as a means of securing territorial claims." (USAP, 1990b, p.5-120). Political considerations continue to affect perceptions of Antarctic tour operations. The Chileans and Argentinians might view the above observation as a positive aspect of Antarctic tourism, but the U.S. and other nations were not amused at reports that Argentine officials at Esperanza Base asked for tourist passports and unwitting visitors complied with the request. Tourists are reminded to keep their passports in their pockets while in

Antarctica. "Each stamp adds a little inky confusion to an international puzzle." (Parfit, 1988).

A positive aspect of tourism commonly observed is that tourists currently able to visit the Antarctic tend to be affluent and possibly influential and may prove useful in exerting the needed push to assure continued governmental support for Antarctic science. As long as tourists are politely received and shown around existing science facilities they can return home as good-will 'ambassadors' for the continent and support government expenditures made in the name of Antarctic research. A question arises: To what extent should influential tourists' demands be appeased and at what cost to Antarctic science?

"Proponents of Antarctic tourism argue that tourist visits have a positive cumulative impact that overrides all the potentially negative impacts of the continent's limited tourist industry. Those positive impacts are the lasting sense of appreciation for the Antarctic environment and the desire to protect it. Proponents feel that this sense of appreciation increases involvement in Antarctic conservation programs and heightens concern for environmental issues outside the Antarctic." (USAP, 1990b, p.5-121). This sense of increased awareness often arises as a result of attending lectures offered by the reputable tour operators. "One of the better things that the tourist gets for his money is excellent briefings by competent, on-board scientists...As many as a dozen landings may be made on each cruise, and the techniques developed for getting people in dubious physical condition from ship to shore and back are said to be remarkable." (Quigg, 1983, pp.99-100). The latter comment leads to another positive aspect of tourism. Non-scientists, young and old, those not physically able to withstand the rigors of an employment contract with a National Antarctic

Program and nationals of non-signatory states are able to visit a very unique place, owing to Antarctica's tourism industry.

5.4 Shortcomings of the Antarctic tourism regulatory framework

In what areas is the current regulatory framework for Antarctic tourism inadequate and how might it be improved? Shortcomings in existing tourism regulations have been acknowledged by ATPs, non-governmental organizations, tour operators and concerned members of the general public. The effectiveness of existing regulations, while not complete, is largely attributable to tour operator compliance with self-imposed guidelines. In assessing means to improve current regulatory measures, some common themes emerge once the difficulties inherent in controlling a commercial industry operating in such a vast area are acknowledged.

Some shortcomings of the Antarctic tourism regulatory framework include:

- 1) The lack of a comprehensive enforcement mechanism.
- 2) Incomplete and irregular reporting of ATS exchanges of information covering tourist activities.
- 3) The lack of a central authority within the ATS to deal with the regulation of tourist activity i.e. a secretariat.
- 4) The need for better marking and posting of protected areas and site visitation limits.
- 5) The need for uniform exchanges of updated charts and maps among crews operating vessels in Antarctic waters.
- 6) The lack of established criteria for vessels able to operate in Antarctic waters.
- 7) The need to require all visiting expeditions, private or commercial, to carry insurance for Antarctic operations.
- 8) The need for full compliance with pollution control measures by all vessels operating in and all visitors to Antarctica.
- 9) The need for improvements in terminology employed in ATS tourism recommendations and more detailed tourist guidelines.
- 10) The need for a comprehensive Antarctic tourism impact assessment to be conducted in order to shed further light on all the above mentioned issues.

1. Enforcement may always remain a problem in such a vast area. Awareness and peer pressure can go a long way in reducing human impact resulting from tourism. Yet, guidelines may only be successful if they become known. Not all tour operators distribute visitor guidelines. Here the ATPs can play a larger role than is currently practiced. Information can be disseminated to heighten visitor awareness. To start, all vessels reporting their intention to operate in the Antarctic Treaty Area to their home government could be sent current guidelines and be made aware of legal provisions to which they are subject while in the area. Each tour operator could be encouraged to distribute copies to all passengers, crew and staff members.

2. The exchange of information between ATPs for tourist related activities could be more consistent and detailed. Among the points noted during discussions of Antarctic tourism at ATCM XIV: "Several delegations also expressed concern that the existing measures revealed some inadequacies; that there were significant gaps in information, especially with respect to small private expeditions and suggested the need for an improved procedure for receiving reports from operators and private expeditions, and for exchanging this information among Treaty Parties." (Antarctic Treaty, 1987, p. 53).

No systematic means currently exists to disseminate visitor guidelines, information exchanged at the annual NSF-tour operator meeting or other relevant information to private yachts bound for Antarctica or tour operators based outside of the United States.

3. Without a secretariat, the ATS has no means to disseminate information regarding newly formed policy or regulations for tourist activity. "If a Secretariat is established, it might be one way to keep track of vessel

certifications, registrations, and inspections if they become a requirement under the Treaty." (Antarctic Century, 1989a, p.8).

4. Private yachts and tour ships visiting Antarctica unaware of existing SPAs and SSSIs may be informed by posted signs appearing at protected areas, historic sites, monuments and huts, but some sites have several types of markers which may be made of unsuitable or inferior materials. Fleming and Keage (1987:716) noted "there are benefits in standardising site markers and establishing protocol for their siting." The placement of site markers containing accurate maps, management plans and a visitors' log book at sites where large numbers of tourists land was recommended as a practical step towards site protection and monitoring (ibid.). Limits on the number of tourists able to land could be set for specific sites were a comprehensive tourist impact assessment conducted to recommend such a measure.

5. "A number of captains also have suggested that a system be started so that all Treaty countries may share up-to-date information about new soundings and routes, well before such information makes its way on to "official" charts and maps (which may take years)." (Antarctic Century, 1989a, p.8). Uncharted rocks have caused numerous groundings (Table 5.1). Further efforts are required to properly address this safety issue. Also, crew competence cannot be regulated, but vessels could be required to comply with standardized rules governing navigation in Antarctic waters (Manheim, 1990, p.18).

6. Antarctic tour vessels are not currently required by any regulatory body to be ice rated for operations in Antarctic waters. Many vessels obtain ice ratings from various shipping societies for insurance and other

purposes. "The lack of an ice-strengthened rating doesn't make a vessel inherently unsafe for certain polar operations, but suggests that a vessel must be more particular about where it goes and when it goes there, and that it must avoid certain ice conditions." (Antarctic Century, 1989b, p. 8).

The issue of ship ice ratings is complex since there exist many different rating authorities each having different standards or requirements. Captain experience and competency may go a long way in preventing ship incidents, but may not provide adequate protection against a physical shortcoming of a ship in Antarctic waters. Many ship captains are thought to exchange information on a continual basis already, but there exists as yet, no organized mechanism which ensures all vessel operators access to the same information, especially yacht owners.

7. If insurance was required and could be verified within a system designed to check such matters, it might be possible to prevent marginal vessels from operating in Antarctic waters. Insurance companies would not likely provide adequate coverage for questionable vessels. This measure could serve to prevent unsound vessels from appearing in Antarctic waters which in turn potentially threaten the safety of lives on board and those called in to provide emergency assistance.

8. The recently negotiated ATP Protocol on Environmental Protection in Antarctica (ATSCM XI) provides a foundation on which to build further mechanisms to safeguard Antarctica from intrusive tourist activity.

9. Existing visitor guidelines are not specific enough in addressing situations arising from tourist activity. The principles are sound and

promote responsible behavior but important details are overlooked. For example, the COMNAP guidelines provide no recommended distances to tourists near wildlife on land or at sea. Animals are described as potentially posing a 'direct physical threat' but remain unnamed and the nature of the threat is not explained.

"At present, the Treaty Parties have not fashioned sufficiently specific guidelines to govern tourism and other Antarctic visits - and which insure minimal impacts to Antarctic wildlife and fragile habitats. Further, among the various Antarctic tour companies and the national scientific programs, there is much disparity in visitation procedures." (Antarctic Century, 1989b, p.6). Tour industry guidelines attempt to fill this gap, but the language employed in ATS tourism recommendations could be clarified and more pointed than at present.

10. The above mentioned issues have all been discussed without the benefit of results from any Antarctic tourism impact assessment. No such study has yet been commissioned. The complex nature of issues concerned with tourist activity is evident. Yet no effort has been made to systematically study the effects tourists have on specific landing sites. The results an impact assessment would yield might serve to dispel any myths pervading Antarctic tourism literature and provide makers of Antarctic tourism policy with the facts they require to formulate more effective regulations. The existing regulatory framework for Antarctic tourism need not be condemned, but improved. The greater the accuracy of the information input to a problem solving task, the greater the chance an effective policy outcome will ensue.

5.5 Conflict or Cooperation?

A record number of tourists visited Antarctica during the 1990-91 austral summer. Tourist numbers nearly doubled those of the previous year (Table 2.2). Noone knows whether the trend will continue, reverse itself or level off, but Antarctic program planners may come to rely more heavily on existing tourism regulations in an effort to keep disruptions to station science programs and impacts on the environment to a bare minimum. Cooperative efforts between tour operators and National Antarctic Programs are more important than ever if conflicts are to be avoided.

Tourism affects National Antarctic Programs in a number of ways. Some tourist activity disrupts science programs by requiring base personnel to take time away from their normal tasks in showing visitors around the station. Emergency calls to assist tourists or tour vessels in distress can tax carefully planned logistics programs coordinated months in advance by Antarctic program officials. Practical measures may be taken in order to reduce the chance of conflicts between tourist activities and Antarctic research programs. The major tour operators have been instrumental in creating and implementing industry regulations which promote tour operator responsibility and accountability.

From all indications, current guidelines are adhered to by the tour operators that designed them, yet violations of existing regulations have occurred. The majority of Antarctic tour operators appear conscientious and aim to maintain a high level of credibility with environmentally aware customers but the lack of an ATS enforcement mechanism poses potential problems since all commercial tour activities and operators are not equal. Tourism regulations are designed to prevent conflict between Antarctic

research programs and tourist activity by encouraging measures which address the main areas of tourist concern for Antarctic program managers:

- 1) Assuring all tourists and tour operators abide by existing ATS provisions and conditions in effect at each National Antarctic Program facility.
- 2) Avoiding disruptions to scientific research when and wherever possible.
- 3) Minimizing environmental impacts resulting from tourist activity.
- 4) Assuring all tour operations are self-sufficient and operate to the highest standard of safety possible in order to prevent reliance on search and rescue operations by National Antarctic Programs.

Provided potential conflicts are avoided and efforts are made by tour operators and ATPs alike to keep lines of communication open, coordinate station visits well in advance and notify ATPs of changes in plans, the spirit of cooperation so necessary to practice safe tourism and protect Antarctica's environment may be preserved. If ATS members cooperate to minimize internal conflicts resulting from disparate approaches to tourism a uniformly applied tourism policy for all National Antarctic Programs may be agreed.

The annual meeting held between NSF and tour operators and the recent placing of observers aboard tour ships exemplify the cooperation which has been achieved between commercial and governmental bodies attempting to peacefully coexist in Antarctica. An ATS-sponsored international conference on tourism would allow further communication between Antarctic

tour operators, ATP officials, scientists, managers of National Antarctic Programs and their home governments. In this way, all concerned parties would remain aware of just where the others stand in terms of current thinking and policy. Tour operators could relay first-hand experience of their operations to ATP policy makers to enhance policy formulation.

The natural environmental constraints of the Antarctic may work to keep tourist numbers low in relation to the size of the continent. Regardless of the size of the tourism industry the current regulatory framework can be improved. The underlying principles of tourism regulations are sound but as the nature and level of tourist activity changes, so must policy respond to those changes. If tour operator practices causing conflict among National Antarctic Programs are minimized while tour industry and Antarctic program officials continue to work together to ensure safe and environmentally sound tourism, the cooperative spirit which has long characterized relations in Antarctica will prevail.

Chapter 6 Conclusions

Tourism has presented a special set of challenges to Antarctic Treaty Parties. All National Antarctic Programs are affected by tourism; the topic is regularly discussed at ATCMs and any program may be called upon to render emergency assistance to tourists in need. National programs create tourism policy in response to tourist activity in Antarctica. Differences in these responses may cause conflicts within the system. Internal ATS conflicts serve as barriers to the formulation of a uniformly applied policy for Antarctic tourism. External conflicts resulting from commercial tourist activity also present problems to Antarctic tourism policy makers.

Until Antarctic Treaty Parties can agree on a single tourism policy for Antarctica, conflicts internal and external to the ATS will persist. The conflicts which arise when commercial tourist operations coexist alongside National Antarctic Programs conducting scientific research in Antarctica have been identified. These conflicts can be minimized if cooperative efforts are made between program administrators and tour operators. Internal conflicts arise when treaty parties approach Antarctic tourism from disparate viewpoints. Some treaty nations invite tourists without reservation while others perceive tourist visits as intrusions into tightly-planned science programs. Without a unified approach to tourism issues within the ATS, internal conflicts may prevent an agreed ATS tourism policy.

The size and recent growth of the Antarctic tourist industry have been established and the conflicts and methods of cooperation have been described. This study recommends that the ATS conduct a comprehensive tourism impact assessment to enable policy makers to identify specific

problems requiring further attention. Impact relationships for the various forms of tourism conducted in Antarctica could then be established. At present Antarctic policy makers are regulating a commercial industry whose effects are not yet fully understood. An increased understanding of tourism impacts would aid the formulation of a comprehensive ATS tourism policy.

In pursuance of a unified tourism policy, the creation of an 'Agreed Measures for Antarctic Tourism' is suggested, to codify all existing tourism recommendations made within the ATS. The ambiguous and vague language found in existing measures should be removed. An agreed set of measures could be more readily distributed and understood by tour operators and tourists alike. Further recommendations on topics specifically addressing tourist activity such as waste management, air safety and environmental management could be annexed to the agreed measures instead of scattered throughout ATCM documents.

The ATS does not have a secretariat: there is no centralized office which might disseminate appropriate tourism information regularly and impartially to tour operators and ATPs. Should a secretariat be formed, it could be charged with administering regular tourist impact assessments in keeping with changes in the types of tourism practiced in Antarctica. Manheim (1990) suggested a certification scheme be implemented to control Antarctic tourism operations. If all tourist vessels were registered and required to meet operational standards, incidents involving such vessels might be avoided. A secretariat could manage tasks entailed in administering such a program.

Tour operators play a key role in upholding existing tourism regulations. The distribution of guidelines to passengers, crew and staff members is crucial to safeguarding the Antarctic environment and preventing violations of existing regulations. The cooperative efforts between tour operators and National Antarctic Programs must continue if the self-regulatory element in the Antarctic tour industry is to remain viable. The goal of the current Antarctic tourism leader is to "begin our journey with a ship full of visitors, and return with a ship full of 'Antarctic Ambassadors'." (Esdale, 1990). This protective spirit exerted on behalf of the Antarctic environment is integral to any long term effort to minimize tourism impacts, prevent disruption to science programs and reduce conflicts resulting from tourist activity.

Necessary to any tourism policy for Antarctica is the preservation of its vast and pristine environment. A concerted effort made on behalf of all Antarctic Treaty Parties to agree on a uniformly applied policy for tourism in Antarctica may provide the best protection available.

REFERENCES

Unpublished Sources:

- BRITISH ANTARCTIC SURVEY (BAS). 1967. *BAS Argentine Islands General Report for 1966. 1 January 1966 - 28 February 1967.* By D. L. Hughes. (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1968. *BAS Argentine Islands General Report, 1967. Part 1: 1 January 1967 - 31 December 1967; Part 2: relief.* By B. Swift. (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1969. *BAS Argentine Islands General Report for 1968. Part 1: 1 January 1968 - 31 December 1968; Part 2: 1968/69 relief.* By J. Dudeney. (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1970. *BAS Argentine Islands General Report, 1969. 1 January 1969 - 31 December 1969.* By D. F. Salter. (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1971. *BAS Argentine Islands General Report, 1970. 1 January 1970 - 31 December 1970.* By A. R. Woods. (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1972. *BAS Argentine Islands General Report, 1971. 1 January 1971 - 1 January 1972.* By N. J. Macpherson. (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1973. *BAS Argentine Islands General Report. 22 January 1972 - 31 January 1973.* By A. Keeley. (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1974. *BAS Argentine Islands General Report, 1973. 1 February 1973 - 15 January 1974.* By Kenneth W. Hughson. (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1975. *BAS Argentine Islands General Report, 1974. 1 January 1974 - 31 December 1974.* By Alex Scott with Appendix II by Jeremy Carter. (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1976a. *BAS Argentine Islands General Report, 1975. 1 January 1975 - 31 December 1975.* By Jeremy Carter. (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1976b. *BAS Argentine Islands Summer Report. January - March 1976.* By Brian Goodale. (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1977. *BAS Argentine Islands General Report, 1976. 10 March 1976 - 19 January 1977.* By Brian Goodale. (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1979. *BAS Faraday Base General Report, 1978. 1 February 1978 - 1 March 1979.* By M. J. Smith. (Unpublished report in British Antarctic Survey archives).

- BRITISH ANTARCTIC SURVEY (BAS). 1980a. *BAS Faraday Base General Report, 1979. 2 March 1979 - 8 January 1980. By J. W. Nutt.* (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1980b. *BAS Faraday Base Commander's Report, 1980. 8 January 1980 - 12 December 1980. By M. Baker.* (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1981. *BAS Faraday Base General Report for 1981. By C. D. Jeffes.* (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1982. *BAS Faraday General Report - summer. 6 December 1981 - 11 March 1982. By M. Baker.* (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1983. *BAS Faraday Base Commander's General Report. 11 March 1982 - 28 February 1983. By L. R. Airey.* (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1984. *BAS Faraday Base Commander's General Report. 13 April 1983 - 29 February 1984. By M. P. D. Lewis.* (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1985. *BAS Faraday Base Commander's General Report. 30 March 1984 - 15 March 1985. By P. D. Cotton.* (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1987a. *BAS Faraday Base Report. April 1986 - March 1987. By M. Dowson and P. Stark.* (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1987b. Memorandum from P. Stark to the Director. *Tourist ship visits to Faraday. 16 September 1987.* (Unpublished document in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1988. *BAS Faraday Base Report. April 1987 - March 1988. By D. Mitchell and P. Stark.* (Unpublished report in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1989a. Memorandum from P. Stark to the Director and D. Jones. *Tourist ship activities at Faraday, summer '88/'89 season. 30 May 1989.* (Unpublished document in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1989b. Memorandum from R. Heywood to D. Drewry. *Tourist ship activities. 21 June 1989.* (Unpublished document in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1989c. Memorandum from Director to P. Stark. *Tourist-ship activities. 18 July 1989.* (Unpublished document in British Antarctic Survey archives).
- BRITISH ANTARCTIC SURVEY (BAS). 1990a. *BAS Faraday Base Report. April 1989 - April 1990. By M. Cranney and P. Stark.* (Unpublished report in British Antarctic Survey archives).

- BRITISH ANTARCTIC SURVEY (BAS). 1990b. Memorandum from PTM. *Private yacht, ship, aircraft traffic to Rothera*. 9 May 1990. (Unpublished document in British Antarctic Survey archives).
- CHILE. 1988. *Actividades de la Republica de Chile en la Antartica*. Parte A: Modificaciones del plan para 1987-1988; Parte B: Plan de actividades para 1988-1989. Santiago, Ministerio de Relaciones Exteriores Instituto Antartico Chileno, Noviembre 1988. Parte A, pp.8-9; Parte B, p.17. (Unpublished document in Scott Polar Research Institute archives).
- CHILE. 1990. *Actividades de la Republica de Chile en la Antartica*. Parte A: Modificaciones del plan para 1989-1990; Parte B: Plan de actividades para 1990-1991. Santiago, Ministerio de Relaciones Exteriores Instituto Antartico Chileno, Noviembre 1990. Parte A, pp.7-8, 10-11; Parte B, pp.2, 16-17. (Unpublished document in Scott Polar Research Institute archives).
- CHRISTENSEN, T. 1990. *Tourism in Polar Environments - with special reference to Greenland and Antarctica*. Cambridge, Scott Polar Research Institute. (Unpublished M.Phil. thesis).
- COLWELL, M. 1991. Letter from M. Colwell, passenger aboard *Pomare* during the 1990-91 austral summer season. 6 June 1991.
- DREWRY, D.J. 1990. Letter from the Director, British Antarctic Survey, to T. Christiansen (sic). 29 June 1990. (Unpublished document in British Antarctic Survey archives).
- FOWLER, A.N. 1991. Letter from A.N. Fowler, Executive Director, Council of Managers of National Antarctic Programs. 30 January 1991.
- GUTHRIDGE, G.G. 1991. Letter from G.G. Guthridge, Manager, Polar Information Program, Division of Polar Programs, National Science Foundation. 24 January 1991.
- HOWARD, R. 1968. Letter from Lindblad Travel, Inc. to Sir Vivian Fuchs, Director, British Antarctic Survey. 22 July 1968. (Unpublished document in British Antarctic Survey archives).
- LAYLAND, M. 1991. Letter from M. Layland, senior staff member, Adventure Network International. 24 May 1991.
- LEAL, D.J.E. 1991. Letter from D.J.E. Leal, Director Nacional del Antartico, Argentina. 9 April 1991.
- LIPSKI, M. 1991. Letter from M. Lipski, Institute of Ecology, Polish Academy of Sciences. 12 April 1991.
- MONTEIRO, D.C. 1991. Letter from D.C. Monteiro, Undersecretary for the Brazilian Antarctic Program. 21 March 1991.
- REICH, R.J. 1979. *Tourism in the Antarctic: its present impact and future development*. Cambridge, Scott Polar Research Institute. (Unpublished dissertation for the Diploma in Polar Studies).
- RUDGE, C. 1991. Letter from C. Rudge, Information Officer, New Zealand Department of Scientific and Industrial Research. 18 April 1991.

SWINGLEHURST, E. 1991. Letter from E. Swinglehurst, Archivist for Thomas Cook Time Traveller and Archives. 19 April 1991.

UNITED KINGDOM. 1984. *Antarctic Treaty Exchange of Information under Article VII(5) for 1984-85: United Kingdom Activities*. London, Foreign and Commonwealth Office, 1 October 1984, Annex IX. (Unpublished document in Scott Polar Research Institute archives).

UNITED KINGDOM. 1985a. *Antarctic Treaty Exchange of Information under Article VII(5) for 1985-86: United Kingdom Activities*. London, Foreign and Commonwealth Office, 10 November 1985, Annex IX. (Unpublished document in Scott Polar Research Institute archives).

UNITED KINGDOM. 1985b. *Antarctic Treaty Exchange of Information under Article VII(5) for 1985-86: United Kingdom Activities, Additional Information*. London, Foreign and Commonwealth Office, December 1985. (Unpublished document in Scott Polar Research Institute archives).

UNITED KINGDOM. 1986. *Antarctic Treaty Exchange of Information under Article VII(5) for 1986-87: United Kingdom Activities*. London, Foreign and Commonwealth Office, 10 November 1986, Annexes VIII and X. (Unpublished document in Scott Polar Research Institute archives).

UNITED STATES ANTARCTIC PROGRAM (USAP). 1986. *United States Antarctic Activities: Part A Modifications of Plans for 1985-86, Part B Plans for Activities for 1986-87; Information exchanged under Articles III and VII(5) of the Antarctic Treaty*. 30 September 1986. Washington, DC, National Science Foundation, Part A pp.11-13 and 38-9; Part B pp.81-6 and 94. (Unpublished document in Scott Polar Research Institute archives).

UNITED STATES ANTARCTIC PROGRAM (USAP). 1987. *United States Antarctic Activities: Part A Modifications of Plans for 1986-87, Part B Plans for Activities for 1987-88; Information exchanged under Articles III and VII(5) of the Antarctic Treaty*. 1 November 1987. Washington, DC, National Science Foundation, Part A pp.16-21 and 53-4; Part B pp.102-11 and 125. (Unpublished document in British Antarctic Survey archives).

UNITED STATES ANTARCTIC PROGRAM (USAP). 1988. *United States Antarctic Activities: Part A Modifications of Plans for 1987-88, Part B Plans for Activities for 1988-89; Information exchanged under Articles III and VII(5) of the Antarctic Treaty*. 1 November 1988. Washington, DC, National Science Foundation, Part A pp.16-25 and 52-3; Part B pp.103-13 and 125. (Unpublished document in Scott Polar Research Institute archives).

UNITED STATES ANTARCTIC PROGRAM (USAP). 1989. *United States Antarctic Activities: Part A Modifications of Plans for 1988-89, Part B Plans for Activities for 1989-90; Information exchanged under Articles III and VII(5) of the Antarctic Treaty*. 1 October 1989. Washington, DC, National Science Foundation, Part A pp.19-32 and 60-2; Part B pp.71, 110-20 and 134. (Unpublished document in Scott Polar Research Institute archives).

- UNITED STATES ANTARCTIC PROGRAM (USAP). 1990a. *United States Antarctic Activities*: Part A Modifications of Plans for 1989-90, Part B Plans for Activities for 1990-91; Information exchanged under Articles III and VII(5) of the Antarctic Treaty. 1 October 1990. Washington, DC, National Science Foundation, Part A pp.20-9 and 58-60; Part B pp.111-27 and 140. (Unpublished document in British Antarctic Survey archives).
- UNITED STATES ANTARCTIC RESEARCH PROGRAM (USARP). 1983. *United States Antarctic Activities*: Part A Modifications of Plans for 1982-83, Part B Plans for Activities for 1983-84; Information exchanged under Articles III and VII(5) of the Antarctic Treaty. 20 June 1983. Washington, DC, National Science Foundation, Part A pp.53-7; Part B pp.173-6. (Unpublished document in British Antarctic Survey archives).
- UNITED STATES ANTARCTIC RESEARCH PROGRAM (USARP). 1984. *United States Antarctic Activities*: Part A Modifications of Plans for 1983-84, Part B Plans for Activities for 1984-85; Information exchanged under Articles III and VII(5) of the Antarctic Treaty. 12 June 1984. Washington, DC, National Science Foundation, Part A pp.63-8; Part B pp.193-4. (Unpublished document in Scott Polar Research Institute archives).
- UNITED STATES ANTARCTIC RESEARCH PROGRAM (USARP). 1985. *United States Antarctic Activities*: Part A Modifications of Plans for 1984-85, Part B Plans for Activities for 1985-86; Information exchanged under Articles III and VII(5) of the Antarctic Treaty. 14 June 1985. Washington, DC, National Science Foundation, Part A pp.75-7; Part B pp.187-92. (Unpublished document in British Antarctic Survey archives).
- UNITED STATES DEPARTMENT OF STATE. 1986a. *1985 United States Antarctic Observer Team Report*. 24 March 1986. Washington, DC, U.S. Department of State. (Unpublished document in Scott Polar Research Institute archives).
- UNITED STATES DEPARTMENT OF STATE. 1986b. *Notification of private, non-governmental expeditions to the Treaty area in accordance with Article VII (5) of the Antarctic Treaty*. 28 August 1986. Washington, DC, U.S. Department of State. (Unpublished document in Scott Polar Research Institute archives).
- UNITED STATES DEPARTMENT OF STATE. 1986c. *Notification of private, non-governmental expeditions to the Treaty area in accordance with Article VII (5) of the Antarctic Treaty*. 28 October 1986. Washington, DC, U.S. Department of State. (Unpublished document in Scott Polar Research Institute archives).
- UNITED STATES DEPARTMENT OF STATE. 1986d. *Notification of private, non-governmental expeditions to the Treaty area in accordance with Article VII (5) of the Antarctic Treaty*. 28 October 1986. Washington, DC, U.S. Department of State. (Unpublished document in Scott Polar Research Institute archives).
- UNITED STATES DEPARTMENT OF STATE. 1986e. *Notification of private, non-governmental expeditions to the Treaty area in accordance with Article VII (5) of the Antarctic Treaty*. 28 October 1986. Washington, DC, U.S. Department of State. (Unpublished document in Scott Polar Research Institute archives).

UNITED STATES DEPARTMENT OF STATE. 1989. *Planned itineraries for non-governmental expeditions to Antarctica austral summer, 1990/91.* 2 November 1989, Washington, DC, U.S. Department of State. (Unpublished document in Scott Polar Research Institute archives).

WILKNISS, P.E. and ROMERO, P. 1989. *Tourism and non-governmental activities.* A discussion paper prepared for the October 1989 meeting of the Council of Managers of Antarctic Program Managers (MNAP) and the Standing Committee on Antarctic Logistics and Operations (SCALOP). August 1989, No. 89-6 (Rev.), 6pp. + appendices. (Unpublished document received from COMNAP).

The following people provided additional information in interviews cited in the text as 'personal communication':

de la BERNARDIE, F. Verbal communication. May 1991.

CLARKSON, P.D. Verbal communication. May 1991.

COLWELL, M. Verbal communication. May 1991.

ELLIOTT, M. Verbal communication. June 1991.

LAWS, R.M. Verbal communication. April 1991.

SWITHINBANK, C.W.M. Verbal communication. April 1991.

REFERENCES

Published sources:

- ADVENTURE NETWORK INTERNATIONAL (ANI). 1991. Promotional literature packet for 1991 expeditions. Vancouver, BC, Adventure Network International.
- ANTARCTIC. 1966a. Antarctic Tour. *Antarctic*, Vol.4, No.6, June 1966, p.292.
- ANTARCTIC. 1966b. Fabulous Journey! *Antarctic*, Vol.4, No.6, June 1966, p.299.
- ANTARCTIC. 1989. *Bahia Paraiso*: sunken Argentinian supply vessel; a continued concern. *Antarctic*, Vol.11, No.11, Issue 131, pp.441-2.
- ANTARCTIC. 1990. Affects of the *Bahia Paraiso* spill still being assessed. *Antarctic*, Vol.12, No.1, 1990, p.22.
- ANTARCTIC AND SOUTHERN OCEAN COALITION (ASOC). 1989. *Tourism in the Antarctic*. Information paper, No.3, 12 May 1989. Sydney, Antarctic and Southern Ocean Coalition, 4pp.
- ANTARCTIC CENTURY. 1988. *The Antarctic Century*, No.1, October 1988. Cooksville, Maryland, Oceanites, Inc., 6pp.
- ANTARCTIC CENTURY. 1989a. *The Antarctic Century*, No.3, April 1989. Cooksville, Maryland, Oceanites, Inc., 8pp.
- ANTARCTIC CENTURY. 1989b. *The Antarctic Century*, No.4, July-October 1989. Cooksville, Maryland, Oceanites, Inc., pp.1-8.
- ANTARCTIC CENTURY. 1990. *The Antarctic Century*, No.5, July 1990. Cooksville, Maryland, Oceanites, Inc., 16pp.
- ANTARCTIC CENTURY. 1991. *The Antarctic Century*, No.6, February 1991. Cooksville, Maryland, Oceanites, Inc., 8pp.
- ANTARCTIC JOURNAL OF THE UNITED STATES (AJUS). 1969. Logistic support activities: Antarctic Peninsula operations. *Antarctic Journal of the United States*, Vol.4, No.3, May-June 1969, pp.82-3.
- ANTARCTIC JOURNAL OF THE UNITED STATES (AJUS). 1989. U.S. Antarctic activities, 1988-89. *Antarctic Journal of the United States*, Vol.24, No.5, 1989 Review, pp.v-viii.
- ANTARCTIC TREATY. 1987. *Final Report of the fourteenth Antarctic Treaty Consultative Meeting held in Rio de Janeiro, 5-16 October 1987*. Federative Republic of Brazil, Ministry of External Relations.
- ANTARCTIC TREATY. 1990. *Final Report of the fifteenth Antarctic Treaty Consultative Meeting held in Paris, 9-20 October 1989*. Republic of France.

- ANTARCTIC TREATY. 1991. *Protocol to the Antarctic Treaty on environmental protection*. Antarctic Treaty XIth Special Consultative Meeting, Madrid, 29 April 1991, XI ATSCM/2/30, 38pp.
- ANTARCTICAN SOCIETY. 1991. [Newsletter]. Vol.90-91, No.5, April 1991. Arlington, Virginia, The Antarctic Society, 10pp.
- ASSOCIATED PRESS (AP). 1991. No clues on cause of air crash that killed 20 on way to Antarctica. *Associated Press* release. 21 February 1991, 19:17:32 EST.
- AUSTRALIAN HOUSE OF REPRESENTATIVES STANDING COMMITTEE ON ENVIRONMENT, RECREATION AND THE ARTS. 1989. *Tourism in Antarctica*. Report Chairman: P. Milton, MP. Canberra, Australian Government Publishing Service, 55pp.
- BECK, P.J. 1986. *The International Politics of Antarctica*. London & Sydney, Croom Helm.
- BECK, P.J. 1990a. Antarctica enters the 1990s: an overview. *Applied Geography*, Vol.10, No.4, October 1990, pp.247-63.
- BECK, P.J. 1990b. Regulating one of the last tourism frontiers: Antarctica. *Applied Geography*, Vol.10, No.4, October 1990, pp.343-56.
- BECK, P.J. 1990c. International Relations in Antarctica: Argentina, Chile and the Great Powers. In: MORRIS, M.A., ed. *Great Power Relations in Argentina, Chile and Antarctica*. Houndmills, Basingstoke, Hampshire and London, The Macmillan Press Ltd., pp.101-30.
- BOCZEK, B.A. 1988. The legal status of visitors, including tourists, and non-governmental expeditions in Antarctica. In: WOLFRUM, R. ed. *Antarctic Challenge*, Vol.3. Berlin, Duncker and Humblot, pp.455-90.
- CARDOZO, Y. and HIRSCH, B. 1989. Antarctic tourism '89. *Sea Frontiers*, Vol.35, No.5, September-October 1989, pp.282-91.
- CARL, B.M. 1988. The need for a private international law regime in Antarctica. In: JOYNER, C.C. and CHOPRA, S.K., eds. *The Antarctic Legal Regime*. Dordrecht, The Netherlands, Martinus Nijhoff Publishers, pp.65-95.
- CLAUS, J.E. 1990. Letter to Antarctic expedition members from the Chief Operating Officer, Society Expeditions.
- CODLING, R.J. 1982. Sea-borne tourism in the Antarctic: an evaluation. *Polar Record*, Vol.21, No.130, pp.3-9.
- COOK, G. 1990. Possible Future Developments. By G. Cook. In: Cook, G., ed. *The Future of Antarctica: exploitation versus preservation*. Manchester and New York, Manchester University Press, pp.95-103.
- COUNCIL OF MANAGERS OF NATIONAL ANTARCTIC PROGRAMS (COMNAP). 1990. *Visitors' guide to the Antarctic/Visits to scientific stations in Antarctica*. July 1990. NSF 90-147. Washington, DC, Council of Managers of National Antarctic Programs, 2pp.

- CULIK, B. and others. 1990. The effect of disturbance on the heart rate and behaviour of Adelie penguins (*Pygoscelis adeliae*) during the breeding season. By B. Culik, D. Adelung and A.J. Woakes. In: KERRY, K.R. and HEMPEL, G., eds. *Antarctic ecosystems: ecological change and conservation*. Berlin, Springer-Verlag, pp.177-82.
- ELLIOTT, M. 1991. Broadening the mind: a survey of travel and tourism. (special section paginated apart from the main articles.) *Economist*, Vol.318, No.7699, 23 March 1991, 26pp.
- ESDALE, R. 1990. Letter from the (London) Director of Society Expeditions to expedition members. 20 June 1990.
- FLEMING, A.J. and KEAGE, P.L. 1987. Protected area marker for polar use. *Polar Record*, Vol.23, No.147, September 1987, pp.716-18.
- HARRIS, C.M. (in press). Environmental management on King George Island, South Shetland Islands, Antarctica. *Polar Record*.
- HART, P.D. 1988. Bound for 60 south - taxes, tips, and transfers included: The growth of Antarctic tourism. *Oceanus*, Vol.31, No.2, Summer 1988, pp.93-100.
- HEADLAND, R.K. 1989. *Chronological list of Antarctic Expeditions and Related Historical Events*. Cambridge, Cambridge University Press.
- HEAP, J. 1990a. *Handbook of the Antarctic Treaty System, Part 1, General measures*. 7th edition, October 1990. Cambridge, Scott Polar Research Institute.
- HEAP, J. 1990b. *Handbook of the Antarctic Treaty System, Part 2, The Antarctic environment*. 7th edition, October 1990. Cambridge, Scott Polar Research Institute.
- HEAP, J. 1990c. *Handbook of the Antarctic Treaty System, Part 3, The Antarctic protected area system*. 7th edition, October 1990. Cambridge, Scott Polar Research Institute.
- HODGSON, B. 1990. Antarctica: a land of isolation no more. *National Geographic*, Vol.177, No.4, April 1990, pp.2-51.
- HOTZ, R.L. 1987. Touring Antarctica: 'People are going to go, and people are going to die'. *Atlanta Constitution*. 29 Dec 1987. Reprinted in: *Antarctic News Clips 1988*. Washington, DC, National Science Foundation, pp.9-10.
- KEAGE, P.L. and others. 1989. Improving Antarctic management plans. By P.L. Keage, P.R. Hay and J.A. Russell. *Polar Record*, Vol.25, No.155, October 1989, pp.309-14.
- KIMBALL, L.A. 1991. *Report on Antarctica*. January 1991. Washington, DC, World Resources Institute, 34pp.
- LA PRENSA. 1991. Retorno el "Pomaire". Front page *La Prensa Austral*, No.14.651, 28 pp ed. 4 March 1991. Punta Arenas, Chile.
- LEWIS, D. 1975. *Ice Bird*. Collins, London.

- LEWIS, D. and GEORGE, M. 1987. *Icebound in Antarctica*. London, Secker & Warburg.
- MANHEIM, B. S., Jr. 1990. *Paradise lost? The need for environmental regulation of tourism in Antarctica*. 28 January 1990. Washington, DC, Environmental Defense Fund, Inc., 65pp.
- MULLER-SCHWARZE, D. 1984. Possible human impact on penguin populations in the Antarctic Peninsula area. *Antarctic Journal of the United States*, special issue, Vol.19, No.5, pp.158-9.
- NATIONAL GEOGRAPHIC. 1990. First to ski cross continent. *National Geographic*, Vol.178, No.5, November 1990, pp.94-5.
- NATIONAL SCIENCE FOUNDATION (NSF). 1989. *Antarctic Conservation Act of 1978 (Public Law 95-541) with regulations, maps of special areas and application forms*. June 1989. Washington, DC, National Science Foundation, 80pp.
- NATIONAL SCIENCE FOUNDATION (NSF). 1991. *Treaty meeting and Palmer visit/ environmental observers on tour ships*. Division of Polar Programs bulletin, No.23, 10 January 1991. Washington, DC, National Science Foundation, 4pp.
- NEW ZEALAND ANTARCTIC RESEARCH PROGRAMME (NZARP). 1990. *New Zealand Government policy on tourist and private Antarctic expeditions*. April 1990. Christchurch, DSIR Antarctic, 29pp.
- NEW ZEALAND NEWS UK. 1991. Antarctica project ends. *New Zealand News UK*. 13 March 1991, p.12.
- NICHOLSON, I. E. 1986. Antarctic tourism - the need for a legal regime? In: WOLFRUM, R. ed. *Antarctic Challenge*, Vol.2. Berlin, Duncker and Humblot, pp.191-203.
- NORRIS, B. 1974. Organised parties no threat in Antarctic. *Antarctic*, Vol.7, No.2, June 1974, pp.63-4.
- PARFIT, M. 1988. Fearless Traveler: The Growth of Antarctic Tourism. *The Washington Post*. 24 January 1988. Reprinted in: *Antarctic News Clips 1988*. Washington, DC, National Science Foundation, pp.29-32.
- PETERSON, M. J. 1988. *Managing the frozen south: the creation and evolution of the Antarctic Treaty System*. Berkeley, University of California Press.
- QUIGG, P. W. 1983. *A pole apart: the emerging issue of Antarctica*. McGraw-Hill Book Company, New York.
- REICH, R. J. 1980. The development of Antarctic tourism. *Polar Record*, Vol.20, No.126, pp.203-14.
- RIEBER SHIPPING A/S. [1990?]. *M/V "Polar Circle"*. Promotional brochure. Bergen, Norway, Rieber Shipping A/S.
- ROSZAK, T. 1988. Leave the wilderness alone! *New Scientist*, Vol.118, No.1615, 2 June 1988, pp.63-4.

- SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH (SCAR). 1980. *A visitor's introduction to the Antarctic and its environment*. Prepared by the Conservation Subcommittee of the Working Group on Biology. October 1980. Cambridge, International Council of Scientific Unions/Scientific Committee on Antarctic Research, 28pp.
- SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH (SCAR). 1987. *Scar manual*. Cambridge, Scientific Committee on Antarctic Research.
- SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH (SCAR). 1990a. SCAR Bulletin No. 96, January 1990. *SCAR Group of Specialists on Environmental Affairs and Conservation (GOSEAC)*. Cambridge, Scientific Committee on Antarctic Research, pp. 3-5.
- SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH (SCAR). 1990b. SCAR Bulletin No. 98, July 1990. *Managers of National Antarctic Programs (COMNAP) together with the Standing Committee on Antarctic Logistics and Operations (SCALOP) summary report of meeting*. Cambridge, Scientific Committee on Antarctic Research, pp. 1-4.
- SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH (SCAR). 1991. SCAR Bulletin No. 100, January 1991. *Council of Managers of National Antarctic Programs, report of meeting*. Cambridge, Scientific Committee on Antarctic Research, pp. 1-2.
- SCULLY, R. T. 1989. Statement and follow-up questions for Senate Hearing 101-637: *Protecting Antarctica's environment*. Hearing before the Subcommittee on Science, Technology, and Space of the Committee on Commerce, Science, and Transportation United States Senate, 101st Congress, 1st session on protecting Antarctica's environment. 8 September 1989. Washington, DC, U. S. Government Printing Office, pp. 6-44.
- SMITHSONIAN NATIONAL ASSOCIATE PROGRAM (SNAP). 1990. *Antarctica, South Georgia & the Falklands*. Promotional brochure. Washington, DC, The Smithsonian Institution.
- SOCIETY EXPEDITIONS. 1989. *Antarctica visitor guidelines*. Seattle, Society Expeditions Cruises, Inc., 4pp.
- SOCIETY EXPEDITIONS. 1990a. *Antarctica expedition notebook*. Seattle, Society Expeditions, Inc., 110pp.
- SOCIETY EXPEDITIONS. 1990b. News release. *Society Expeditions to build two new expedition vessels*. 22 January 1990. Seattle, Society Expeditions Cruises, Inc., 4pp.
- SOCIETY EXPEDITIONS. 1991a. *The spirit of discovery brochure, 1991-92 revised*. Seattle, Society Expeditions, 31pp.
- SOCIETY EXPEDITIONS. 1991b. *World Discoverer revised itineraries 1991-1992*. 21 February 1991, 4pp.
- SOCIETY EXPEDITIONS. 1991c. *Society Adventurer revised itineraries 1991-1992*. 21 February 1991, 3pp.
- SOCIETY EXPEDITIONS. 1991d. *Society Explorer revised itineraries 1991-1992*. 21 February 1991, 2pp.

- STONEHOUSE, B. 1965. Too many tourists in Antarctica. *Animals*, Vol.7, No.17, pp.450-3.
- STONEHOUSE, B. 1990. A traveller's code for Antarctic visitors. *Polar Record*, Vol.26, No.156, January 1990, pp.56-8.
- SWITHINBANK, C. 1988. Antarctic Airways: Antarctica's first commercial airline. *Polar Record*, Vol.24, No.151, October 1988, pp.313-16.
- SWITHINBANK, C. 1990. Non-government aircraft in the Antarctic 1989/90. *Polar Record*, Vol.26, No.159, October 1990, p.316.
- UNITED STATES ANTARCTIC PROGRAM (USAP). 1990b. *Draft Supplemental Environmental Impact Statement for the United States Antarctic Program*. December 1990. Washington, DC, National Science Foundation.
- WILKNISS, P. 1989. Statement and follow-up questions for Senate Hearing 101-637: *Protecting Antarctica's environment. Hearing before the Subcommittee on Science, Technology, and Space of the Committee on Commerce, Science, and Transportation United States Senate, 101st Congress, 1st session on protecting Antarctica's environment. 8 September 1989.* Washington, DC, U. S. Government Printing Office, pp.44-62.
- WILSON, K-J. and others. 1990. The impact of man on Adelie penguins at Cape Hallett, Antarctica. By K-J Wilson, R.H. Taylor and K.J. Barton. In: KERRY, K.R. and HEMPEL, G., eds. *Antarctic ecosystems: ecological change and conservation.* Berlin, Springer-Verlag, pp.183-90.
- ZEGRAHM EXPEDITIONS. 1991. *Zegrahm News.* March 1991, Vol.1, No.2, Seattle, Zegrahm Expeditions.
- ZEHNDER, W. 1989. *Outline of talk for the Tinker Foundation's Forum on Antarctica.* 10 November 1989, 15pp.

Appendix 1. Acronyms and abbreviations used in the text.

ANI	Adventure Network International
ANZ	Air New Zealand
ASOC	Antarctic and Southern Ocean Coalition
ASTI	Areas of Special Tourist Interest
ATCM	Antarctic Treaty Consultative Meeting
ATCP	Antarctic Treaty Consultative Party
ATP	Antarctic Treaty Party
ATS	Antarctic Treaty System
ATSCM	Antarctic Treaty Special Consultative Meeting
BAS	British Antarctic Survey
COMNAP	Council of Managers of National Antarctic Programs
FACH	Fuerza Aerea de Chile
GOSEAC	Group of Specialists on Environmental Affairs and Conservation
ICSU	International Council of Scientific Unions
IGY	International Geophysical Year
MPA	Multiple-use Planning Area
NCP	Non-Consultative Party
NGA	Non-Governmental Activity
NGO	Non-Governmental Organization
NSF	National Science Foundation
NZARP	New Zealand Antarctic Research Programme
SCALOP	Standing Committee on Antarctic Logistics and Operations
SCAR	Scientific Committee on Antarctic Research
SERNATUR	Servicio Nacional de Turismo
SNAP	Smithsonian National Associate Program
SPA	Specially Protected Area
SRA	Specially Reserved Area
SSSI	Site of Special Scientific Interest
USAP	United States Antarctic Program (post-1986)
USARP	United States Antarctic Research Program (pre-1986)
WTO	World Tourist Organization

ANTARCTIC TREATY

Made 1 December 1959; came into force 23 June 1961.

(The Treaty has no limit on its duration; it may be reviewed, at the request of
a Consultative Party, 30 years after coming into force [that is in 1991].)

Members; in chronological order.

+ <i>United Kingdom</i>	<i>31 May 1960</i>	1
+ <i>South Africa</i>	<i>21 June 1960</i>	2
+ <i>Belgium</i>	<i>26 July 1960</i>	3
+ <i>Japan</i>	<i>4 August 1960</i>	4
+ <i>United States of America</i>	<i>18 August 1960</i>	5
+ <i>Norway</i>	<i>24 August 1960</i>	6
+ <i>France</i>	<i>16 September 1960</i>	7
+ <i>New Zealand</i>	<i>1 November 1960</i>	8
+ <i>Soviet Union</i>	<i>2 November 1960</i>	9
+ Poland	8 June 1961 (29 July 1977)	10
+ <i>Argentina</i>	<i>23 June 1961</i>	11
+ <i>Australia</i>	<i>23 June 1961</i>	12
+ <i>Chile</i>	<i>23 June 1961</i>	13
Czechoslovakia	14 June 1962	14
Denmark	20 May 1965	15
+ Netherlands	30 March 1967 (19 November 1990)	16
Romania	15 September 1971	17
+ Germany, DDR □	19 November 1974 (5 October 1987)	18
+ Brasil	16 May 1975 (12 September 1983)	19
Bulgaria	11 September 1978	20
+ Germany, BRD □	5 February 1979 (3 March 1981)	21
+ Uruguay	11 January 1980 (7 October 1985)	22
Papua New Guinea *	16 March 1981	23
+ Italy	18 March 1981 (5 October 1987)	24
+ Peru	10 April 1981 (9 October 1989)	25
+ Spain	31 March 1982 (21 September 1988)	26
+ China, Peoples' Republic	8 June 1983 (7 October 1985)	27
+ India	19 August 1983 (12 September 1983)	28
Hungary	27 January 1984	29
+ Sweden	24 April 1984 (21 September 1988)	30
+ Finland	15 May 1984 (9 October 1989)	31
Cuba	16 August 1984	32
+ Korea (Seoul)	28 November 1986 (9 October 1989)	33
Greece	8 January 1987	34
Korea (Pyongyang)	21 January 1987	35
Austria	25 August 1987	36
+ Ecuador	15 September 1987 (19 November 1990)	37
Canada	4 May 1988	38
Colombia	31 January 1989	39
Switzerland	15 November 1990	40

Original signatories; the 12 states which signed the Treaty on 1 December 1959, are *italicised*; the dates given are those of the deposition of the instruments of ratification, approval, or acceptance of the Treaty.

+ Consultative Parties; 26 states, the 12 original signatories and 14 others which achieved this status after becoming actively involved in Antarctic research (with dates in brackets).

* Papua New Guinea succeeded to the Treaty after becoming independent of Australia.

□ The two German states unified on 3 October 1990. Thus there are now 39 member states from the 40 signatories.

Appendix 3. Scientific Committee on Antarctic Research members and dates of admission. Compiled by R. Headland, Scott Polar Research Institute, October 1990.

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS
SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH

National membership, with dates of admission:

Full members:

Argentina +		3 February 1958	1
Australia +		3 February 1958	2
Belgium +		3 February 1958	3
Chile +		3 February 1958	4
France +		3 February 1958	5
Japan +		3 February 1958	6
New Zealand +		3 February 1958	7
Norway +		3 February 1958	8
South Africa +		3 February 1958	9
Soviet Union +		3 February 1958	10
United Kingdom +		3 February 1958	11
United States of America +		3 February 1958	12
Germany, BRD □		22 May 1978	13
Poland		22 May 1978	14
Germany, DDR □		9 September 1981	15
Brasil		1 October 1984	16
India		1 October 1984	17
China (Peking)		23 June 1986	18
Sweden	(24 March 1987)	12 September 1988	19
Italy	(19 May 1987)	12 September 1988	20
Uruguay	(29 July 1987)	12 September 1988	21
Spain	(15 January 1987)	23 July 1990	22
Netherlands	(20 May 1987)	23 July 1990	23
Korea (Seoul)	(8 December 1987)	23 July 1990	24
Finland	(1 July 1988)	23 July 1990	25

+ indicates the twelve countries which established the Committee.
□ The two German states unified on 3 October 1990. Thus there are now 24 member states from 25 signatories.

(Dates in brackets are those of admission as an associate member.)

Associate members:

Peru		14 April 1987	1
Switzerland		16 June 1987	2
Ecuador		12 September 1988	3
Colombia		23 July 1990	4

SITES OF SPECIAL SCIENTIFIC INTEREST

(Recommendation VIII-4)

Site No. 1	:	Cape Royds, Ross Island
Site No. 2	:	Arrival Heights, Hut Point Peninsula, Ross Island
Site No. 3	:	Barwick Valley, Victoria Land
Site No. 4	:	Cape Crozier, Ross Island
Site No. 5	:	Fildes Peninsula, King George Island, South Shetland Islands
Site No. 6	:	Byers Peninsula, Livingston Island, South Shetland Islands
Site No. 7	:	Haswell Island
Site No. 8	:	Western shore of Admiralty Bay, King George Island
Site No. 9	:	Rothera Point, Adelaide Island
Site No. 10	:	Caughley Beach, Cape Bird, Ross Island
Site No. 11	:	Tramway Ridge, Mount Erebus, Ross Island
Site No. 12	:	Canada Glacier, Lake Fryxell, Taylor Valley, Victoria Land
Site No. 13	:	Potter Peninsula, King George Island, South Shetland Islands
Site No. 14	:	Harmony Point, Nelson Island, South Shetland Islands
Site No. 15	:	Cierva Point and nearby islands, Danco Coast, Antarctic Peninsula
Site No. 16	:	Bailey Peninsula, Budd Coast, Wilkes Land
Site No. 17	:	Clark Peninsula, Budd Coast, Wilkes Land
Site No. 18	:	White Island, McMurdo Sound
Site No. 19	:	Linnaeus Terrace, Asgaard Range, Victoria Land
Site No. 20	:	Biscoe Point, Anvers Island, Palmer Archipelago
Site No. 21	:	Shores of Port Foster, Deception Island, South Shetland Islands
Site No. 22	:	Yukidori Valley, Langhovde, Lutzow-Holm Bay
Site No. 23	:	Svarthamaren, Muhlig-Hofmannfjella, Dronning Maud Land
Site No. 24	:	Summit of Mt Melbourne, North Victoria Land
Site No. 25	:	Marine Plain, Mule Peninsula, Vestfold Hills, Princess Elizabeth Land
Site No. 26	:	Chile Bay (Discovery Bay), Greenwich Island, South Shetland Islands
Site No. 27	:	Port Foster, Deception Island, South Shetland Islands
Site No. 28	:	South Bay, Doumer Island, Palmer Archipelago
Site No. 29	:	Ablation Point-Ganymede Heights, Alexander Island
Site No. 30	:	Avian Island, North-west Marguerite Bay, Antarctic Peninsula
Site No. 31	:	Mount Flora, Hope Bay, Antarctic Peninsula
Site No. 32	:	Cape Shirreff, Livingston Island, South Shetland Islands

Appendix 5. List of Specially Protected Areas. Sources: Heap, 1990c, pp. 3217-19; NZARP, 1990, p. 9.

Specially Protected

Area Number	Name
1	Taylor Rookery, Mac. Robertson Land
2	Rookery Islands, Holme Bay
3	Ardery Island and Odbert Island, Budd Coast
4	Sabrina Island, Balleny Islands
5	Beaufort Island, Ross Sea
6	Cape Crozier, Ross Island (designation terminated by Recommendation VIII-2)
7	Cape Hallett, Victoria Land
8	Dion Islands, Marguerite Bay, Antarctic Peninsula
9	Green Island, Berthelot Islands, Antarctic Peninsula
10	Byers Peninsula, Livingston Island, South Shetland Islands (designation terminated by Recommendation VIII-2)
11	Cape Shirreff, Livingston Island, South Shetland Islands (designation terminated by Recommendation XV-7)
12	Fildes Peninsula, King George Island, South Shetland Islands (designation modified by Recommendation V-5 and terminated by Recommendation VIII-2)
13	Moe Island, South Orkney Islands
14	Lynch Island, South Orkney Islands
15	Southern Powell Island and adjacent islands, South Orkney Islands
16	Coppermine Peninsula, Robert Island
17	Litchfield Island, Arthur Harbour, Palmer Archipelago
18	North Coronation Island, South Orkney Islands
19	Lagotellerie Island, Marguerite Bay
20	'New College Valley', Caughley Beach, Cape Bird, Ross Island

TOURIST PROCEDURES DURING VISITS TO THE ROSS DEPENDENCY

Background

From time to time expedition cruise ships have visited the Ross Dependency, either making visits or attempting to make visits to historic huts on Ross Island, Scott Base and McMurdo Station and, occasionally, other sites of interest e.g. Capes Hallett and Adare.

Previous cruises to visit the Ross Dependency have included:

1974	MS Lindblad Explorer
1979	MS Lindblad Explorer
1981	MS Lindblad Explorer
1981-82	MS Lindblad Explorer
1982	MS Lindblad Explorer
1983	MS World Discoverer
1983	MS Lindblad Explorer
1984	MS Lindblad Explorer
1987	MS World Discoverer

New Zealand Government Representative

All vessels intending to land in the Ross Dependency must be accompanied by a New Zealand Government representative, who will ensure compliance with any permits and will be able to act as a guide and provide site interpretation. This person will also carry keys to historic huts within the Ross Dependency.

Procedures for Visits

Cape Adare

This is the site of two huts occupied by Borchgrevink during 1899-1900 and a third hut erected by Scott's northern party (1910-11). Other features include Hanson's Grave and an extensive Adelie penguin colony (241,000 pairs in 1988).

The hut was last visited by a conservation group from the Antarctic Heritage Trust during 1989/90 season when the roof of the last remaining intact hut was re-clad.

Beach lands at Cape Adare are always difficult with most visiting parties being unable to land due to surf conditions.

The huts are located close to the beach and now are totally surrounded by the Adelie rookery. Care must be taken not to disturb nesting birds. The hut is locked and a key is carried by the New Zealand representative.

Procedures

Parties should land on the beach immediately in front of the huts.

Note: the Cape Adare area regularly experiences extremely high winds, both from the sea and off the continent.

Hansen's grave is 1000' above Cape Adare, approximately 45 minutes walk one way.

Cape Hallett

This is the site of the old Hallett Station, a large Adelie penguin rookery and SPA. Hallett Station was built in 1957-58 for the International Geophysical Year (IGY). It was operated as a joint New Zealand - United States of America station until 1964 when a fire destroyed the main science building. It remained as a support facility operated by the United States Antarctic Research Programme until 1973 when it was closed.

Removal of the majority of the station began in the late 1970's and has almost been completed. Four buildings and a fuel tank remain.

The adjacent Adelie rookery contained 60,000 pairs at the 1988 census. The penguins are rapidly returning to the area previously occupied by the station buildings.

The area was last visited in 1990/91.

A Specially Protected Area (SPA 7) is situated in the Cape Hallett area. This area comprises all of the land between the coastal road and the ice margin. No entry into this area is permitted.

SPA 7 is designated to protect a rich area of vegetation (mosses and lichens) which support a variety of outstanding terrestrial fauna.

Procedures

Parties should be landed on the beach in front of the existing buildings. Care is required when moving about buildings as penguins now nest throughout the area.

The Adelie rookery proper, which is located to the south and west of the buildings, should not be entered.

Cape Royds

This is the site of the hut built by Shackleton for the 1907-09 expedition and an extensive Special Site of Scientific Interest (SSSI No. 1), which includes the Adelie penguin rookery (3,500 pairs in 1988) and sea access to the coast about much of Cape Royds.

The area east of Pony Lake to the coast at Derrick Point contains many artefacts of the various expeditions which have occupied the site. The best being the hut built in February 1908.

Procedures

Parties must arrive via Backdoor Bay, east of Derrick Point, and walk to the hut and surrounding area (15-30 minutes). The hut is kept locked, key carried by a NZ representative, and there are removable wooden shutters on the windows on the north wall of the hut. These must be replaced at the end of the visit.

No more than 8 persons are to be in the hut at any one time.

Where practicable additional staff from Scott Base may travel to Cape Royds to assist with on-site interpretation.

No person may enter the SSSI which is marked by small orange plates.

Cape Evans

This is the site of Scott's Hut, built in January 1911 for the push to the South Pole. Adjacent to this hut is Greenpeace's year round base housing 5 persons. Scott's Hut is located on the beach at Home Bay, Cape Evans. It is surrounded by many historic relics, including a memorial cross to some members of Shackleton's Ross Sea Party 1914-17.

Procedures

Landings can be made anywhere possible on the beach. Access from the beach through ice to the huts can sometimes be difficult. Scott's Hut is kept locked. Key is carried by the NZ representative.

No more than 10 persons are to be in the hut at any one time.

Where practicable, additional staff from Scott Base may travel to Cape Evans to assist with site interpretation.

McMurdo Station Area

Hut Point, the western boundary of the McMurdo Station facilities area, has located on it Discovery Hut built by Scott in 1902. Nearby is a memorial cross to Vince erected by this expedition. Observation Hill on the southern boundary of McMurdo Station has located at the top the memorial cross to Scott's Party which perished on the return journey from the South Pole.

Discovery Hut

This hut was was the first building erected on Ross Island by Scott's 1902 expedition. Having been used as a staging post and refuge for subsequent expeditions, it has undergone many modifications since it was erected.

Procedures

Discovery Hut is kept locked, key will be available through the NZ representative. Access to the hut can be from either the ice pier at McMurdo (five minutes walk), from McMurdo Station (15 minutes walk), from Scott Base (50 minutes walk), or from a landing on a small beach on the western side of Hut Point (80 metres from the hut).

No more than 10 people are permitted in the hut at any one time.

Access may be offered at times when the NZ representative is not available through the Senior New Zealand Representative at Scott Base who also holds a key.

Observation Hill

Access to Observation Hill is by a track which leaves from behind the buildings on the flank of the hill or from the road to these buildings. Walking time from McMurdo 40 minutes (one way) or 1 hr 15 minutes from Scott Base (one way).

McMurdo Station

All visits to be coordinated with the Senior United States Representative Antarctica, by the cruise director.

Scott Base

Scott Base is New Zealand's major science and logistics station in the Ross Dependency. In the summer season it houses 40-80 persons and 11 people in winter. It is located 3.5km from McMurdo Station.

Procedures

All visits to Scott Base must be organised in advance through the Manager, DSIR Antarctic, and will take place only on a non-interference to base operations basis. Once in the area final arrangements should be made direct through the New Zealand representative on board with the Senior New Zealand Representative at Scott Base using 5400 Khz (or VHF if the NZ representative onboard is carrying an NZARP radio). A minimum of 72 hours notice must be given to Scott Base. Access to Scott Base will depend upon sea ice conditions and/or if the ice pier is available to the tour vessel.

If there is open water in front of Scott Base landings may be made on the beach at the eastern end of Scott Base buildings.

If it is not possible to land visitors ashore at Scott Base the walking time to Scott Base to McMurdo is 40-60 minutes depending upon weather. In consultation with the tour organisers Scott Base will, if required, provide limited transport between McMurdo and Scott Base.

Visits to Scott Base

1. The Senior New Zealand Representative will advise the times and numbers that each group may arrive at Scott Base.
2. Group sizes will be advised, 10-15 per group.
3. Groups are to assemble at the visitor reception area in front of the Command Centre.
4. Tours of base facilities will last 1-1^{1/2} hours and include:
 - a. an introduction to the base
 - b. tour of facilities including science laboratory
 - c. light refreshments in mess
 - d. visit to Scott Base shop

Notes:

1. There are no facilities for posting mail available at Scott Base. (The Post Office closed in 1987.)
2. Postage stamps are not available at Scott Base.
3. A limited number of cachets are available in the public foyer in the Command Centre.
4. The bar is available on an invitation-only basis to all non NZARP personnel.
5. The only public area at Scott Base is the foyer of the Command Centre which houses Telecom and shop.
6. While phone calls to the rest of the world may be made at Telecom, Scott Base, there is normally a 7-day waiting list or booking period. Limited calls may be available.