

Antarctica: Tourism, Wilderness, and “Ambassadorship”

Patrick T. Maher
Gary Steel
Alison McIntosh

Abstract—Antarctica, as a continent, is one of the most beautiful, remote places on the planet. For many people Antarctica is a place of mystery, a place of historic exploration, discovery, and suffering. Antarctica is where huge icebergs sweep by populous penguin rookeries, and where majestic albatross sweep along on wind curling off the polar plateau. These preconceptions are perhaps why Antarctic tourism has grown substantially over the past two decades, now numbering nearly 15,000 visitors each year. Antarctic wilderness is vast, its flora and fauna not diverse, but plentiful and unique. The questions are now whether (1) tourism and wilderness are compatible, (2) tourism can support and conserve the Antarctic wilderness, and (3) Antarctic wilderness can support current or increased tourism. This paper is an attempt to reveal and combine some of the known information, but also acts as a call for further empirical research, including that proposed by the authors.

Antarctica: Tourism

We cannot build a barrier around the Antarctic and keep tourists or the science community out. The Antarctic Treaty grants us all freedom of access to Antarctica. With that freedom comes a responsibility which we all share (Landau 2000: 15).

Travel and tourism is the world's largest industry, transporting 528 million people and generating \$322 billion in receipts in 1994 alone (WTTC, WTO, EC 1995). By 2005, estimates are that tourism will have a gross output of \$7.2 trillion, create 305 million jobs, and account for 11.4 percent of the world's Gross Domestic Product (WTTC, WTO, EC 1995). Global tourism is growing 23 percent faster than the world economy, and by the year 2010, 937 million tourists are expected to travel each year (Shackley 1996).

Tourism in Antarctica has traditionally been defined to include:

- Commercial sea-borne operations, accessing coastal sites.
- Private yacht visits.

Patrick T. Maher is a Ph.D. Candidate in the Social Science, Tourism and Recreation Group of the Environment, Society and Design Division, P.O. Box 84, Lincoln University, Canterbury, New Zealand, FAX: (64) (3) 325 3857, E-mail: maherp@lincoln.ac.nz. Gary Steel is a Lecturer in Social Psychology, Social Science, Tourism and Recreation Group, P.O. Box 84, Lincoln University, Canterbury, New Zealand. Alison McIntosh is a Senior Lecturer in Tourism, Social Science, Tourism and Recreation Group, P.O. Box 84, Lincoln University, Canterbury, New Zealand.

In: Watson, Alan; Sproull, Janet, comps. 2003. Science and stewardship to protect and sustain wilderness values: Seventh World Wilderness Congress symposium; 2001 November 2–8; Port Elizabeth, South Africa. Proc. RMRS-P-27. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

- Continental overflights.
- Flights to King George Island, Patriot Hills, or the South Pole for land-based operations.
- Special interest tourism (adventure, scientific, ecotourism, private expeditions).
- Visits by media, government dignitaries, and other politicians.
- Base personnel on their free time (Benson 2000).

However, argument over such an inclusive definition can and does occur in previous research (Bauer 2001; Benson 2000; Enzenbacher 1992; Hall 1992; WTO 1999).

Antarctic tourism is not a recent phenomenon: 130,000 tourists have visited since 1965, but it is small in scale compared to global tourism. While often portrayed as a new pressure on the southern polar region, it is quite possible that tourism activity has simply been overlooked until the huge growth of the past two decades. Lars-Eric Lindblad began large-scale, ship-borne tourism in 1966, but tourists had made landings on Sub-Antarctic Islands as early as 1882, and by 1933 most large Sub-Antarctic Islands surrounding the continent had been visited (Headland 1994).

In the 1990/1991 season, 4,842 tourists visited Antarctica. This total of Antarctic visitors was less than two-thirds of all the visitors to Maria Island, the least visited tourist destination in Tasmania, Australia's smallest State (Herr 1996). In the 1999/2000 season, 14,762 tourists traveled to the ice (IAATO 2001). This figure includes all land-based tourists, small ships, yachts, and even large cruise vessels that do not land passengers. Looking into the future, a total of 26,000 tourists are expected for 2005/2006.

Visitors to Antarctica today are from a wide variety of nations, but are still typically first-world citizens. In 2000/2001, 47 percent were from the United States, 13 percent from Germany, 10 percent from the United Kingdom, 8 percent from Australia, 4 percent from Canada, 3 percent from Japan, 2 percent from the Netherlands, and the remaining 13 percent from other countries or nationality unknown (IAATO 2001). Typically, these tourists are tertiary educated, well traveled, have high disposable incomes, and are looking for a unique nature-based experience (Kriwoken and Rootes 2000). Geographically, visits to the continent are highly concentrated, with less than 0.5 percent of the continental area visited; this is an area measuring only 56,000 km² (21,622 miles²), which is roughly the size of Sri Lanka (Cessford 1997). Overall, the sites are widely dispersed around the continent, but the Antarctic Peninsula takes 90 percent of the tourist activity (Cessford 1997). A quick comparison underscores the bias towards peninsula visits. The “most visited site” in the peninsula region is Port Lockroy, which receives upward of 7,500 visits per year,

while the most visited site in the Ross Sea region is Terra Nova Bay, which is currently seen by approximately 800 tourists per year (IAATO 2001).

Governance of Antarctica falls under the Antarctic Treaty System (ATS). Regulation of tourism has fallen to the ATS because the relatively minor levels of tourism activity and numbers in Antarctica make it uninteresting to large tourism organizations and regulatory bodies; in turn, the ATS simply sees tourists as "other visitors" (Herr 1996). In 1961, the ATS was a group of 12 signatory nations, but today consists of 43 nations representing two-thirds of the world's population. Although the ATS has treated tourism in Antarctica as a minor inconvenience, if Antarctica is now in the "tourism period," as White (1994) has speculated, the ATS may have no choice but to face tourism issues head-on. This creates an interesting dilemma: Should tourist activity be managed, exploited, or completely shut out?

One of the original signatories, New Zealand, is a staunch supporter of a pristine and conserved Antarctica (Dingwall 1992), although it allows tourist cruises to depart from its ports. Another original signatory, Chile, has pushed hard to exploit the destination for its economic means (Pinochet de la Barra 1992). For political compromise and international relations, there is an increasing need for agreement on tourism issues. As Mickleburgh (1988) states, "If we cannot succeed in Antarctica we have little chance of succeeding elsewhere," and, as suggested by Landau (2000) above, responsibility regarding access to Antarctica must be shared.

Antarctic tourism can be meaningfully divided into the categories of ship-borne, land-based, and airborne tourism (Hall and Johnston 1995). These will be discussed immediately below.

Ship-Borne Tourism

In 1970, Lars-Eric Lindblad built the *Lindblad Explorer*, the first polar vessel constructed specifically for tourist purposes (Benson 2000). Having gone through various name and ownership changes, the *M/S Explorer* still remains a leader in Antarctic tourism (Headland 1994). Two other important vessels in Antarctic tourism history are the *Bahia Paraiso* and the *Kapitan Khlebnikov*. The *Bahia Paraiso* was an Argentine naval resupply vessel that additionally carried tourists between Ushuaia and King George Island in the South Shetland Islands chain, and the *Kapitan Khlebnikov* was the first vessel to circumnavigate Antarctica after 2 months at sea (Spletstoeser and others 1997).

On January 28, 1989, the *Bahia Paraiso* became grounded in Arthur Harbor near the U.S. Palmer Station, was then abandoned, and eventually sunk (Headland 1994). The logistics of rescue and tourist management during this incident led to a closer examination of Antarctic tourism and, in turn, likely spurred the formation of IAATO in 1991 (Spletstoeser 1999).

The *Kapitan Khlebnikov*, affectionately referred to as the "KK," continues to carry passengers to the ice to this day. The KK is an ex-Russian research vessel, and some growth of tourism in Antarctica in the early 1990s can be attributed to the commercial availability of such Russian ice-strengthened research vessels and icebreakers after their conversion to tourism use (Cessford 1997). Given the interest shown by

tourists on these cruise vessels, it is likely that circumnavigation of the continent or at least partial circumnavigation will increase in popularity. Such cruises allow visitors to see both the historic sites of the Ross Sea Region and the wildlife of the Antarctic Peninsula (Mason and Legg 1999).

With closer proximity and less time crossing the Southern Ocean, ship-borne tours to the Antarctic Peninsula are much cheaper and friendlier, in terms of comfort, than those from New Zealand or Australia to the Ross Sea Region (Hall and Wouters 1995). The ease of transport, distance, and a milder marine climate have led scientists to refer to the peninsula as the "Banana Belt" (Campbell 1993), and with the buildup of tourism, the peninsula has also been dubbed the "Antarctic Riviera" (Hart 1988). From Ushuaia, the Antarctic Peninsula can be reached in as little as 48 hours, whereas from New Zealand and Australia to the Ross Sea Region, the voyage may take as long as 10 days (Suter 1991).

Also possible in the peninsular region are private yacht tours, with 237 tourists electing to take up this option in the 1999/2000 season (IAATO 2001). Yacht tours create a difficult situation for IAATO and the ATS because their numbers are increasing and the activity of yachts is much more difficult to regulate and monitor (Spletstoeser 1999). Yacht tours will remain popular in Antarctica because of price and flexible schedules, but to many ATS signatories such tours are much more of an environmental threat than any other type of tourism (Spletstoeser 1999).

Land-Based Tourism

The building of a 1,300-m (4,265-ft) hard runway at the Chilean Tiente Rodolfo Marsh Station, on King George Island in 1979/1980, signaled the ability for land-based and airborne tourism to be able to operate in the Antarctic (Benson 2000). On January 8, 1982, a group of 40 tourists flew to Marsh Station to stay prior to boarding a cruise (IAATO 2001; Swithinbank 1992). From 1982 to 1992, Chile operated the "Hotel Estrella Polar," a converted 80-bed, military barracks at Marsh Station, which served as a rest spot for tourists between cruise ships and tourists' flights to King George Island (Headland 1994). Both the Chilean military and commercial operators offered flights in to the "hotel," and from there excursions to nearby attractions were conducted. Following the cessation of Chile's polar hotel operations, Argentina began flying tourists to its base on Seymour Island, but today all such accommodations have reverted back to official use. The claim of sovereignty to the Antarctic Peninsula by Chile and Argentina have often led to bolstered tourism or population efforts by these two nations (Hall and Johnston 1995).

In 1989, the Australian House of Representatives Standing Committee on Environment, Recreation and the Arts (HRSCERA) heard a unique land-based tourism proposal. "Project Oasis" was submitted by Helmut Rohde and Partners and was a detailed plan to operate a facility near Davis Station in the Vestfold Hills (HRSCERA 1989). The project was to contain an airport, visitor education and research centers, accommodation, hospital, search and rescue capabilities, and ATS administration facilities (HRSCERA 1989). Estimates indicated that up to 16,000 people per year could use the facilities, with 2 flights per week to and from

Australia. The maximum number of people projected to be onsite at any time would be 588 (344 tourists, 70 researchers, and 174 staff) (HRSCERA 1989). "Project Oasis" never proceeded past the proposal stage, but it gave an interesting, and to some, alarming insight into the possibilities and implications of future land-based tourism in Antarctica.

Today, land-based tourism in Antarctica centers around one particular company, Adventure Network International (ANI). ANI operates a tented summer camp at Patriot Hills in the Ellsworth Mountains, which can accommodate 50 people and takes advantage of a natural, blue ice runway to land large Hercules aircraft (Benson 2000). From Patriot Hills, ANI operates a service, via Twin Otter and Cessna, to Vinson Massif, the South Pole, and numerous glaciers and Emperor Penguin colonies (Benson 2000; Kriwoken and Rootes 2000). Polar Logistics, the logistical arm of ANI, also operates flights from Cape Town, South Africa, to a blue ice runway at Holtfjella (Blue Ice I) located 200 km (124 miles) inland of the Russian Novolazarevskaya base in Dronning (Queen) Maud Land (Benson 2000; Kriwoken and Rootes 2000). In 1997/1998, ANI carried 131 passengers to Antarctica with eight Hercules flights being made between Punta Arenas and Patriot Hills (Swithinbank 1998). Two years later, 1999/2000, ANI only carried 139 of the total 14,762 tourists to Antarctica, and estimates for the 2000/2001 rises to just 200 tourists (IAATO 2001).

Airborne Tourism

Ship-borne and land-based tourism may include elements of airborne tourism. Air travel from ships is limited to those vessels equipped with helicopters such as the *KK*, with these helicopters being used to increase the range of sites available for tourism (Cessford 1997). ANI's airborne tourism is primarily a means of transporting visitors and goods rather than offering sightseeing as found on overflights (Benson 2000).

This category of tourist travel currently consists primarily of continental overflights from Australia, and in the past from New Zealand and Chile. Overflights began in 1956 with LAN Chile flying over the South Shetland Islands (Stonehouse and Crosbie 1995). In 1957, a rare landing was made by a commercial flight at McMurdo Station. No regular flights were made over Antarctica until February 1977, when both Qantas and Air New Zealand began operations (Kriwoken and Rootes 2000; Swithinbank 1992). Both companies flew extensively through 1979, with a total of 16 flights in 1977/1978, 17 in 1978/1979, and 7 in 1979/1980, for a total of 11,145 passengers and 43 flights (Reich 1980). The journey involved in these overflights was 11 hours in duration from New Zealand or Australia; the actual overflight of the continent lasted a total of 90 minutes (Reich 1980). Overflights ceased dramatically on November 28, 1979, when Air New Zealand DC-10 flight TE901 crashed into Mt. Erebus on Ross Island, killing all 257 passengers and crew aboard (MacFarlane 1991).

Resuming in 1994/1995, overflights are now being organized by Croydon Travel in Victoria, Australia, and departing aboard Qantas Boeing 747s from Melbourne, Sydney, or Adelaide. Such flights fly for 11 to 12 hours at a minimum altitude of 3,050 m (10,000 ft) above sea level, or 610 m (2,000 ft) above the highest ground within 185 km (115 miles) of the

aircraft's position (AAD 1997; Benson 2000). As well, aircraft must run their engines at one-third full power in order to reduce noise and pollution (AAD 1997). In the first five seasons since resuming operations, it has been estimated that over 13,000 passengers have taken part. From 1996 to 1998, over 10,000 passengers flew over the continent from Australia (IAATO 2001). Beginning in 1998/1999, the Chilean airline, Avant, offered overflights of the peninsula region, and carried approximately 1,000 passengers in its maiden season.

Antarctica: Wilderness

Antarctica, as a wilderness area, covers 50 million km² (19.3 million miles²), including the surrounding Southern Ocean (Kriwoken and Keage 1989). The continent alone is 14 million km² (5.4 million miles²), which is roughly the size of the United States and Mexico combined (Cessford 1997). Of the entire continent, 98 percent is covered with ice that is an average of 2 km (1.2 miles) thick (Rubin 1996). With Antarctica's ice sheet holding 90 percent of the world's fresh water supply, not only is it majestic in size and beauty, but also extremely important with respect to the global environment (Kriwoken and Rootes 2000). Antarctica has a harsh climate, exemplified by the fact that the minimum temperature ever recorded (-89.6 °C, or -129.28 °F) occurred at Russia's Vostok Station (Rubin 1996). In addition to the harsh physical climate, Antarctica is notable for its unusual ecology. Consider these facts:

- From diatom (a one-celled organism), to the largest of all animals (the Blue Whale), there is only one step in the food chain.
- If one leaf of one Amazonian Palm was counted for mosses, fungi, lichens, mites, and insects, there would be more species on it than are found on the entire Antarctic Continent (Campbell 1993).

What the Antarctic ecosystem lacks in terms of diversity, it makes up for in numbers. Chester (1993), quoting the Scientific Committee on Antarctic Research (SCAR), states there are the following populations in Antarctica:

- 1 million pairs of breeding king penguins
- 2.5 million pairs of Adelie penguins
- 7.5 million pairs of chinstrap penguins
- 3.7 million pairs of rockhopper penguins (mainly in the Sub-Antarctic)
- 315,000 pairs of gentoo penguins
- 12 million pairs of macaroni penguins
- 200,000 pairs of emperor penguins
- Between 250,000 and 800,00 Weddell seals
- 200,000 Ross Seals
- 30 to 70 million crabeater seals
- 400,000 leopard seals
- 600,000 southern elephant seals
- 2 million Antarctic fur seals

These numbers do not even consider the numerous populations of whales, albatross, petrels, krill, or even mosses and grasses found in the Antarctic. In addition, Antarctica is a weather factory of winds and ocean currents, which through many series of events may have driven speciation even in the distant tropics (Campbell 1993).

Politically and managerially, wilderness in Antarctica is unique among other continents. Antarctica is a neutral territory with no military presence other than that used to support scientific research (Mason and Legg 1999). Although claims of national sovereignty have been made, these have been held in abeyance for several decades, and Antarctica is currently under the international regime of the ATS. The ATS governs Antarctica above all national claims, laws, and conflicts, creating a unique wilderness management situation. As described by Davis (1992: 39), the Antarctic Treaty is today "one of the most successful international regimes of our time." In terms of management for the Antarctic wilderness, there are several specific international agreements, aside from the ATS, which cover additional avenues of concern for Antarctica.

The ATS was established by the United Nations, following the International Geophysical Year (IGY 1957–1958). Set up to allow for free scientific discovery, the ATS now indirectly encompasses much more, including tourism legislation and environmental protection. The Antarctic Treaty System provides legal status to all land and resources of the entire Antarctic continent (Hall and Johnston 1995). As a management regime, the ATS allows Antarctica to be recognized as a shared resource for all humankind to promote peaceful and scientific purposes (Rubin 1996).

In 1964, the ATS adopted the first major Antarctic conservation regime, the Agreed Measures for Conservation of Antarctic Flora and Fauna. Under this regime, two types of special conservation areas were considered: Specially Protected Areas (SPAs) and Sites of Special Scientific Interest (SSSIs). Specially Protected Areas preserve both unique and representative examples of the natural ecological systems of areas, which are of outstanding scientific interest. Sites of Special Scientific Interest protect any kind of scientific investigation or set aside undisturbed reference areas for the needs of a particular science. These sites can only be designated where there is a demonstrable risk of harmful interference. These designations are relatively small in size and number, with little management planning and effective implementation (Lucas 1995). Thus, successive additional designations and governance of Antarctic wilderness has been and is necessary.

The Protocol on Environmental Protection (Madrid Protocol) is an agreement by ATS nations that deals with the specifics of environmental management, and promotes Antarctica as a scientific vessel for global understanding. The Protocol sets regulations regarding activities, duration, impact, protection, and adverse effects and change for a number of areas. Essentially, it enhances environmental standards set out in the ATS. Originally drawn up in 1991, the agreement was not ratified by all Antarctic Treaty Consultative Parties, until Russia signed in 1997 and Japan in 1998.

Annex V of the Madrid Protocol sets out the types of values to be considered when deciding whether an area warrants special protection. It also describes the process for preparing and submitting a draft management plan through the Committee for Environment Protection (CEP) to the Antarctic Treaty Consultative Meetings. Annex V is expected to come into force by 2002, and thus areas in Antarctica will fall

under a new system of protected areas, designated ASPA and ASMA.

Antarctic Specially Protected Areas (ASPAs) are intended to protect:

- Areas to be kept free of human impact for comparative purposes
- Representative examples of major ecosystems
- Places with important or unusual animal or plant communities
- Type localities or only known habitats of species
- Places of value for scientific research
- Places with outstanding landform attributes
- Areas of outstanding aesthetic and wilderness value
- Places of historic value

Specially Protected Areas and Sites of Special Scientific Interest will be combined as Antarctic Specially Protected Areas (ASPAs).

Antarctic Specially Managed Areas (ASMAs) provide a framework for managing activities so as to improve coordination of different activities and minimize environmental impacts. They may include areas where activities pose risks of mutual interference or cumulative environmental impacts. They may also include places of historical significance. Antarctic Specially Managed Area status is available under Annex V to assist in the coordination of activities and the minimization of environmental impacts for areas of greater activity, or areas where more than one operator is active.

Before the Protocol, international concern about fishing rights and catch sizes led to the 1980 Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR), while possible mineral exploitation led to the 1988 Convention to Regulate Antarctic Mineral Resource Activities (CRAMRA) (Benson 2000). The idea of a Worldpark became a significant Antarctic conservation issue between 1981 and 1984 at successive IUCN meetings with Nongovernmental Organization (NGO) support (Lucas 1995). The Worldpark designation would have provided overriding protection of Antarctica, although its failure likely sparked some of the debate that led to the Madrid Protocol.

Many nations who have signatory status in the ATS also have specific domestic laws to regulate their citizen's activities in Antarctica. Regulations in the United States, for example, include aspects of environmental protection, but focus more on issues such as theft, land purchase, and general conservation regulation.

Research in Antarctica has regulatory bodies such as SCAR and the Council of Managers of National Antarctic Programs (COMNAP), while the tourism industry is self-regulated, mainly through the auspices of IAATO. These regulatory bodies generally cooperate to issue guidelines, such as those for tourist behavior jointly agreed upon by IAATO and the ATS, as well as guidelines for the implementation of a framework for Antarctic Protected Areas (COMNAP and the ATS). While there is cooperation, there is also occasional conflict that leads to difficulties in enforcement. These conflicts emphasize the impression that international agreements or regulations regarding Antarctica lack "teeth."

Antarctica: "Ambassadorship"

The mighty sea and monstrous icebergs are playing their giant's games under the grey and lowering sky, caressing or fighting, and in the midst of these marvelous manifestations of nature, which are not made for man, we feel that we are merely tolerated, although a kind of intimacy may be created between us and our magnificent hosts (Charcot 1978: 289).

Tourists enjoy an Antarctic experience with views and awe much like Charcot's, but what values do they then place on the continent? Is a bond formed between the tourist and the continent similar to the tolerance and intimacy Charcot expresses? With no scientific results from tourist visits, what possible benefits do they have for the ice? Unfortunately, very little rigorous research has been aimed at answering these questions. Tourism may help to preserve the character of Antarctic wilderness (Suter 1991), but tourists may also simply leave their mark on the environment and never think of it again (Campbell 1993).

"Ambassadorship" is a difficult term to define. It can quite easily be synonymous with advocacy, stewardship, and the like. Quite often, and in other geographic settings, it is used interchangeably with these terms, but in the Antarctic context, "ambassadorship" appears to be the term of choice. As stated by the Honorable Mark Burton (2000: 6), "ambassadorship" is the process of advocating the "preservation of the continent [by] those who have been to the 'ICE' and so have a first hand experience of the values [being sought] to protect."

With no empirical research on the specific definition and actions associated with "ambassadorship," it is necessary to try to synthesize other theories and ideologies from a number of disciplines. "Ambassadorship" appears in the literature and studies of many Antarctic writers and tour operators (Heritage Expeditions 1997; Kershaw 1998; Suter 1991; Thomas 1994). Tourist operations draw a connection between visiting the continent and subsequent "ambassadorship." Heritage Expeditions (1997: 7), for example, suggests that tourism creates

"ambassadors" by raising awareness...through sharing with them the unique natural history of Antarctica and the Sub-Antarctic, allowing Expedition members to visit historic sites and discussing with them the conservation issues confronting the Antarctic Continent.

Yet this may or may not be the case. Research simply has not been conducted that would support or disconfirm this view.

To date, research on "ambassadorship" in Antarctica focuses on IAATO and what the tour operators' association is doing to conserve and protect the Antarctic wilderness (Splettstoesser 2000). IAATO works hard to create conservation-focused guidelines and to educate the tourist public. Individual tourists and their "ambassadorship" are only briefly examined by Marsh (1991, 2000) and Bauer (2001). There is little doubt that people (operators, national programs, tourists) want to keep Antarctica pristine, but combining the commercial nature of tourism and the wilderness values being sought to protect is difficult. With little to no research findings available, the debate over tourism and its justification and place in Antarctica goes around in circles. Science accuses tourism of disturbing the wilderness and

vice versa, everything is focused on the negative impacts, but what of the positive, the benefits and theoretically the "ambassadorship"?

In conservation, benefits, and sociological literature, research has been done on similar or synonymous ideas, but are the results adequate to explain "ambassadorship"? Worldwide and polar case studies indicate that a conservation benefit may accrue to parks or protected areas via tourism (Boo 1990; Marsh 2000; WTO 1999). Boo (1990) explains that tourists become emotionally attached to an area and will thus contribute funds to protect it or improve its conservation status. Cessford (1995) generated research findings that suggest that among tourists visiting the remote islands of Little Barrier and Tiritiri Matangi, there is conservation benefit. Cessford (1995) indicates that insight into a particular ideal or having a particular experience does, in fact, aid in learning about conservation, change visitor opinion, and create a commitment to conservation. Marsh (1991) has shown initial research findings in this area regarding Antarctic tourists, but his sample was relatively small and mainly consisted of a single nationality. In addition to Cessford's (1995) study, the work of Cessford and Dingwall (1996) suggests that satisfaction and positive experience create a personal value shift. Boo (1990) concludes that for conservation management to succeed, tourism must be a tool to educate, thus creating real benefits for a geographical location. Findings from general benefits research (Anderson and others 2000; Bruns and others 1994; Driver and Bruns 1999; Kelly and Brown 1981; Manning 1999) support the above studies.

In popular literature (Rowe 1990; Searle 2000), the idea that wilderness holds value for people, and that peoples' values are affected by experiencing wilderness, is common. Research studies into the connection between outdoor recreation and environmental attitudes has been done (Dunlap and Heffernan 1975; Theodori and others 1998; Van Liere and Noe 1981), but with little concrete results transferable to an Antarctic context.

Conclusions

The authors of this paper propose research aimed at understanding "ambassadorship" as a cycle, inclusive of tourist's anticipation, onsite experience and behavior, and benefits realized through recollection. Such research would relate to the tourist's travel process and answer the following vital research questions:

- What are the Antarctic tourist's expectations prior to visiting Antarctica?
- What is the tourist's pre-existing world view regarding the environment and conservation?
- What is the tourist's experience while in Antarctica?
- How does the tourist behave in Antarctica?
- What is the tourist's world view following a visit to Antarctica?
- What are the perceived benefits the tourist has following their visit to Antarctica?
- Do these perceived benefits extend beyond the individual (in other words, conservation benefits)?
- Are the perceived benefits put into action?

References

- Anderson, D. H.; Nickerson, R.; Stein, T. V.; Lee, M. E. 2000. Planning to provide community and visitor benefits from public lands. In: Gartner, W. C.; Lime D. W. eds. Trends in outdoor recreation, leisure and tourism. New York: CABI Publishing. 480 p.
- Australian Antarctic Division (AAD). 1997. Australia's Antarctic program beyond 2000: a framework for the future. Hobart: Commonwealth of Australia. 62 p.
- Bauer, T. G. 2001. Tourism in the Antarctic: opportunities, constraints and future prospects. New York: The Haworth Hospitality Press. 275 p.
- Benson, J. 2000. Tourism in Antarctica: a unique undertaking in development and international environmental management. *Pacific Tourism Review*. 4(1): 7–18.
- Boo, E. 1990. Ecotourism: the potentials and pitfalls. Volume 1. Washington, DC: World Wildlife Fund (WWF). 85 p.
- Bruns, D.; Driver, B. L.; Lee, M. E.; Anderson, D.; Brown, P. J. 1994. Pilot test for implementing benefits-based management. Paper presented at: The fifth international symposium on society and resource management; 1994 June 8; Fort Collins, CO: Colorado State University. 32 p.
- Burton, M. 2000. Minister of tourism—official opening address. In: Antarctica New Zealand, eds. Proceedings of the Antarctic tourism workshop. Christchurch, NZ: Antarctica New Zealand: 6–7.
- Campbell, D. G. 1993. The crystal desert: summers in Antarctica. London: Minerva. 308 p.
- Cessford, G. R. 1995. Conservation benefits of public visits to protected islands. Science and Research Series #95. Wellington, NZ: Department of Conservation. 62 p.
- Cessford, G. R. 1997. Antarctic tourism: a frontier for wilderness management. *International Journal of Wilderness*. 3(3): 7–11.
- Cessford, G. R.; Dingwall, P. R. 1996. Tourist visitors and their experiences at New Zealand Sub-Antarctic islands. Science and Research Series # 96. Wellington, NZ: Department of Conservation. 68 p.
- Charcot, J. B. A. E. 1978. (Reprint of 1911 translation) *Voyage of the Pourquoi-pas?* London: Hurst. 315 p.
- Chester, S. R. 1993. Antarctic birds and seals. San Mateo, CA: Wandering Albatross. 80 p.
- Davis, B. W. 1992. Antarctica as a global protected area: perceptions and reality. *Australian Geographer*. 23(1): 39–43.
- Dingwall, P. R. 1992. Establishing a conservation basis for management of Antarctic tourism. In: Kempf, C.; Girard, L., eds. Tourism in polar areas: proceedings of the first international symposium; 1992 April 21–23. Colmar, France: IUCN and Ministry of Tourism France.
- Driver, B. L.; Bruns, D. H. 1999. Concepts and uses of the benefits approach to leisure. In: Jackson, E. L.; Burton, T. L., eds. Leisure studies: prospects for the 21st century. State College, PA: Venture Publishing: 349–369.
- Dunlap, R. E.; Heffernan, R. B. 1975. Outdoor recreation and environmental concern: an empirical examination. *Rural Sociology*. 40(1): 18–30.
- Enzenbacher, D. 1992. Tourism in Antarctica: an overview. In: Kempf, C.; Girard, L., eds. Tourism in polar areas: proceedings of the first international symposium; 1992 April 21–23. Colmar, France: IUCN and Ministry of Tourism France.
- Hall, C. M. 1992. Tourism in Antarctica: activities, impacts and management. *Journal of Travel Research*. 30(4): 2–9.
- Hall, C. M.; Johnston, M. E., eds. 1995. Polar tourism: tourism in the Arctic and Antarctic regions. Chichester, UK: John Wiley & Sons. 346 p.
- Hall, C. M.; Wouters, M. 1995. Issues in Antarctic tourism. In: Hall, C. M.; Johnston, M. E. Polar tourism: tourism in the Arctic and Antarctic regions. Chichester, UK: John Wiley & Sons.
- Hart, P. D. 1988. The growth of Antarctic tourism. *Oceanus*. 31(2): 93–100.
- Headland, R. K. 1994. Historical development of Antarctic tourism. *Annals of Tourism Research*. 21(2): 269–180.
- Heritage Expeditions Ltd. 1997. Initial environmental evaluation for the Antarctic cruise program 1997/1998 of polar research vessel Akademik Shokalskiy. Christchurch, NZ: Heritage Expeditions Ltd. 29 p.
- Herr, R. A. 1996. The regulation of Antarctic tourism: a study in regime effectiveness. In: Stokke, O. S.; Vidas, D., eds. Governing the Antarctic: the effectiveness and legitimacy of the Antarctic Treaty System. Cambridge, UK: Cambridge University Press: 203–223.
- House of Representatives Standing Committee on Environment, Recreation and the Arts (HRSCERA). 1989. Tourism in Antarctica. Canberra, Australia: Australian Government Publishing. 55 p.
- International Association of Antarctica Tour Operators (IAATO). 2001. [Online]. Available: URL: www.iaato.org
- Kelly, J. R.; Brown, P. J. 1981. Social benefits of outdoor recreation. Washington, DC: United States Department of Agriculture, Forest Service. 83 p.
- Kershaw, A. 1998. Antarctica and tourism in 2010. In: Tetley, G., ed. Antarctica 2010: a notebook. Christchurch, NZ: Antarctica New Zealand: 79–82.
- Kriwoken, L. K.; Keage, P. L. 1989. Introduction: the Antarctic treaty system. In: Handmer, J., ed. Antarctica: policies and policy development. Canberra, Australia: Centre for Resource and Environmental Studies, ANU: 1–6.
- Kriwoken, L. K.; Rootes, D. 2000. Tourism on ice: environmental impact assessment of Antarctic tourism. *Impact Assessment and Project Appraisal*. 18(2): 138–150.
- Landau, D. 2000. Tourism scenarios. In: Antarctica New Zealand., eds. Proceedings of the Antarctic tourism workshop. Christchurch, NZ: Antarctica New Zealand. 15–18.
- Lucas, P. H. C. 1995. National parks and protected areas in polar regions. In: Martin, V. G.; Tyler, N., eds. Arctic wilderness: the 5th World Wilderness Congress. Golden, CO: North American Press: 161–169.
- MacFarlane, S. 1991. The Erebus papers. Wellington, NZ: Avon Press Ltd. 736 p.
- Manning, R. E. 1999. Studies in outdoor recreation. Corvallis: Oregon State University Press. 384 p.
- Marsh, J. 1991. The characteristics of a sample of tourists visiting Antarctica. Santiago, Chile: Report for SERNATUR. 20 p.
- Marsh, J. 2000. Tourism and national parks in polar regions. In: Butler, R. W.; Boyd, S. W., eds. Tourism and national parks: issues and implications. Chichester, UK: John Wiley & Sons. 125–136.
- Mason, P. A.; Legg, S. J. 1999. Antarctic tourism: activities, impacts, management issues, and a proposed research agenda. *Pacific Tourism Review*. 3: 71–84.
- Mickleburgh, E. 1988. Beyond the frozen seas: visions of Antarctica. London: Bodley Head. 256 p.
- Pinochet de la Barra, O. 1992. Tourism in Antarctica: position of Chile. In: Kempf, C.; Girard, L., eds. Tourism in polar areas: proceedings of the first international symposium; 1992 April 21–23. Colmar, France: IUCN and Ministry of Tourism France.
- Reich, R. J. 1980. The development of Antarctic tourism. *Polar Record*. 20: 203–214.
- Rowe, J. S. 1990. Home place: essays on ecology. Edmonton: NeWest. 253 p.
- Rubin, J. 1996. Antarctica: a lonely planet survival kit. Hawthorn, Australia: Lonely Planet Publications. 362 p.
- Searle, R. 2000. Phantom parks. Toronto: Key Porter Books. 288 p.
- Shackley, M. 1996. Wildlife tourism. London: International Thomson Business Press. 152 p.
- Spletstoesser, J. 1999. Antarctica tourism: successful management of a vulnerable environment. In: Singh, T. J.; Singh, S. eds. Tourism development in critical environments. New York: Cognizant Communication Corp. 137–148.
- Spletstoesser, J. 2000. IAATO's stewardship of the Antarctic environment: a history of tour operator's concern for a vulnerable part of the world. *International Journal of Tourism Research*. 2(1): 47–55.
- Spletstoesser, J. F.; Headland, R. K.; Todd, F. 1997. The first circumnavigation of Antarctica. *Polar Record*. 33(3): 244–245.
- Stonehouse, B.; Crosbie, K. 1995. Tourist impacts and management in the Antarctic Peninsula area. In: Hall, C. M.; Johnston, M. E., eds. Polar tourism: tourism in the Arctic and Antarctic regions. Chichester, UK: John Wiley & Sons: 217–223.
- Suter, K. 1991. Antarctica: private property or public heritage? Leichhardt, Australia: Pluto Press Australia. 160 p.

- Swithinbank, C. 1992. Airborne tourism in the Antarctic. In: Kempf, C.; Girard, L., eds. *Tourism in polar areas: proceedings of the first international symposium; 1992 April 21–23*. Colmar, France: IUCN and Ministry of Tourism France.
- Swithinbank, C. 1998. Non-government aviation in Antarctica 1997/98. *Polar Record*. 34: 249.
- Theodori, G. L.; Luloff, A. E.; Willits, F. K. 1998. The association of outdoor recreation and environmental concern: re-examining the Dunlap-Heffernan thesis. *Rural Sociology*. 63(1): 94–108.
- Thomas, T. 1994. Ecotourism in Antarctica: the role of the naturalist guide in presenting places of natural interest. *Journal of Sustainable Tourism*. 2(4): 204–209.
- Van Liere, K. D.; Noe, F. P. 1981. Outdoor recreation and environmental attitudes: further examination of the Dunlap-Heffernan thesis. *Rural Sociology*. 46(3): 505–513.
- White, K. J. 1994. Tourism and the Antarctic economy. *Annals of Tourism Research*. 21(2): 245–268.
- World Tourism Organization (WTO). 1999. *Tourism satellite account (TSA): a conceptual framework*. Madrid, Spain: WTO. 52 p.
- World Tourism Organization (WTO); United Nations Environment Program (UNEP). 1992. *Guidelines: development of national parks and protected areas for tourism*. Madrid, Spain: WTO.
- World Travel and Tourism Council (WTTC); World Tourism Organization (WTO); Earth Council (EC). 1995. *Agenda 21 for the travel and tourism industry: towards environmentally sustainable development*. London: WTTC. 78 p.