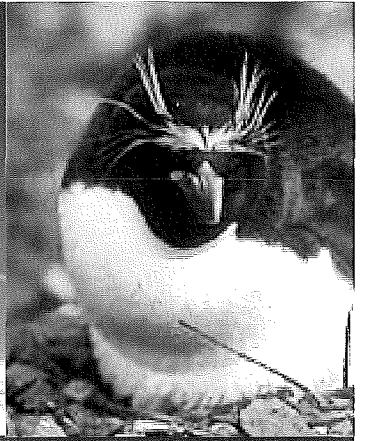
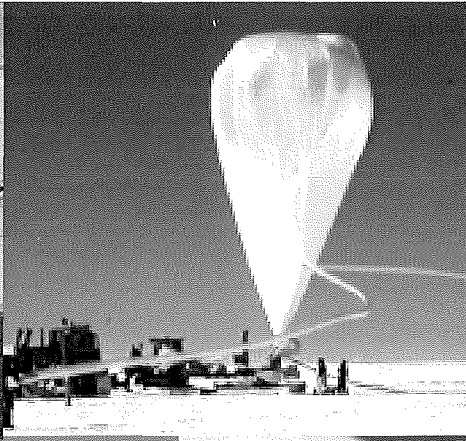


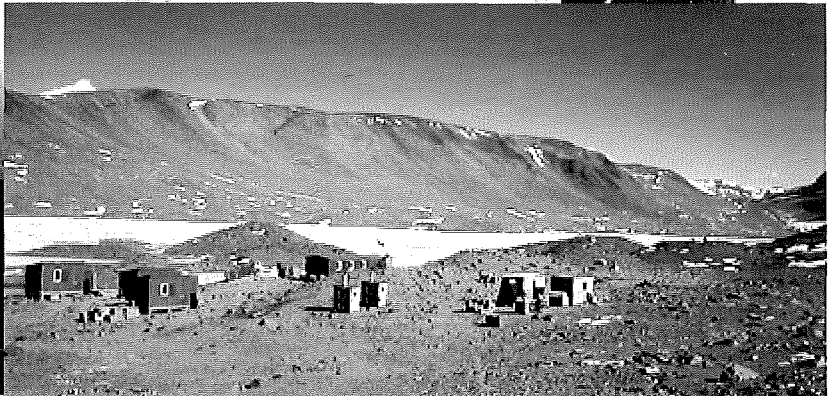
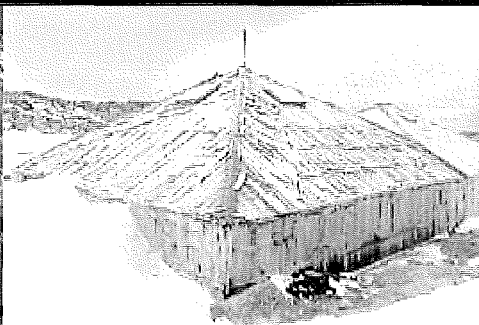
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A Review of Specially Protected Areas in
Antarctica with Particular Reference to
Antarctic Specially Managed Areas

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Abstract

The mechanisms for the protection of the Antarctic environment have evolved and progressed throughout the past century. Typically, the evolutionary path of these conservation measures have developed and reflected the change in the mentality of the Antarctic Treaty Consultative Parties. It is possible to identify three distinct eras of protected area management within Antarctica. Firstly, the exploration era and the associated seal harvesting. This era formulated, and can be acknowledged for the protection of specific species. The Agreed Measures identified the adverse effects that humans were having on the Antarctic environment and consequently established the concept of habitat protection and the notion of Antarctic Specially Protected Areas. The Protocol advanced the notion of protected areas and produced a regime that rationalised this concept. The Protocol enforces the usage of Management Plans and consequently has produced a system that is regionally focused.

Annex V of the Protocol deals with Specially Protected Areas. Article 4 of this Annex is specific to Antarctic Specially Managed Areas. Currently there are four ASMAs within the Antarctic environment. These consist of the McMurdo Dry Valleys, Cape Denison, Admiralty Bay and Deception Island. These ASMAs are and can be considered a framework for the potential future designations. However, within the ASMA system and the Protocol regime there are still areas that need attention. Many of the issues that are present today have been common themes throughout the history of protected areas in Antarctica and in time and with experience, these issues will potentially be solved.

List of Acronyms and Abbreviations

Agreed Measures	Agreed Measures on the Conservation of Antarctic Fauna and Flora
APA	Antarctic Protected Areas
ASOC	Antarctic and Southern Ocean Coalition
ATCM	Antarctic Treaty Consultative Meetings
ATCP	Antarctic Treaty Consultative Parties
ATS	Antarctic Treaty System
CCAMLR	Convention on the Conservation of Antarctic Marine Living Resources
CEP	Committee for Environmental Protection
CRAMRA	Convention for the Regulation of Antarctic Mineral Resource Activities
IAATO	International Association of Antarctic Tour Operators
IGY	International Geophysical Year
IUCN	International Union for the Conservation of Nature and Natural Resources
MPA	Multiple-use Planning Area
Protocol	Protection on Environmental Protection
SCAR	Scientific Committee on Antarctic Research
SHI	Sites of Historic Interest
SPA	Specially Protected Areas
SPA	Specially Reserved Areas
SSSI	Sites of Special Scientific Interest
UNESCO	United Nations Education Scientific and Cultural Organisation
WCPA	World Commission on Protected Areas

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1.0 Introduction

Antarctica and the surrounding waters are considered the most barren and inhospitable wilderness on earth, however this continent and associated ecosystems are of fundamental importance to the global society. The rocks within this ice-covered continent hold the secrets to the earth's geological history, the surrounding ocean is immensely influential on the world's seas and climate, these waters provide nourishment and support for marine ecosystems. The physical beauty and the mystery has the ability to empower and revitalise the mind and the individuals that do not get the opportunity to experience this anomaly are fulfilled with the pleasure of knowing this wilderness exists (Dingwall 1997). With respect to the Antarctic region and its resources, there is increasing pressure from the political, economic and commercial interests. With this threat, how can we continue to protect and use this continent in a sustainable non-intrusive manner? Each of these pressures offer threats independently and provide for the opportunity for harmful cumulative impacts to develop. The countries that effectively manage the Antarctic continent have acknowledged this challenge and throughout the history of the Antarctic Treaty System (ATS) have attempted to implement strategies to deal with this predicament. Ultimately, the management of this quandary has taken the form of Specially Protected Areas (SPA).

There are a large number of definitions that attempt to illustrate what it is meant by an

SPA. For example, Environment Canada has offered the following definition:

“Geographically defined areas which are designed or regulated and managed to achieve specific conservation objectives.” (www.eman-rese.ca 2000).

A definition that is more widely used within the Antarctic environment is a definition that has been offered by the World Commission on Protected Areas (WCPA):

“An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means” (IUCN 1994).

These definitions are not specific to the Antarctic environment. However, it can be expected that the definition that is offered by WCPA encompasses the essence of what is essentially trying to be achieved in the ATS. Consequently, this definition is replicated in the Protocol.

The ATS is a series of documents that has evolved in response to pressures as they have arisen. The abandonment of Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA) and the establishment of the Protocol on Environmental Protection (Protocol) illustrated this. The development and the ratification of the Protocol highlights the mentality of the Antarctic Treaty Consultative Parties (ATCP) attitude towards the environment and the associated ecosystems. The ratification of the Protocol represents a change in attitude towards full and permanent protection of Antarctica. Therefore, environmental protection is a fundamental consideration with respect to the planning and the conduct of all activities in Antarctica (Boyd 2001).

The Agreed Measures on the Conservation of Antarctic Fauna and Flora (Agreed Measures) (1964) was agreed amongst the governments that were participating in the Third Consultative Meeting under Article IX of the Antarctic Treaty. Article VIII of the Agreed Measures is concerned with Specially Protected Areas. Within this article, guidelines are given to what areas should be protected and how this protection should be achieved. There is also a reference to natural ecosystem and how they should be protected and not

jeopardized. This Article of the Conservation of Antarctic Fauna and Flora lead to the development of Annex V of the Protocol. Protected areas are managed under Annex V, which was adopted at Antarctic Treaty Consultative Meeting (ATCM) XVI. Annex V provides the guidance for the establishment and the management of protected areas within the Antarctic environment. It is a requirement that management plans are created for each of the assigned protected areas. With respect to Annex V of the Protocol, protected areas can be considered either an Antarctic Specially Managed Area (ASMA) or an Antarctic Specially Protected Area (ASPS).

The aim of this report is to consider the evolution of Specially Protected Areas in Antarctica. This will involve examining the historical setting in which conservation measures developed within this continent and its surrounding ocean. Ultimately, this requires looking at the 1964 Agreed Measures of Antarctic Conservation of Fauna and Flora and the conditions that existed before this agreement. The Protocol on Environmental Protection has superseded the 1964 Agreed Measures and has created a system in which administers Specially Protected Areas in a fashion that could be considered revolutionary. Within the Protocol Annex V was recommended to be adopted to provide for Specially Protected Areas. Article 4 of this Annex created the concept of Antarctic Specially Managed Areas (ASMAs). These above concepts and ideals will be discussed in turn. Where appropriate illustrations and examples will be used. Specific points will be drawn from Deception Island, the Dry Valleys, Cape Denison and Admiralty Bay.

2.0 Historical Conservation Measures of Antarctica

It is possible to identify measures that were in place in some regions of the Antarctic to preserve the environment nearly a century before the Antarctic Treaty was signed (Keage 1986). These measures are important to take into consideration when considering the background of the Antarctic Treaty. As they are measures that would have been tested in the region and under the political environment that was present at the time the Antarctic Treaty was being negotiated (Keage 1986). The following legal controls are examples of these measures:

- 1924 - French Government Decrees regulated whaling and sealing in the French Antarctic territory
- 1934 - New Zealand Government declared the whole Auckland Islands group as a nature reserve
- 1955 - Falkland Islands and Dependencies Wild Animals and Birds Protection Order

The nature of the early nature conservation measures were exclusively concerned with the sealing industry. Indiscriminative killing meant that several seal species were brought

close to extinction. It is considered that the protection measures that were developed were unsuccessful (Keage 1986). This is because there was inadequate scientific data, impossible to enforce and were enacted 50 years too late. After this was identified, the mentality changed and forms of quotas, protected areas and the science was established.

After World War II, because of military, strategic and sovereign interests a great expansion in Antarctic operations was experienced. It also resulted in a change in attitude towards nature conservation in the Antarctic (Keage 1986). The International Geophysical Year (IGY 1957-1958) and its coordinating body recommended the creation of a non-governmental Scientific Committee on Antarctic Research (SCAR) (Zumberge 1987). SCAR met in 1958 and their immediate concern was the 'protection of representative areas of natural environments'. SCAR was also aware of careless attitude to the Antarctic environment and asked nations to preserve the fauna and flora.

In the fourth meeting of SCAR (1960) a report was prepared, the 'Conservation of Nature in Antarctica'. Among the 'General Principles' of conservation was:

- Effective conservation measures require ecological studies of all forms of Antarctic life, all unnecessary pollution and contamination should be prohibited.

The recommendations of this report formed the basis of the Agreed Measures for the Conservation of Antarctic Fauna and Flora (1964) (Keage 1986).

The IGY encouraged scientific cooperation and it extended the range of organisations that could be involved in conservation in the region. This time also saw a change in attitude from the protection of single species to the importance of habitat preservation.

In 1945, the United Nations was formed and through its Educational, Scientific and Cultural Organisations (UNESCO) nurtured the growth of conservational practices in the Antarctic. In 1947, the first steps were taken to establish the International Union for the Conservation of Nature and Natural Resources (IUCN). In 1960, it was recommended that

the Antarctic Treaty should include provisions designed to maintain Antarctic fauna and flora and setting aside reserves for the preservation of the natural environment.

In the 1959 Antarctic Treaty conservation and protected area measures had been adopted as separate recommendations and conventions rather than as integral parts of the Antarctic Treaty. However, in Article IX. f. 'the preservation and the conservation of living resources in Antarctica' was adopted. Treaty obligations and recommendations are legally binding but do not provide explicit criteria or protection standards for ratifying legislation enacted by Contracting Parties.

2.1 Agreed Measures of the Conservation of Antarctic Flora and Fauna

The concept of protected areas was established in the Agreed Measures of the Conservation of Antarctic Flora and Fauna (1964) (ATCM III-8). This agreement applied to all land and ice shelves south of 60° S latitude. The initiatives for this Measure can be traced to SCAR and provisions that were drafted by the United Kingdom delegation and circulated at ATCM II (Keage 1986). The measures ultimately gave the Treaty area the status of a 'Special Conservation Area'. Instead of legislation by individual nations controlling conservation in a piecemeal fashion, it was left to the Agreed Measures of 1964 to initiate and control legislation by consensus (Angel 1987). The Agreed Measures contained the first provisions for protection of specific areas of the Antarctic terrestrial environment (McIvor 2000). SPA's were defined in Article VIII of the agreed measures as areas:

“of outstanding scientific interest” which are to “be accorded special protection... in order to preserve their unique natural ecological system” (SCAR 1987).

Article VIII of the Agreed Measures provided for Specially Protected Areas (SPA):

Article VIII

1. The areas of outstanding scientific interest listed in Annex B shall be designated 'Specially Protected Area' and shall be accorded special protection by the Participating Governments in order to preserve their unique natural ecological system.

2. In addition to the prohibitions and measures of protection dealt with in other Articles of these Agreed Measures, the Participating Governments shall in Specially Protected Areas further prohibit:

a. the collection of any native plant, except in accordance with a permit;

b. the driving of any vehicle.

c. entry by their nationals, except in accordance with a permit issued under Article VI or under paragraph 2(a) of the present Article or in accordance with a permit issued for some other compelling scientific purpose;

3. A permit issued under Article IV shall not have effect within a Specially Protected Area except in accordance with paragraph 4 of the present Article.

4. A permit shall have effect within a Specially Protected Area provided that:

a. it was issued for a compelling scientific purpose which cannot be served elsewhere; and

b. the actions permitted there under will not jeopardize the natural ecological system existing in that Area.

SPA's were intended to be 'areas of outstanding interest' whose 'unique natural ecological system' is considered worthwhile of special protection. Their classification was defined as follows (ATCM VII-2):

- Representative examples of the major Antarctic land and freshwater ecological systems;
- Areas of unique complexes of species;
- Areas which are the type locality or only known habitat of any plant or invertebrate species;
- Areas which contain specially interesting breeding colonies of birds or mammals; and
- Areas, which should be kept inviolate so that in the future they may be used for purpose of comparison with localities that have not been disturbed by man.

SPAs provided the highest level of protection. Non-biological sites were excluded; this may have been due to the potential mineral extraction possibilities in Antarctica. It was stated that the number of sites should be kept to a minimum and the sites should be as small as possible in size. Access to SPA's was restricted unless issued with a permit and the driving of vehicles was prohibited.

Sites of Special Scientific Interest (SSSI) were created at an ATCM, Recommendation VII-3 (1975). SSSI were intended to be areas of 'exceptional scientific interest', which required 'long term protection from harmful interference'. The purpose of SSSI was to safeguard research opportunities and to prevent human interference. SSSI were fixed for a certain period and could be extended following a review carried out by SCAR. A management plan was required, which included a description of the site and an outline of the research possibilities and restraints that may be associated with the site.

At ATCM XIV (1987), the Parties noted the potential role that management plans could play at reducing the environmental impact caused by human activity. Consequently, Recommendation XV-8 was adopted requiring that all existing and future SPAs required a management plan. Recommendation XV-9 contained the associated requirements of the management plans.

Sites of Historic Interest (SHI) were intended to preserve the historic monuments and the wintering quarters of early expeditions, plaques and other monuments. Recommendation VII-9 was a list that was drawn up to acknowledge the historic places that needed to be preserved. These recommendations required that the ATCP's adopt all measures to preserve and protect these monuments (SCAR 1987). It can be considered that the SHI category had specific and limited objectives. A unique category was developed by ATCM Recommendation XI-3, the protection of Tomb sites. This followed the tragic incident of the DC 110. It was recommended that the northern slope of Mt. Erebus where the plane crashed should be declared and tomb and slopes be left as is.

It was considered by the ATCM (1987) that the scope of area protection needed to be

extended to include physical and landscape values (McIvor 2000). Recommendation XV-10 was adopted in 1989, providing for the protection of areas of 'outstanding geological, glaciological, geomorphological, aesthetics, scenic or wilderness values as Specially Reserved Areas (SRAs). Furthermore, Recommendation XV-11 was also adopted at ATCM XV (1989). This Recommendation created the concept of a Multiple-use Planning Area (MPA). These areas were created to assist in 'coordinating human activities in those areas where activities pose identified risks of mutual or cumulative environmental impacts'.

The process of identifying special protection sites and their formal acceptance at ATCM's is not described in the Agreed Measures, the Treaty or in SCAR documents (Keage 1986). There were two procedures for designating areas. Firstly, SCAR is invited to make suggestion to ATCM's for the designation of sites. That is a nation would propose a site to their scientific committee and then submissions would be reviewed by National Committees. Finally, SCAR has the responsibility of proposing the site to the ATCM's. Secondly, it was possible to designate a site using Article XIV of the Agreed Measures. This allowed amendments to the Annexes of the Measures by unanimous agreement of Consultative Parties.

Selection criteria and management requirements for each of the protected site classification varied considerably (Keage 1986). Management plans were only required for SSSI. The management responsibility for the protected sites lay primarily with the ATCP's, but there was considerable dependence on scientific advice from SCAR (Keage 1986).

2.2 Adequacy of Conservation Measures

The political, ecological and climatic environment of Antarctica makes it difficult for the implementation of effective conservation measures. There is also no other environment

that is characterised by the same constraints, therefore it is not possible to make comparisons.

Conservation objectives with respect to the terrestrial environment were not stated in the Antarctic Treaty or in the Agreed Measures, but were implied (Keage 1986):

- Protection of scenic beauty and wildlife; and
- Protection of undisturbed habitats, which may be disturbed by humans.

Thus, conservation objectives were primarily concerned with reducing disturbance to habitats and ecosystems. It is stated by Keage (1986), that the protected areas were neither representative of Antarctic ecosystems, nor evenly distributed biogeographically. There were also deficiencies caused by the limited scope of protected area classifications. Only partial protection was given to some ecosystems, for example, drainage basins were not taken into consideration and potential opportunities for comparative studies were not recognised.

The challenge for the Antarctic Protected Area network is to provide an operating system which (Dingwall 1987):

- 1 Encompasses the existing biological and ecological diversity;
- 2 Applies site identification and selection criteria systematically;
- 3 Develops an ecologically 'representative' network of protected areas; and
- 4 Develop a network of 'representative' landforms and other natural features.

In 1976, SCAR recommended that size of the protected areas needed to be increased. SCAR proposed that SSSI should be used as buffer zones around SPA. However, SSSI were classified to facilitate scientific research and were only of a designated time therefore this recommendation was not considered an effective solution. Bonner and Angel (1987) suggested that buffer zones might be appropriate to eliminate the possibility of undesirable impacts at the edges of the protected areas.

The ATCPs required that the SPA have to be of a certain size. This requirement was difficult to maintain with respect to seal and penguin colonies due to migratory nature of these species. The SPAs and the SSSI were incomplete in ecological scope, with marked gaps in their representation (Bonner and Angel 1987).

Management plans were only required for SSSI, it is considered by Keage (1986) that these plans were inadequate in regulating behaviors and access to and within these sites. The plans only listed permitted activities and there were no guidelines for the conduct of scientific practices. There was no identifiable authority to manage each of the sites.

There was no systematic monitoring of the protected sites. The frequency of the visits to the SSSI was dependent upon the associated scientific programs. Practical knowledge of the sites was limited to the ATCP's involved in the research there. Likewise, one Treaty party formulated the management practices for these sites. This had variable success due to differing environmental expectations between the ATCP's. Inspections of conservation sites or stations did not occur, even though Article VII of the Treaty provided for this (SCAR 1987). It was considered that the monitoring of the sites was administratively complicated and was not conducive to the flow of relevant information.

The ATS is based on self-restraint. The ATCP's had the responsibility of implementing the Agreed Measures. In 1987, there were no detailed instructions in the ATS for the preparation of the description of sites to be designated (SCAR 1987). It is stated by Keage (1986) that for legal controls to be effective there must be capable enforcement by a competent authority, and thus the Antarctic Treaty makes no provisions for a central authority to oversee. Typically, domestic legislation is drawn upon to set environmental protection standards and consequently there were inconsistencies with respect to individual nation's objectives and effectiveness. It has also been proposed because there was no overseeing body it was difficult to make objective assessments of the conservation measures.

There were no provisions for protection of areas of recreational, cultural, aesthetic,

scenic or wilderness values. Sites were primarily chosen on potential scientific purposes, for example, SSSIs were related to research activities and SPAs for preservation of unique natural ecological systems. A significant problem that was identified by Bonner and Angel (1987) was that there was no definition of an Antarctic station. There was no clear topographical boundary for within serious environmental impacts should be contained.

The IUCN's Protected Areas Workshop (1987) identified some improvements that were needed in the protected areas regime. Generally these recommendations are very similar the suggestions that have already been stated. However, this workshop suggested further improvements were needed and these included the following. Quick and efficient methods were required to establish protected areas, thus allowing further identification of representative or unique sites that merited SPA or SSSI status. It was envisaged that the management plans would incorporate surveillance and monitoring of human use and impact and was suggested that surveys of biological communities and other components would take place. It was also suggested that an assessment of the effectiveness of existing protected areas should be initiated to evaluate if these areas were achieving their conservation goals. In 1987 it was also thought that further work was required on the protected area concept and classification, especially to establish a class or classes of protected areas giving a wider and different order of protection from that of SPA's and SSSI's. This concept had already been acknowledged by SCAR at an early date.

The IUCN Protected Areas Workshop also identified issues that were related to the data system and the process of information exchange. It had been identified that natural and scientific information is a fundamental tool for the protection of the environment and the monitoring of impacts (Bonner 1988). Thus, it was suggested that there was a need for improved information exchange and liaison, especially among the scientist of different disciplines, national programs and between government and non-government groups. The workshop went on to identify that better coordination between the elements of the ATS would aid the conservation effort (Dingwall 1987).

In 1987, SCAR proposed that an additional category of protected areas should be

introduced. This category was an Antarctic Protected Area (APA). It was intended that it would be a multi-purpose area, which incorporated SPAs, SSSI, Historic Sites, Monuments and Tombs. The objective was to minimise disturbance within these areas. The establishment of these areas would require one area with a variety of different protection levels.

In 1959 when the Antarctic Treaty was signed, it gave 12 nations the custodian responsibility over the Antarctic continent and ocean south of 60° S latitude. Article IX gives power to the contracting parties to formulate measures to conserve natural and cultural resources prior to the exploitation and to ensure that the obligations of the Treaty are upheld. Since 1964, at the third ATCM Antarctica has been regarded as a Special Conservation Area however, the inadequacies that have been noted above indicate that there was a gap between theory and practice of the protected area system.

3.0 The Development of the Protocol

The ATM III at Brussels in 1964 was characterised by the first attempt to expand the coverage of the Antarctic Treaty into areas that were not dealt with within the original ATS. It was at this Treaty meeting that Recommendation III-VIII adopted the 'Agreed Measures for the Conservation of Antarctic Flora and Fauna'. These Agreed Measures declared the Antarctic Treaty area to be a 'Special Conservation Area' and sought to impact upon third parties, such as members of expeditions. Ultimately, the Agreed Measures sought to protect the flora and fauna of Antarctica from the impacts of human activities. The Agreed Measures provided for the creation of SPAs, SSSIs and SHI. In 1989 at the ATM XV, it was decided to add to these categories and therefore Specially Reserved Areas (SPAs) and Multiple-Use Planning Areas (MPAs) were developed.

In 1987, at the working sessions of IUCN's Commission on National Parks and Protected Areas, a number of submissions were received expressing their concern about the potentially adverse impacts mineral exploitation would have on the Antarctic environment. This is an indication that potentially in the late 1980's there was increasing concern about the potential harm that was threatening the Antarctic continent and that a more comprehensive environmental statute was being sought. The Protocol on Environmental

Protection to the Antarctic Treaty (Protocol) was finalised in 1991. The Protocol had dramatic impacts upon the Agreed Measures. It is considered by Rothwell (1992) that Annexes II and V created a new management regime with respect to protected areas.

In 1991, the Protocol on Environmental Protection to the Antarctic Treaty (Protocol) was finalised and in 1998, the Protocol became legally effective (www.asoc.org, 2001). The Protocol only took two years to be negotiated and to replace the potential CRAMRA. The Protocol has been described by Rothwell (1992) as a 'framework within which comprehensive environmental regulation and monitoring of Antarctic activities are to be carried out within the Antarctic Treaty area'. The Protocol is an attempt to consolidate and incorporate environmental protection under the ATS (Preamble, Article 2). The contemporary Antarctic 'environment' is shared between multiple users therefore, it was necessary to design a holistic blueprint for Antarctic area protection and management beyond the Antarctic Treaty. The Protocol pertains to shared responsibility of all entities in the Antarctic region, from national programs to commercial ventures to individuals (Berkman 2002).

The Protocol enforces the 'special conservation' position of the Antarctic environment that was created in the Antarctic Treaty. Article 2 of the Protocol states that Antarctica is a 'natural reserve, devoted to peace and science'. The Protocol formally adds a new value of environmental protection to those of security and science previously acknowledged within the ATS (McIvor 2000). Article 2 goes on to state, that the Protocol provides a framework for the 'comprehensive protection of the Antarctic environment and dependent and associated ecosystems'. Article 3.2 of the Protocol requires Parties to 'undertake 'regular and effective' monitoring to assess the predicted impacts of ongoing activities and to detect any unforeseen effects.

Article 11 of the Protocol created a new organisation, the Committee for Environmental Protection (CEP) and this committee has the function of monitoring the implementation of the Protocol and reporting on the progress at ATMs. The CEP does not have the power to enforce the Protocol; it is designed as an expert body that is to assist the ATCPs in ensuring

the effectiveness of the Protocol. A principle feature of the Protocol is the annexes (Rothwell 1992) and additional annexes can be added in accordance with the provisions of Article IX of the Antarctic Treaty. Annex V was adopted Recommendation at an ATCM

3.1 Comparison of Annex V and the Agreed Measures

Annex V to the Protocol entered into force in 2002 following the approval of Recommendation XVI-10 by all Consultative Parties entailed to attend ATCM XVI. It was the first of the additional annexes, after the original four had been agreed to in Madrid. The purpose of Annex V was to rationalize the Antarctic Protected Area System. The Protected Areas Annex resulted from the acknowledged need to standardize protected area designations and management (Clark and Perry 1996). Associated with Annex V, a number of implications were needed to be considered by CEP, with respect to international management of protected areas (www.ats.org.ar 2004).

Annex V has the effect of re-designating existing SPAs, SSSIs, SHIs and Monuments and creates a more detailed procedure for nominating certain sites. Article 3 of Annex V creates 'Antarctic Specially Protected Areas' (ASPAs). These areas are designed to protect 'outstanding environmental, scientific, historic, aesthetic or wilderness values'. SPAs and SSSIs that had been designated at previous ATCM became reclassified as ASPAs. Article 4 of Annex V created 'Antarctic Specially Managed Areas' (ASMAs). Entry into an ASMA does not require a permit, unless there is an ASPA contained within the ASMA.

The proposed designation of an ASMA or an ASPA requires the submission of a Management Plan, which is to include extensive details to why that area is being nominated. It is also required within the Management Plan the requirements for granting a permit and the codes of conduct for the designation. As with the Agreed Measures both the ASPAs and the ASMAs, have to be approved by the ATMs. The CEP now has the role of advising the ATCM as to the suitability of the proposed Management Plan for a

designation.

Annex V Article 8 provides for historic sites and monuments and states that existing sites previously listed at an ATCM shall be included in a list of 'Historic Sites and Monuments'. A feature that is common with this Annex and other Annexes contained within the Protocol is the requirement that information concerning all designated sites be made available to the public and that there be regular information exchange between parties and with the Committee concerning details on permits issued and visits to the various protected sites (Rothwell 1992).

The Protocol and Annex V is a substantial reworked version of the Agreed Measures. The adoption of Annex V to the Protocol has led to a reorganised, simplified and strengthened system of Antarctic protected areas and thus reaching a new stage within the Antarctic Treaty (Vicuna 1994). The Annex V changes the existing framework for SPA in Antarctic dramatically; this was reiterated in 1992 at a SCAR/IUCN Workshop on Antarctic Protected Areas:

'Annex V provides, for the first time, rules and guidelines for comprehensive and systematic development of an Antarctic Protected Area System consistent with principles and practices that have proven successful elsewhere in the world' (Lewis-Smith et al. 1994)

The protected sites procedures were restructured with new designations. The addition of the requirement to produce a Management Plan will ensure that protected areas are well considered and managed. It is considered by Rothwell (1992) that the Agreed Measures have been superseded by the Protocol, with only remnants of the previous protected area system remain.

The following points can be considered as the improvements that Annex V has made on the previous protected area system.

- Rationalisation of the existing scheme, with the creation of ASPAs and ASMAAs and consequently reduces confusion over classifications;
- Increased scope of protection measures, including marine areas and geophysical and

intrinsic values;

- Shift from localised and restricted systems to a regional planning approach;
- The management plans provide a medium where conflicting activities can be resolved and the plans aid the flow of information;
- The size of protected areas is encouraged to be as large as possible and should encompass substantial areas of the ecosystems (Article 5.2) ;
- The requirement for active management ensures that the aims and objectives of the management plans can continued to be met (Article 5.3(i));
- Requirement for the preparation of a code of conduct (Article 5.3(j)); and,
- CEP fills the role of a central body that was previously fulfilled by the ATCM and thus resulted in delays in the establishment of protected areas.

For the remainder of the report ASMAs will be discussed in detail. This discussion will be illustrated with examples from Deception Island, the Dry Valleys, Cape Denison and Admiralty Bay. The discussion will evaluate these ASMAs and make specific reference to the corresponding management plans.

4.0 Antarctic Specially Managed Areas

McIvor states (2000) 'The ASMA mechanism of Article 4 builds upon the area management approach taken by MPAs, and concentrates on regulating activities that are not site specific' (p.12). ASMAs provide an environment where activities are allowed under controlled conditions, thus minimising individual and cumulative effects. Through the application of codes of conduct and zoning provisions, the ASMA process encompasses the concept of regional planning approach to conservation. It is considered by McIvor (2000) that ASMAs provide a precautionary approach for activities that may be conducted in the future (Article 4.1). It is stated that the scope of an ASMA is 'areas where activities pose risks of mutual interference or cumulative environmental impacts'.

The IUCN has developed a scheme for classifying various types of protected areas; this provides a basis for international comparison. The IUCN (1994) stated that categories should be defined by the objectives of management, not by the title of the area or by the effectiveness of management in meeting those objectives. Thus, indicating that the matter of management effectiveness needs to be addressed. It was envisaged that these categories would be widely used to establish protected areas and to be used as a basis for preparing management plans. The following are the categories that were established:

- Category I – Strict Nature Reserves/Wilderness Area: protected area managed mainly for science or wilderness protection
 - Ia – Strict Nature Reserve: protected area managed mainly for science
 - Ib – Wilderness Area: protected area managed mainly for wilderness protection
- Category II – National Park: protected area managed mainly for ecosystem protection and recreation
- Category III – Natural Monument: protected area managed mainly for conservation of specific natural features
- Category IV - Habitat/Special Management Area: protected area managed mainly for conservation through management intervention
- Category V – Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation
- Category VI – Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems.

It is apparent from the categories that this system was established for many different National designations. Consequently, it provides guidelines for the Antarctic environment. With respect to the Antarctic environment and the process of designating protected areas, Category I (both a and b) is most relevant. Category Ib, the wilderness area, represents the most stringently protected type of ASMA (Clark and Perry 1996)

There has been reluctance by the ATCP to address ASMAs, as an opposed to ASPAs. This is apparent when the number of designations for protected areas (63) is compared to number of managed areas (4). The reluctance to address management sites may be due to the following reasons (Richardson 2002):

- Management is an activity which may have connotations to territorial possession and sovereignty issues;
- Management is a resource-based activity, with financial implications;
- Pro-active management is an anathema to Antarctic thinking; and
- Antarctic thinking may question the need for active management.

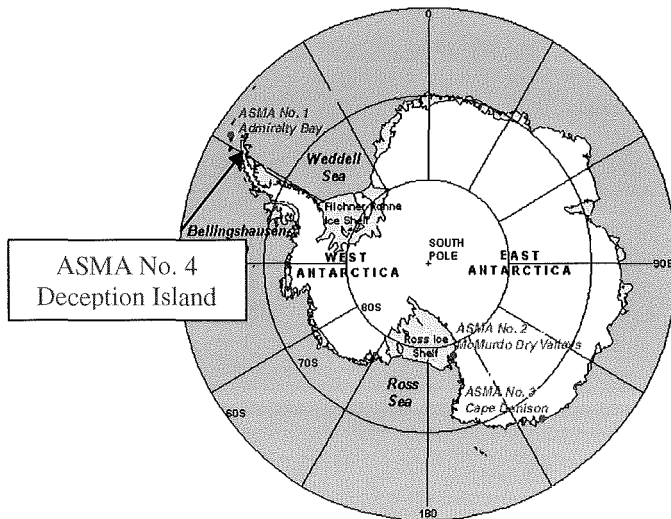


Figure One: The location of the four current ASMAs.

Figure one shows the location of the present designated ASMAs. The following section of the report will discuss these ASMAs in turn

4.1 Admiralty Bay

The ASMA at Admiralty Bay was jointly proposed by Brazil and Poland, in coordination with Ecuador, Peru and United States. The Management Plan for the area was voluntarily adopted by the ATCPs at the ATCM XX (Utrecht, 1996). The Management Plan for Admiralty Bay is now in force. Within the ASMA, SSSI No. 8 and HSM No. 51 are present. The designation was done on the grounds, owing to the areas outstanding environmental, scientific, scenic and historic value and the number of national Antarctic programs and tourist parties operating in close proximity to one another (ATCM XXV 2002). Due to potential occurrence of cumulative environmental impacts this ASMA was proposed and has the ability to:

- Improve the level of mutual assistance and cooperation among the Parties operating in the area;

Avoid or minimise the risk of mutual interference and cumulative

impacts on the terrestrial and marine environment;

- Improve the understanding of natural processes at work in the area, which in turn will help protect the environment from unnecessary disturbance
- Protect the important physiographic features, and the outstanding biological, ecological, historical and aesthetic values of the area; and
- Safe guard the long-term scientific research in the area.

Admiralty Bay is considered a framework for which subsequent ASMA Management Plans can be based upon (www.spri.cam.ac.uk 2002). Primarily this is because this Management Plan was the first to be attempted and there are a large number of users within the Admiralty Bay environment that have potentially conflicting activities. Admiralty Bay's ASMA can also be seen as a framework for future ASMAs because, ASMAs are inclined to be contentious due to sovereignty issues. However, this ASMA is an example that this does not need to be the case. The Admiralty Bay Management Plan was modified to become acceptable for all the involved Parties (www.scar.org/publications/reports/14/2004).

4.2 McMurdo Dry Valleys

The Dry Valleys is a vast area that is ice free within the Antarctic continent. In 2004, this area gained ASMA status. This agreement will ensure that the scientific, wilderness, ecological and aesthetic values of the Dry Valleys is protected and cumulative impacts are minimised by managing and coordinating human activities in the Area. The region encompasses a cold desert ecosystem, for which the climate is cold, windy and arid. Within this region, important science is carried out with respect to climate change, environmental observations and ecological diversity studies. The McMurdo Dry Valleys is also valued for its wilderness quality. The environment represents an area that is largely unaffected by human activities. The dramatic landscape also provides for extensive aesthetic values.

Within this environment a number of activities are conducted these include science, tourism and other National programs.

The Management Plan for the McMurdo Dry Valleys was a cooperative effort between New Zealand and United States. It was concluded that the Area needed special management to:

‘ensure that its scientific, wilderness, ecological and aesthetics values are protected... increasing human activity and potentially conflicting interest have made it necessary to more effectively manage and coordinate activities within the Area’ (Management Plan for Antarctic Specially Managed Area No. 2)

This statement indicates that this Management Plan is primarily trying to avoid the potential for cumulative impacts to occur within this Area. This objective is common to the concept of ASMAs and their Management Plans and is seen in all four current ASMAs.

It is stated by Harris (1998) that a network of protected areas had been created in the Dry Valleys. These had been developed in response to the direct need for protection from scientific pressure. Large areas were set aside to use as a reference baseline and to protect sites for their outstanding qualities. An ASMA is a systematic approach to ensure that the Dry Valleys are being adequately represented with respect to geographic and biological distribution.

4.3 Cape Denison

Cape Denison is considered one of the principle sites of early human activity in Antarctica (XXVII ATCM). It is the location of the Australasian Antarctic Expedition (1911-14). It is stated by the Australian Antarctic Division that this site is an important symbol of the ‘heroic period’ of Antarctic exploration. Cape Denison is the site of the earliest Antarctic geology, geography, terrestrial magnetism, astronomy, glaciology,

biology and zoology. Due to the considerable historical, cultural and scientific significance of Cape Denson, the entire area is designated as an ASMA consistent with Article 2, 4, 5, and 6 of the Protocol. The ASMA encompasses a site in which historic, archeologically, social and aesthetic values are present. The historic huts and their immediate surrounds constitute an ASPA, No. 162.

The XXVII ATCM stated:

“The Management of the area aims to assist in the planning and coordinating current and future activities in the Area, to avoid possible conflict, and to improve co-ordination between Parties in order to avoid degradation of, or substantial risk to, the values of the Area” (XXVII ATCM)

This statement is an indication that an ASMA is the most appropriate medium for the management of Cape Denison. As with the Admiralty Bay and Deception Island, examples there are a variety of activities that are operating within a defined space and thus there is the potential for cumulative impacts to occur. Once again, these activities can be broadly considered in relation to tourism, science and cultural values. The ASMA for Cape Denison outlined the following aims and objectives:

- avoid degradation or risk to the value of the Area;
- maintain the historic values of the Area;
- allow management activities; and
- prevent unnecessary human disturbance

These aims and objectives are also very similar to that of the Admiralty Bay. Thus, indicating that the previous Management Plans are being used as a framework. Because of the previous management plans being used, the series of ASMAs that could potentially be developed will consequently all be very similar in their objectives and aims. This could be beneficial, as each plan will be comparative with respect to their achievements and outcomes. However, if each plan follows the same framework it will not be possible to develop and improve the ASMA process. It will not be possible to compare systems and methods of different procedures to develop a

more comprehensive system.

4.4 Deception Island

Deception Island is considered a unique Antarctic island. The island has had a long history of human activity, including sealing, whaling, exploration, aviation, scientific research and tourism (www.antarctica.ac.uk. 2004). Argentina and Spain maintain summer scientific stations there. It is also the most visited island in the Antarctic. Throughout the history of the island there has been various legal provisions implemented. These have been implemented in a piecemeal approach, due to this it can be considered that no coherent management strategy had been created for this island. Richardson (2002) considers that the designation of the Deception Island ASMA would act as a trailblazer for future ASMAs within the framework of Annex V of the Protocol.

In 2002, there were two SSSI in Deception Island. The first SSSI No. 21, Recommendation VI-11. This Recommendation did not establish a protected area but rather a procedure for consultations and recommended that governments use 'their best ability to prevent tourists from landing' (Valencia and Downie 2002). Thus, establishing an informal management tool. The second SSSI No. 27 was one of the first marine sites to be proposed however, it was adopted 10 years later (Rio de Janeiro, 1987)

In 1998, it was required by the British Antarctic Survey (BAS) to produce an integrated management strategy for the management of the future activities at Deception Island (www.antarctica.ac.uk. 2004). The resultant work from this investigation developed an 'island-wide' approach. An ASMA was constructed that contained a matrix of ASPAs, HSMs and other land use zones and can be considered as a 'Management Package'. The strategy was agreed to amongst the nations that have an interest with Deception Island. In 2000, an Information Paper was presented at CEP. In 2001, a workshop was held to progress the Management Plan and the working group was widened to include USA, the International Association of Antarctic Tour Operators (IAATO) and ASOC. This resulted

in a joint information paper being presented at the CEP meeting in 2001. In 2002, fifteen experts traveled to Deception Island. The aim of the expedition was to prepare a joint ASMA Management Plan.

It is appropriate to designate Deception Island as an ASMA due to the complicated issues relating to the area. An ASMA is a conservation measures that allows flexibility with the implementation of Annex V. As stated above there are two SSSI within the island and these are characterised by a series of marine and terrestrial sub-sites. The construction of the Management Plan needed to consider if these sites should be retained, modified or subsumed within a wider framework or de-designated. Furthermore, there are three designated HSMs, was it relevant to keep these as separate sites or should they be rationalised under one boundary.

The following points are matters that were needed to be considered for the Management Plan at Deception Island. These matters are common themes for the ASMAs that exist today and it is likely these are the issues that will need to be considered for any potential future ASMA:

- Tourism on Deception Island is contained to four sites, due to extensive experience these are well-managed stops. As result of this, it is considered that no harm is experienced by wildlife, terrain or historic content. IAATO members (Spletstoesser 2002) primarily operate tourist vessels that visit the island.
- Deception Island is considered to have one of the more diverse ecosystems in the Antarctic. Thus, it represents an important area for studies in geosciences and marine, terrestrial and freshwater life sciences. The presence of volcanic activities allows the opportunity to study the effects of environmental change on an ecosystem and the dynamics of ecosystems as they recover from disturbance (Downie 2002).
- It is possible that Edward Bransfield first sighted Deception Island in 1820 during the sealing season of 1820-21. However, there were a number of expeditions that were sailing in the vicinity at that time. It is not possible to determine exactly who and when Deception Island was sighted. However, from 1820 on the presence of humans and their activities started to have an effect on the environment (Berguno 2002).

It was thought that the Management Plan for Deception Island could use the ASMA Management Plan that had been created for Admiralty Bay as a framework. It was also stated at the Workshop (2002) a number issues that needed to be considered with respect to the construction of the Management Plan. These included the identification of conflicts. Within a high use area such as the Deception Island there is a potential for conflicts to develop between activities, particularly between scientific and tourism. Within the ATS, science and conservation is considered higher in the hierarchy therefore these zones should be recognised before tourism zones are considered (Acero and Sanchez 2002). It was also discussed at the Workshop (2002) that the role of each Consultative Party would need to be addressed with respect to the future management of the ASMA. It is necessary to explore alternatives aiming to promote effective participation of all Parties involved in this valuable joint ventures.

5.0 ASMA Discussion

The Protocol will form the basis of environmental protection in Antarctica. It is considered by McIvor (2000) that the Protocol was an essential step in the progress of the management of the Antarctic environment. With respect to Annex V Article 4, the use of an ASMA reflects the ideals of regional planning. It is likely that this approach is going to grow due to increasing human activity and overlapping impacts. However, if the provisions set out by Annex V are not pursued the Protocol will offer little more than the Agreed Measures. Since the ratification of the Protocol four ASMAs have been designated, Admiralty Bay, the Dry Valleys, Cape Denison and Deception Island. It is possible to draw some remarks from these examples and illustrate areas within the ASMA process that are lagging. However, it is also possible to indicate areas where improvements have been made.

The Antarctic environment consists of multiple National Antarctic programs attempting to achieve their scientific interest and numerous tourist operations running these operations. It is expected and noted by Harris (1998) if different Nations and organisations have different environmental expectations, environmental standards may be blurred and the not comprehensible. For example, the Dry Valleys is a multi-user environment with several National Antarctic programs active within its environment. If there was no form of

Management Plan, these users could possibly have different expectations with respect to the way they use and operate within this environment. Since the designation of the Dry Valleys ASMA, the Management Plan can dictate the way that this environment is used, and consequently will result in a 'common practice' within the ASMA.

Throughout the history of Antarctic conservation, the flow of information between stakeholders has been an issue that has caused frustration and has potentially inhibited the advancement of environmental practices. The establishment of the Protocol and with respect to Annex V, Article 9 (Information and Publicity) and Article 10 (Exchange of Information) provide a medium and a basis's for which information should be promoted and transferred. If information were transferred, it would allow a more broad level of consistency to be achieved between National programs with respect to environmental objectives and outcomes. It is possible to identify that information is being transferred between some Nations but not all. This can be illustrated with the designated ASMAs. The United States and New Zealand Antarctic Programs are obviously sharing information with respect to the Dry Valleys. However, are these national programs interacting with those on the Antarctic Peninsula such as the British Antarctic Survey to ensure that true representative examples of geographic and biological sites are being protected within the ASMA regime.

Prior to the signing of the Protocol, the ATS had developed a mechanism for protecting areas. However, past efforts did not result in the protection of significant portions of the continent, or in the systematic designation of protected areas. Protected areas tended to be random and haphazard and established mostly by individual Nations and based on scientific purposes (Clark and Perry 1996).

Dingwall (1987) identified a number of challenges for that were influencing upon the Antarctic Protected Areas network. These challenges primarily were concerned with providing an operating system that encompassed the diversity of the Antarctic continent, applied an identification and selection criteria systematically and developing a representative network of protected areas and landforms. Several of these issues are still

present today and have been discussed above, for example, a representative network of biological and geographical diversity is still a concern even with the implementation of Annex V. However, Annex V has developed a systematic and rationalised approach to manage protected areas in the Antarctic environment.

According to Gilbert (2005), there is no thorough overview of existing and proposed ASMA sites. That is there is no form of assessing the sites that are present to evaluate what they are encompassing. Therefore, mechanism were created by the Protocol are still lagging (Clark and Perry 1996). Thus, there needs to be a flow of information to ensure that there are representative examples of Antarctic environments that are being protected. At present, there is the opportunity for some environments to be over protected, while other sites have minimal protection and recognition. For example it is quite possible that there is an over representation of terrestrial environments compared to marine. It is also possible that the geographic distribution of ASMAs is not even. Thus, a strategic overview is necessary to establish an ASMA system and network of representative examples of Antarctica. This would ultimately indicate areas within Antarctic that need immediate attention and could possibly indicate sites that no longer need protection status. With respect to the present four ASMAs, each of these was designated as the result of independent thought and in an ad hoc fashion. Consequently, these ASMAs could potentially be protecting the same representative example. However this is not the case, as each of the ASMAs are unique, as indicated above. Nonetheless, it is expected that the designation of ASMAs will become more prominent in the future and when this occurs, a strategic overview will be appropriate, as it is likely that areas will be over represented while other areas are missed if such a mechanism is not present.

Generally, the establishment of an ASMA is a multi National effort. This is shown in the Admiralty Bay, Dry Valleys and Deception Island examples. Due to the multi-National effort, states are required to interact with each other and exchange information about proposed sites, activities they undertake within these sites and their expectations with respect to environmental outcomes. This integrated management can be considered a precursor to more advanced environmental protection. It is tool, which is reliant upon

information transference and thus encourages and requires information exchange. It can be noted within the objectives of the Management Plans improved 'mutual assistance and cooperation' (Admiralty Bay Management Plan) is a key factor. Consequentially it is appropriate to state that a level of integrated management between stakeholders aids in the conservation of Antarctica.

It can be noted in the Deception Island Management Plan that the involved Parties adopted the concept of ecosystem management. This approach can also be noted in the Convention of the Conservation of Antarctic Marine Living resources (CCAMLR). It is also illustrates the shift from single species protection to habitat protection, which is a key concept for modern day environmental protection. This is also a form of integrated management between different resources. Thus, this is also illustrated in the other ASMAs. For example in the Management Plan for Cape Denison, provisions are provided for historic, scientific and wilderness values. This method illustrates the concept of ASMAs non-site specific form of management.

The Agreed Measures failed to provide guidelines for the establishment of protected areas and for the development of Management Plans. Ultimately, this created an environment where protected areas were adopted in a non-systematic and haphazard fashion. Thus creating a network of protected areas that were not distributed evenly over the continent and were not representative of the biota present within the Antarctic. Guidelines for the current establishment of ASMAs are also lacking with respect to Management Plans and the procedures for choosing designations. Article 5 of Annex V proposes what shall be included in the Managements Plan, but fails to give any practical guidance for the development and implementation of these plans.

It is stated in Article 5 (3) (j) of Annex V of the Protocol that Codes of Conduct are required within the Management Plan. This measure was not includes in the 1964 Agreed Measures. Ultimately, the Code of Conduct provides procedures for activities within the ASMA. Consequentially, activities within these areas are governed and thus limit the potential environmental impacts. The Management Plans in which the Code of Conduct is

provided is more comprehensive than the Management Plans that were developed under the Agreed Measures. Once again, this has a positive impact upon the environment and the users of the ASMA are more aware of their responsibility within that protected area. The adoption of more comprehensive management plans was a significant step in conservation of the Antarctic. This symbolized a more structured approach to environmental protection.

It was considered with the Agreed Measures that there was no identifiable authority to manage each of the sites and give guidance when necessary. Article 11 of the Protocol established the CEP. The CEP fills the role of a central body that was previously fulfilled by the ATCP. The committee has the function of 'providing advice and formulate recommendations to the parties in connection with the implementation of the Protocol'. Under the Agreed Measures, this body was absent and this ultimately leads to the delayed designation of protected areas.

There is a reluctance to designate ASMAs by the ATCPs and this has ultimately has meant that there is a minimal amount of these sites being designated. There are several reasons for this. It is considered that the management of an area has connotations of territorial possession. Thus, this creates issues of sovereignty and jurisdiction dilemmas. However this should not be the case as it should be considered that if a nation is protecting an area it is for the benefit of the Antarctic and global community. Associated with management is a series of financial implications and commitments. Typically, nations operate on a strict budget in the Antarctic and budgets are thinly spread. Within the Antarctic political environment pro-active management is somewhat disliked. The designations of ASMAs are possibly lacking because of this.

In conclusion, Annex V of the Protocol has improved the system in which protected areas are designated. This evolution of the ATS provided a system that was systematic, rationalised and coherent. The development of comprehensive Management Plans is a valuable tool with respect to the monitoring and management of the designated sites. Issues that challenged the Agreed Measures are still somewhat apparent within the Protocol. However, improvements have been made and it can be assumed that this addition to the

ATS will become beneficial in an exponential fashion. Annex V and the establishment of Article 4 has provided a system where advanced protection measures can be executed. However, there are areas where ATCP can advance their protection techniques.

6.0 Concluding Comments

Conservation measures within the Antarctic have evolved to create a system that can be considered to have the potential to develop a comprehensive rationalised approach in which Antarctica is protected from the adverse activities of humans. It is possible to identify that conservation measures within the Antarctic continent and surrounding ocean have gone through stages of habitat and species destruction to the recognition this obliteration and finally to a potentially pro-active management regime. This present stage is governed by the Protocol. Annex V within this Protocol provides for protected areas within the Antarctic environment. Ultimately, this Annex created a system so that the Antarctic environment is protected and it ensures that this resource is enjoyed by generations to come. This Annex also created the concept of Antarctic Specially Managed Areas. This concept and its associated Articles have created a system where the environment is managed regionally and thus cumulative impacts are a primary concern. The establishment of Management Plans indicated a significant change in the mentality towards environmental protection. These plans are generally comprehensive and are a key aspect to the regime. The examples of the Dry Valleys and Cape Denison are good indicators of this. The ASMA process is relatively young and is still evolving therefore there are still areas within this system that are lagging however; gross advancements have been made on the Agreed Measures and attitudes towards protected areas.

7.0 References

Acero, J. and Sanchez, R. (2002) Towards an agreed strategy for the future management of Deception Island. *In: Valencia, J. and Downie, R. (eds) Workshop on a Management Plan for Deception Island.* Instituto Antartico Chileno.

Angel, M.V. (1987) Criteria for Protected Areas and Other Conservation Measures in the Antarctic Region. *Environmental International.* 13(1): 105-114.

Antarctic and Southern Ocean Coalition (2001) The Protocol on Environmental; Protection to the Antarctic Treaty [online]. Available from: <http://www.asoc.org/general/protocol.htm> [Accessed 7th February 2005].

Antarctic Protected Areas Archive (2003) Antarctic Specially Managed Areas [online]: Available from: <http://www.cep.aq/apa/asma/index.html>

Antarctic Treaty Secretariat (2004) Implications of the Entry into Force of Annex V to the Environmental Protocol: Working Paper Submitted by the United Kingdom [online]. Available from <http://www.ats.org/ar/25atcmWP.htm> [Accessed 7th February 2005].

Berguno, J. (2002) The evolution of the concept of Management within the Antarctic System of environmental protection. *In: Valencia, J. and Downie, R. (eds) Workshop on a Management Plan for Deception Island.* Instituto Antartico Chileno.

Berkman, P. A. (2002) *Science into Policy: Global Lessons from Antarctica*. Academic Press, San Diego, United States of America.

Boyd, D. (2001). After the Protocol: Problems and Prospects for Antarctica. *The Antarctic: Past, Present and Future. Law, Policy and International Relations Sub-Program*. Antarctic CRC Research Report 28

Bonner, W. N. (1988). *The Conservation of Antarctic Systems*. Scott Polar Research Institute. Cambridge, UK.

Bonner, W.N. and Angel, M.V. (1987) Conservation and the Antarctic Environment: The Working Group Reports of the Joint IUCN/SCAR Symposium on the Scientific Requirements for Antarctic Conservation. *Environmental International*. 13(1): 137-144.

Clark, B. M. and Perry, K. (1996) The Protection of Special Areas In Antarctica. In: Francioni, F. and Scovazzi, T. (eds) *International Law for Antarctica*. The Hague, Kluwer Law International. p.293-318.

Deception Island (2004) British Antarctic Survey, Natural Environment Research Council [online].

Available from:

http://www.antarctica.ac.uk/About_BAS/Cambridge/Divisions/EID/Environment/Deception_Island.html.

Dingwall, P.R. (ed) (1987) Proceedings of the 29th Working Session (Antarctic Realm) of IUCN's Commission on National Parks and Protected Areas. International Union for Conservation of Nature and Natural Resources, Gland, Switzerland.

Dingwall, P.R. (1997) Environmental Management for Antarctica Wilderness. *International Journal of Wilderness*. 3(3).

Environment Canada (2000) Ecological Monitoring and Assessment Network [online]. Available from:

<http://www.eman-rese.ca/eman/reports/publications>.

Harris, C. M. (1998) Science and Environmental Management in the McMurdo Dry Valleys Southern Victoria Land, Antarctica [online] Available from: <http://www.era.gs/projects/valleys/ValleysEM.pdf>

IUCN (1994) *Guidelines for Protected Areas Management Categories*. CNPPA with the assistance of WCMC. IUCN, Gland, Switzerland and Cambridge, UK. x + 261pp.

Keage, P.L. (1986) *Antarctic Protected Areas: Future Options*. Environmental Studies Occasional Paper 19, University of Tasmania, Australia.

Lewis-Smith, R. I., Walton, D. W. H. and Dingwall, P. R. (1994) Developing the Antarctic Protected Area System. *Proceedings of SCAR /IUCN Workshop on Protected Areas*, Cambridge, UK.

McIvor, E. (2000) Towards ASMA Designation of the Vestfold Hills, East Antarctica. Polar Working Papers, Antarctic CRC, Tasmania, Australia.

Richardson, M. (2002) Deception Island: concepts and elements for an Antarctic Specially Managed Area. In Valencia, J. and Downie, R. (eds) *Workshop on a Management Plan for Deception Island*. Instituto Antartico Chileno.

Rothwell, D. R. (1992). The Madrid Protocol and its Relationship with Antarctic Treaty System. ASOLP Occ. Paper 5. Tasmania, Australia.

Scientific Committee on Antarctic Research (2004) SCAR Group of Specialists on Environmental Affairs and Conservation (GOSEAC): SCAR Report No. 14, 1997 [online]. Available from <http://www.scar.org/publications/reports/14/>

Scientific Committee on Antarctic Research (2005) Proposed Management Plan for Antarctic Specially Protected Area No. 162: Mawson's Huts, Cape Denison, Commonwealth Bay, George V Land, East Antarctica [online]. Available from <http://www.scar.org/publications/bulletins/156/aspa162/>

Scientific Committee on Antarctic Research International Council of Scientific Unions (1987) *The Protected Area System in the Antarctic: Report of the SCAR ad hoc Group on Additional Protective Measures: Response of SCAR to Antarctic Treat Consultative Meeting Recommendation XIII-5*. Cambridge, UK.

Splettstoesser, J. (2002) Physical geography, geology and tourism: Deception Island. In: Valencia, J. and Downie, R. (eds) *Workshop on a Management Plan for Deception Island*. Instituto Antartico Chileno.

Stonehouse, B. (2002) *SPRI Review Polar Ecology and Management: Scoot Polar Research Institute* [online] University of Cambridge. Available from: <http://www.spri.cam.ac.uk/about/sprireview/2000/pem.html>

Valencia, J. and Downie, R. (2002) *Workshop on a Management Plan for Deception Island*. Instituto Antartico Chileno.

Vicuna, F.O. (1994) The Protocol on Environmental Protection to the Antarctic Treaty: the question of effectiveness. IARP Publication Series, No 2. The Fridtjof Nansen Institute, Norway.

XXV ATCM (2002) Coordination of the Antarctic Specially Managed Area (ASMA) of Admiralty Bay, King George Island, South Shetland Islands. Information Paper IP-046.

Zumberge, J. H. (1987) The Scientific Committee on Antarctic Research, The Antarctic Treaty and Conservation in Antarctica. *Environmental International*. 13(1): 3-7.

Personal Communication

Gilbert, N. (2005) Environmental Manager, Antarctic New Zealand.

8.1 Relevant Sections from the 'Agreed Measures for the Conservation of Antarctic Fauna and Flora' (1964)

Agreed Measures for the Conservation of Antarctic Fauna and Flora

Done at Brussels 2 June 1964

Entered into force 1 November 1982

Preamble

The Governments participating in the Third Consultative Meeting under Article IX of the Antarctic Treaty,

DESIRING to implement the principles and purposes of the Antarctic Treaty;

RECOGNISING the scientific importance of the study of Antarctic fauna and flora, their adaptation to their rigorous environment, and their interrelationship with that environment;

CONSIDERING the unique nature of these fauna and flora, their circumpolar range, and particularly their defencelessness and susceptibility to extermination;

DESIRING by further international collaboration within the framework of the Antarctic Treaty to promote and achieve the objectives of protection, scientific study, and rational use of these fauna and flora; and

HAVING PARTICULAR REGARD to the conservation principles developed by the Scientific Committee on Antarctic Research (SCAR) of the International Council of Scientific Unions;

Hereby consider the Treaty Area as a Special Conservation Area and have agreed on the following measures;

Article I

1. These Agreed Measures shall apply to the same area to which the Antarctic Treaty is applicable (hereinafter referred to as the Treaty Area) namely the Area south of 60 degrees South Latitude, including all ice shelves.

However, nothing in these Agreed Measures shall prejudice or in any way affect the rights, or the exercise of the rights, of any state under international law with regard to the high seas within the Treaty Area, or restrict the implementation of the provisions of the Antarctic Treaty with respect to inspection.

2. The Annexes to these Agreed Measures shall form an integral part thereof, and all references to the Agreed Measures shall be considered to include the Annexes.

Article II

For the purposes of these Agreed Measures:

- a) "Native mammal" means any member, at any stage of its life cycle, of any species belonging to the Class Mammalia indigenous to the Antarctic or occurring there through natural agencies of dispersal, excepting whales;
- b) "native bird" means any member, at any stage of its life cycle (including eggs), of any species of the Class Aves indigenous to the Antarctic or occurring there through natural agencies of dispersal;
- c) "native plant" means any kind of vegetation at any stage of its life cycle (including seeds), indigenous to the Antarctic or occurring there through natural agencies of dispersal;
- d) "appropriate authority" means any person authorised by a Participating Government to issue permits under these Agreed Measures;
- e) "permit" means a formal permission in writing issued by an appropriate authority;

f) "participating government" means any Government for which these Agreed Measures have become effective in accordance with Article XIII of these Agreed Measures

Article III

Each Participating Government shall take appropriate action to carry out these Agreed Measures

Article IV

The Participating Governments shall prepare and circulate to members of expeditions and stations information to ensure understanding and observance of the provisions of these Agreed Measures, setting forth in particular prohibited activities, and providing lists of specially protected species and specially protected areas.

Article V

The provisions of these Agreed Measures shall not apply in cases of extreme emergency involving possible loss of human life or involving the safety of ships or aircraft.

Article VI

1. Each Participating Government shall prohibit within the Treaty Area the killing, wounding, capturing or molesting of any native mammal or native bird or any attempt at any such act, except in accordance with a permit.
2. Such permits shall be drawn in terms as specific as possible and issued only for the following purposes;
 - a) to provide indispensable food for men or dogs in the Treaty Area in limited quantities, and in conformity with the purposes and principles of these Agreed Measures;
 - b) to provide specimens for scientific study or scientific information;
 - c) to provide specimens for museums, zoological gardens, or other educational or cultural institutions or uses.
3. Permits for Specially Protected Areas shall be issued only in accordance with the provisions of Article VIII.
4. Participating Governments shall limit the issue of such permits so as to ensure as far as possible that:
 - a) no more native mammals or birds are killed or taken in any year than can normally be replaced by natural reproduction in the following breeding season;
 - b) the variety of species and the balance of the natural ecological systems existing within the Treaty Area are maintained.
5. The species of native mammals and birds listed in Annex A of these Measures shall be designated "Specially Protected Species", and shall be accorded special protection by Participating Governments.
6. A Participating Government shall not authorise an appropriate authority to issue a permit with respect to a Specially Protected Species except in accordance with paragraph 7 of this Article.
7. A permit may be issued under this Article with respect to a Specially Protected Species, provided that:
 - a) it is issued for a compelling scientific purpose, and;
 - b) the actions permitted thereunder will not jeopardise the existing natural ecological system or the survival of that species.

Article VII

1. Each Participating Government shall take appropriate measures to minimize harmful interference within the Treaty Area with the normal living conditions of any native mammal or bird, or any attempt at such harmful interference, except as permitted under Article VI.

2. The following acts and activities shall be considered as harmful interference:

- a) allowing dogs to run free;
- b) flying helicopters or other aircraft in a manner which would unnecessarily disturb bird and seal concentrations, or landing close to such concentrations (eg. within 200 metres);
- c) driving vehicles unnecessarily close to concentrations of birds and seals (e.g. within 200 metres);
- d) use of explosives close to concentrations of birds and seals;
- e) discharge of firearms close to bird and seal concentrations (e.g. within 300 metres);
- f) any disturbance of bird and seal colonies during the breeding period by persistent attention from persons on foot.

However, the above activities, with the exception of those mentioned in a) and e) may be permitted to the minimum extent necessary for the establishment, supply and operation of stations.

3. Each Participating Government shall take all reasonable steps towards the alleviation of pollution of the waters adjacent to the coast and ice shelves.

Article VIII

1. The areas of outstanding scientific interest listed in Annex B shall be designated "Specially Protected Areas" and shall be accorded special protection by the Participating Governments in order to preserve their unique natural ecological system.

2. In addition to the prohibitions and measures of protection dealt with in other Articles of these Agreed Measures, the Participating Governments shall in Specially Protected Areas further prohibit:

- a) the collection of any native plant, except in accordance with a permit;
- b) the driving of any vehicle.

3. A permit issued under Article VI shall not have effect within a Specially Protected Area except in accordance with paragraph 4 of the present Article.

4. A permit shall have effect within a Specially Protected Area provided that:

- a) it was issued for a compelling scientific purpose which cannot be served elsewhere; and
- b) the actions permitted thereunder will not jeopardise the natural ecological system existing in that Area

Article IX

1. Each Participating Government shall prohibit the bringing into the Treaty Area of any species of animal or plant not indigenous to that Area, except in accordance with a permit.

2. Permits under paragraph 1 of this Article shall be drawn in terms as specific as possible and shall be issued to allow the importation only of the animals and plants listed in Annex C. When any such animal or plant might cause harmful interference with the natural system if left unsupervised within the Treaty Area, such permits shall require that it be kept under controlled conditions and, after it has served its purpose, it shall be removed from the Treaty Area or destroyed.

3. Nothing in paragraphs 1 and 2 of this Article shall apply to the importation of food into the Treaty Area so long as animals and plants used for this purpose are kept under controlled conditions.

4. Each Participating Government undertakes to ensure that all reasonable precautions shall be taken to prevent the accidental introduction of parasites and diseases into the Treaty Area. In particular, the precautions listed in Annex D shall be taken.

Article X

Each Participating Government undertakes to exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any activity in the Treaty Area contrary to the principles or purposes of these Agreed Measures.

Article XI

Each Participating Government whose expeditions use ships sailing under flags of nationalities other than its own shall, as far as feasible, arrange with the owners of such ships that the crews of these ships observe these Agreed Measures.

Article XII

1. The Participating Governments may make such arrangements as may be necessary for the discussion of such matters as:

- a) the collection and exchange of records (including records of permits) and statistics concerning the numbers of each species of native mammal and bird killed or captured annually in the Treaty Area;
- b) the obtaining and exchange of information as to the status of native mammals and birds in the Treaty Area, and the extent to which any species needs protection;
- c) the number of native mammals or birds which should be permitted to be harvested for food, scientific study, or other uses in the various regions;
- d) the establishment of a common form in which this information shall be submitted by Participating Governments in accordance with paragraph 2 of this Article.

2. Each Participating Government shall inform the other Governments in writing before the end of November of each year of the steps taken and information collected in the preceding period of July 1st to June 30th relating to the implementation of these Agreed Measures. Governments exchanging information under paragraph 5 of Article VII of the Antarctic Treaty may at the same time transmit the information relating to the implementation of these Agreed Measures.

Article XIII

1. After the receipt by the Government designated in Recommendation I-XIV (5) of notification of approval by all Governments whose representatives are entitled to participate in meetings provided for under Article IX of the Antarctic Treaty, these Agreed Measures shall become effective for those Governments.

2. Thereafter any other Contracting Party to the Antarctic Treaty may, in consonance with the purposes of Recommendation III-VII, accept these Agreed Measures by notifying the designated Government of its intention to apply the Agreed Measures and to be bound by them. The Agreed Measures shall become effective with regard to such Governments on the date of receipt of such notification.

3. The designated Government shall inform the Governments referred to in paragraph 1 of this Article of each notification of approval, the effective date of these Agreed Measures and of each notification of acceptance. The designated Government shall also inform any Government which has accepted these Agreed Measures of each subsequent notification of acceptance.

Article XIV

1. These Agreed Measures may be amended at any time by unanimous agreement of the Governments whose Representatives are entitled to participate in meetings under Article IX of the Antarctic Treaty.

2. The Annexes, in particular, may be amended as necessary through diplomatic channels.

3. An amendment proposed through diplomatic channels shall be submitted in writing to the designated Government which shall communicate it to the Governments referred to in paragraph 1. of the present Article for approval; at the same time, it shall be communicated to the other Participating Governments.

4. Any amendment shall become effective on the date on which notifications of approval have been received by the designated Government from all of the Governments referred to in paragraph 1. of this article.

5. The designated Government shall notify those same Governments of the date of receipt of each approval communicated to it and the date on which the amendment will become effective for them.

6. Such amendment shall become effective on that same date for all other Participating Governments, except those which, before the expiry of two months after that date notify the designated Government that they do not accept it.

Each dog shall be inoculated at least two months before the time of its arrival in the Treaty Area.

2. Poultry: Notwithstanding the provisions of Article IX (3) of these Agreed Measures, no living poultry shall be brought into the Treaty Area after July 1st 1966.

**8.2 Relevant Sections from the ‘Protocol on Environmental Protection’
(1991)**

Preamble

The States Parties to this Protocol to the Antarctic Treaty, hereinafter referred to as the Parties,

Convinced of the need to enhance the protection of the Antarctic environment and dependent and associated ecosystems;

Convinced of the need to strengthen the Antarctic Treaty system so as to ensure that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord;

Bearing in mind the special legal and political status of Antarctica and the special responsibility of the Antarctic Treaty Consultative Parties to ensure that all activities in Antarctica are consistent with the purposes and principals of the Antarctic Treaty;

Recalling the designation of Antarctica as a Special Conservation Area and other measures adopted under the Antarctic Treaty system to protect the Antarctic environment and dependent and associated ecosystems;

Acknowledging further the unique opportunities Antarctica offers for scientific monitoring of and research on processes of global as well as regional importance;

Reaffirming the conservation principles of the Convention on the Conservation of Antarctic Marine Living Resources;

Convinced that the development of a Comprehensive regime for the protection of the Antarctic environment and dependent and associated ecosystems is in the interest of mankind as a whole;

Desiring to supplement the Antarctic Treaty to this end;

Have agreed as follows:

Article 1

Definitions

For the purposes of this Protocol:

- (a) "The Antarctic Treaty" means the Antarctic Treaty done at Washington on 1 December 1959;
- (b) "Antarctic Treaty area" means the area to which the provisions of the Antarctic Treaty apply in accordance with Article VI of that Treaty;
- (c) "Antarctic Treaty Consultative Meetings" means the meetings referred to in Article IX of the Antarctic Treaty;
- (d) "Antarctic Treaty Consultative Parties" means the Contracting Parties to the Antarctic Treaty entitled to appoint representatives to participate in the meetings referred to in Article IX of that Treaty;
- (e) "Antarctic Treaty system" means the Antarctic Treaty, the measures in effect under that Treaty, its associated separate international instruments in force and the measures in effect under those instruments;
- (f) "Arbitral Tribunal" means the arbitral Tribunal established in accordance with the Schedule to this Protocol, which forms an integral part thereof;
- (g) "Committee" means the Committee for Environmental Protection established in accordance with Article 11.

Article 2

Objective and Designation

The Parties commit themselves to the comprehensive protection of the Antarctic environment and dependent and associated ecosystems and hereby designate Antarctica as a natural reserve, devoted to peace and science.

Article 3

Environmental Principles

□ 1 The protection of the Antarctic environment and dependent and associated ecosystems and the intrinsic value of Antarctica, including its wilderness and aesthetic values and its value as an area for the conduct of scientific research, in particular research essential to understanding the global environment, shall be fundamental considerations in the planning and conduct of all activities in the Antarctic Treaty area.

2 To this end:

- (a) activities in the Antarctic Treaty area shall be planned and conducted so as to limit adverse impacts on the Antarctic environment and dependent and associated ecosystems;
- (b) activities in the Antarctic Treaty area shall be planned and conducted so as to avoid:
 - (i) adverse effects on climate or weather patterns;
 - (ii) significant adverse effects on air or water quality;
 - (iii) significant changes in the atmospheric, terrestrial (including aquatic), glacial or marine environments;
 - (iv) detrimental changes in the distribution, abundance or productivity of species or populations of species of fauna and flora;
 - (v) further jeopardy to endangered or threatened species or populations of such species; or
 - (vi) degradation of, or substantial risk to, areas of biological, scientific, historic, aesthetic or wilderness significance;
- (c) activities in the Antarctic Treaty area shall be planned and conducted on the basis of information sufficient to allow prior assessments of, and informed judgments about, their possible impacts on the Antarctic environment and dependent and associated ecosystems and on the value of Antarctica for the conduct of scientific research; such judgments shall take account of:
 - (i) the scope of the activity, including its area, duration and intensity;
 - (ii) the cumulative impacts of the activity, both by itself and in combination with other activities in the Antarctic Treaty area;
 - (iii) whether the activity will detrimentally affect any other activity in the Antarctic Treaty area;
 - (iv) whether technology and procedures are available to provide for environmentally safe operations;
 - (v) whether there exists the capacity to monitor key environmental parameters and ecosystem components so as to identify and provide early warning of any adverse effects of the activity and to provide for such modification of operating procedures as may be necessary in the light of the results of monitoring or

increased knowledge of the Antarctic environment and dependent and associated ecosystems; and

(vi) whether there exists the capacity to respond promptly and effectively to accidents, particularly those with potential environmental effects;

(d) regular and effective monitoring shall take place to all assessment of the impacts of ongoing activities, including the verification of predicted impacts;

(e) regular and effective monitoring shall take place to facilitate early detection of the possible unforeseen effects of activities carried on both within and outside the Antarctic Treaty area on the Antarctic environment and dependent and associated ecosystems.

3 Activities shall be planned and conducted in the Antarctic Treaty area so as to accord priority to scientific research and to preserve the value of Antarctica as an area for the conduct of such research, including research essential to understanding the global environment.

4 Activities undertaken in the Antarctic Treaty area pursuant to scientific research programs, tourism and all other governmental and non-governmental activities in the Antarctic Treaty area for which advance notice is required in accordance with Article VII (5) of the Antarctic Treaty, including associated logistic activities, shall:

(a) take place in a manner consistent with the principles in this Article; and

(b) be modified, suspended or cancelled if they result in or threaten to result in impacts upon the Antarctic environment or dependent or associated ecosystems inconsistent with those principles.

Article 4

Relationship with other Components of the Antarctic Treaty System

1 This Protocol shall supplement the Antarctic Treaty and shall neither modify nor amend that Treaty.

2 Nothing in this Protocol shall derogate from the rights and obligations of the Parties to this Protocol under the other international instruments in force within the Antarctic Treaty system.

Article 5

Consistency with other Components of the Antarctic Treaty System

The Parties shall consult and cooperate with the Contracting Parties to the other international instruments in force within the Antarctic Treaty system and their respective institutions with a view to ensuring the achievement of the objectives and principles of this Protocol and avoiding any interference with the achievement of the objectives and principles of those instruments or any inconsistency between the implementation of those instruments and of this Protocol.

Article 6

Cooperation

1 The Parties shall cooperate in the planning and conduct of activities in the Antarctic Treaty area. To this end, each Party shall endeavour to:

(a) promote cooperative programs of scientific, technical and educational value, concerning the protection of the Antarctic environment and dependent and associated ecosystems;

(b) provide appropriate assistance to other Parties in the preparation of environmental impact assessments;

(c) provide to other Parties upon request information relevant to any potential environmental risk and assistance to minimise the effects of accidents which may damage the Antarctic environment or dependent and associated ecosystems;

(d) consult with other Parties with regard to the choice of sites for prospective stations and other facilities so as to avoid the cumulative impacts caused by their excessive concentration in any location;

(e) where appropriate, undertake joint expeditions and share the use of stations and other facilities; and

(f) carry out such steps as may be agreed upon at Antarctic Treaty Consultative Meetings.

2 Each Party undertakes, to the extent possible, to share information that may be helpful to other Parties in planning and conducting their activities in the Antarctic Treaty area, with a view to the protection of the Antarctic environment and dependent and associated ecosystems.

3 The Parties shall co-operate with those Parties which may exercise jurisdiction in areas adjacent to the Antarctic Treaty area with a view to ensuring that activities in the Antarctic Treaty area do not have adverse environmental impacts on those areas.

Article 8

Environmental Impact and Assessment

1 Proposed activities referred to in paragraph 2 below shall be subject to the procedures set out in Annex I for prior assessment of the impacts of those activities on the Antarctic environment or on dependent or associated ecosystems according to whether those activities are identified as having:

(a) less than a minor or transitory impact;

(b) a minor or transitory impact; or

(c) more than a minor or transitory impact.

2 Each Party shall ensure that the assessment procedures set out in Annex I are applied in the planning processes leading to decisions about any activities undertaken in the Antarctic Treaty area pursuant to scientific research programs, tourism and all other governmental and non-governmental activities in the Antarctic Treaty area for which advance notice is required under Article VII (5) of the Antarctic Treaty, including associated logistic support activities.

3 The assessment procedures set out in Annex I shall apply to any change in an activity whether the change arises from an increase or decrease in the intensity of an existing activity, from the addition of an activity, the decommissioning of a facility, or otherwise.

4 Where activities are planned jointly by more than one Party, the Parties involved shall nominate one of their number to coordinate the implementation of the environmental impact assessment procedures set out in Annex I.

Article 9

Annexes

1 The Annexes to this Protocol shall form an integral part thereof.

2 Annexes, additional to Annexes I-IV, may be adopted and become effective in accordance with Article IX of the Antarctic Treaty.

3 Amendments and modifications to Annexes may be adopted and become effective in accordance with Article IX of the Antarctic Treaty, provided that any Annex may itself make provision for amendments and modifications to become effective on an accelerated basis

4 Annexes and any amendments and modifications thereto which have become effective in accordance with paragraphs 2 and 3 above shall, unless an Annex itself provides otherwise in respect of the entry into effect of any amendment or modification thereto, become effective for a Contracting Party to the Antarctic Treaty which is not an Antarctic Treaty Consultative Party, or which was not an Antarctic Treaty Consultative Party at the time of the adoption, when notice of approval of that Contracting Party has been received by the Depositary.

5 Annexes shall, except to the extent that an Annex provides otherwise, be subject to the procedures for dispute settlement set out in Articles 18 to 20.

Article 10

Antarctic Treaty Consultative Meetings

□ 1 Antarctic Treaty Consultative Meetings shall, drawing upon the best scientific and technical advice available:

□ (a) define, in accordance with the provisions of this Protocol, the general policy for the comprehensive protection of the Antarctic environment and dependent and associated ecosystems; and

(b) adopt measures under Article IX of the Antarctic Treaty for the implementation of this Protocol.

2 Antarctic Treaty Consultative Meetings shall review the work of the Committee and shall draw fully upon its advice and recommendations in carrying out the tasks referred to in paragraph 1 above, as well as upon the advice of the Scientific Committee on Antarctic Research.

Article 11

Committee for Environmental Protection

□ 1 There is hereby established the Committee for Environmental Protection.

2 Each Party shall be entitled to be a member of the Committee and to appoint a representative who may be accompanied by experts and advisers.

3 Observer status in the Committee shall be open to any Contracting Party to the Antarctic Treaty which is not a Party to this Protocol.

4 The Committee shall invite the President of the Scientific Committee on Antarctic Research and the Chairman of the Scientific Committee for the Conservation of Antarctic Marine Living Resources to participate as observers at its sessions. The Committee may also, with the approval of the Antarctic Treaty Consultative Meeting, invite such other relevant scientific, environmental and technical organisations which can contribute to its work to participate as observers at its sessions.

5 The Committee shall present a report on each of its sessions to the Antarctic Treaty Consultative Meeting. The report shall cover all matters considered at the session and shall reflect the views expressed. The report shall be circulated to the Parties and to observers attending the session, and shall thereupon be made publicly available.

6 The Committee shall adopt its rules of procedure which shall be subject to approval by the Antarctic Treaty Consultative Meeting.

Article 12

Functions of the Committee

□ 1 The functions of the Committee shall be to provide advice and formulate recommendations to the Parties in connection with the implementation of this Protocol, including the operation of its Annexes, for consideration at Antarctic Treaty Consultative Meetings, and to perform such other

functions as may be referred to it by the Antarctic Treaty Consultative Meetings. In particular, it shall provide advice on:

- (a) the effectiveness of measures taken pursuant to this Protocol;
- (b) the need to update, strengthen or otherwise improve such measures;
- (c) the need for additional measures, including the need for additional Annexes, where appropriate;
- (d) the application and implementation of the environmental impact assessment procedures set out in Article 8 and Annex I;
- (e) means of minimising or mitigating environmental impacts of activities in the Antarctic Treaty area;
- (f) procedures for situations requiring urgent action, including response action in environmental emergencies;
- (g) the operation and further elaboration of the Antarctic Protected Area system;
- (h) inspection procedures, including formats for inspection reports and checklists for the conduct of inspections;
- (i) the collection, archiving, exchange and evaluation of information related to environmental protection;
- (j) the state of the Antarctic environment; and
- (k) the need for scientific research, including environmental monitoring, related to the implementation of this Protocol.

2 In carrying out its functions, the Committee shall, as appropriate, consult with the Scientific Committee on Antarctic Research, the Scientific Committee for the Conservation of Antarctic Marine Living Resources and other relevant scientific, environmental and technical organisations.

Article 13

Compliance with this Protocol

- 1 Each Party shall take appropriate measures within its competence, including the adoption of laws and regulations, administrative actions and enforcement measures, to ensure compliance with this Protocol.
- 2 Each Party shall exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any activity contrary to this Protocol.
- 3 Each Party shall notify all other Parties of the measures it takes pursuant to paragraphs 1 and 2 above.
- 4 Each Party shall draw the attention of all other Parties to any activity which in its opinion affects the implementation of the objectives and principles of this Protocol .
- 5 The Antarctic Treaty Consultative Meetings shall draw the attention of any State which is not a Party to this Protocol to any activity undertaken by that State, its agencies, instrumentalities, natural or juridical persons, ships, aircraft or other means of transport which affects the implementation of the objectives and principles of this Protocol.

Article 14

Inspection

□ 1 In order to promote the protection of the Antarctic environment and dependent and associated ecosystems, and to ensure compliance with this Protocol, the Antarctic Treaty Consultative Parties shall arrange, individually or collectively, for inspections by observers to be made in accordance with Article VII of the Antarctic Treaty.

2 Observers are:

□ (a) observers designated by any Antarctic Treaty Consultative Party who shall be nationals of that Party; and

(b) any observers designated at Antarctic Treaty Consultative Meetings to carry out inspections under procedures to be established by an Antarctic Treaty Consultative Meeting.

3 Parties shall co-operate fully with observers undertaking inspections, and shall ensure that during inspections, observers are given access to all parts of stations, installations, equipment, ships and aircraft open to inspection under Article VII (3) of the Antarctic Treaty, as well as to all records maintained thereon which are called for pursuant to this Protocol.

4 Reports of inspections shall be sent to the Parties whose stations, installations, equipment, ships or aircraft are covered by the reports. After those Parties have been given the opportunity to comment, the reports and any comments thereon shall be circulated to all the Parties and to the Committee, considered at Antarctic Treaty Consultative Meeting, and thereafter made publicly available.

Article 16

Liability

Consistent with the objectives of this Protocol for the comprehensive protection of the Antarctic environment and dependent and associated ecosystems, the Parties undertake to elaborate rules and procedures relating to liability for damage arising from activities taking place in the Antarctic Treaty area and covered by this Protocol. Those rules and procedures shall be included in one or more Annexes to be adopted in accordance with Article 9 (2).

Article 17

Annual Report by Parties

□ 1 Each Party shall report annually on the steps taken to implement this Protocol. Such reports shall include notifications made in accordance with Article 13 (3), contingency plans established in accordance with Article 15 and any other notifications and information called for pursuant to this Protocol for which there is no other provision concerning the circulation and exchange of information.

2 Reports made in accordance with paragraph 1 above shall be circulated to all Parties and to the Committee, considered at the next Antarctic Treaty Consultative Meeting, and made publicly available.

ANNEX V

TO THE PROTOCOL ON ENVIRONMENTAL PROTECTION TO THE ANTARCTIC TREATY AREA PROTECTION AND MANAGEMENT

Article 1

Definitions

- For the purposes of this Annex:
 - (a) "appropriate authority" means any person or agency authorised by a Party to issue permits under this Annex;
 - (b) "permit" means a formal permission in writing issued by an appropriate authority;
 - (c) "Management Plan" means a plan to manage the activities and protect the special value or values in an Antarctic Specially Protected Area or an Antarctic Specially Managed Area.

Article 2

Objectives

For the purposes set out in this Annex, any area, including any marine area, may be designated as an Antarctic Specially Protected Area or an Antarctic Specially Managed Area. Activities in those Areas shall be prohibited, restricted or managed in accordance with Management Plans adopted under the provisions of this Annex.

Article 3

Antarctic Specially Protected Areas

- 1. Any area, including any marine area, may be designated as an Antarctic Specially Protected Area to protect outstanding environmental, scientific, historic, aesthetic or wilderness values, any combination of those values, or ongoing or planned scientific research.
- 2 Parties shall seek to identify, within a systematic environmental-geographical framework, and to include in the series of Antarctic Specially Protected Areas:
 - (a) areas kept inviolate from human interference so that future comparisons may be possible with localities that have been affected by human activities;
 - (b) representative examples of major terrestrial, including glacial and aquatic, ecosystems and marine ecosystems;
 - (c) areas with important or unusual assemblages of species, including major colonies of breeding native birds or mammals;
 - (d) the type locality or only known habitat of any species;
 - (e) areas of particular interest to on-going or planned scientific research;
 - (f) examples of outstanding geological, glaciological or geomorphological features;
 - (g) areas of outstanding aesthetic and wilderness value;
 - (h) sites or monuments or recognised historic value; and
 - (i) such other areas as may be appropriate to protect the values set out in paragraph 1 above.
- 3 Specially Protected Areas and Sites of Special Scientific Interest designated as such by past Antarctic Treaty Consultative Meetings are hereby designated as Antarctic Specially Protected Areas and shall be renamed and renumbered accordingly.
- 4 Entry into an Antarctic Specially Protected Area shall be prohibited except in accordance with a permit issued under Article 7.

Article 4

Antarctic Specially Managed Areas

□ 1 Any area, including any marine area, where activities are being conducted or may in the future be conducted, may be designated as an Antarctic Specially Managed Area to assist in the planning and co-ordination of activities, avoid possible conflicts, improve co-operation between Parties or minimise environmental impacts.

2 Antarctic Specially Managed Areas may include:

- (a) areas where activities pose risks of mutual interference or cumulative environmental impacts; and
- (b) sites or monuments of recognised historic value.

3 Entry into an Antarctic Specially Managed Area shall not require a permit.

4 Notwithstanding paragraph 3 above, an Antarctic Specially Managed Area may contain one or more Antarctic Specially Protected Areas, entry into which shall be prohibited except in accordance with a permit issued under Article 7.

Article 5

Management Plans

□ 1 Any Party, the Committee, the Scientific Committee for Antarctic Research or the Commission for the Conservation of Antarctic Marine Living Resources may propose an area for designation as an Antarctic Specially Protected Area or an Antarctic Specially Managed Area by submitting a proposed Management Plan to the Antarctic Treaty Consultative Meeting.

2 The area proposed for designation shall be of sufficient size to protect the values for which the special protection or management is required.

3 Proposed Management Plans shall include, as appropriate:

- (a) a description of the value or values for which special protection or management is required;
- (b) a statement of the aims and objectives of the Management Plan for the protection or management of those values;
- (c) management activities which are to be undertaken to protect the values for which special protection or management is required;
- (d) a period of designation, if any;
- (e) a description of the area, including:
 - (i) the geographical co-ordinates, boundary markers and natural features that delineate the area;
 - (ii) access to the area by land, sea or air including marine approaches and anchorages, pedestrian and vehicular routes within the area, and aircraft routes and landing areas;
 - (iii) the location of structures, including scientific stations, research or refuge facilities, both within the area and near to it; and
 - (iv) the location in or near the area of other Antarctic Specially Protected Areas or Antarctic Specially Managed Areas designated under this Annex, or other protected areas designated in accordance with measures adopted under other components of the Antarctic Treaty System;

(f) the identification of zones within the area, in which activities are to be prohibited, restricted or managed for the purpose of achieving the aims and objectives referred to in subparagraph b. above;

(g) maps and photographs that show clearly the boundary of the area in relation to surrounding features and key features within the area;

(h) supporting documentation;

(i) in respect of an area proposed for designation as an Antarctic Specially Protected Area, a clear description of the conditions under which permits may be granted by the appropriate authority regarding:

(i) access to and movement within or over the area;

(ii) activities which are or may be conducted within the area, including restrictions on time and place;

(iii) the installation, modification, or removal of structures;

(iv) the location of field camps;

(v) restrictions on materials and organisms which may be brought into the area;

(vi) the taking of or harmful interference with native flora and fauna;

(vii) the collection or removal of anything not brought into the area by the permit holder;

(viii) the disposal of waste;

(ix) measures that may be necessary to ensure that the aims and objectives of the Management Plan can continue to be met; and

(x) requirements for reports to be made to the appropriate authority regarding visits to the area;

(j) in respect of an area proposed for designation as an Antarctic Specially Managed Area, a code of conduct regarding:

(i) access to and movement within or over the area;

(ii) activities which are or may be conducted within the area, including restrictions on time and place;

(iii) the installation, modification, or removal of structures;

(iv) the location of field camps;

(v) the taking of or harmful interference with native flora and fauna;

(vi) the collection or removal of anything not brought into the area by the visitor;

(vii) the disposal of waste; and

(viii) any requirements for reports to be made to the appropriate authority regarding visits to the area; and

(k) provisions relating to the circumstances in which Parties should seek to exchange information in advance of activities which they propose to conduct.

Article 6

Designation Procedures

□ 1 Proposed Management Plans shall be forwarded to the Committee, the Scientific Committee on Antarctic Research and, as appropriate, to the Commission for the Conservation of Antarctic Marine Living Resources. In formulating its advice to the Antarctic Treaty Consultative Meeting, the Committee shall take into account any comments provided by the Scientific Committee on Antarctic Research and, as appropriate, by the Commission for the Conservation of Antarctic Marine Living Resources. Thereafter, Management Plans may be approved by the Antarctic Treaty Consultative Parties by a measure adopted at an Antarctic Treaty Consultative Meeting in accordance with Article IX(1) of the Antarctic Treaty. Unless the measure specifies otherwise, the Plan shall be deemed to have been approved 90 days after the close of the Antarctic Treaty Consultative Meeting at which it was adopted, unless one or more of the Consultative Parties notifies the Depositary, within that time period, that it wishes an extension of that period or is unable to approve the measure.

2 Having regard to the provisions of Articles 4 and 5 of the Protocol, no marine area shall be designated as an Antarctic Specially Protected Area or an Antarctic Specially Managed Area without the prior approval of the Commission for the Conservation of Antarctic Marine Living Resources.

3 Designation of an Antarctic Specially Protected Area or an Antarctic Specially Managed Area shall be for an indefinite period unless the Management Plan provides otherwise. A review of a Management Plan shall be initiated at least every five years. The Plan shall be updated as necessary.

4 Management Plans may be amended or revoked in accordance with paragraph 1 above.

5 Upon approval Management Plans shall be circulated promptly by the Depositary to all Parties. The Depositary shall maintain a record of all currently approved Management Plans.

Article 7

Permits

□ 1 Each Party shall appoint an appropriate authority to issue permits to enter and engage in activities within an Antarctic Specially Protected Area in accordance with the requirements of the Management Plan relating to that Area. The permit shall be accompanied by the relevant sections of the Management Plan and shall specify the extent and location of the Area, the authorised activities and when, where and by whom the activities are authorised and any other conditions imposed by the Management Plan.

2 In the case of a Specially Protected Area designated as such by past Antarctic Treaty Consultative Meeting which does not have a Management Plan, the appropriate authority may issue a permit for a compelling scientific purpose which cannot be served elsewhere and which will not jeopardise the natural ecological system in that Area.

3 Each Party shall require a permit-holder to carry a copy of the permit while in the Antarctic Specially Protected Area concerned.

Article 8

Historic Sites and Monuments

□ 1 Sites or monuments of recognised historic value which have been designated as Antarctic Specially Protected Areas or Antarctic Specially Managed Areas, or which are located within such Areas, shall be listed as Historic Sites and Monuments.

2 Any Party may propose a site or monument of recognised historic value which has not been designated as an Antarctic Specially Protected Area or an Antarctic Specially Managed Area, or

which is not located within such an Area, for listing as a Historic Site or Monument. The proposal for listing may be approved by the Antarctic Treaty Consultative Parties by a measure adopted at an Antarctic Treaty Consultative Meeting in accordance with Article IX(1) of the Antarctic Treaty. Unless the measure specifies otherwise, the proposal shall be deemed to have been approved 90 days after the close of the Antarctic Treaty Consultative Meeting at which it was adopted, unless one or more of the Consultative Parties notifies the Depositary, within that time period, that it wishes an extension of that period or is unable to approve the measure.

3 Existing Historic Sites and Monuments which have been listed as such by previous Antarctic Treaty Consultative Meetings shall be included in the list of Historic Sites and Monuments under this Article.

4 Listed Historic Sites and Monuments shall not be damaged, removed or destroyed.

5 The list of Historic Sites and Monuments may be amended in accordance with paragraph 2 above. The Depositary shall maintain a list of current Historic Sites and Monuments.

Article 9

Information and Publicity

1 With a view to ensuring that all persons visiting or proposing to visit Antarctica understand and observe the provisions of this Annex, each Party shall make available information setting forth, in particular:

(a) the location of Antarctic Specially Protected Areas and Antarctic Specially Managed Areas;

(b) listing and maps of those Areas;

(c) the Management Plans, including listings of prohibitions relevant to each Area;

(d) the location of Historic Sites and Monuments and any relevant prohibition or restriction.

2 Each Party shall ensure that the location and, if possible, the limits of Antarctic Specially Protected Areas, Antarctic Specially Managed Areas and Historic Sites and Monuments are shown on its topographic maps, hydrographic charts and in other relevant publications.

3 Parties shall co-operate to ensure that, where appropriate, the boundaries of Antarctic Specially Protected Areas, Antarctic Specially Managed Areas and Historic Sites and Monuments are suitably marked on the site.

Article 10

Exchange of Information

1 The Parties shall make arrangements for:

(a) collecting and exchanging records, including records of permits and reports of visits, including inspection visits, to Antarctic Specially Protected Areas and reports of inspection visits to Antarctic Specially Managed Areas;

(b) obtaining and exchanging information on any significant change or damage to any Antarctic Specially Managed Area, Antarctic Specially Protected Area or Historic Site or Monument; and

(c) establishing common forms in which records and information shall be submitted by Parties in accordance with paragraph 2 below.

2 Each Party shall inform the other Parties and the Committee before the end of November of each year of the number and nature of permits issued under this Annex in the preceding period of 1st July to 30th June.

3 Each Party conducting, funding or authorising research or other activities in Antarctic Specially Protected Areas or Antarctic Specially Managed Areas shall maintain a record of such activities and in the annual exchange of information in accordance with the Antarctic Treaty shall provide summary descriptions of the activities conducted by persons subject to its jurisdiction in such areas in the preceding year.

4 Each Party shall inform the other Parties and the Committee before the end of November each year of measures it has taken to implement this Annex, including any site inspections and any steps it has taken to address instances of activities in contravention of the provisions of the approved Management Plan for an Antarctic Specially Protected Area or Antarctic Specially Managed Area.