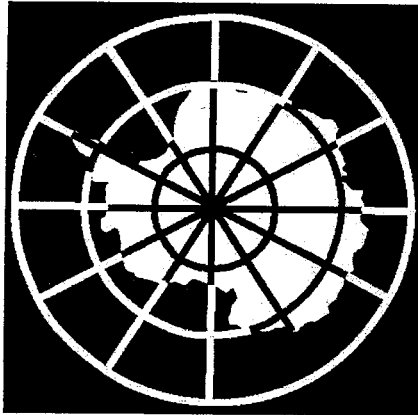


ANTARCTIC TREATY

Final Report of the Twenty-Fifth Antarctic Treaty Consultative Meeting

Warsaw, Poland, 10-20 September 2002



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Acronyms and Abbreviations

ASOC	Antarctic and Southern Ocean Coalition
ASMA	Antarctic Specially Managed Area
ASPA	Antarctic Specially Protected Area
ATS	Antarctic Treaty System
ATCM	Antarctic Treaty Consultative Meeting
CCAMLR	Convention for the Conservation of Antarctic Marine Living Resources
CCAS	Convention for the Conservation of Antarctic Seals
CEE	Comprehensive Environmental Evaluation
CEP	Committee for Environmental Protection
COMNAP	Council of Managers of National Antarctic Programmes
EIA	Environmental Impact Assessment
IAATO	International Association of Antarctic Tour Operators
ICG	Intersessional Contact Group
IEE	Initial Environmental Evaluation
IHO	International Hydrographic Organisation
IMO	International Maritime Organisation
IOC	Intergovernmental Oceanographic Commission
IP	Information Paper
IUCN	World Conservation Union
SATCM	Special Antarctic Treaty Consultative Meeting
SCAR	Scientific Committee on Antarctic Research
SPA	Specially Protected Area
SSSI	Site of Special Scientific Interest
UNEP	United Nations Environmental Programme
WGI/II	Working Group I/II
WMO	World Meteorological Organisation
WP	Working Paper
WTO	World Tourism Organisation
WWF	World Wildlife Fund

PART I

Final Report of XXV ATCM

**Final Report
of the XXV Antarctic Treaty Consultative Meeting
Warsaw, Poland, 10-20 September, 2000**

(1) Pursuant to Article IX of the Antarctic Treaty, Representatives of the Consultative Parties (Argentina, Australia, Belgium, Brazil, Bulgaria, Chile, China, Ecuador, Finland, France, Germany, India, Italy, Japan, the Republic of Korea, the Netherlands, New Zealand, Norway, Peru, Poland, the Russian Federation, South Africa, Spain, Sweden, the United Kingdom of Great Britain and Northern Ireland, the United States of America and Uruguay) met in Warsaw from September 10-20, 2002 for the purpose of exchanging information, holding consultations, and considering and recommending to their governments measures in furtherance of the principles and objectives of the Treaty.

(2) The Meeting was also attended by Delegations of the following Contracting Parties to the Antarctic Treaty which are not Consultative Parties: Austria, Canada, Cuba, the Czech Republic, Denmark, Estonia, Greece, Hungary, Democratic People's Republic of Korea, Romania, Slovakia, Switzerland, Ukraine, Venezuela. A representative of Malaysia was present by invitation of the XXV Antarctic Treaty Consultative Meeting to observe the Meeting.

(3) A Preparatory Meeting with Embassy representatives was held in Warsaw on July 3, 2002. The information requirements of the Host Country towards the Contracting Parties, Observers and Experts were fulfilled by Circular Notes, letters and through a website with an open as well as a password-protected area.

(4) In accordance with the Rules of Procedure, Observers and Experts from the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), the Scientific Committee on Antarctic Research (SCAR), the Council of Managers of National Antarctic Programs (COMNAP), the Antarctic and Southern Ocean Coalition (ASOC), the International Association of Antarctica Tourist Operators (IAATO), the International Union for the Conservation of Nature (IUCN), the United Nations Environment Program (UNEP), the World Meteorological Organization (WMO) and the World Tourism Organization (WTO) having a technical or scientific interest in Antarctica were invited to the Meeting.

(5) The Meeting noted that the "Question of Antarctica" will be discussed at the current session of the UN General Assembly. The US delegation circulated a draft text of the Antarctic Treaty Parties statement to be finalized by Missions in New York. The Meeting agreed that Poland, as the host country of the XXV ATCM, should present the statement to the UN General Assembly.

Item 1: Opening of the Meeting

(6) Mr. Sławomir Dąbrowa, Deputy Minister of Foreign Affairs of the Republic of Poland, opened the Meeting and delivered the inaugural speech.

A greeting message from the Prime Minister of the Republic of Poland, Mr. Leszek Miller, to the XXV Antarctic Treaty Consultative Meeting, was delivered by the Secretary of State at the Chancellery of the Prime Minister, Mr. Tadeusz Iwiński.

Following the previous practice no other opening statements were delivered. They were provided in written form for inclusion in the Final Report and are reproduced along with the above mentioned speeches at Annex D.

Item 2: Election of Officers

(7) Mr. Sławomir Dąbrowa was elected Chairman of the Meeting. Ambassador Ryszard Sarkowicz was appointed Executive Secretary and Mr. Stanisław Czartoryski was appointed Deputy Executive Secretary.

Four Working Groups were established (Secretariat WG, Liability WG, Legal & Institutional Matters WG, Operational Matters WG) and, at the suggestion of Poland as a Host, the Meeting elected:

- (a) Prof. Francesco Francioni of Italy as Chairman of the Secretariat WG;
- (b) Ambassador Don MacKay of New Zealand as Chairman of the Liability WG;
- (c) Mr. Jan Huber of the Netherlands as Chairman of the Legal & Institutional Matters WG;
- (d) Ambassador José Manuel Ovalle of Chile as Chairman of the Operational Matters WG.

Item 3: Adoption of the Agenda

(8) The following Agenda was adopted, with a caveat regarding item 7 (see section 10):

- 1) Opening of the Meeting.
- 2) Election of Officers.
- 3) Adoption of the Agenda.
- 4) Operation of the Antarctic Treaty System:
 - a) General Matters;
 - b) Antarctic Treaty Secretariat.
- 5) Operation of the Antarctic Treaty System, Reports by Observers and Experts:
 - a) Reports under Recommendation XII - 2;
 - b) Reports in relation to Article III (2) of the Antarctic Treaty.
- 6) Report of the Committee for Environmental Protection.
- 7) Cooperation among Parties with respect to Article 6 of the Protocol.
- 8) The Question of Liability as referred to in Article 16 of the Protocol.
- 9) Safety of Operations in Antarctica.
- 10) Relevance of Developments in the Arctic and the Antarctic.
- 11) Tourism and Non-Governmental Activities in the Antarctic Treaty Area.
- 12) Inspections under the Antarctic Treaty.
- 13) Science Issues, particularly Scientific Cooperation and Facilitation.
- 14) Operational Issues.
- 15) Education Issues.
- 16) Exchange of Information.
- 17) Preparation of the XXVI Meeting.
- 18) Other Business.
- 19) Adoption of the Final Report.
- 20) Closing of the Meeting.

(9) The Meeting adopted the following allocation of agenda items:

- Plenary: Items 1, 2, 3, 5 (a), 5 (b), 6, 17, 18, 19, 20;
- Secretariat WG: Item 4 (b);
- Liability WG: Item 8;
- Legal & Institutional Matters WG: Items 4 (a), 11;
- Operational Matters WG: Items 9, 10, 11, 12, 13, 14, 15, 16.

- (10) The Meeting decided to remove Item 7 from the ATCM Agenda and include it in the CEP Agenda.
- (11) The Meeting accepted the proposed schedule subject to the adoption of a schedule for the second week, to be applied in a flexible manner.
- (12) During the Conference the Chairman organized two meetings with the working groups' chairmen to arrange ongoing work in the most effective and flexible manner.
- (13) On September 11, the meeting started with a short address by the representative of the United States. A moment of silence commemorated the victims of the terrorist attacks.

Item 4: Operation of the Antarctic Treaty System

4a) General matters

- (14) The United Kingdom presented Working Paper (XXV ATCM/WP5), proposing the formal adoption of an Emblem for the Antarctic Treaty and its Secretariat. The United Kingdom noted that this could meet the objective of Article 7 of the draft Headquarters Agreement for the Secretariat.
- (15) The Meeting thanked the United Kingdom for its initiative and adopted Decision 2 (2002) (Annex B).
- (16) The United Kingdom introduced Working Paper (XXV ATCM/WP20) proposing a mechanism to improve the decision making process under Article IX of the Antarctic Treaty.
- (17) The United Kingdom noted the low rate of approval of Recommendations and, since 1995, Measures. Since the Treaty came into force, only 58% had been approved and thus became effective. The United Kingdom also noted that the most recent ATCM from which all Recommendations had entered into force was ATCM XI, held in 1981. Since then the only Recommendation to have entered into force is Recommendation XVI-10 (covering Annex V to the Protocol), 11 years after its adoption. The United Kingdom therefore proposed a Decision to introduce a tacit approval mechanism for Measures adopted under Article IX of the Treaty, similar to the mechanism contained in several articles of the Environmental Protocol.
- (18) The Meeting thanked the United Kingdom for its paper, and expressed its concern over the poor rate of approval of Measures taken under Article IX of the Treaty. On this basis some Delegations expressed support for the United Kingdom initiative, while others suggested that the proposed mechanism presented difficulties in respect of domestic law making and consistency with Treaty practice. They noted that Measures will be legally binding and therefore require deliberate approval.
- (19) Some Delegations suggested that the proposed tacit approval process could be used in certain cases, but not routinely for all Measures.
- (20) Recognizing the importance of the issue, the Meeting agreed that the matter should be discussed informally during the intersessional period and further considered at ATCM XXVI. The Meeting also urged all Parties to redouble their efforts to approve Measures quickly.
- (21) Australia presented a Working Paper (XXV ATCM/WP30) prepared jointly with the Netherlands on a comprehensive review of recommendations passed by ATCMs I-XVIII. The contact group established during this session had started the work of reviewing the recommendations on the basis of the analysis referred to in the Working Paper, which was prepared by Australia in the intersessional period, and a database with the text of the recommendations set up by the Netherlands. This preparatory work had allowed easy identification of recommendations that appeared to be either spent, obsolete, or superseded by subsequent recommendations.
- (22) The Meeting thanked Australia and the Netherlands for the comprehensive assessment they had undertaken and recognized the value of the database for the storage and analysis of the

recommendations. Delegations expressed support for the aims of the exercise but noted that caution was required to ensure that there were no unintended consequences, particularly in regard to measures that were considered to have been superseded by subsequent measures. Parties were urged to undertake a detailed evaluation of the recommendations identified in the Working Paper as being superseded to determine if they agreed with the assessment. A number of Delegations agreed to consult intersessionally about this topic. Parties wishing to be involved in these consultations should contact by email warren.papworth@aad.gov.au. The Netherlands offered to continue with the development of the recommendations' database as a contribution to the establishment of the Antarctic Treaty Secretariat. Parties interested in providing comment on the databases development should email jan.huber@minbuza.nl

(23) Recognizing that taking action to identify past recommendations that were spent would help to improve the efficiency of the Antarctic Treaty System, the Meeting adopted Decision 3 (2002) (Annex B).

(24) Germany introduced Working Paper (XXV ATCM/WP11) on the results of the Intersessional Contact Group (ICG) that had been tasked with reviewing the structure and working practices of the ATCM.

(25) The proposals presented in the Working Paper were discussed. The main points of the discussion related to the length of the ATCM Meetings, intervals between them, the location of the Meetings as well as the questions concerning the costs of preparing for the Meetings. Delegations noted that much of the preparatory work for future ATCMs would shift to the Antarctic Treaty Secretariat after its establishment.

(26) The Meeting congratulated Germany for its efforts and encouraged it to continue intersessional work on the issue. In particular, the Meeting endorsed the following recommendations:

- 1) longer-term planning of the items of the agenda, including discussion of elements on the agenda of the ATCM at the preceding Consultative Meeting;
- 2) at the end of each ATCM consultation between the host government (which according to Rule 35 of the Rules of Procedure prepares the Preliminary Agenda for the next meeting) and the host government of the next meeting concerning a detailed preliminary agenda for the next ATCM;
- 3) preparation at an early stage of the subject matter of the agendas, the setting up of working groups to deal with various topics and the division of agenda items among the working groups; the host government to request advice from parties on these matters 180 days prior to the start of the ATCM, when according to Rule 36 all supplementary items should have been received;
- 4) increased use of modern means of communication.

(27) Australia introduced Information Paper (XXV ATCM/IP109) containing a draft proposal on the establishment of a Standing Committee on the Antarctic Treaty Secretariat. The proposed role of the Standing Committee would be to provide direction to the Antarctic Treaty Secretariat during the intersessional period, particularly in regard to any unforeseen financial and legal issues. The document contained proposals on the status, managing procedures and competences of the Committee and its Chair.

(28) Several Delegations expressed their interest in the idea of establishing a Standing Committee on the Antarctic Treaty Secretariat. They noted the necessity of setting up a mechanism to oversee the work of ATCM in intersessional periods. Some Delegations declared their readiness to discuss the issue further in order to define the role of such a Committee.

(29) Others felt discussion of the issue was premature. The establishment of such an intersessional group was considered by one Delegation to be a major change in the way the ATCM operated. In

addition, some Delegations questioned whether a permanent Standing Committee would be an appropriate mechanism. They felt that, although a Standing Committee would be a useful mechanism during the ATCM, in intersessional periods only its Chairman should perform the role of facilitator of any urgent exchanges required between the Secretariat and the ATCPs.

(30) The Meeting agreed to return to this issue at ATCM XXVI.

(31) Norway presented Working Paper (XXV ATCM/WP45) by Argentina, Norway and Peru, containing a revision of the Guidelines regarding preessional document circulation and handling.

(32) Delegates welcomed the paper and discussed issues related to the translation of documents and electronic means of document transmission. The Meeting agreed to append the revised Guidelines to this report as Appendix 1.

(33) Chile introduced Working Paper (XXV ATCM/WP32) on the inquiry procedure of Article 18 of the Environment Protocol. The Meeting welcomed the document as a valuable contribution to a better understanding and interpretation of Article 3 of the Protocol. It was agreed to refer the issue to further intersessional discussions between the interested Parties.

4b) Antarctic Treaty Secretariat

(34) The Meeting recalled Decision 1 (2001), adopted in St. Petersburg, and examined XXV ATCM/WP 044 containing the report of the informal meeting held in Buenos Aires at the invitation of Argentina.

(35) The Meeting considered that paper to be a useful basis on which to organize its agenda and agreed that, given the limited amount of time available for discussion, it should concentrate first on legal and political issues and then technical and operational aspects relating to staff and financial regulations. In consequence the Meeting agreed a number of points to be considered:

- a) the constitutive instruments for the establishment of the Secretariat;
- b) the Secretariat's functions;
- c) the legal capacity of the Secretariat and the role of the ATCM in directing and supervising the Secretariat;
- d) the budget;
- e) privileges and immunities;
- f) cost-sharing.

(36) On the first point, no objection was raised in the Meeting to a two-step procedure establishment of the Secretariat, while one delegation expressed its reservation and intention to revisit this issue if necessary. This would involve the adoption of a Measure setting forth the legal framework and the financial arrangement for the operation of the Secretariat and a Decision enabling the provisional functioning of the Secretariat pending the entry into force of the Measure.

(37) The Meeting established an informal contact group convened by France to elaborate the content of the constitutive instruments, especially a draft Measure and a draft Decision. It was agreed that such instruments should be elaborated and adopted as a package together with the Headquarters Agreement.

(38) The Executive Secretary of CCAMLR gave a presentation on financial regulations and practices relating to the CCAMLR Secretariat. A general view was that some modifications were needed in order to take into account the different circumstances of the AT Secretariat.

(39) On privileges and immunities of the Secretariat it was agreed that, pending the entry into force of the Headquarters Agreement, Argentina would provide for privileges and immunities in domestic law.

(40) Following extensive discussion on the elements of the constitutive instruments, consensus emerged on the following:

- a) the Secretariat should be constituted and should operate as an organ of the ATCM;
- b) the Secretariat should perform a well-defined set of functions under the supervision of the ATCM;
- c) the Secretariat should enjoy legal capacity under Argentine domestic law;
- d) legal capacity and privileges and immunities of the Executive Secretary and other Staff should be regulated in a Headquarters Agreement to be adopted in conjunction with the constitutive instrument of the Secretariat;
- e) the Headquarters Agreement should be concluded between the ATCM and the Argentine Republic.¹

(41) On cost-sharing many Delegations expressed the view that a clear mechanism of fiscal apportionment be included in the constitutive instrument. Other Delegations considered that such mechanism could be decided by the ATCM at a later stage. A number of delegations advocated a system of equal shares and expressed the view that the approach outlined in the report of the ATCM held in Venice in 1992, constituted a consensus. This involved a system of equal shares for three years after which the ATCM would consider an alternative mechanism of equitable sharing. This approach was still valid and provided the most viable basis for consensus. Other Delegations maintained that the Venice approach had been superseded and that in any event it did not guarantee that an equitable solution to cost sharing could be reached. Those Delegations expressed the view that a fresh approach was needed based on financial capacity and equitable apportionment of financial contributions. A third group of Delegations was prepared to show flexibility between these two positions.

(42) After extensive discussion on cost-sharing the Meeting agreed that all Parties must contribute to the budget of the Secretariat and that further consultations were needed in order to find agreement on a cost-sharing mechanism.

(43) Most Delegations were supportive of continuing discussions on outstanding issues during the intersessional period and indicated their willingness to attend an informal meeting for this purpose. The Meeting welcomed advice from Argentina that it was considering the possibility of hosting further informal consultations in Buenos Aires in early 2003. Issues that usefully could be examined in intersessional work were identified as:

1. Budget;
2. Staff composition;
3. Cost sharing;
4. Financial Regulations;
5. Staff Regulations.

Australia and Argentina offered to coordinate intersessional consultations with other parties over the last two issues in advance of any informal meeting.

Item 5: Operation of the Antarctic Treaty System, Reports by Observers and Experts

5a) Reports under Recommendation XIII-2

(44) Pursuant to Recommendation XII - 2, the Meeting received reports from:

- i) The United States Government as the Depository Government of the Antarctic Treaty;
- ii) The Australian Government as the Depository Government of the Convention on the Conservation of the Antarctic Marine Living Resources (CCAMLR);
- iii) The United Kingdom Government as the Depository Government of the Convention for the Conservation of Antarctic Seals;
- iv) The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR);
- v) The Scientific Committee on Antarctic Research (SCAR);
- vi) The Council of Managers of National Antarctic Programs (COMNAP).

These reports are reproduced in Annex F.

(45) The United States noted that on April 24, 2002 Annex 5 of the Protocol on Environmental Protection entered into force. Furthermore, the United States informed the Meeting that the updated version of the Antarctic Treaty handbook is available and reminded the Meeting of the need to appoint new arbitrators under Art. 2 of the Schedule to the Protocol for another five-year term as the 1998 appointments will expire in 2003.

(46) CCAMLR brought to the attention of the Meeting the problem of illegal, unreported and unregulated fishing in the Antarctic, particularly as toothfish catches are concerned. The need to improve catch document schemes was stressed.

(47) In response the United Kingdom stressed the seriousness of the problem of IUU fishing of toothfish in the Southern Ocean, and reminded the Meeting of the Resolutions adopted by ATCM XII and ATCM XXIV in support of CCAMLR. Antarctic Treaty Parties, which had yet to implement these Resolutions, were urged to do so without delay. Australia, Chile and Spain endorsed this position. In addition Australia tabled a draft Resolution as a means further to strengthening the resolve of the ATCM in its support of CCAMLR. The Meeting adopted the proposal by Australia.

(48) SCAR agreed to present a special report on its scientific activities at the next ATCM.

5b) Reports in relation to Article III (2) of the Antarctic Treaty

(49) In accordance with Rule 30 of the ATCM Rules of Procedure reports were presented by IAATO, ASOC and IUCN.

(50) The United Kingdom in commenting on the IAATO Report drew attention to the recently adopted bylaws of the Association. The intent of these was to widen the membership of IAATO and so bring more tour operators under IAATO's management regime. This move was to be welcomed.

(51) ASOC identified the two activities that in their view are posing risk of greatest harm to the Antarctic Environment, as the increase of tourism and IUU fishing activities in the region.

(52) IUCN underlined the importance of a proper link between sustainable development, international trade and ecosystems management.

These reports are reproduced in Annex G

Item 6: Report of the Committee for Environmental Protection

(53) The Chairman of the Committee for Environmental Protection Dr. Olav Orheim (Norway) presented the Report of the CEP V. It is reproduced at Annex E.

(54) The Chairman of the Committee noted that CEP V had considered 28 Working Papers and 57 Information Papers.

(55) The Meeting was informed about the result of election of the new Chairman of the CEP.

(56) The ATCM thanked Dr. Olav Orheim for his excellent work and congratulated him as to how effectively he had chaired the Committee. The Meeting agreed that under Dr. Orheim's expert leadership and guidance the CEP had become an important and vital part of the Antarctic Treaty System. The Meeting warmly congratulated Dr. Tony Press from Australia on his election as the new Chair of the CEP.

(57) Referring to paragraphs 4 and 5 of the CEP Report, the Meeting welcomed the efforts Romania and the Czech Republic were taking to ratify the Environmental Protocol. The Meeting urged other Non-Consultative Parties to follow this excellent example.

(58) The Chairman of the Committee noted that CEP V had considered a draft Comprehensive Environmental Evaluation (CEE) submitted by the Russian Federation, concerning deep ice drilling methods and water sampling of the subglacial Lake Vostok. The Russian Federation indicated they would be revising this document. The revised document would be referred to an intersessional group for further consideration and would be discussed at CEP VI.

(59) The Chairman also informed the Meeting that the CEP had been advised of two other draft CEEs that would be transmitted prior to CEP VI. The Czech Republic had notified that it would submit a draft CEE regarding the Czech Summer Research Station planned for Brandy Bay, James Ross Island. New Zealand had notified the CEP that it would submit a draft CEE for the ANDRILL project.

(60) The Meeting noted that COMNAP had recommended that Parties be encouraged to make IEE documents available through appropriate websites. The Meeting considered that Parties should link such websites to the ATCM website (under development by Argentina) so that documents could be made more easily available.

(61) Referring to paragraphs 39-50 of the CEP Report, the Chairman of the CEP noted the need for cooperation with SCAR, CCAMLR, CCAS and possibly other organizations on designating Specially Protected Species.

(62) The Meeting welcomed the CEP's advice that SCAR in conjunction with IUCN be requested to undertake a review of Specially Protected Species using the IUCN Red List criteria. The Meeting noted SCAR's agreement to this request and looked forward to seeing their analysis.

(63) On the advice of the Committee, the Meeting adopted Resolution 1 (2002): Review of Conservation Status of Antarctic Species contained in Appendix 2 of the CEP Report.

(64) The Meeting noted the CEP Advice to the XXV ATCM regarding Specially Protected Species contained in Appendix 1 of the CEP Report, and agreed to a proposal by the United Kingdom to broaden the scope of the text to include consideration of special protection of species in the marine environment.

(65) On this basis the ATCM agreed:

"To take early steps to seek the agreement of CCAMLR, CCAS and, where appropriate, other organizations, to establish cooperative working relationships (with those organizations) to seek a common approach as to how special protection for species in the marine environment could be achieved and how proposals under the Protocol for designating Specially Protected Species in the Antarctic marine environment could be addressed".

(66) The Meeting requested Italy as the current Chair of CCAMLR to submit the above text to the next Meeting of the Commission.

(67) Summarizing the results of the work of CEP V, the Committee's Chairman noted that the CEP had started revision of Annex II to the Environmental Protocol. The Meeting welcomed this initiative and asked CEP to discuss at CEP VI a review of other Annexes with a view to identifying priorities and a timetable and to provide information on this issue to XXVI ATCM.

(68) Referring to paragraphs 58-61 of the Report, the ATCM agreed with the CEP that biological prospecting was a very important matter. The Meeting agreed that biological prospecting also raised legal and political issues, as well as environmental issues. In this respect the Meeting urged Parties to be prepared to consider these matters at XXVI ATCM.

(69) The ATCM endorsed the views of the CEP regarding the entry into force of Annex V of the Environmental Protocol and urged Parties to examine the issues raised in Annex 3 of the CEP Report and to take action as appropriate.

(70) The Meeting adopted Measure 1 (2002) regarding thirteen Management Plans for Antarctic Specially Protected Areas contained in Appendix 4 of the CEP Report and took note that another nine revised or new management plans would be further considered by intersessional groups in advance of CEP VI.

(71) With regard to the forwarding of draft management plans to CCAMLR in accordance with Article 6(2) of Annex V, the Parties recalled Decision 4 (1998) on Marine Protected Areas.

(72) The Meeting, noting the advice in Appendix 5 of the CEP Report, agreed, on an interim basis, to the following:

When a draft management plan for a proposed or existing Antarctic Specially Protected Area with a marine component, as defined by Decision 4 (1998), is submitted to the CEP, the proponent should at the same time submit the draft plan to CCAMLR through its Executive Secretary.

The proponent in submitting the plan to CCAMLR may wish to provide additional information as to the implications of the management plan for CCAMLR-related activities, though it is recognized that CCAMLR will make its own judgment on this matter.

The CEP Chair should also submit to CCAMLR any additional information on how the CEP process will be conducted.

(73) Some Delegations drew attention to the large number of Working and Information Papers being dealt with by the CEP and suggested that the ATCM should consider how the increasing workload of the CEP should be handled.

(74) On the basis of the resolution recommended by the CEP, the Meeting adopted Decision 3 (2002) on the Naming and Numbering System for Antarctic Specially Protected Areas (Annex B) and Resolution 2 (2002) on the Revision of Antarctic Specially Protected Area Management Plans (Annex C). The Meeting expressed its appreciation and thanks to the CEP and its Chairman for the Report, and approved the draft preliminary agenda for CEP VI.

Item 7: Cooperation among Parties with respect to Article 6 of the Protocol

(75) As mentioned above (see section 10), the Meeting decided to remove this item from the ATCM Agenda and include it in the CEP Agenda.

(76) The Meeting adopted the Decision 1 (2002) "Naming and Numbering System for Antarctic Specially Protected Areas" and Resolution 2 (2002) "Revision of Antarctic Specially Protected Area Management Plans" - both are reproduced in Annex B and Annex C respectively.

Item 8: The Question of Liability as referred to in Article 16 of the Protocol

(77) The meeting of the Working Group on Liability was chaired by Ambassador Don MacKay (New Zealand). The Chair referred to his letter to delegates of 12 July 2002 and revised personal draft attached thereto (XXV ATCM/WP14). The Chair introduced the text of his revised draft annex noting:

- a Preamble had been included;
- further work was needed on Article 1 on the Scope of the Annex;
- The definitions of “environmental emergency”, “reasonable” and response action in Article 2 were now well developed, while the definition of “operator” required further work;
- Article 3 on Preventative measures and Article 4 on Contingency Plans were now well developed;
- Article 5 on Response Action was close to conclusion including addition of the concept of joint and several liability;
- With the exception of the third paragraph, about which there remain fundamental differences of view, Article 6 on Liability was now well developed;
- Article 7 on Actions for Compensation had been substantially redrafted to reflect views expressed by delegations in St Petersburg. Further discussion was needed, including on the question of when jurisdiction should be conferred on a State;
- Article 8 on Exemptions from Liability now included an exemption for States taking reasonable response action;
- Article 9 on Limits on Compensation required extensive discussion including consideration of work on worst-case scenarios done by COMNAP, SCAR, ASOC and IAATO;
- The concise statements in Article 10 on State Liability and Article 11 on Insurance may be sufficient;
- Further discussion was required on Article 12 on the Environmental Protection Fund;
- Article 13 on Amendment or Modification would be referred to a small group.

(78) On that basis, the Chair proposed that the Working Group address: Scope, the definition of operator and associated jurisdictional issues, actions for compensation/disputes, limits on compensation and insurance, the Environmental Protection Fund, and amendment or modification. Discussion on Article 6(3) and other articles would be deferred.

(79) France then introduced Working Paper (XXV ATCM/WP1) on a “Contribution to the Preparation of a Draft Annex on Liability for Pollution, in the Framework of the Protocol on Environmental Protection in Antarctica” drawing attention to elements covering the primary liability of the operator, the need for emergency actions to include minimal measures to repair damage as well as the necessity to guarantee, in the framework of the Environmental Protection Fund, adequate financing of response actions.

(80) ASOC also introduced Information Paper (XXV ATCM/IP77) providing detailed comments on the Chairman’s Draft Annex.

(81) It was noted that the United States’ proposal for a liability annex remained on the table (XXIV ATCM/WP17).

(82) The group had an initial discussion of Article 1 (Scope) of the Chair’s draft which was subsequently referred to a small group. In this initial discussion, some delegations expressed the

view that the Annex, in keeping with jurisdictional references in the Protocol, should apply only to activities covered by the Protocol for which advance notice was required under Article VII(5) of the Antarctic Treaty. Other delegations considered the Annex should not be restricted in this way and should apply to all activities covered by the Protocol.

(83) In relation to Articles 9 and 11 of the Chair's draft, COMNAP introduced Working Paper (XXV ATCM/WP27) "an Assessment of Environmental Incidents arising from Activities in Antarctica" and Working Paper (XXV ATCM/WP25) on "'Worst Case Scenarios" and 'Less than Worst Case' Environmental Scenarios". In respect of the former, the Executive Secretary of COMNAP noted that fuel spills constitute the majority of incidents recorded by COMNAP. COMNAP also offered the opinion that the 'worst case scenario' in terms of an environmental emergency in the marine area was the break up of a vessel leading to the discharge of fuel in a protected coastal area where dispersal was inhibited. In determining the environmental impact of a fuel spill, location was more important than the volume of fuel discharged.

(84) ASOC also introduced Information Paper (XXV ATCM/IP 81) on "Worst Case Scenarios" which provided comments on the COMNAP Working Paper (XXV ATCM/WP 25).

(85) Chile introduced Information Paper (XXV ATCM/IP77) on an *Introduction to the issue of insurance in Annex IV to the Protocol on Environmental Protection (Liability/Response Measures)* noting the need for a mechanism of ensuring compulsory financial responsibility on the part of operators, and compulsory insurance to guarantee payments for damage.

(86) The Chair noted his intention to invite a representative of the insurance industry to address the group at its meeting the following year in Madrid.

(87) New Zealand informally circulated for reference copies of (XXIV ATCM/IP82) "Questions on insurance and limitation of liability under the Annex on Response Measures" written by Belgium and Sweden and a non-paper "Annex on Liability to the Environmental Protocol: Questions Related to Insurance" from Norway.

(88) Small groups were established to consider Article 1 on Scope (convened by Maria Teresa Infante of Chile), the definition of "operator" in Article 2 (convened by Richard Rowe of Australia) and Article 7 on Actions for Compensation (convened by Francois Alabrune of France). New Zealand informally circulated for reference copies of (XXIV ATCM/WP38) "Liability: Informal Contact Group Work on 'Response Action', 'Preventive Measures', 'Operator and Jurisdictional Issues' and 'Dependent and Associated Ecosystems'".

(89) The Convenors of the sub-groups introduced the product of their groups' work. For the purposes of record, the papers produced by the three groups were attached to "Liability: Informal Contact Group Work On "Operator", Scope, and Actions For Compensation" (XXV ATCM/WP50) circulated by New Zealand.

(90) In the Working Group's discussion on Article 1 (Scope), some delegations suggested that the reference to Article VII(5) of the Antarctic Treaty be elaborated to more fully reflect the language of the chapeau of Article 15(1)(a) of the Protocol. It was noted that this reference would exclude pollution from vessels in transit and fishing vessels. The Chair asked delegations to consider for the next meeting whether they would wish to expand the reference so as to include vessels of either category.

(91) The convenor of the group on the definition of "operator" made the point that the definition partially depended on the outcome of the work on the Scope of the Annex. When opened for discussion, no issues were raised regarding the text provided by the group.

(92) The convenor of the group on Article 7 (Actions for Compensation) reported that good progress had been made on these issues but because of their legal complexity further time would be needed to

consider them at the next meeting. He submitted a text which, although not agreed, would provide a good basis for future discussion by identifying some of the issues involved.

(93) Several delegations noted that there are a number of practical questions that need to be addressed, including who is going to determine if prompt and effective response action was possible; who is going to determine how much is to be paid to the Fund; who is going to enforce judgements against a non-state operator; and whether the Fund will have the right to appear in court. It was also noted that state to state arbitration is unlikely to provide a practical way to ensure that payments are made to the Fund, and thus that other approaches need to be developed.

(94) Summing up, the Chairman said that although the meeting on liability had been abbreviated there had been very useful discussion on a number of issues. There had been good progress on the definition of "operator" which was now well developed, and also on Scope. There had also been very useful discussion of the highly legally complex issues in Article 7 on which more time would be required. He expressed his appreciation to the convenors of the contact groups and to those who had participated in them.

(95) Regarding future work, the Chairman said that Mr Francois Alabrune, the convenor of the contact group on Article 7, had agreed to receive comments and suggestions by email during the intersessional period. He requested Delegations email material to Mr Alabrune also to email it to other liability contacts. Mr Rene Lefeber also agreed to maintain email contact with Delegations regarding some of the practical issues raised by his Delegation and others (referred to above). Colleagues contacting Mr Lefeber by email were also asked to copy their emails to other liability contacts. A list for this purpose was compiled and circulated by New Zealand. The Chair also invited delegations to contact him direct on liability issues.

(96) The Chair said that he would update his personal text of a Draft Annex on Environmental Liability and would circulate that in advance of the Madrid meeting. As his personal text it was clearly in no way binding on delegations. Endeavours would be made to hold the liability discussion during the first week of the Madrid meeting to provide sufficient time for discussion, and to allow informal follow up discussion between delegations during the second week of that meeting.

Item 9: Safety of Operations in Antarctica

(97) The United Kingdom introduced Working Paper (XXV ATCM/WP41) on the issue of Antarctic Shipping Guidelines. The United Kingdom noted its support for such guidelines as a means for establishing common minimum standards for vessels operating in Antarctic waters. The United Kingdom also recalled the discussions at ATCM XXIV during which several Delegations stated a preference for using the Arctic shipping guidelines currently being developed by the IMO as a basis for Antarctic guidelines. The United Kingdom noted that IMO was aiming to complete the Arctic guidelines by the end of 2002, and therefore proposed that the matter be discussed thoroughly at ATCM XXVI on the basis of the anticipated IMO document.

(98) COMNAP introduced Information Paper (XXV ATCM/IP40) responding to a series of questions posed intersessionally by the United Kingdom. COMNAP noted its support for continuing development of Antarctic shipping guidelines and noted that in its view the current draft of IMO's Arctic guidelines adequately addressed key shipping issues in Antarctica and provided a useful basis for developing Antarctic guidelines.

(99) The Meeting welcomed the two papers on this issue, decided to await completion of the IMO document and to consider the issue in detail at ATCM XXVI.

Item 10: Relevance of Developments in the Arctic and the Antarctic

(100) The Republic of Korea presented Information Paper (XXV ATCM/IP100) concerning its new research facility in the Arctic and comparative studies on the Arctic and the Antarctic ecosystem.

Document describes a research program on the structure and functioning of Arctic marine ecosystem. The meeting stressed the importance of results, international collaboration and researches undertaken by the Republic of Korea.

(101) Australia introduced Information Paper (XXV ATCM/IP61) reporting on the conference on contaminants in freezing ground held in Hobart in 2002. The conference was attended by sixty participants from twelve countries and effectively drew together the polar research communities active in the Arctic and the Antarctic.

(102) Finland introduced Information Paper (XXV ATCM/IP4) noting that the Finnish chairmanship to the Arctic Council will culminate in October 2002 with the third Ministerial Meeting, held in Inari. Finland also informed that Iceland would be the next country chairing the Arctic Council in the period 2002-2004.

(103) The Meeting welcomed the Working Paper and thanked Finland for its input in work done on the Arctic and the Antarctic.

(104) Canada drew attention to several international developments in the past year in Arctic and bipolar science that served to strengthen the effectiveness of the Antarctic Treaty System. These included:

- the Climate and Cryosphere Project (CLIC) of the World Climate Research Programme, a study of the role of ice and frozen ground in climate change, which had developed in northern regions and was now being extended to Antarctica;
- new studies of the shape of planet Earth, or the geoid, especially of its flattening near the North and South Poles, by the International Union of Geodesy and Geophysics;
- coordinated studies of the polar electromagnetic fields, with Antarctic stations paired or “conjugate” with Arctic stations equipped with compatible instruments;
- establishment of an international working group to oversee the production of an International Bathymetric Chart of the Southern Ocean (IBCSO), under the International Hydrographic Office and the Intergovernmental Oceanographic Commission, using techniques developed for the mapping of ice-covered waters of the Arctic Ocean;
- coordinated analyses of the variations in the concentration of ozone in the stratosphere of south polar and north polar regions provide information on the changes in radiation received at the surface of Earth.

(105) Canada noted that several of these Arctic-Antarctic studies would be discussed at the Arctic Science Summit Week, which will be held in Kiruna, Sweden in April 2003. In addition, an international workshop on Modelling of Antarctic Marine Ecosystems, with emphasis on the krill food chain, will be held in Vancouver, Canada, 14-17 April 2003.

(106) The Meeting welcomed the information in these papers and welcomed the growing cooperation between the Arctic and Antarctic research programmes.

Item 11: Tourism and Non-Governmental Activities in the Antarctic Treaty Area

(107) France introduced Working Paper (XXV ATCM/WP2) on proposals for regulation of tourist and non-governmental activities and Information Paper (XXV ATCM/IP9) on taxes in Antarctica. The Meeting decided to discuss these issues in the Working Group on Legal and Institutional Matters as well as in the Operational Matters WG.

(108) The Russian Federation presented Information Paper (XXV ATCM/IP16) reporting on the success of its waste disposal project at Bellingshausen Station conducted by the Russian Antarctic Expedition and non-governmental organizations. The Meeting congratulated the Russian Federation on this successful operation.

- (109) The United Kingdom presented Information Paper (XXV ATCM/IP21) on the policy of the British Antarctic Survey concerning requests by tourist expeditions to British research stations, historic sites and monuments in Antarctica. The United Kingdom considered that this policy has helped to strengthen the position and role of IAATO and might be useful to other Parties when determining access to their stations or historic sites and monuments in Antarctica.
- (110) COMNAP introduced Information Paper (XXV ATCM/IP27) summarizing the interactions between national operators and tourism operators. COMNAP noted that the interaction between national Antarctic operators and tour operators in IAATO had been positive with few impacts on national programmes. COMNAP noted its intention to continue to develop such liaison.
- (111) IAATO introduced Information Paper (XXV ATCM/IP30) covering the chairman's report from a workshop on Antarctic tourism held in Aspen, Colorado in April 2002. The Meeting welcomed the report and noted that it provided an excellent basis for a discussion on Antarctic tourism.
- (112) ASOC submitted Information Papers (XXV ATCM/IP52), (XXV ATCM/IP76), (XXV ATCM/IP83) relating to tourism and non-governmental activities. IP52 provided a listing of ATCM papers on discussions related to tourism and non-governmental activities, to aid Parties. IP76 suggested that one mechanism to improve compliance with Protocol obligations by yacht operators was provided by the navigational guides or pilots produced by Parties. COMNAP referred to IP76 and advised that one of its member organizations had produced a comprehensive navigational note in conjunction with its national maritime safety authority. COMNAP would be pleased to provide a paper to ATCM XXVI with a revised version of the navigational note which can be used as a model by other nations if they wish so. ASOC's paper (XXV ATCM/IP83) addressed the overarching case for regulating Antarctic tourism.
- (113) Argentina introduced Information Paper (XXV ATCM/IP90) reporting on Antarctic tourism numbers transiting the Port of the Ushuaia in the 2001-2 season.
- (114) Australia introduced (XXV ATCM/IP108) concerning the management of Antarctic non-governmental activities. Australia set out a general list of issues needing to be addressed in further consideration of the matter at ATCM XXVI, and informed the Meeting that it would welcome comments on Information Paper 108, and would address them in an updated version to be presented at the next meeting.
- (115) IAATO introduced Information Papers: (XXV ATCM/IP72) on guidelines for tourist operations in Antarctica including Appendix A on Marine Wildlife Watching Guidelines, (XXV ATCM/IP73) giving an overview of Antarctic tourism and (XXV ATCM/IP85) on regulatory mechanisms addressing Antarctic tourism.
- (116) The Meeting thanked the contributors of these papers, which provided excellent background material on the issue of tourism in Antarctica. A wide-ranging and in-depth discussion took place on the papers presented. A number of Delegations considered that a new Annex to the Environmental Protocol concerning regulation of tourism and non-governmental activities as proposed by France, is not required. They considered that the Protocol deals effectively with the environmental aspects of tourism. There were concerns, however, about a number of issues such as health, safety and insurance, particularly of high risk ("adventure") tourism expeditions. Several Delegations referred to the work undertaken by COMNAP (XXV ATCM/IP27). COMNAP's analysis had shown that there were few problems with tour operators who were members of IAATO. However, COMNAP noted the concerns relating to high-risk adventure tourism expeditions and expeditions organized by companies who are not members of IAATO, especially if they require search and rescue by national operators. COMNAP and other Delegations complemented IAATO on its management efforts and its collection of data.

(117) Several Delegations considered that the Parties need to examine agreed environmental monitoring schemes at tourist sites, and also a centralized database concerning tourist numbers. Parties were reminded of their obligation to notify other Parties of expeditions, especially for tourism and other non-governmental activities, and to enforce the requirement for environmental impact assessments before permitting the activities. Some Delegations and experts considered, however, that the regulation of tourism by the Protocol under the existing provisions was inadequate.

(118) It was pointed out that tourism-related issues were relevant to the work of the CEP and to that of working groups dealing with legal and institutional as well as operational matters. Some Delegations welcomed the idea of establishing an intersessional working group on tourism matters, and further consideration of tourism in ATCM XXVI. All Delegations shared the view that the challenges posed by the increase in tourism, and especially new developments such as high-risk (adventure) tourism and the increase in flight connections with Antarctica, need careful and thorough discussion in the ATCM. It was suggested that this could best be addressed by at least one meeting session in which all aspects of tourism could be discussed.

(119) Delegations expressed interest in continuing consultations on tourism issues intersessionally in preparation for a further discussion of all aspects of tourism at the XXVI ATCM. The meeting noted the French Delegation's offer to facilitate informal intersessional consultations. Parties and experts with an interest in this discussion should contact michel.bruneaux@diplomatie.gouv.fr.

(120) ASOC introduced an Information Paper (XXV ATCM/IP63) on the use of port state jurisdiction as an appropriate international mechanism to regulate vessels engaged in Antarctic tourism. Although one expert questioned some assumptions in the paper, a number of Delegations expressed support for ASOC's initiative in submitting the paper, drawing attention to similar papers on port state jurisdiction presented at ATCM XX and XXI. In the view of these Delegations, such a jurisdictional means of control could help to ensure consistency of standards for tourist and other vessels departing for Antarctica.

Item 12: Inspections under the Antarctic Treaty

(121) Australia introduced Working Paper (XXV ATCM/WP34) concerning a revision of the list of inspections conducted under Article VII of the Antarctic Treaty and suggested that a database on inspections be established on the ATCM website being developed by Argentina, and that it could contain final reports of inspections conducted under Article VII of the Antarctic Treaty, Parties' responses to those reports and the Antarctic Treaty inspection checklists.

(122) The Meeting agreed that the Antarctic Treaty inspection database should be established on the ATCM website.

(123) The United Kingdom suggested that COMNAP be requested to compile a database of information on Antarctic bases in the format of the inspection checklists. COMNAP agreed to compile such information.

(124) Argentina agreed to assist in adding such a database to the ATCM website and to collaborate with Parties and with COMNAP to ensure that the database was as complete as possible.

Item 13: Science issues, particularly Scientific Co-operation and Facilitation

(125) The Russian Federation presented Information Paper (XXV ATCM/IP14) on Russian scientific geological research in Antarctica in context of Article VII of the Madrid Protocol and Information Paper (XXV ATCM/IP15) concerning glaciological studies at the Russian Station Vostok. The Russian Federation acknowledged that the Russian geological scientific programs in the Antarctic correspond precisely to reconnaissance and regional stages of geological investigations and must not be mistaken for mineral exploration. The Russian Federation further reported that the results of these studies are regularly reported to SCAR, freely exchanged and widely published.

(126) The Meeting welcomed the Information Papers and thanked Russia for providing the clarification of concerns related to this matter which occurred during XXIV ATCM.

(127) Ukraine introduced Information Paper (XXV ATCM/IP17) on the Ukrainian Antarctic research programme for 2002-2010. The Meeting welcomed the long-term research programme, presenting the Ukrainian strategy for the region aiming at development and support of social-economic, ecological, scientific, as well as technical activities.

(128) The Meeting took note of Information Paper (XXV ATCM/IP36) submitted by Romania presenting the results of Romanian Scientific Antarctic Research in cooperation with Belgium and Russian Federation.

(129) Japan introduced Information Paper (XXV ATCM/IP86) concerning deep ice core drilling Project II at Dome Fuji, Information Paper (XXV ATCM/IP87) reporting on a Polar patrol balloon experiment carried out by Antarctic Syowa Station and Information Paper (XXV ATCM/IP89) related to JARE Marine Science Program Chartering a Research Vessel.

(130) With regard to these papers the Meeting noted that international cooperation aiming at facilitation of efficient scientific research is essential. Some Delegations highlighted that the results of the scientific activities should be accessible to the public.

(131) Bulgaria presented Information Paper (XXV ATCM/IP107) giving the results of the scientific Workshop held in Sofia, 4-5 August 2002, with the participation of nine Central-Eastern European Nations aiming the discussion at the priorities in Science and Technology Policy for nations with developing Polar research Programmes.

(132) The Meeting welcomed the Bulgarian initiative, which should enable the involved countries to formulate common strategies and would allow developing further cooperation.

Item 14: Operational Issues

(133) Estonia introduced Information Paper (XXV ATCM/IP12) on its planned Antarctic activities. Estonia reported the adoption of the preliminary National Antarctic Research Program by the Estonian Polar Research Committee on March 19, 2002.

(134) Several Delegations congratulated Estonia and welcomed the initiative for establishing scientific programmes in Antarctica aiming at having very low impact on the environment. ASOC suggested that a CEE be proposed for the discussed activity.

(135) The Meeting took note of Information Papers submitted by ASOC: (XXV ATCM/IP76) presenting proposals for Improving Awareness of Protocol Obligations amongst Antarctic Yacht Operators; (XXV ATCM/IP63) on Port State Jurisdiction giving an appropriate international law mechanism to regulate vessels engaged in Antarctic Tourism. These papers were also discussed in Legal and Institutional Matters Working Group. (see Par. 112 and 120 above).

(136) Argentina introduced Information Paper (XX ATCM/IP92) reporting on assistance to the vessel "Magdalena Oldendorff" provided by the Argentine icebreaker "Almirante Irizar".

(137) The Meeting thanked Argentina, the Russian Federation, South Africa, the United States, as well as COMNAP for giving their active support to the rescue operation.

Item 15: Education Issues

(138) IAATO submitted Information Paper (XXV ATCM/IP71), which provides information on publications by staff naturalists/lecturers involved in tour activities in Antarctica, undertaken in the period 1991-2001.

(139) With regard to the establishment of a High Definition Broadcast Centre in the Antarctic, Japan presented Information Paper (XXV ATCM/IP88), emphasizing its educational value.

(140) COMNAP informed the Meeting that it has established several networks of specialists to facilitate the communication between its member organizations on various topics. These comprise the Antarctic Environmental Officers Network (AEON), public information (INFONET), training and education (TRAINET), and energy management (ENMANET). The AEON and TRAINET members are planning to hold a workshop on an environmental education and training in conjunction with COMNAP's annual meeting in Brest, France in July 2003.

Item 16: Exchange of Information

(141) The Meeting took note of Working Paper (XXV ATCM/WP1) submitted by France and discussed in Liability Working Group.

(142) Argentina presented Working paper (XXV ATCM/WP6) giving details on the Antarctic Treaty website (www.infoantarctica.org.ar) in accordance with XXIV ATCM Resolution 6 (2001).

(143) The Meeting welcomed the Report made by Argentina. Several Delegations highlighted the importance of this mechanism to improve the exchange of information among ATCPs. Some Delegations suggested further developments of the website, for example standardization of exchange of information under Article 17 of the Protocol.

(144) Uruguay introduced Information Paper (XXV ATCM/IP5) concerning the Exchange of information according to Resolution 6(2001) from XXIV ATCM.

(145) In presenting its Annual Report (XXV ATCM/IP8) as required by Article XVII, French Delegation reported that a bill related to the protection of the Antarctic environment on implementation of the Madrid Protocol had been introduced to the Parliament and would be adopted shortly.

(146) With regard to exchange of information the Meeting took note of Information Papers (XXV ATCM/IP45), (XXV ATCM/IP46) and (XXV ATCM/IP47), submitted by Brazil, referring to the Brazilian Antarctic Activity Plans for 2001/2002 and 2002/2003 seasons, as well as to the transfer to Poland of the coordination of the Antarctic Specially Managed Area (ASMA) of Admiralty Bay, King George Island and South Shetland Islands.

(147) Poland presented Information Paper (XXV ATCM/IP3) giving a tribute to the Forty Years of Antarctic Treaty. Poland further reported that it had adopted all the measures of the Antarctic Treaty Consultative Meetings.

(148) The Meeting took note of Information Paper (XXV ATCM/IP59) submitted by Spain concerning the Annual Report in accordance with Article XVII of the Protocol for the Environmental Protection.

(149) The United States' Delegation announced that it had completed the Ninth Edition of the Antarctic Treaty Handbook, the compilation of all agreements, measures and other documents relevant to the Antarctic Treaty System. Copies of the CD-ROM version were distributed to all Delegations, and the United States announced the print versions and additional CD-ROM copies would be distributed through Missions in Washington, DC. The Meeting thanked the United States for its generous contribution and especially noted the work of Dr. Harlan Cohen, US Department of State, and the National Science Foundation, which funded the project. The Handbook will also be posted on website.

Item 17: Preparation of the XXVI Meeting

a) Date and place of the next Meeting

(150) The Meeting agreed to substitute Spain for South Africa as the host country of the next ATCM. The Meeting welcomed the invitation of Spain to host the XXVI ATCM. Spain advised the Meeting that ATCM XXVI would take place in Madrid, from 9 to 20 June, 2003.

b) Invitation of International and Non-Governmental Organisations

(151) In accordance with established practice, the Meeting agreed that the following organisations having a scientific or technical interest in Antarctica should be invited to send experts to attend ATCM XXVI: ASOC, IAATO, IHO, IMO, IOC, IUCN, PATA, UNEP, WMO, WTO.

c) Preparation of the Agenda at ATCM XXVI

(152) The Meeting approved a preliminary agenda for ATCM XXVI, which is attached at **Annex L**.

Item 18: Other Business

(153) The Meeting sent a message to the Stations in the Antarctic. The text of the message is reproduced in **Annex H**.

(154) The Meeting adopted the Resolution 3 (2002) on support for CCAMLR and action to combat Illegal, Unreported and Unregulated Fishing for *Dissostichus* spp (toothfish) which is reproduced in **Annex C**.

Item 19: Adoption of the Final Report

(155) The draft Final Report was adopted by Parties on 20 September, 2002.

Item 20: Closing of the Meeting

(156) His Excellency Włodzimierz Cimoszewicz, the Minister of Foreign Affairs of the Republic of Poland delivered closing address to the Meeting (see **Annex D**).

The Delegation of Spain, as the host country of the XXVI ATCM, expressed, on behalf of all Delegations, their heartfelt thanks for the hospitality provided by Poland and the quality of the organization of the XXV ATCM. He greeted all representatives and invited them to participate in the XXVI Meeting in Madrid scheduled for June 2002.

ATCM XXV closed at 15.00 on 20 September, 2002

Appendix 1

Revised Guidelines for Document Translation and Distribution

The “Revised Guidelines for Document Translation and Distribution” shall replace the “Guideline. Pre-sessional Document Circulation and Document Handling” with immediate effect.

1. These guidelines apply to the distribution and translation of official papers for the Consultative Meetings. These papers consist of Working Papers and Information Papers.
2. A Working Paper prepared by Consultative Parties and Observers, and an Information Paper which a Consultative Party has requested be translated, should be received by the Host Government and, after the establishment of the Antarctic Treaty Secretariat by the Secretariat, no later than 45 days before the Consultative Meeting. Information Papers for which a translation has been requested should not exceed 30 pages.
3. The Host Government and, after the establishment of the Antarctic Treaty Secretariat the Secretariat, should receive Information Papers for which no translation has been requested no later than 30 days before the Meeting.
4. When a revised version of a Paper made after its initial submission is resubmitted to the Host Government and, after the establishment of the Antarctic Treaty Secretariat to the Secretariat, for translation, the revised text should indicate clearly the amendments that have been incorporated.
5. The Papers should be transmitted to the Host Government and, after the establishment of the Antarctic Treaty Secretariat to the Secretariat, by electronic means whenever feasible.
6. Distribution of the Papers should be via the ATCM Home Page whenever feasible. Working Papers, which were received before the 45 days limit, should be publicized this way as soon as possible and in any case not later than 30 days before the Meeting.
7. Working Papers and Information Papers, for which a translation has not been requested according to rule 2 above, may also be presented to the Host Government and, after the establishment of the Antarctic Treaty Secretariat to the Secretariat, during the Meeting for translation.
8. No Working Paper or Information Paper submitted to the ATCM will be used as the basis for discussion at the ATCM unless it has been translated into the four official languages.
9. The Host Government and after the establishment of the Antarctic Treaty Secretariat the Secretariat, should within three months of the end of the Consultative Meeting circulate through diplomatic channels and also pose on the ATCM Home Page the Final Report of that Meeting in the four official languages.

PART II

Measures, Decisions and Resolutions adopted at XXV ATCM

Annex A
Measures

Measure 1 (2002)

Antarctic Protected Area System: Management Plans for Antarctic Specially Protected Areas

The Representatives,

Recalling Resolution 1 (1998) allocating responsibility among Consultative Parties for the revision of Management Plans for protected areas;

Noting that the draft Management Plans appended to this Measure have been endorsed by the Committee for Environmental Protection and the Scientific Committee on Antarctic Research (SCAR);

Recognizing that these Areas support outstanding natural features and biota of scientific interest;

Recommend to their Governments the following Measure for approval in accordance with paragraph 1 of Article 6 of Annex V to the Protocol on Environmental Protection to the Antarctic Treaty:

That the Management Plans for the following sites:

- Antarctic Specially Protected Area No 106, Cape Hallett, Northern Victoria Land, Ross Sea;
- Antarctic Specially Protected Area No 107, Emperor Island, Dion Islands;
- Antarctic Specially Protected Area No 108, Green Island, Bertholot Islands;
- Antarctic Specially Protected Area No 117, Avian Island, Marguerite Bay;
- Antarctic Specially Protected Area No 121, Cape Royds, Ross Island;
- Antarctic Specially Protected Area No 123, Barwick and Balham Valleys, South Victoria Land;
- Antarctic Specially Protected Area No 124, Cape Crozier, Ross Island;
- Antarctic Specially Protected Area No 126, Byers Peninsula, Livingston Island;
- Antarctic Specially Protected Area No 130, “Tramway Ridge”, Mount Erebus, Ross Island;
- Antarctic Specially Protected Area No 137, Northwest White Island, McMurdo Sound;
- Antarctic Specially Protected Area No 147, Ablation Point - Ganymede Heights;
- Antarctic Specially Protected Area No 148, Mount Flora, Hope Bay;
- Antarctic Specially Protected Area No 157, Backdoor Bay, Cape Royds, Ross Island.

and which are annexed to this Measure, be adopted.

That the management plan for Cape Royds, Ross Island (ASPA No 121) be approved by the ATCM subject to agreement by the Commission for the Conservation of Antarctic Marine Living Resources.

Management Plan for Antarctic Specially Protected Area (ASPA) No. 106 CAPE HALLETT, NORTHERN VICTORIA LAND, ROSS SEA

(Lat. 72° 19'S, Long. 170° 16'E)

1. Description of values to be protected

An area of approximately 12 ha at Cape Hallett was originally designated in Recommendation IV-7 (1966, Specially Protected Area (SPA) No. 7) after a proposal by the United States of America on the grounds that the Area provided an outstanding example of biological diversity, containing, "a small patch of particularly rich and diverse vegetation which supports a variety of terrestrial fauna". The proposal gave special mention to the rich avifauna in the Area, which was noted as being of "outstanding scientific interest". The boundaries of the Area were enlarged in Recommendation XIII-13 (1985) to include extensive stands of vegetation to the south and north of the Area, increasing the Area to approximately 32 ha. The boundaries have been further extended in this plan to include critical avifauna habitat at Seabee Hook, the breeding area of a substantial colony of Adelie penguins, increasing the size of the Area to 74 ha.

The Area contains a variety of habitats with plant communities that are considered important as the most extensive, representative, examples known at the northern end of the latitudinal gradient of Victoria Land and the Ross Sea. Vegetation surveys have recorded five species of moss, dominated by *Bryum subrotundifolium*, and 18 species of lichen. Studies in 1961/62 identified an algal component composed mainly of *Prasiola crispa* with associated filamentous and microscopic blue-green forms. Although few algal species have been identified numerous species are expected to be present. In addition, four species of mites and three of springtails have been identified within the Area.

South Polar skuas (*Catharacta maccormicki*) nest within the Area and on ice-free ground. The population declined from 181 breeding pairs in 1960/61 to 98 breeding birds recorded in both 1968/69 and 1971/72. In January 1983 there was a population of 247 birds (84 breeding pairs and 79 non-breeding birds).

A large Adelie penguin colony inhabits Seabee Hook, on the west side of the Hallett Peninsula between Edisto Inlet and Moubray Bay. The history of human impact on the colony and the subsequent closure of the station, together with the availability of reliable and repetitive historical data on Adelie population changes, make this site unique and ideal for scientific study of impacts on, and recovery of, the colony following substantial ecosystem disturbance. As such, the site has high scientific value, and in order to maintain this value it is desirable that any further human presence be carefully controlled and monitored: the most effective way in which this can be achieved is through the guidance and conditions provided in this management plan.

In addition to the ecological and scientific values described, the Area possesses outstanding aesthetic values, with its combination of prolific biological resources and the impressive surrounding scenery of Edisto Inlet and Mt. Herschel (3,335 m). The Area is one of only a few such sites that are relatively accessible in the northern Ross Sea. The site of the former station and history of human activity at the site are also of interest to visitors. As such, the Area is of high aesthetic, wildlife, and historical value to tourist and non-governmental expeditions. To accommodate these interests and allow access under controlled conditions, a managed zone has been designated within the Area where visits for reasons other than science or management are allowed by permit.

2. Aims and objectives

Management at Cape Hallett aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance to the Area;
- permit scientific research, in particular on the plant and bird communities, while preventing unnecessary sampling in the Area;
- allow environmental clean-up and remediation activities associated with the decommissioning and removal of the former Hallett Station as required and appropriate, provided the impacts of these activities are not greater than those arising from leaving material *in situ*;
- minimize the possibility of introduction of alien plants, animals and microbes into the Area;
- allow visits to the managed zone for historical, educational, wildlife and scenic viewing purposes under control by permit;
- allow visits for management purposes in support of the protection of the values and features of the Area.

3. Management activities

- Signs showing the location, boundaries and clearly stating entry restrictions shall be placed at appropriate locations at the boundaries of the Area to help avoid inadvertent entry.

- Markers, signs or structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition, and removed when no longer necessary.
- Visits shall be made as necessary (no less than once every five years) to assess whether the Area continues to serve the purposes for which it was designated and to ensure that management and maintenance measures are adequate.
- National Antarctic programs operating in the region shall consult together for the purpose of ensuring that the above provisions are implemented.

4. Period of designation

Designated for an indefinite period.

5. Maps

Map A: Cape Hallett Specially Protected Area No. 7 topographic map.

Map specifications:

Projection: Lambert Conformal conic

Standard parallels: 1st 74° 20' 00" S; 2nd 71° 40' 00" S

Central Meridian: 170° 10' 00" E

Latitude of Origin: 73° 00' 49.201" S

Spheroid: WGS84

Datum: USGS Fisher geodetic station 1989-90: ITRF93 Coordinates 170°12'39.916" E, 72°19' 06.7521" S

Contour interval 5 m: contours are derived from a digital elevation model used to generate an orthophotograph. The original orthophotograph was prepared at 1:2500 with a positional accuracy of ±5 m (horizontal) and ±2.5 m (vertical) with an on-ground pixel resolution of 0.4 m. [note: provision of elevation data subject to approval].

Inset: The Moubray Bay region of Northern Victoria Land, Ross Sea

6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

Cape Hallett is located at the southern end of Moubray Bay, Northern Victoria Land, in the western Ross Sea. The protected area occupies ice-free ground of a cusped spit of low elevation known as Seabee Hook and includes the adjacent western slopes of the north end of the Hallett Peninsula.

The Area includes Seabee Hook and the adjacent western slopes up to the crest of the ridge of the north end of the Hallett Peninsula, east of Willett Cove to the margin of the permanent ice sheet (Map A). The sea-level boundary is predominantly defined by the coastline of Seabee Hook, and extends south along the east shore of Willett Cove to the southernmost boundary at 72°19'30"S (approximately 800 m south of the Moubray Bay coast). The east boundary of the Area follows the edge of the permanent ice sheet near the ridge of Hallett Peninsula.

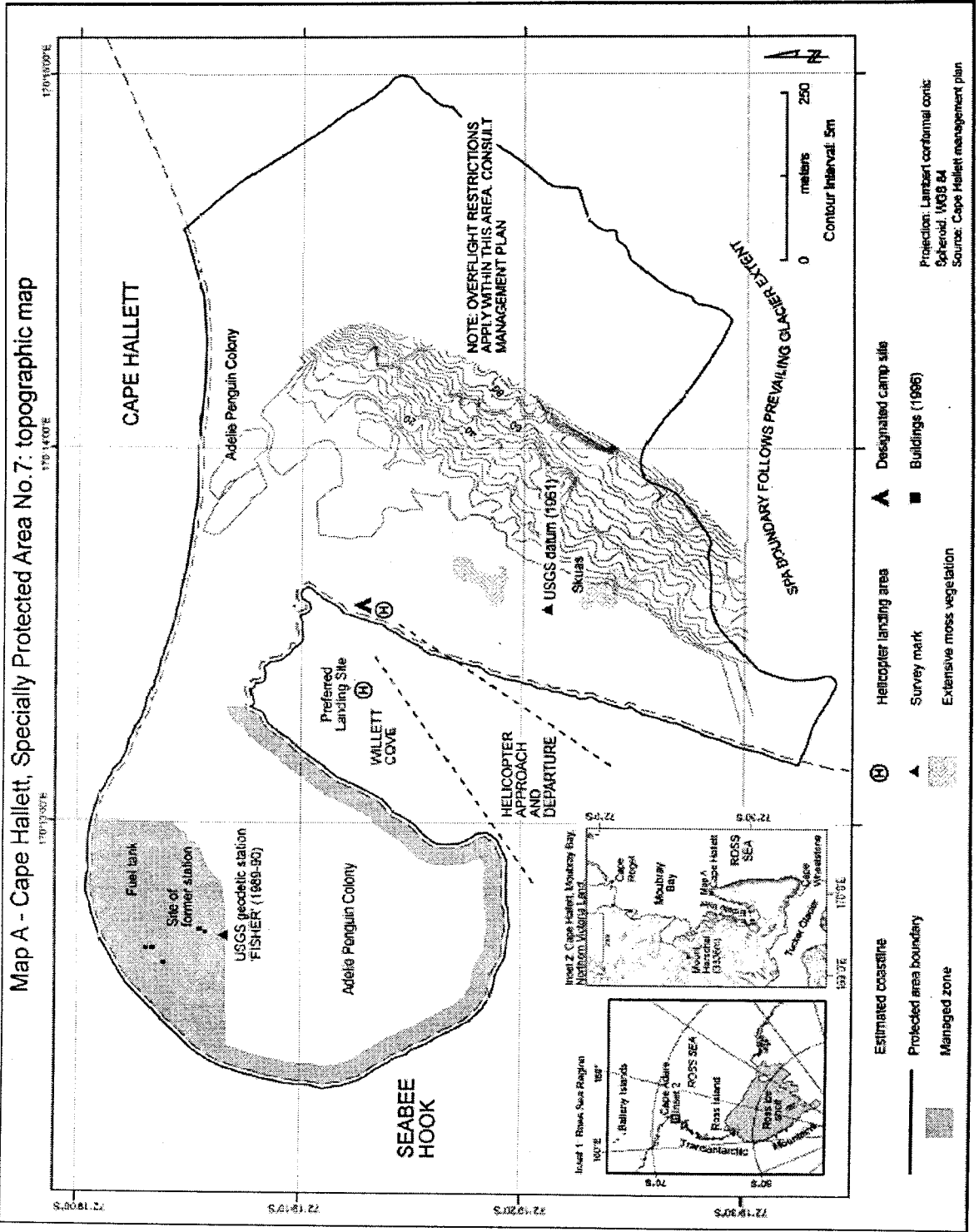
The topography of the Area comprises the large flat area of the spit and adjoining steep scree slopes that form part of the western side of the Hallett Peninsula. Seabee Hook is composed of coarse volcanic material deposited in a series of beach ridges, with gently undulating terrain of hummocks and depressions and a number of level areas. Many of the depressions contain melt water in the summer season, and are colonized by dense mats of algae. In the northeast part of the Area a small meltwater stream flows from the western slopes of the Hallett Peninsula down to Willett Cove.

The algal component in the Area is comprised mainly of the sheet-like green alga *Prasiola crispa* with associated filamentous algae and cyanobacteria. It is expected that a number of other algal species may be present, but information on the algal communities in the Area is exceptionally sparse.

The vegetation within the Area, with the exception of algae such as *Prasiola*, is largely confined to the ice-free ground not occupied by breeding Adelie penguins, which is to the east of Willett Cove and south of 72°19'10"S. This area includes a 100-200 m strip of relatively level ground adjacent to Willett Cove and steeper slopes up to the crest of the Hallett Peninsula ridge. The strip of flat ground comprises a number of dry, gravel hummocks up to 1.5 m high, many of which are occupied by nesting skuas, and in the northern part old guano deposits indicate former occupation by Adelie penguins. Small patches of moss and algae may be found at the base of these hummocks but the upper parts are devoid of vegetation. Substantial beds of moss colonize stable gravel flats in the north part of the flat ground where there is a high water table, while scattered patches of moss, algae and lichen occur on coarser, more angular, loose rocks in the south. The moss becomes more sparse as the ground slopes upwards, with the notable exception of a particularly dense and extensive patch covering approximately 3,900 m² with almost complete coverage of the substratum occupying a shallow valley on a scree slope in the south of the Area.

Bryum subrotundifolium is the dominant moss within the Area. The presence of *Bryum subrotundifolium* in such a bird enriched area, makes the Area an excellent example of a bird affected vegetation site. Also, the presence of almost pure *Bryum pseudotriquetrum* at the site is unusual for the region.

Map A - Cape Hallett, Specially Protected Area No. 7: topographic map



The steep scree slope adjoining the largely flat area is dissected by shallow gullies and small ridges, with a number of prominent rock outcrops. These rock outcrops, particularly in the north of the Area, support large stands of lichens and scattered moss, with cover of 70 – 100% in many places.

Following are current species lists of mosses and lichens in the Area (based on research of Allan Green, University of Waikato, New Zealand and Rod Seppelt, Australian Antarctic Division, 2002).

Mosses include:

Bryum subrotundifolium (originally known as *Bryum argenteum*)

Bryum pseudotriquetrum

Sarconeurum glaciale

Ceratodon purpureus

Schistidium (Grimmia) sp.

Lichens include:

Acarospora gwynnii

Amandinea petermannii

Buellia frigida

Caloplaca athallina

Caloplaca citrina

Candelaria murrayi

Candelariella flava

Lecanora chrysoleuca

Lecanora expectans

Lecidea cancriformis

Physcia caesia

Pleopsidium chlorophanum

Rhizocarpon geographicum

Rhizoplaca chrysoleuca

Rhizoplaca melanophthalma

Usnea sphacelata

Xanthoria elegans

Xanthoria mawsonii

Four species of mites, *Eupodes wisei*, *Stereotydeus belli*, *Protoreunetes* sp. and *Coccorhagidia gressittii*, and three of springtails, *Friesea grisea*, *Cryptopygus cisantarcticus* and *Isotoma klovstadi*, have been recorded from Cape Hallett. *F. grisea* occurs mainly on the scree slopes and adjacent level areas, *C. cisantarcticus* was reported to be associated with moss, occurring plentifully on level ground, while *I. klovstadi* was abundant under stones on the slopes.

Seabee Hook is the site of one of the largest Adelie penguin colonies in the Ross Sea region, numbering approximately 66,000 breeding pairs in 1987. Seabee Hook is also the site of the former Hallett Station, a joint United States and New Zealand station that was open from 1956-73. During operation the station and associated infrastructure occupied an area of 4.6 ha on land that had formerly been occupied by breeding Adelie penguins. Establishment of Hallett Station in 1956 required eviction of 7,580 penguins, including 3,318 chicks, in order to clear the 0.83 ha required for bulldozing and erection of buildings. The was subjected to substantial impacts from the establishment and operation of Hallett Station, with the population declining from 62,900 pairs in 1959 to a low of 37,000 pairs in 1968, although increasing again to 50,156 in 1972. Fluctuations in populations may have been exacerbated by changes in sea ice cover documented for the entire region. By 1987, after the closure of the station in 1973, the colony has increased to near its 1959 population; however, few areas modified by humans had by that time been fully recolonized.

South Polar skuas (*Catharacta maccormicki*) nest within the Area and on nearby ice-free ground; in January 1983 there was a population of 247 birds (84 breeding pairs and 79 non-breeding birds).

Emperor penguins (*Aptenodytes forsteri*) have been recorded in the vicinity of the area in late December, and solitary chinstrap penguins (*Pygoscelis antarctica*) have been recorded in late January and February. Wilson's storm petrels (*Oceanites oceanicus*) and southern giant petrels (*Macronectes giganteus*) have been sighted

frequently in the vicinity of the Area. Weddell seals (*Leptonychotes weddellii*) are commonly seen and probably breed under the sea ice in Edisto Inlet, and have been recorded ashore on Seabee Hook.

6(ii) Restricted and managed zones within the Area

A managed zone is designated on Seabee Hook to allow access by tourist expeditions to the Area subject to permit and the provisions of this management plan. The managed zone encompasses the site of the former station, and extends from the northeast corner (170° 13' 00"E, 72° 40' 00"S) at a rocky part of the north shoreline on Seabee Hook, due south for 118 m to a series of mounds used by breeding penguins. The boundary extends 205 m west following the north side of these mounds, south of a region which was leveled for construction of Hallett Station, to the USGS geodetic station 'Fisher' (170°12'40"E, 72°19'07"S) which is set in a prominent concrete block structure (2x1x1 m). The boundary extends from 'Fisher' 150 m due west to a point 25 m inland from the coastline. The boundary of the managed zone then extends south as a 25 m wide coastal 'corridor' around the shores of Seabee Hook to an eastern-most point at the northern-most point of Willett Cove (170° 13' 18"E, 72° 19' 08"S).

6(iii) Structures within and near the Area

Cape Hallett Station was established on Seabee Hook in December 1956 and closed in February 1973. By 1960 the buildings of Hallett Station occupied 1.8 ha and the associated roads, refuse dumps, fuel caches and radio aeriels a further 2.8 ha. The station was occupied year-round until 1964, from when summer-only operation continued until closure. The station was progressively dismantled after 1984 and in 1996 six structures remained at the site: four small sheds in various states of repair; a large fuel tank; and a small fiberglass dome from the original weather observation building (upgraded and moved to its 1996 position in 1984/85). In the summer of 1995 liquid fuel remaining in the large metal tank was pumped into barrels, which were stored on site until removed in February 1996.

The USGS geodetic station 'Fisher' (170°12'39.916"E, 72°19' 06.7521" S) is situated 70 m SE of the center of the SE side of the dome building (1996 position) and 24 m south of the SE corner of the southernmost hut. The station consists of a standard USGS Antarctic brass tablet stamped with "FISHER 1989-90" and is set flush on the top of a large concrete block (2x1x1 m) at an elevation of 2.15 m.

6(iv) Location of other protected areas within close proximity of the Area

The nearest protected areas to Cape Hallett is Cryptogam Ridge (ASPA No. 118) on Mt. Melbourne, Victoria Land, near Wood Bay, 240 km to the south.

7. Permit conditions

Entry into the Area is prohibited except in accordance with a permit. Conditions for issuing a permit to enter the Area are that:

- outside of the managed zone a permit should be issued only for scientific study of the ecosystem or for essential management purposes consistent with plan objectives such as assessment or remediation of impacts, inspection or review;
- the actions permitted will not jeopardize the ecological, scientific or aesthetic and wilderness values of the Area;
- access to the managed zone may be permitted for scientific, management, historical, educational or recreational purposes providing they do not conflict with the objectives of this plan;
- the permit, or a copy, shall be carried within the Area;
- a report or reports shall be supplied to the authority or authorities named in the permit;
- permits should be valid for a stated period.

7(i) Access to and movement within the Area

Access into the Area shall be by small boat, foot or by helicopter. Helicopters should preferably land on adjacent sea ice more than 150 m outside of the Area and land on sea ice near the center of Willett Cove when accessing the campsite. When sea ice conditions and access for permitted activities necessitate a landing within the Area, helicopters should land at the designated site on the east shore and 100 m south of the head of Willett Cove (170°13'34"E, 72°19'13"S) (see Map A). Helicopter approach and departure should follow a route southwest of the landing site along Willett Cove (see Map A for the recommended flying routes). Overflight of the Area is prohibited by single-engine helicopters at altitudes lower than 750 m (~2,500 ft) and by dual-engine helicopters lower than 1,000 m (~3,300 ft), except when required for essential scientific or management purposes specifically authorized by permit. Use of helicopter smoke grenades is prohibited unless absolutely necessary for safety, and all grenades should be retrieved.

There are no special restrictions on where access can be gained to the Area by small boat.

Land vehicles are to be used within the Area only for the purpose of gaining access to the campsite from sea ice in the vicinity of Willett Cove. Exceptions to this provision may be granted for the purpose of removing materials associated with the former station. In all cases vehicle movements shall be kept to the minimum necessary for permitted activities and avoid sites of plants or nesting birds.

Access to the managed zone for reasons other than science or management is allowed by permit subject to the conditions of this management plan. Access to the managed zone shall be on foot or by small boat from the coast of Seabee Hook (Map A). Unless specifically authorized by permit, visitors are prohibited from moving into the Area beyond the boundary of the managed zone. When transporting permitted visitors to the managed zone, pilots, air or boat crew, or other people on such aircraft or boats, are permitted to move on foot within the managed zone under the authorization of the permit(s) for those visitors they are transporting, provided they comply with the provisions of this management plan.

All pedestrian traffic should be kept to the minimum necessary consistent with the objectives of any permitted activities and every reasonable effort should be made to minimize effects. Visitors should avoid walking on visible vegetation. Care should be exercised walking in areas of moist ground, where foot traffic can easily damage sensitive soils and plant communities.

7(ii) Activities that may be conducted in the Area

- scientific research that will not jeopardize the ecosystem of the Area;
- essential management activities, including assessment or remediation of impacts, and monitoring;
- visits to the managed zone for historical, educational or recreational purposes, subject to the conditions described in this plan;

7(iii) Installation, modification or removal of structures

No structures are to be erected within the Area except as specified in a permit. All scientific equipment installed in the Area must be authorized by permit and clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of contamination of the Area. Removal of specific equipment for which the permit has expired shall be a condition of the permit.

7(iv) Location of field camps

Permanent field camps are prohibited within the Area. Temporary camping is permitted within the Area at the site designated on the east shore and 100 m south of the head of Willett Cove (72°19'13"S, 170°13'34"E). This site comprises unconsolidated beach gravels, uncolonized by birds or significant plant communities and lies on the site of a former station road (see Map A).

7(v) Restrictions on materials and organisms that can be brought into the Area

No living animals, plant material, microorganisms or soils shall be deliberately introduced into the Area, and precautions shall be taken against accidental introductions. Dressed poultry should be free of disease or infection before shipment to the Antarctic and, if introduced into the Protected Area for food, all parts and waste of poultry shall be completely removed from the Protected Area and incinerated or boiled long enough to kill any potentially infective bacteria or viruses. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management purposes specified in the permit, shall be removed from the Area at or before the conclusion of the activity for which the permit was granted.

Fuel, food, and other materials are not to be deposited in the Area, unless required for essential purposes connected with the activity for which the permit has been granted. All materials introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of their introduction into the environment is minimized.

7(vi) Taking or harmful interference with native flora or fauna

Taking or harmful interference of native flora and fauna is prohibited, except in accordance with a separate permit issued under Article 3 of Annex II by the appropriate national authority specifically for that purpose. Where animal taking or harmful interference is involved, this should, as a minimum standard, be in accordance with the SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica.

7(vii) Collection or removal of anything not introduced by a visitor.

Material may be collected or removed from the Area only in accordance with a permit and should be limited to the minimum necessary to meet scientific or management needs. Material of human origin likely to compromise the values of the Area, which was not brought into the Area by a permit holder or otherwise authorized, may be removed from any part of the Area unless the impact of removal is likely to be greater than leaving the material *in situ*. If this is the case the appropriate authority should be notified.

7(viii) Disposal of waste

All wastes shall be removed from the Area.

7(ix) *Measures that may be necessary to ensure that the aims and objectives of the plan continue to be met*

- Permits may be granted to enter the Area to carry out biological monitoring and site inspection activities, which may involve the collection of small samples for analysis.
- Any specific sites of long-term monitoring should be appropriately marked.
- To help maintain the ecological and scientific values of the Area visitors shall take special precautions against introductions. Of particular concern are microbial and vegetation introductions from soils at other Antarctic sites, including stations, or from regions outside Antarctica. To minimize the risk of introductions, visitors shall thoroughly clean footwear and any equipment to be used in the area – particularly sampling equipment and markers – before entering the Area.

7(x) *Requirements for reports*

Parties should ensure that the principal holder for each permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the management plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be used both in any review of the management plan and in organizing the scientific use of the Area.

Management Plan for Antarctic Specially Protected Area No. 107

EMPEROR ISLAND, DION ISLANDS, MARGUERITE BAY, ANTARCTIC PENINSULA

1. Description of values to be protected

The Dion Islands (Latitude 67°52' S, Longitude 68°42' W), on the western side of the central Antarctic Peninsula in north-western Marguerite Bay, were originally designated as Specially Protected Area (SPA) No. 8 through Recommendation IV-8 in 1966 after a proposal by the United Kingdom. All of the islands in the Dion Islands archipelago were included. Values protected under the original designation were described as the presence of the only colony of emperor penguins (*Aptenodytes forsteri*) known to exist on the west side of the Antarctic Peninsula and that the isolation of this colony from others of the same species makes it of outstanding scientific interest. A management plan for the Area was adopted through Recommendation XVI-6 (1990), which reaffirmed the values of the Area. The boundaries were extended to include the intervening sea between the islands to ensure protection of the emperors at sea or on sea-ice in the immediate vicinity. Attention was drawn to the additional important value of the colony being one of only two known in which breeding occurs on land. It was also noted as the most northerly and probably the smallest of Emperor colonies, with annual numbers fluctuating around 150 pairs.

The values of the emperor penguin colony are reaffirmed in this revised management plan. The boundaries of the Area are now defined more precisely.

2. Aims and objectives

Management at Emperor Island aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance to the Area;
- allow scientific research on the ecosystem and physical environment, particularly on the avifauna, provided it is for compelling reasons which cannot be served elsewhere;
- minimise the possibility of introduction of pathogens which may cause disease in bird populations within the Area;
- minimise the possibility of introduction of alien plants, animals and microbes to the Area;
- gather data on the population status of the emperor penguin colony on a regular basis, preferably at least once every five years;
- allow visits for management purposes in support of the aims of the management plan.

3. Management activities

The following management activities shall be undertaken to protect the values of the Area:

Maps showing the location of the Area (stating the special restrictions that apply) shall be displayed prominently at any operational research station located within 50 km of the Area, where copies of this management plan shall also be made available.

Markers, signs or other structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition.

Visits shall be made as necessary (preferably no less than once every five years) to assess whether the Area continues to serve the purposes for which it was designated, and in particular to conduct bird censuses, and to ensure management and maintenance measures are adequate.

4. Period of designation

Designated for an indefinite period, provided the Emperor penguins continue to breed in the Area.

5. Maps and photographs

Map 1: Emperor Island, Dion Islands, ASPA No. 107, in relation to Marguerite Bay, showing the locations of the stations Teniente Luis Carvajal (Chile), Rothera (UK) and General San Martín (Argentina). The location of other protected areas within Marguerite Bay (ASPA No. 117 at Avian Island, ASPA No. 115 at Lagotellerie Island, and ASPA No. 129 at Rothera Point) are also shown. *Inset*: the location of Dion Islands on the Antarctic Peninsula.

Map 2: Emperor Island, Dion Islands, ASPA No. 107: topographic map. Map specifications:

Projection: Lambert Conformal Conic; Standard parallels: 1st 67° 0' 00" W; 2nd 68° 00' 00" S; Central Meridian: 68° 42' 30" W; Latitude of Origin: 68° 00' 00" S; Spheroid: WGS84; Datum: Mean sea level. Horizontal accuracy: ± 1.5 m; Vertical accuracy ± 1 m (best accuracy of the control points); Vertical contour interval 5 m (index contour interval 15m).

Map 3: Emperor Island, ASPA No. 107: topographic map. Map specifications as for Map 2.

6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

GENERAL DESCRIPTION

The Dion Islands (Latitude 67°53' S, Longitude 68°42' W, within a region of approximately 12 km²), situated 13.5 km south of the south-western extremity of Adelaide Island in north-western Marguerite Bay (Map 1), is a small archipelago comprising the following islands, rocks and reefs: Envoy Rock, Regent Reef, Consort Islands (approximately 3 ha), Emperor Island (approximately 5 ha), Jester Rock, Noble Rocks, Courtier Islands (approximately 8 ha), Embassy Islands and Consul Reef. The islands are generally small, rocky and precipitous, especially Emperor Island, which at a maximum elevation of 46 m is also the highest. The island group contains numerous offshore islets, rocks and reefs, which are potentially hazardous to shipping. The Dion Islands have only been visited occasionally and detailed descriptions of the Area have yet to be made. The islands are generally ice-free in summer, although there are a few small patches of permanent ice and persistent snow. A meltwater pond is located on the northern side of Emperor Island. Terrain suitable for breeding birds is limited, and the colonies present are relatively small, mostly found on Emperor Island. For a detailed description of the geology and biology of the Area see Annex 1.

BOUNDARIES

The designated Area of just over 3 km² comprises Emperor Island and the marine environment (including sea ice when present) within 1000 m of the coastline of Emperor Island (Maps 2 and 3). The 1000 m boundary is set as a precautionary limit to avoid disturbance to breeding Emperor penguins. Within this zone landing and overflight restrictions apply to aircraft during the period 1 April to 15 December (see Section 7(i) below). However, the area does not include the terrestrial areas of the Consort Islands in the north, Jester Rock in the east, or the Courtier Islands in the southwest.

6(ii) *Restricted and managed zones within the Area*

None.

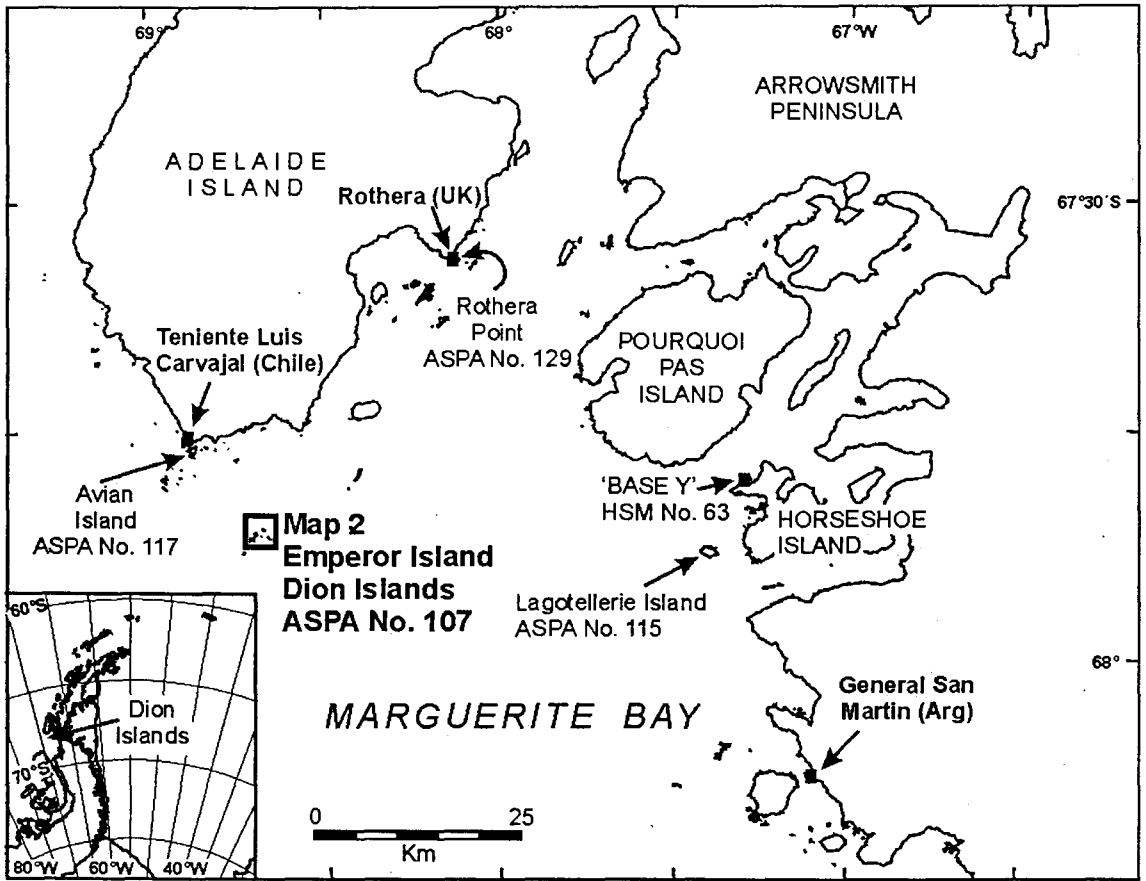
6(iii) *Structures within and near the Area*

No structures are known to be present within the Area. A GPS survey station, consisting of a nail driven into a rock marked by a small cairn, was installed on the northeastern side of the largest of the Courtier Islands in March 1997 (Gray and Fox 1997).

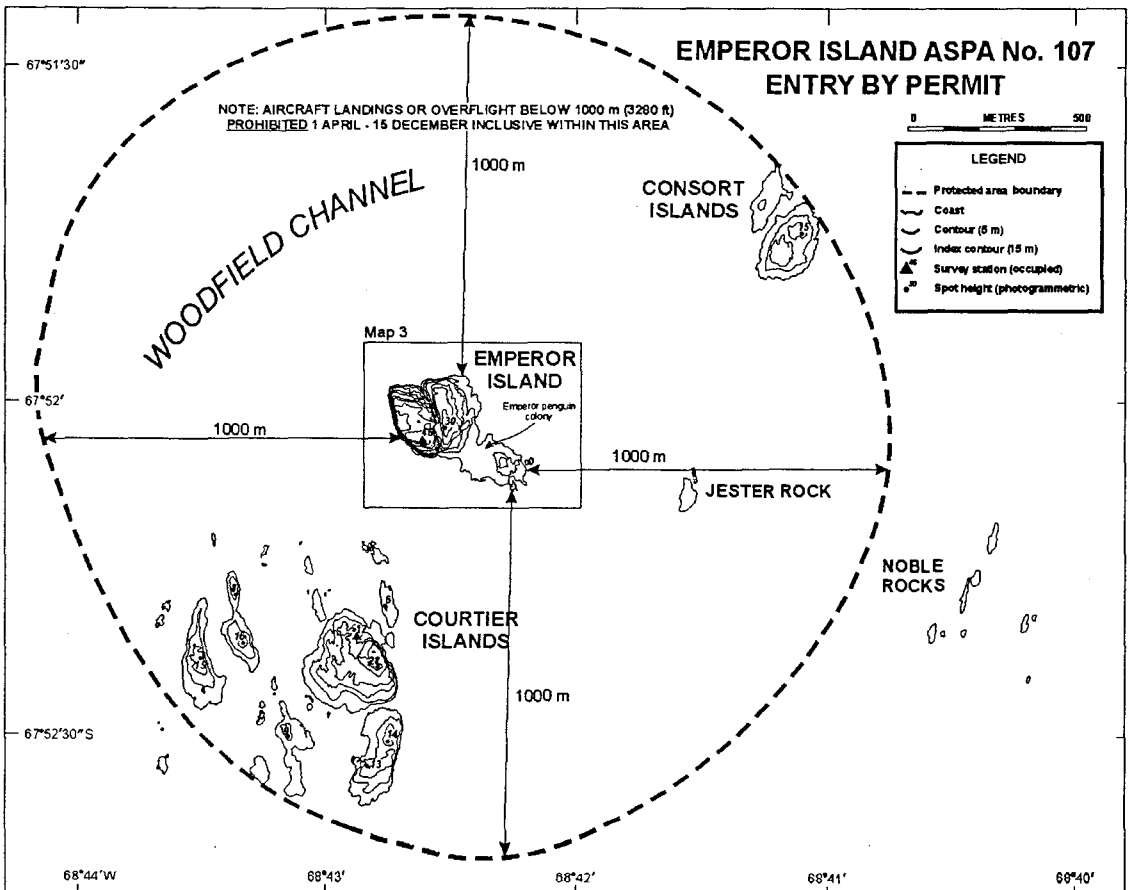
The nearest scientific research station is 14 km north-west at Teniente Luis Carvajal (Chile), on southern Adelaide Island (Latitude 67°46' S, Longitude 68°55' W), a summer-only facility operated from October until March since 1982. Over this period the station has generally accommodated up to 10 personnel. Formerly, this facility was established and operated by the UK year-round from 1961 until 1977. The nearest year-round scientific station is Rothera Research Station (UK), 41 km to the north-east on Rothera Point, also on Adelaide Island.

6(iv) *Location of other protected areas within close proximity of the Area*

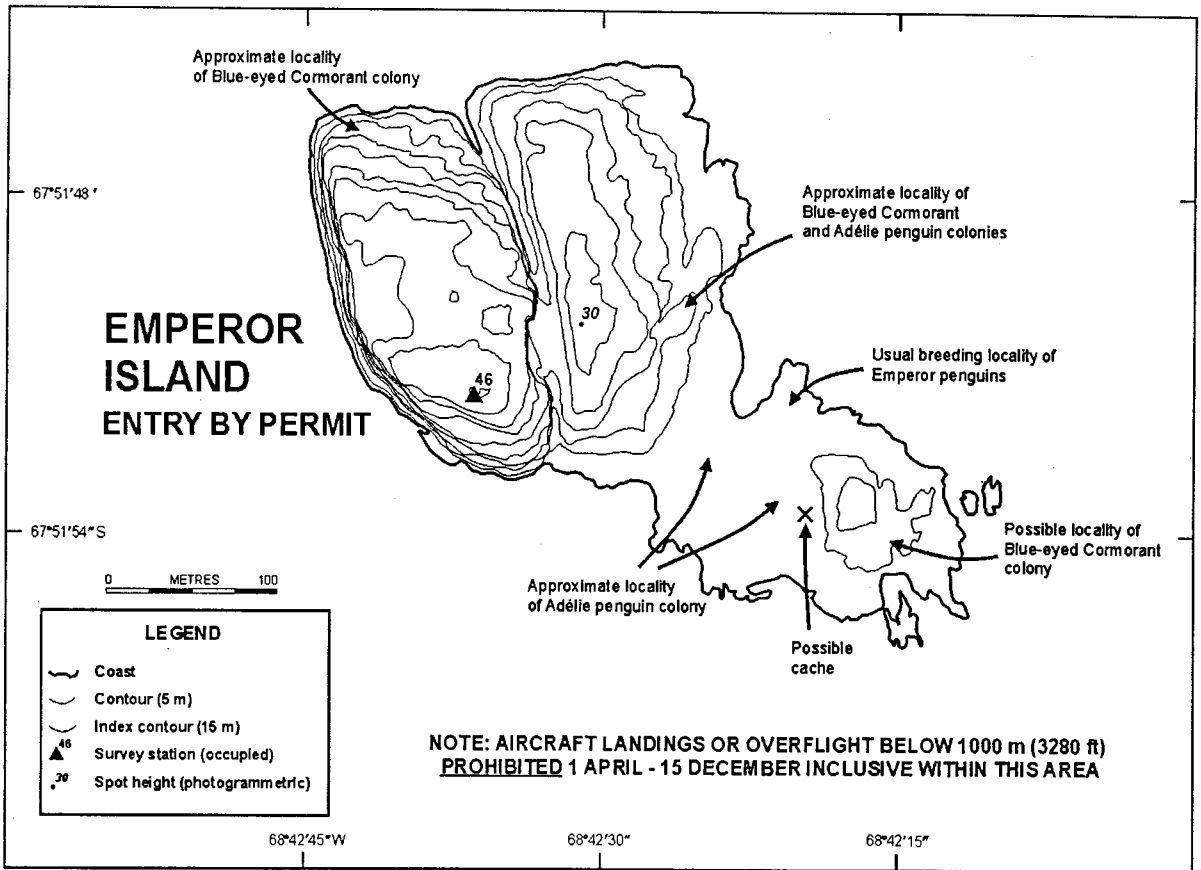
The nearest protected areas to Emperor Island are Avian Island (ASPA No. 117) about 12.75 km NNW, Lagotellerie Island (ASPA No. 115) 58 km east, and Rothera Point (ASPA No. 129) 41 km to the NE (Map 1).



Map 1. Emperor Island, Dion Islands, ASPA No. 107, location map.



Map 2. Emperor Island, Dion Islands, ASPA No. 107, topographic map



Map 3. Emperor Island (within ASPA No. 107) topographic map

7. Permit conditions

Entry into the Area is prohibited except in accordance with a Permit issued by an appropriate national authority. Conditions for issuing a Permit to enter the Area are that:

- it is issued only for compelling scientific reasons that cannot be served elsewhere, in particular for scientific study of the avifauna and ecosystem of the Area, or for essential management purposes consistent with plan objectives such as inspection, maintenance or review;
- the actions permitted will not jeopardise the values of the Area;
- any management activities are in support of the objectives of the management plan;
- the actions permitted are in accordance with the management plan;
- the Permit, or an authorised copy, shall be carried within the Area;
- a visit report shall be supplied to the authority named in the Permit;
- permits shall be issued for a stated period;
- the appropriate authority should be notified of any activities/measures undertaken that were not included in the authorised Permit.

7(i) Access to and movement within the Area

- Subject to the following restrictions, access to the Area shall be by boat, aircraft or over sea ice by vehicle or foot.
- Vehicles are prohibited on land within the Area and all movement on land within the Area shall be on foot.
- Access shall be conducted so as to minimise disturbance to any fauna that may be present, and vehicles or boats should not approach closer than 200 m to any breeding colony.
- There are otherwise no special restrictions on the locations where vehicle or small boat travel or landings may be made, but this shall be by the shortest route consistent with the restrictions in this plan and the objectives and requirements of the permitted activities.
- Aircraft are prohibited from landing within the Area or overflying the Area below 1000 m in the period 1 April to 15 December inclusive.
- Vehicle, aircraft or boat crew, or other people on vehicles, aircraft or boats, are prohibited from moving on foot beyond the immediate vicinity of their landing site unless specifically authorised by Permit.
- All movement should be undertaken carefully so as to minimise disturbance to breeding birds, the soil and vegetated surfaces.
- Pedestrian traffic should be kept to the minimum consistent with the objectives of any permitted activities and every reasonable effort should be made to minimise effects.

7(ii) Activities that are or may be conducted in the Area, including restrictions on time or place

- Scientific research that will not jeopardise the avifauna or ecosystem of the Area, and which is for compelling reasons that cannot be served elsewhere;
- Essential management activities, including monitoring;
- Restrictions on times and locations at which aircraft may operate within the Area apply, specified in Section 7 (i) of this Management Plan.

7(iii) Installation, modification or removal of structures

Structures shall not be erected within the Area except as specified in a Permit and permanent structures or installations are prohibited. Small temporary refuges, hides, blinds or screens may be constructed for the purpose of scientific study of the avifauna. Installation (including site selection), removal, modification or maintenance of structures shall be undertaken in a manner that minimises disturbance to breeding birds. All scientific equipment or markers installed within the Area must be clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of harm to bird populations or of contamination of the Area. Removal of specific structures, equipment or markers for which the Permit has expired shall be a condition of the Permit.

7(iv) Location of field camps

Temporary camping within the Area is allowed when necessary for purposes specified in the Permit. Specific campsite locations have not been designated, but camping within 200 m of the emperor penguin colony should be avoided.

7(v) Restrictions on materials and organisms that can be brought into the Area

No living animals, plant material, pathogens or microorganisms shall be deliberately introduced into the Area and the precautions listed in 7(ix) below shall be taken against accidental introductions. In view of the presence of breeding bird colonies on Emperor Island, no poultry products, including products containing uncooked dried eggs, including wastes from such products, shall be released into the Area, including into the sea. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management purposes specified in the Permit, shall be removed from the Area at or before the conclusion of the activity for which the Permit was granted. Fuel is not to be stored in the Area, unless specifically authorised by Permit for specific scientific or management purposes. All materials introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of their introduction into the environment is minimised. If release occurs which is likely to compromise the values of the Area, removal is encouraged only where the impact of removal is not likely to be greater than that of leaving the material *in situ*. The appropriate authority should be notified of any materials released and not removed that were not included in the authorised Permit.

7(vi) Taking or harmful interference with native flora or fauna

Taking or harmful interference with native flora or fauna is prohibited, except by Permit issued in accordance with Annex II to the Protocol on Environmental Protection to the Antarctic Treaty. Where taking or harmful interference with animals is involved, the *SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica* should be used as a minimum standard.

7(vii) Collection or removal of anything not brought into the Area by the Permit holder

Collection or removal of anything not brought into the Area by the Permit holder shall only be in accordance with a Permit and should be limited to the minimum necessary to meet scientific or management needs. Permits shall not be granted in instances where it is proposed to take, remove or damage such quantities of soil, native flora or fauna that their distribution or abundance within the Area would be significantly affected. Samples of flora or fauna found dead within the Area may be removed for analysis or audit without prior authorisation by Permit. Anything of human origin likely to compromise the values of the Area, which was not brought into the Area by the Permit Holder or otherwise authorised, may be removed unless the impact of removal is likely to be greater than leaving the material *in situ*: if this is the case the appropriate authority should be notified.

7(viii) Disposal of waste

All wastes, except human wastes, shall be removed from the Area. Human wastes shall be removed from the Area or disposed of into the sea.

7(ix) Measures that are necessary to ensure that the aims and objectives of the management plan can continue to be met

1. Permits may be granted to enter the Area to carry out monitoring and site inspection activities, which may involve the small-scale collection of samples for analysis or review, or for protective measures.
2. Any specific long-term monitoring sites shall be appropriately marked.
3. To help maintain the ecological and scientific values found at Emperor Island visitors shall take special precautions against introductions. Of concern are pathogenic, microbial or plant introductions sourced from other Antarctic sites, including stations, or from regions outside Antarctica. Visitors shall ensure that sampling equipment or markers brought into the Area are cleaned or sterilised. To the maximum extent practicable, footwear and other equipment used or brought into the Area (including backpacks, carry-bags and tents) shall be thoroughly cleaned before entering the Area.
4. Poultry products and other introduced avian products, which may be a vector of avian diseases, shall not be released into the Area.

7(x) Requirements for reports

Parties should ensure that the principal holder for each Permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the management plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be used both in any review of the management plan and in organising the scientific use of the Area.

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Annex 1.

6(i) Additional information on the natural features of the Area.

CLIMATE AND SEA ICE

Extended meteorological records are not available for Dion Islands, but records from 1962-74 for Adelaide Base (formerly UK; now Teniente Luis Carvajal, Chile), show a mean daily maximum temperature of 3°C in February (extreme maximum 9°C) and a mean daily minimum of -8°C in August (extreme minimum -44°C). This general pattern is consistent with observations at the Dion Islands recorded by Stonehouse (1953) during the winter of 1949, who also noted that the dominant winds occurred from a northerly direction. The islands are surrounded by fast ice up to 2 m thick for about seven months of the year, with a variable presence of open water and pack ice during the summer.

GEOLOGY, GEOMORPHOLOGY AND SOILS

The geology of the Dion Islands consists of dark fine-grained lavas and tuffs of Jurassic to Early Tertiary age belonging to the Antarctic Peninsula Volcanic Group (Dewar 1970, Moyes *et al* 1994). Andesitic and basaltic lavas and pyroclastic rocks dominate toward the south, while in the north are found well-bedded sedimentary and volcanoclastic rocks. Shales, sandstones, grits and conglomerates are also present, usually as thin units of up to about 1 m thick (Skinner 1969). Poorly preserved plant fossils have been observed on Consort Islands and Noble Rocks, where indeterminate carbonaceous compressions, presumably representing tree trunks, of up to 1 m across occur (Thomson 1972). Flattened, carbonised and mineralised logs, up to 4 m long and 50 cm across, are common in siltstones on these islands (Thomson and Griffiths 1994). Small veins of copper are prominent as green streaks on the rocks.

There is virtually no soil development in the island group, except for small pockets of ornithogenic mud composed largely of guano, decayed moss and *Prasiola crispa*, notably on Emperor Island. Deposits of pure guano 10-30 cm thick have been observed on the edge of the Emperor Island cormorant colony. On the raised pebble beach on the largest of the Courtier Islands, periglacial circles of a yellowish-brown clay suggest an ornithogenic origin, although bird colonies do not presently occupy the site. In moist depressions this soil type is colonised by the moss *Sanionia uncinata* (= *Drepanocladus uncinatus*). The soils have exceptionally high concentrations of Ca, P and Mg, and also of Na in soils associated with the seabird colonies, as, for example, near the cormorant colony on Emperor Island (Smith 1996).

Several small low-lying areas on the Courtier and Emperor islands consist of large pebbles, suggesting raised beach deposits. The deposits occur on the south-eastern side of Emperor Island and on the largest of the Courtier Islands. Small sorted soil circles are evident in the deposits at about 6 m above mean sea level on this island. The geomorphology of the Dion Islands has otherwise not been described.

BREEDING BIRDS

Six species of birds have been recorded as breeding on Dion Islands. Owing to the difficulties of access, however, data are few and dated. Descriptions below are thus often based on limited and/or old observations and it should be emphasised that these data are therefore not necessarily representative of present numbers or trends.

The outstanding feature of the avifauna is the presence of a small colony of emperor penguins which typically breeds on a low-lying shingle beach and rocky headland on the northern coast of south-eastern Emperor Island. The colony was discovered in October 1948 by Stonehouse (1953), who studied the breeding behaviour and performance, while Glenister (1954) investigated emperor penguin embryology from specimens taken by Stonehouse. It is the only emperor penguin colony in this region of Antarctica; it is also the most northerly colony and possibly the smallest, and one of only two in which breeding occurs on land (the other is at Taylor Rookery, SPA No. 1). It is also the most isolated, being about 2500 km (by sea) from the nearest known breeding colony. Stonehouse (1953) reported that the birds spent most of their time on the low-lying beach, occupying an area of about 650 m².

Stonehouse (1953) reported numbers of adult birds varying between 100 and 183 during the 1949 winter (observations between 5 June – 15 August), and from egg counts it was estimated that about 150 breeding pairs were present. In the previous year 100 adults and 70 chicks were counted. Egg-laying occurred from around 1 June until 29 June, 1949, with most eggs laid in the first week. Birds laid one egg per pair, and replacement eggs were not laid if originals were lost. Initially, eggs were passed a number of times between pair partners, eventually being held by the male for incubation over several months while their partners were at sea, most of which returned around the end of July / early August when hatching occurred. The numbers of adult birds present increased after hatching, with frequent arrivals and departures. Observations made on chicks the previous year showed they had formed *crèches* by October, and some evidence in the 1949 season suggested *crèches* were formed around a month earlier. A chick mortality rate of less than 10% was estimated by Stonehouse for this season.

Fluctuations in numbers have been discussed by Conroy (1975), Croxall and Kirkwood (1979) and Woehler (1993). Approximately 150 breeding pairs were observed until about 1968, with some evidence (based on aerial photographs) of an increase (possibly to about 500 pairs) in 1977. However, it is probable this latter count included Adélie penguins which breed nearby, as only 70-80 adults and about 20 chicks were reported from a ground count in late July 1978 (Poncet 1982). The most recent count was made in July 1999, when only 14 males with eggs were counted in the same location on Emperor Island. It is not known whether this number is typical of recent seasons. If so, continued presence of the colony may be marginal.

A small colony of Adélie penguins (*Pygoscelis adeliae*) in several groups occupies the south-eastern part of Emperor Island. A rough count in 1948 indicated about 500 pairs, while a 1969 estimate indicated about 175 pairs. The most recent data available (a rough estimate made in 1986) indicated a population of 700 breeding pairs (Poncet and Poncet 1987, Woehler 1993).

A small colony of blue-eyed cormorants (*Phalacrocorax atriceps*) was present in the Dion Islands in October 1948, although numbers were not recorded (Stonehouse 1949). About 50 pairs were recorded on Emperor Island on 30 August 1968 (Willey 1969), while a more precise nest count at the same location in February 1969 recorded 107 pairs and 33 pairs in two adjacent groups. About 200 empty nests were counted on broad ledges on the steep north-western side of Emperor Island in July 1978, and there was evidence of the smaller breeding group closer to the location of the emperor penguin colony (BAS internal records, Bonner and Smith 1984). In February 1986, 388 pairs were recorded in two main colonies on Emperor Island, one in the north and one in the southeast. Eight pairs were recorded nesting within the Adélie penguin colony (Poncet pers comm., 1999).

Kelp gulls (*Larus dominicanus*) and brown skuas (*Catharacta loennbergi*) are numerous, with several pairs nesting on the larger islands (Bonner and Smith 1984). A breeding pair of kelp gulls with a chick was observed on Consort Islands on 24 February 1969 (BAS internal records). Southern giant petrels (*Macronectes giganteus*), cape petrels (*Daption capensis*) and snow petrels (*Pagodroma nivea*) are frequently seen around the islands, but breeding of these or other seabirds that have been observed in the area is unconfirmed, the nearest major breeding site being Avian Island, 12.75 km to the north-west. A few Wilson's storm petrel (*Oceanites oceanicus*) nests were noted on Emperor Island in February 1969 (BAS internal records).

VEGETATION

Vegetation on Dion Islands is generally sparse, and the flora has not been described in detail. Collections have been made principally on Emperor and Consort islands. Phanerogams are absent from the island and there is a limited range of cryptogams, although there is a rich lichen flora. The few taxa recorded on the islands are typical of maritime Antarctic sites exposed to strong winds, sea spray and nitrogenous enrichment from seabirds. The flora of the Area is not regarded as possessing properties that in itself merits special protection. To date, six mosses and at least 19 lichen species have been identified as present within the Area (BAS Plant Database 1999).

Bryophytes are restricted to small patches dominated by *Sanionia uncinata* (= *Drepanocladus uncinatus*) in moist hollows where there is some soil accumulation. The most substantial stands, covering several square metres, occur on the largest of the Courtier Islands. *Bryum pseudotriquetrum* (= *Bryum algens*), *Ceratodon purpureus* and *Pohlia nutans* are usually associated. The moss *Syntrichia princeps* (= *Tortula princeps*) has been recorded on Courtier Islands and *Polytrichastrum alpinum* (= *Polytrichum alpinum*) has been recorded on Emperor Island.

The epipetric communities are composed entirely of lichens. Macrolichens, such as *Usnea* and *Umbilicaria*, are rare although are common in the general region. The most prominent lichens include *Acarospora macrocyclos*, *Amandinea petermannii*, *Buellia anisomera*, *B. cf. latemarginata*, *B. russa*, *Caloplaca cirrochrooides*, *C. spp.*, *Lecania brialmontii*, *Lecanora spp.*, *Lecidea atrobrunnea*, *L. spp.*, *Mastodia tessellata*, *Physcia caesia*, *Usnea antarctica*, *Verrucaria elaeoplaca*, *V. psychrophilia*, *Xanthoria candelaria* and *X. elegans*. *Haematomma erythromma* is frequent on the largest of the Courtier Islands. The only soil encrusting lichen noted is *Candelariella vitellina*. Moist rock depressions and faces associated with sea bird colonies support small patches of the alga *Prasiola crispa* and cyanobacterium *Phormidium*.

INVERTEBRATES, FUNGI, BACTERIA

The microinvertebrate fauna, fungi and bacteria on Dion Islands have yet to be investigated in detail. Nine species of microinvertebrate fauna have been recorded from the island group (BAS Invertebrate Database 1999): two Collembola (*Cryptopygus antarcticus*, *Friesea grisea*); one mesostigmatid mite (*Gamasellus racovitzi*), four cryptostigmatid mites (*Alaskozetes antarcticus*, *Halozetes belgicae*, *Magellozetes antarcticus* and *Globoppia loxolineata* (= *Oppia loxolineata*)); and two prostigmatid mites (*Eupodes minutus* and *Pretrioptychus tilbrooki*). The dominant species are *Cryptopygus antarcticus* and *Alaskozetes antarcticus*.

Nematodes have been recorded as abundant in *Sanionia uncinata* on the largest of the Courtier Islands, but were rare in *Prasiola* growing on Emperor Island (Bonner and Smith 1985). A sample of *Sanionia uncinata* intermixed with *Bryum pseudotriquetrum* from Emperor Island yielded several nematode taxa: mostly of the genus *Mesodorylaimus*, with *Plectus* and *Eudorylaimus* also present (Spaul 1973). Of the tardigrades in the sample, most were *Macrobiotus furciger* and *Hypsibius dujardini*, with a small proportion of *H. alpinum* and *H. pinguis* also present. Of nine specimens recovered from a soil sample from Consort Islands all were *H. renaudi* (Jennings 1976). Rotifers have been recorded on Emperor Island, although no protozoans. Three predacious fungi have been isolated from the Dion Islands: an unidentified endoparasite from *Sanionia uncinata* on Courtier Islands; and *Arthrotrix robusta* and *Cephalosporium balanoides* from *Prasiola* on Emperor Island (Gray and Smith 1984).

BREEDING MAMMALS AND MARINE ENVIRONMENT

Crabeater seals (*Lobodon carcinophagus*) are common on ice floes near the islands, with Weddell seals (*Leptonychotes weddellii*) and Leopard seals (*Hydrurga leptonyx*) being less frequent visitors (Bonner and Smith 1985). A single immature bull Elephant seal (*Mirounga leonina*) was seen on the largest of the Courtier Islands on 14 March 1981. The marine environment within the Area has not been investigated.

HUMAN ACTIVITIES AND IMPACTS

There has been little human activity at the Dion Islands. Visits have comprised a mixture of science and topographical survey. The impacts of activities such as these have not been described and are not known, but are believed to have been minor and limited to items such as transient disturbance to breeding birds, campsites, footprints, occasional litter, human wastes, scientific sampling and markers. A fuel drum, a box (possibly a food cache, as mentioned in 1969 field reports), and several poles were apparent in aerial photographs of Emperor Island taken in December 1998, although their status has not been assessed in the field.

Management Plan for Antarctic Specially Protected Area No. 108 GREEN ISLAND, BERTHELOT ISLANDS, ANTARCTIC PENINSULA

1. Description of values to be protected

Green Island (Latitude 65°19' S, Longitude 64°09' W, approximately 0.2 km²), Berthelot Islands, Granddier Channel, Antarctic Peninsula, was originally designated as a Specially Protected Area through Recommendation IV-9 (1966, SPA No. 9) after a proposal by the United Kingdom. It was designated on the grounds that the vegetation "is exceptionally rich, [and] is probably the most luxuriant anywhere on the west side of the Antarctic Peninsula". The Recommendation noted: "in some places the humus is 2 metres thick and that this area, being of outstanding scientific interest, should be protected because it is probably one of the most diverse Antarctic ecosystems". A Management Plan for the site was prepared by the United Kingdom and adopted through Recommendation XVI-6 (1991). The original reasons for designation were extended and elaborated, although following comparisons to other sites in the vicinity, Green Island was no longer considered

to be particularly diverse. The vegetation on the island was described as extensive on the north-facing slopes, with well-developed continuous banks of moss turf formed by *Chorisodontium aciphyllum* and *Polytrichum strictum* that, over much of their extent, overlie peat of more than one metre in depth. Antarctic hair grass (*Deschampsia antarctica*), one of only two native vascular plants that grow south of 56°S, was noted as frequent in small patches near a blue-eyed cormorant (*Phalacrocorax atriceps*) colony. The colony of blue-eyed cormorants, located on the steep, rocky northwestern corner of the island, was noted as being possibly one of the largest along the Antarctic Peninsula.

The present management plan reaffirms the values of the rich *Chorisodontium-Polytrichum* moss turf as being the primary reason for special protection of Green Island. The *Polytrichum strictum* moss banks, with associated *Chorisodontium aciphyllum*, are considered to be the most extensive examples of this vegetation feature in the west Antarctic Peninsula region, occupying an area of over 0.5 ha. Moreover, in recent years many comparable moss banks on more northerly islands have suffered damage as a result of an increase in Antarctic fur seals (*Arctocephalus gazella*). The vegetation at Green Island has thus far escaped any significant damage. In addition, *Chorisodontium aciphyllum* is close to the southern-most limit of its range at the Berthelot Islands. The blue-eyed cormorant colony was one of the largest along the Antarctic Peninsula in 1981, when 500-600 individuals were present, and, until more recent data confirm otherwise, the value of this colony as one of the largest known, is included as an additional value and thus a further reason for special protection of Green Island.

Green Island has been afforded protection throughout most of the period of scientific activity in the region, with entry permits having been issued for only the most compelling scientific reasons. The island has not been subjected to intensive visitation, research or sampling and is potentially valuable as a baseline site for future studies. Due to the lack of visits and scientific studies, detailed information on the island's geography and ecology is lacking.

The coastline boundary of the original Area has not been changed, but the boundary is defined more precisely to include the whole island above the low tide water level, excluding offshore islets and rocks.

2. Aims and objectives

Management at Green Island aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance and sampling in the Area;
- preserve the ecosystem of the Area for its potential as a largely undisturbed reference area;
- allow scientific research on the ecosystem in the Area provided it is for compelling reasons which cannot be served elsewhere, in particular research which is expected to improve knowledge of the features and communities identified of special value, and which gathers baseline data on the island's features for which information is poor or not available;
- minimise the possibility of introduction of alien plants, animals and microbes to the Area;
- allow visits for management purposes only in support of the aims of the management plan.

3. Management activities

The following management activities shall be undertaken to protect the values of the Area:

- A map showing the location of the Area (stating the special restrictions that apply) shall be displayed prominently at Akademik Vernadsky Station (Ukraine), where copies of this Management Plan shall be made available.
- Markers, signs or other structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition.
- Visits should be made as necessary (preferably at least once every five years) to assess whether the Area continues to serve the purposes for which it was designated and to ensure management and maintenance measures are adequate.

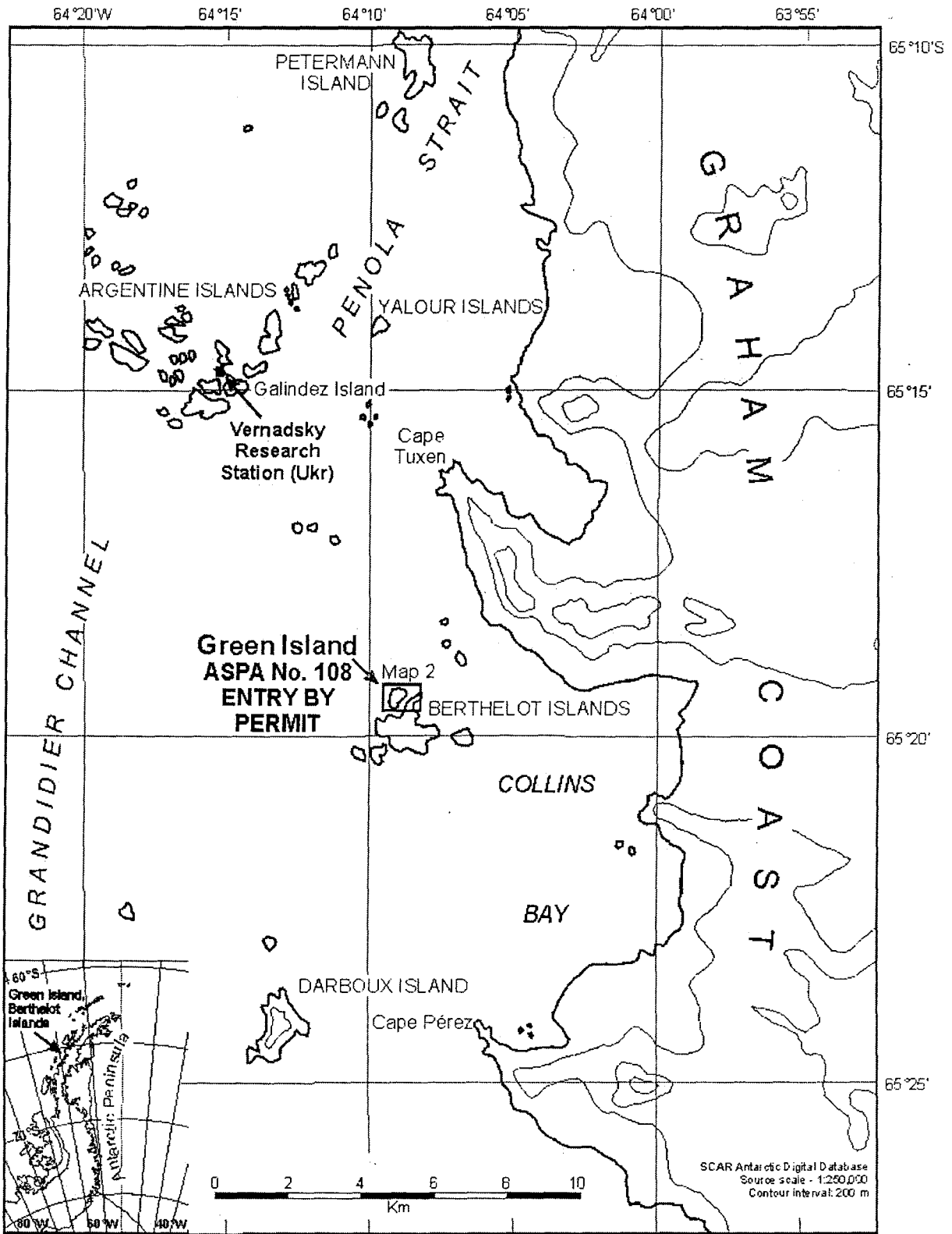
4. Period of designation

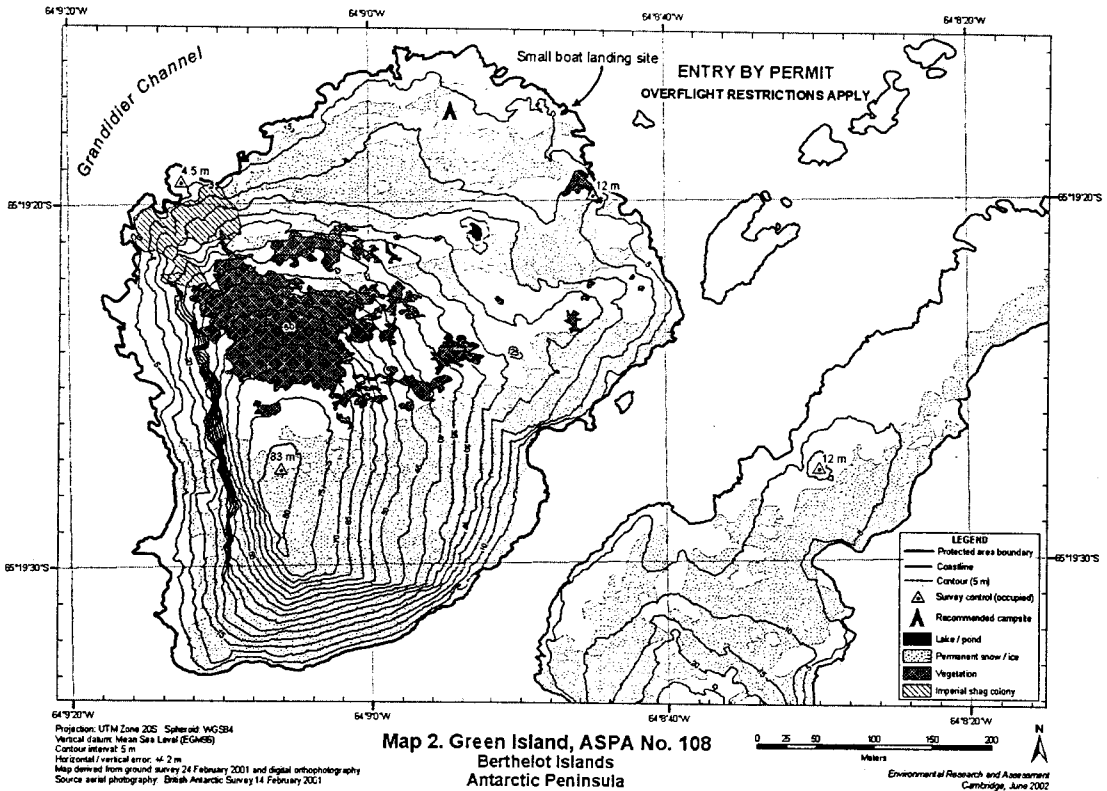
Designated for an indefinite period.

5. Maps and photographs

Map 1: Green Island, ASPA No. 108, in relation to the Graham Coast, showing the location of Akademik Vernadsky Station (Ukraine). Inset: location of the Berthelot Islands on the Antarctic Peninsula.

Map 2: Green Island, ASPA No. 108, topographic map. Map derived from ground survey 24 February 2001 and digital orthophotography (ground pixel resolution 12 cm; source aerial photography taken 14 February 2001 by the British Antarctic Survey). Ground features (vegetation, permanent snow, colony, coastline and ponds) are digitised from the orthophotograph. Vegetation distribution indicates the principal moss banks, dominated by *Polytrichum strictum*. Map specifications – Projection: UTM Zone 20S; Spheroid: WGS84; Datum: mean sea level (EGM96). Vertical contour interval 5 m. Horizontal and vertical accuracy: ±2.0 m.





6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

GENERAL DESCRIPTION

Green Island (65°19' S, 64°09' W, approximately 0.2 km²) is a small island situated 150 m north of the largest of the Berthelot Islands group, Grandidier Channel, approximately 3 km off the Graham Coast of the Antarctic Peninsula (Map 1). Green Island is 520 m from north to south and 500 m from east to west, rising to a rounded peak at a height of 83 m. The island rises steeply on all sides, with high precipitous cliffs on the south and east side. The largest extent of low ground occurs above the northern coast, which comprises a gently sloping rock platform. There are several permanent snow patches with the largest occurring around the summit and to the south and east of the summit.

BOUNDARIES

The designated area comprises the entire island, with the boundary defined as the low tide level. Offshore islets and rocks are not included within the Area. Boundary markers have not been installed. The coast itself is a clearly defined and visually obvious boundary feature.

CLIMATE

No climate data are available for Green Island but conditions are expected to be similar to those at Akademik Vernadsky Station (Ukraine) on Galindez Island, Argentine Islands 8 km to the north. The mean summer

temperature at Vernadsky is 0°C while the extreme maximum summer temperature is 11.7°C. In winter, the mean temperature is -10°C and the extreme minimum temperature is -43.3°C. The mean wind speed is 7.5 knots.

GEOLOGY AND SOILS

Green Island, together with the rest of the Berthelot Islands, is composed of gabbro of Lower Jurassic to Lower Tertiary age (British Antarctic Survey 1981). No further information is available on the geology of Green Island. Excluding the large peat deposits, soil is sparse and seldom exceeds 20 cm in depth, except occasionally in rock depressions and gullies. This is predominantly an ahumic coarse mineral soil derived from weathering of the parent rock. Ledges and gullies close to the Blue-eyed Cormorant colony contain an organically richer soil derived in part from decayed moss and guano. Over much of the steep northern slopes the mosses *Chorisodontium aciphyllum* and *Polytrichum strictum* have developed a deep turf of living moss overlying at least 1 m of barely altered or decomposed moss peat (Smith 1979, Fenton and Smith 1982). The permafrost layer is found 20-30 cm below ground level. Elsewhere on the island, notably the northeastern side, there are small areas of scree. There are no well-developed periglacial features, although a few small stone circles are occasionally evident.

VEGETATION

The most significant feature of the vegetation is the extensive continuous stand of *Polytrichum strictum* (= *Polytrichum alpestre*) on the northern slopes of the island (Map 2). The stand is approximately 140 m wide, extends from an elevation of approximately 25 m up to 70 m, and covers over 0.5 ha (Bonner and Smith 1985). Growth is lush and the permanently frozen peat in places reaches two metres deep. The surface of the hard compact moss is stepped, which is thought to be a result of slumping of the active layer on the steep slope. *Chorisodontium aciphyllum* (= *Dicranum aciphyllum*) is abundant at the edges of the bank and around the periphery of small gullies in the bank, where there is some shelter and moisture available from drifted snow. Both these tall turf-forming mosses are usually intimately intermixed in such communities further north in the maritime Antarctic; however, in the Grandidier Channel region the more xeric *P. strictum* often occurs alone. *C. aciphyllum* is close to its southernmost limit on Green Island (Smith 1996). Amongst the *C. aciphyllum*, *Pohlia nutans* is frequent, together with the liverworts *Barbilophozia hatcheri* and *Cephaloziella varians*. Epiphytic lichens are not abundant on the live *Polytrichum* and *Chorisodontium*, but *Sphaerophorus globosus* is frequent in the more exposed northwestern area. Several species of *Cladonia* are widespread on the moss banks. The white encrusting epiphyte *Ochrolechia frigida* is present but not abundant here; black crustose species occur on moribund moss.

Wet hollows among rocks and melt runnels support small stands of the mosses *Warnstorfia laculosa* (= *Calliergidium austro-stramineum*), *Brachythecium austro-salebrosum* and *Drepanocladus uncinatus*. Elsewhere lichens dominate the vegetation. On rocks and boulders away from the shore and the influence of seabirds, a community dominated by *Usnea antarctica* and species of *Umbilicaria* (*U. antarctica*, *U. decussata* and *U. propagulifera*) prevail, with the mosses *Andreaea depressinervis* and *A. regularis* and various crustose lichens associated. Cliffs above the shore possess the most diverse and heterogeneous communities, composed predominantly of lichens. These are a modification of the *Usnea-Umbilicaria* community with various nitrophilous taxa, especially close to seabird nests, including species of *Acarospora*, *Buellia*, *Caloplaca*, *Lecanora*, *Mastodia*, *Omphalodina*, *Physcia* and *Xanthoria*.

The only flowering plant thus far recorded on Green Island is Antarctic hair grass (*Deschampsia antarctica*), which is frequent in small patches above the cormorant colony and on rock ledges on the western side of the island.

BREEDING BIRDS

A sizeable colony of blue-eyed cormorants (*Phalacrocorax atriceps*) is present on the steep, rocky northwestern flank of the island (Map 2). This is one of the largest known blue-eyed cormorant colonies along the Antarctic Peninsula (Bonner and Smith 1985), although numbers may vary substantially from year to year. Approximately 50 pairs were estimated as present in 1971 (Kinnear 1971), while 112 birds were recorded in 1973 (Schlatter and Moreno 1976). 500-600 individuals (of which 300-400 were immatures) were present when visited in March 1981. Harris (2001) recorded 71 chicks on 24 February 2001.

Brown skuas (*Catharacta loennbergi*) are numerous over much of the island, particularly on the extensive moss banks. South polar skuas (*C. maccormicki*) are also present, along with a few possible hybrids. Over 80 birds were noted in March 1981, but only ten breeding pairs were confirmed, most of which were rearing two chicks. No other breeding birds were noted.

INVERTEBRATES, FUNGI AND BACTERIA

There is little information on the invertebrate fauna at Green Island, although 15 species were recorded in a study that suggested the invertebrate fauna on Green Island was comparatively diverse for the region (Usher and Edwards 1986). The most abundant species were *Cryptopygus antarcticus*, *Belgica antarctica* and *Nanorchestes*

gressitti. Larval *B. antarctica* were particularly abundant on Green Island compared to neighbouring Darboux Island. Other species recorded in the Area are: *Alaskozetes antarcticus*; *Ereynetes macquariensis*; *Eupodes minutus*; *Eupodes parvus grahamensis*; *Friesea grisea*; *Gamasellus racovitzai*; *Halozetes belgicae*; *N. berryi*; *Oppia loxolineata*; *Parisotoma octo-oculata*; *Rhagidia gerlachei*; and *Stereotydeus villosus*. A definitive characterisation of the arthropod fauna on Green Island cannot be given until more site-specific research has been conducted. Information on fungal and bacterial communities is not available. There are no permanent freshwater bodies on the island, and there is no information available on seasonal freshwater communities.

HUMAN ACTIVITIES AND IMPACTS

There have been few reported visits to Green Island. The first recorded landing on the island was by the Première Expédition Antarctiques Française in 1903-05. The Deuxième Expédition Antarctiques Française visited Green Island several times during the winter in 1909. The British Graham Land Expedition landed on the island on 18 March 1935. Vegetation studies were undertaken on Green Island by Lewis-Smith in 1981 (Bonner and Smith 1985) and Komárková in 1982-83 (Komárková 1983). Numerous 30 cm lengths of 2.5 mm diameter iron wire, marking the corners of 50 m square quadrats of the *Polytrichum strictum* moss turf overlying the peat banks, were recorded (and left *in situ*) by an inspection team in January 1989 (Heap 1994). It is not known precisely when these markers were installed. The number of markers, their distribution and the nature of any possible contamination these may have had on the moss is unknown.

In recent years a number of important vegetation sites in the Antarctic Peninsula region have been subjected to damage from trampling and nutrient enrichment by increasing numbers of Antarctic fur seals (*Arctocephalus gazella*). While no Antarctic fur seals were observed on Green Island during a site visit made on 24 February 2001, there was some evidence of recent trampling and nutrient enrichment on parts of the lower moss banks. However, damage appeared limited and most of the extensive moss banks remained in tact.

6(ii) Restricted and managed zones within the Area

None.

6(iii) Structures within and near the Area

There are no structures present in the Area. The nearest scientific research station is Akademik Vernadsky (Ukraine) (65°15'S, 64°16'W), approximately 9 km north of the Area on Galindez Island.

6(iv) Location of other protected areas within close proximity of the Area

The nearest protected areas to Green Island are Biscoe Point (ASPANo. 139), 62 km north, and Litchfield Island (ASPANo. 113), 63 km north, both near the southern coast of Anvers Island.

7. Permit conditions

Entry into the Area is prohibited except in accordance with a Permit issued by an appropriate national authority. Conditions for issuing a Permit to enter the Area are that:

- it is issued only for compelling scientific reasons that cannot be served elsewhere, or for essential management purposes consistent with plan objectives such as inspection, maintenance or review;
- the actions permitted will not jeopardise the ecological or scientific values of the Area;
- any management activities are in support of the objectives of the Management Plan;
- the actions permitted are in accordance with the Management Plan;
- the Permit, or an authorised copy, shall be carried within the Area;
- a visit report shall be supplied to the authority named in the Permit;
- permits shall be issued for a stated period;
- the appropriate authority should be notified of any activities/measures undertaken that were not included in the authorised Permit

7(i) Access to and movement within the Area

- Subject to the following restrictions, access to the Area shall be by boat, or over sea ice by vehicle or foot.
- Vehicles are prohibited within the Area and all movement within the Area shall be on foot.
- Access to the island should be made on the rocky northern coast (Map 2). No special restrictions apply to the routes used to move to and from the Area.
- Aircraft are prohibited from landing within the Area year-round, and restrictions apply to overflight (see Table 1 below).
- Vehicle or boat crew, or other people on vehicles or boats, are prohibited from moving on foot beyond the immediate vicinity of their landing site unless specifically authorised by Permit.

- All movement should be undertaken carefully so as to minimise disturbance to the soil and vegetated surfaces and birds present, walking on snow or rocky terrain if practical.
- Pedestrian traffic should be kept to the minimum consistent with the objectives of any permitted activities and every reasonable effort should be made to minimise trampling effects.

Table 1: Aircraft overflight restrictions applying year-round at Green Island.

Aircraft type	Number of engines	Minimum approach distance (m)	
		Vertical (above ground)	
		Feet	Metres
Helicopter	1	2461	750
Helicopter	2	3281	1000
Fixed-wing	1 or 2	1476	450
Fixed-wing	4	3281	1000

7(ii) Activities that are or may be conducted in the Area, including restrictions on time or place

Scientific research that will not jeopardise the ecosystem or scientific values of the Area, and which cannot be served elsewhere;

Essential management activities, including monitoring;

7(iii) Installation, modification or removal of structures

Structures shall not be erected within the Area except as specified in a Permit and permanent structures or installations are prohibited. All scientific equipment installed in the Area must be approved by Permit and clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of contamination of the Area. Removal of specific equipment for which the Permit has expired shall be a condition of the Permit.

7(iv) Location of field camps

When necessary for purposes specified in the Permit, temporary camping is allowed within the Area on the low platform on the northern coast (Map 2). Camps should preferably be located on snow surfaces, which typically persist in this locality, or on gravel / rock when snow cover is absent. Camping on continuously covered vegetated surfaces is prohibited.

7(v) Restrictions on materials and organisms, which can be brought into the Area

No living animals, plant material or microorganisms shall be deliberately introduced into the Area and the precautions listed in 7(ix) below shall be taken to prevent accidental introductions. In view of the presence of breeding bird colonies on the island, no poultry products, including products containing uncooked dried eggs, including wastes from such products, shall be released into the Area or into the adjacent sea. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management purposes specified in the Permit, shall be removed from the Area at or before the conclusion of the activity for which the Permit was granted. Fuel is not to be stored in the Area, unless specifically authorised by Permit for specific scientific or management purposes. Anything introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of any introduction into the environment is minimised. If release occurs which is likely to compromise the values of the Area, removal is encouraged only where the impact of removal is not likely to be greater than that of leaving the material *in situ*. The appropriate authority should be notified of anything released and not removed that was not included in the authorised Permit.

7(vi) Taking or harmful interference with native flora or fauna

Taking or harmful interference with native flora or fauna is prohibited, except by Permit issued in accordance with Annex II to the Protocol on Environmental Protection to the Antarctic Treaty. Where taking or harmful interference with animals is involved, the *SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica* should be used as a minimum standard.

7(vii) Collection or removal of anything not brought into the Area by the Permit holder

Collection or removal of anything not brought into the Area by the Permit holder shall only be in accordance with a Permit and should be limited to the minimum necessary to meet scientific or management needs. Permits shall not be granted in instances where it is proposed to take, remove or damage such quantities of soil, native flora or fauna that their distribution or abundance on Green Island would be significantly affected. Anything of

human origin likely to compromise the values of the Area, which was not brought into the Area by the Permit Holder or otherwise authorised, may be removed unless the impact of removal is likely to be greater than leaving the material *in situ*: if this is the case the appropriate authority should be notified.

7(viii) Disposal of waste

All wastes, including all human wastes, shall be removed from the Area. Human wastes may be disposed of into the sea.

7(ix) Measures that are necessary to ensure that the aims and objectives of the Management Plan can continue to be met

Permits may be granted to enter the Area to carry out monitoring and site inspection activities, which may involve the small-scale collection of samples for analysis or review, or for protective measures. Any specific long-term monitoring sites shall be appropriately marked. To help maintain the ecological and scientific values of Green Island special precautions shall be taken against introductions. Of concern are microbial, invertebrate or plant introductions from other Antarctic sites, including stations, or from regions outside Antarctica. All sampling equipment or markers brought into the Area shall be cleaned or sterilised. To the maximum extent practicable, footwear and other equipment used or brought into the Area (including backpacks, carry-bags and tents) shall be thoroughly cleaned before entering the Area. Poultry products and other introduced avian products, which may be a vector of avian diseases, shall not be released into the Area.

7(x) Requirements for reports

Parties should ensure that the principal holder for each Permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the Management Plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be used both in any review of the management plan and in organising the scientific use of the Area.

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Management Plan for Antarctic Specially Protected Area No. 117 AVIAN ISLAND, MARGUERITE BAY, ANTARCTIC PENINSULA

1. Description of values to be protected

Avian Island (Latitude 67°46' S, Longitude 68°54' W, 0.49 km²), is situated in northwestern Marguerite Bay, 400 m south of Adelaide Island on the western side of the central Antarctic Peninsula. It was originally designated as Site of Special Scientific Interest (SSSI) No. 30 under Recommendation XV-6 in 1989 after a proposal by the United Kingdom. Included was the island together with its littoral zone, but excluded was a small area near a refuge on the northwestern coast of the island. Values protected under the original designation were described as the abundance and diversity of breeding seabirds present on the island, that the southern giant petrel (*Macronectes giganteus*) colony is one of the most southerly known breeding population of this species, and that the blue-eyed cormorants (*Phalacrocorax atriceps*) are breeding close to the southern limit of their range. The Area was therefore considered of outstanding ornithological importance, meriting protection from unnecessary human disturbance.

Designation as an SSSI was terminated with redesignation of Avian Island as a Specially Protected Area (SPA) through Recommendation XVI-4 (1990, SPA No. 21) after a proposal by the United Kingdom. The boundaries were similar to the original SSSI, but included the entire island and the littoral zone without the exclusion zone near the refuge on the northwestern coast. The values protected were the same as for the SSSI, but with attention drawn to the additional important values of:

- “35,600 pairs of Adélie penguins (*Pygoscelis adeliae*), which is the largest Adélie colony on the Antarctic Peninsula, containing a third of the total breeding population of the region”;
- “670 pairs of blue-eyed cormorants, which are close to the southern limit of their breeding range, and one of the largest known breeding colonies in the Antarctic, representing approximately 85% of the total population breeding south of the Antarctic Circle”.

While the size of the Avian Island Adélie penguin colony on the Antarctic Peninsula is not substantiated by recent data, this colony and those of several other resident species are nonetheless some of the largest in the region, and the values noted in the original SSSI and subsequent SPA designations are generally reaffirmed in the present management plan. Further values evident from scientific descriptions of Avian Island are also considered important reasons for special protection of the Area. These values are:

- the outstanding and unique attribute of being the only known site on the Antarctic Peninsula where seven seabird species are breeding in such close proximity to each other within the confined space of a single, small island, with unusually high population densities and virtually the whole island occupied by breeding birds throughout the summer;
- Representation of seven of the seabird species breeding along the Antarctic Peninsula;
- the southern giant petrel colony is one of the two largest on the Antarctic Peninsula, comprising about one-fifth of the population south of the South Shetland Islands, and these birds are extremely vulnerable to disturbance;
- the kelp gull (*Larus dominicanus*) colony is also large and is breeding near the southern extent of its range;
- the southernmost record of breeding brown skuas (*Catharacta loennbergi*) in the Antarctic Peninsula region was noted on Avian Island in 1978-79;
- the moss *Warnstorfia laculosa* (= *Calliergidium austro-stramineum*) on Avian Island is at the southern limit of its known range.

The boundaries of the Area designated under Recommendation XVI-4 have been changed in this management plan to include offshore islets and rocks previously excluded.

2. Aims and objectives

Management at Avian Island aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance;
- allow scientific research on the ecosystem and physical environment, particularly on the avifauna, provided it is for compelling reasons which cannot be served elsewhere;
- minimise the risk of introduction of pathogens which may cause disease in bird or mammal populations within the Area;
- minimise the possibility of introduction of alien plants, animals and microbes to the Area;
- gather data on the population status of the seabirds on the island on a regular basis, preferably for all resident breeding species at least once every five years;

- allow visits for management purposes in support of the aims of the management plan.

3. Management activities

The following management activities shall be undertaken to protect the values of the Area:

- A map showing the location of the Area (stating the special restrictions that apply) shall be displayed prominently at the stations Teniente Luis Carvajal (Chile), Rothera (UK) and General San Martín (Argentina), where copies of this management plan shall also be made available.
- Signs showing the location and boundaries of the Area with clear statements of entry restrictions shall be placed in prominent positions on the northwestern and eastern coasts of the island (Map 2), to help avoid inadvertent entry.
- Markers, signs or other structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition or removed.
- Visits shall be made as necessary (no less than once every five years) to assess whether the Area continues to serve the purposes for which it was designated, and in particular to conduct bird censuses, and to ensure management and maintenance measures are adequate.

4. Period of designation

Designated for an indefinite period.

5. Maps and photographs

Map 1: Avian Island, ASPA No. 117, in relation to Marguerite Bay, showing the locations of the stations Teniente Luis Carvajal (Chile), Rothera (UK) and General San Martín (Argentina). The location of other protected areas within Marguerite Bay (ASPA No. 107 at Emperor Island (Dion Islands), ASPA No. 115 at Lagotellerie Island, and ASPA No. 129 at Rothera Point) are also shown. Inset: the location of Avian Island on the Antarctic Peninsula.

Map 2: Avian Island, ASPA No. 117, topographic map. Map specifications – Projection: Lambert Conformal Conic; Standard parallels: 1st 67°30'00"S; 2nd 68°00'00"S; Central Meridian: 68°55'00"W; Latitude of Origin: 68°00'00"S; Spheroid: WGS84; Datum: Mean sea level; Vertical contour interval 5 m; Horizontal accuracy: ± 5 m; vertical accuracy ±1.5 m.

Map 3: Avian Island, ASPA No. 117, distribution of breeding wildlife. Map derived from ground survey and digital orthophotography (ground pixel resolution 25cm; source aerial photography taken 15 December 1998 by the British Antarctic Survey). Adélie penguin (*Pygoscelis adeliae*) and elephant seal (*Mirounga leonina*) distributions are digitised from the orthophotograph. Nests of other species are derived from a sketch map and ground survey conducted in 1978 (Poncet 1982), with positions approximate. Note: data on distributions for other breeding species are unavailable. Map specifications are the same as for Map 2.

6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

GENERAL DESCRIPTION

Avian Island (Latitude 67°46' S, Longitude 68°54' W, 0.49 km²), is situated in the northwest of Marguerite Bay, 400 m south of the southwestern extremity of Adelaide Island (Map 1). The island is 1.45 km long by 0.8 km at its widest, and is of roughly triangular shape. It is rocky with a low relief of generally less than 10 m in the north, rising to about 30 m at the centre, and 40 m in the south where several rock and ice slopes of up to 30 m drop steeply to the sea. The coastline is irregular and rocky with numerous offshore islets, although there are several accessible beaches on the northern and eastern coasts. The island is usually ice-free in summer. It contains habitat particularly suitable for a variety of breeding birds: well-drained north-facing slopes suitable for blue-eyed cormorants (*Phalacrocorax atriceps*); broken rock and boulders with crevices suitable for small nesting birds such as Wilson's storm petrels (*Oceanites oceanicus*); elevated rocky heights suitable for southern giant petrels (*Macronectes giganteus*); extensive expanses of snow-free ground for Adélie penguins (*Pygoscelis adeliae*). The presence of the latter attracts skuas (*Catharacta maccormicki* and *C. loennbergi*) and kelp gulls (*Larus dominicanus*). For a detailed description of the geology and biology of the Area see Annex 1.

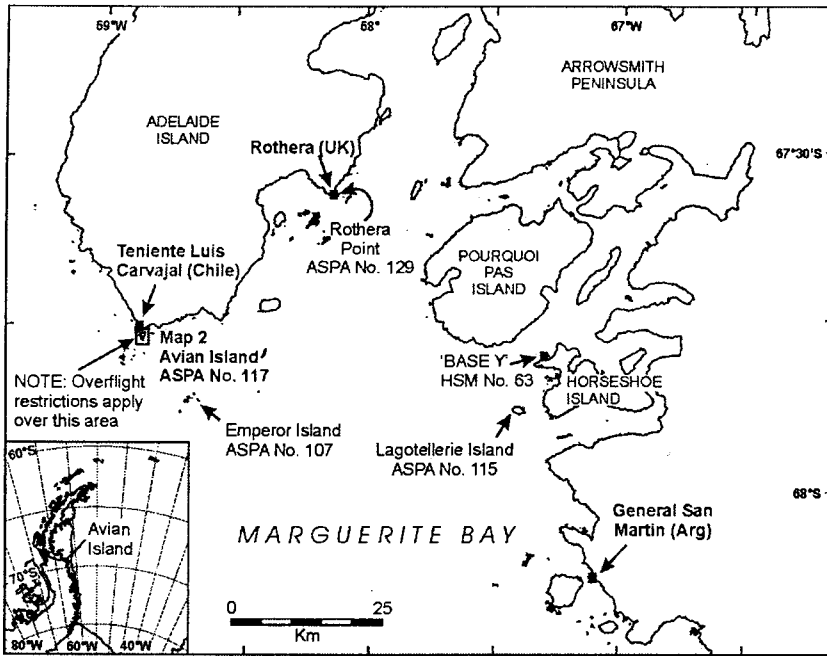
BOUNDARIES

The designated Area comprises the whole of Avian Island and the littoral zone, offshore islets and rocks, and a buffer zone of the surrounding marine environment (including sea ice when present) within 100 m of the shoreline of the main island (Map 2). Boundary markers have not been installed because the coast forms a visually obvious reference for the marine boundary.

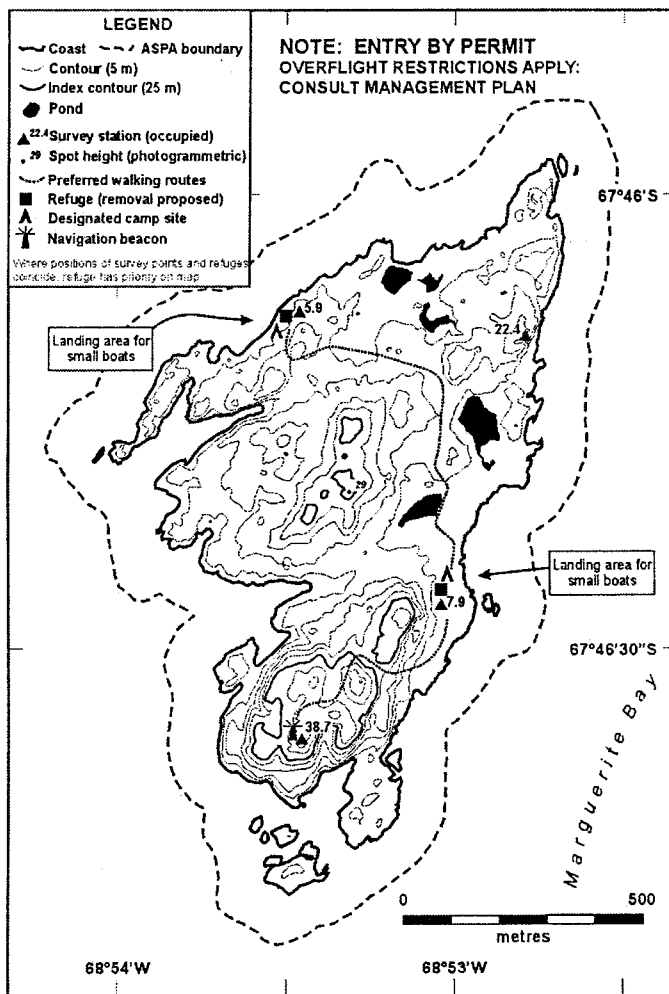
6(ii) Restricted and managed zones within the Area

None.

6(iii) Structures within and near the Area

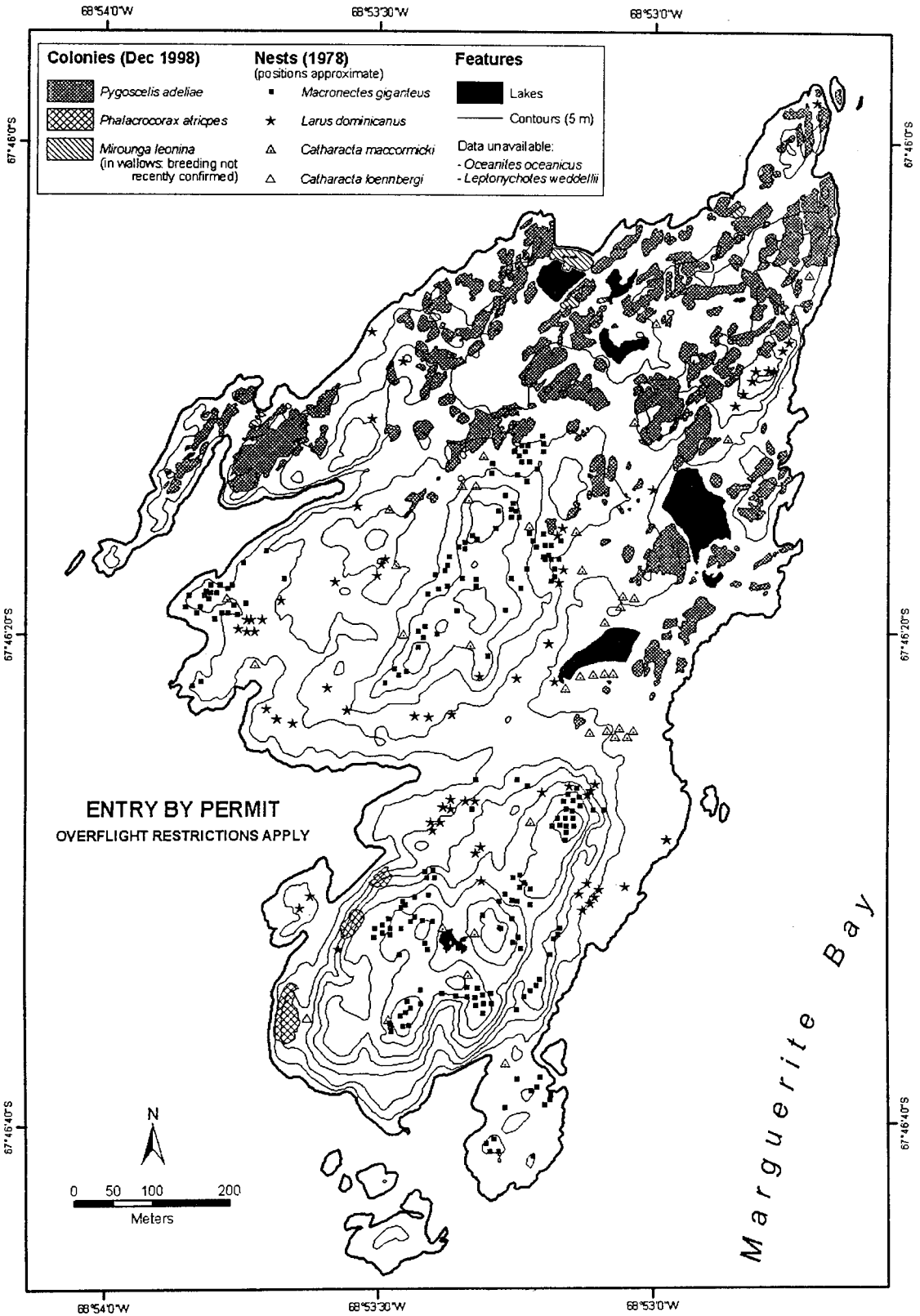


Map 1. Avian Island, ASPA No. 117, Marguerite Bay, Antarctic Peninsula, location map.



Projection: Lambert Conformal Conic
Spheroid: MOG284

Map 2. Avian Island, ASPA No. 117
Marguerite Bay, Antarctic Peninsula
Topographic map



Data sources:
Poncet, S. 1982. *Le Grand Hiver*.
BAS aerial photography Dec 1998.

Map 3. Avian Island, ASPA No. 117
Distribution of breeding wildlife

Prepared by:
Environmental Research and Assessment
Cambridge, July 2002

Two small abandoned refuges and two beacon structures are present within the Area. A refuge erected by Chile in 1962 is located on the northwestern coast of the island at latitude 67°46'16" S, longitude 68°54'00" W. A refuge constructed by Argentina in 1957 is 650 m SE of this position, on the eastern coast at latitude 67°46'39" S, longitude 68°53'35" W. Both refuges were in a poor state of repair in February 2001. Further deterioration of the huts has potential to impact on nesting birds.

An old iron frame structure, believed to have been erected by the UK during the operation of Adelaide Base, and used as a navigational aid, is located at approximately 38 m near the highest point of the island. The structure remains standing, although it is rusting.

A new beacon was constructed by Chile in February 1998 on an adjacent site at a similar elevation. This structure is a solid cylindrical painted iron tower of approximately 2 m diameter and 2.5 m in height, set in a concrete pad of approximately 2.5 x 2.5 m. A lit beacon, protective rails and solar panels are affixed to the top of the structure. No other structures are known to exist on the island.

Four survey control markers were installed on the island on 31 January 1999 (Map 2). The southernmost marker is located adjacent to the navigation beacon and consists of a survey nail in bedrock covered by a cairn. A similar marker is installed on the high point of the low ridge on the northeastern coast of the island, also covered by a cairn. The remaining two markers are survey nails affixed to the roof of each of the refuges. Two signs marking the Area shall be installed in prominent positions on the northwestern and eastern coasts of the island.

The nearest scientific research station is 1.2 km northwest at Teniente Luis Carvajal (Chile), on southern Adelaide Island (latitude 67°46' S, longitude 68°55' W). Since 1982 this has been operated as a summer-only facility, open from October until March. Over this period the station has generally accommodated up to 10 personnel. Formerly, this facility was established and operated continuously by the UK from 1961 until 1977.

6(iv) Location of other protected areas within close proximity of the Area

The nearest protected areas to Avian Island are the Dion Islands (ASPANo. 107) about 12.5 km SSE, Rothera Point (ASPANo. 129) 40 km to the NE, and Lagotellerie Island (ASPANo. 115) 65 km east (Map 1).

7. Permit conditions

Entry into the Area is prohibited except in accordance with a Permit issued by an appropriate national authority. Conditions for issuing a Permit to enter the Area are that:

- it is issued only for compelling scientific reasons that cannot be served elsewhere, in particular for scientific study of the avifauna and ecosystem of the Area, or for essential management purposes consistent with plan objectives such as inspection, maintenance or review;
- the actions permitted will not jeopardise the values of the Area;
- any management activities are in support of the objectives of the management plan;
- the actions permitted are in accordance with the management plan;
- the Permit, or an authorised copy, shall be carried within the Area;
- a visit report shall be supplied to the authority named in the Permit;
- permits shall be issued for a stated period;
- the appropriate authority should be notified of any activities/measures undertaken that were not included in the authorised Permit.

7(i) Access to and movement within the Area

Vehicles are prohibited on land within the Area. All movement on land within the Area shall be on foot. Movement within the Area on foot shall be by routes that minimise any disturbance to breeding birds, and to achieve this it may be necessary to take a longer route to the destination than would otherwise be the case. A preferred walking route, which avoids the most sensitive bird breeding sites, should be used when traversing across the central part of the island where movement in this area is necessary (Map 2). The designated route extends from the central eastern coast up the eastern slopes of the hill (Map 2). Visitors should bear in mind that specific nest sites may vary from year to year, and some variations on the recommended route may be preferable: the route is intended as a guide, and visitors are expected to exercise good judgement to minimise the effects of their presence. In other areas, and where practical and safe, it is usually preferable to adopt a route that follows the coastline of the Area.

Access into areas where southern giant petrels are nesting (Map 3) shall only be undertaken for purposes specified in the Permit. When access to the beacon is necessary (e.g. for maintenance), visitors shall follow the designated access route as closely as possible, trying to avoid nesting birds. Much of the area leading up to and surrounding the beacon is occupied by breeding petrels, so great care must be exercised.

Movements should be slow, noise kept to a minimum, and the maximum distance practicable should be maintained from nesting birds.

Visitors shall watch carefully for signs of agitation and preferably retreat from approach if significant disturbance is observed.

Small boat landings should be made at the designated locations on the central northwestern coast or on the central eastern coast of the island (Map 2). If sea or ice conditions render this impractical, small boat landings may be made elsewhere along the coast as conditions allow.

Access by vehicle to the coast when sea ice is present should also use these access points, and vehicles shall be parked at the shore.

Travel by small boat or vehicle within the marine part of the Area is not confined to specific routes, but shall be by the shortest route consistent with the objectives and requirements of the permitted activities. Vehicle or boat crew, or other people on vehicles or boats, are prohibited from moving on foot beyond the immediate vicinity of the landing site unless specifically authorised by Permit.

Aircraft should avoid landing within the Area throughout the year. Restrictions on overflight also apply (see Table 1 below). A Permit may be granted for helicopter use when this is considered necessary for essential purposes and where there is no practical alternative, such as for the installation, maintenance or removal of structures. In such instances the need for helicopter access, including alternatives, and the potential disturbance to breeding birds shall be adequately assessed before a Permit may be granted. Such a Permit shall clearly define the conditions for helicopter access based on the findings of the assessment.

Table 1: Aircraft overflight restrictions applying year-round at Avian Island.

Aircraft type	Number of engines	Minimum approach distance (m)			
		Vertical (above ground)	Horizontal		
		<i>Feet</i>	<i>Metres</i>	<i>Feet</i>	<i>Metres</i>
Helicopter	1	2460	750	2460	750
Helicopter	2	3300	1000	3300	1000
Fixed-wing	1 or 2	1480	450	1480	450
Fixed-wing	4	3300	1000	3300	1000

7(ii) Activities that are or may be conducted in the Area, including restrictions on time or place

- Scientific research that will not jeopardise the avifauna or ecosystem of the Area, and which is for compelling reasons that cannot be served elsewhere;
- Essential management activities, including monitoring;
- Restrictions on times at which activities may be conducted apply within the Area, and are specified in the relevant sections of this management plan.

7(iii) Installation, modification or removal of structures

Structures shall not be erected within the Area except as specified in a Permit. Any new or additional permanent structures are prohibited. Existing abandoned or dilapidated structures should be removed or renovated. Small temporary hides, blinds or screens may be constructed for the purpose of scientific study of the avifauna. Before a Permit may be granted for the installation, modification or removal of structures, an adequate environmental impact assessment shall be undertaken. Installation, modification, maintenance or removal of structures shall be undertaken in a manner that minimises disturbance to breeding birds. Such activities shall be undertaken between 1 February and 30 September inclusive to avoid the main breeding season. All structures, scientific equipment, hides or markers installed within the Area must be approved by Permit for a specified period, clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of harm to bird populations or of contamination of the Area. Removal of specific equipment, hides or markers for which the period specified in the Permit has expired shall be a condition of the Permit.

7(iv) Location of field camps

Camping should be avoided within the Area. However, when necessary for purposes specified in the Permit, temporary camping is allowed at two designated campsites: one on the central eastern coast of the island, the other on the central northwestern coast of the Area (Map 2).

7(v) Restrictions on materials and organisms that can be brought into the Area

No living animals, plant material or microorganisms shall be deliberately introduced into the Area and the precautions listed in 7(ix) below shall be taken to prevent accidental introductions. In view of the presence of significant breeding bird colonies on the island, poultry products, including products containing uncooked dried eggs, are prohibited within the Area. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management purposes specified in the Permit, shall be removed from the Area at or before the conclusion of the activity for which the Permit was granted. Fuel is not to be stored in the Area, unless specifically authorised by Permit for specific scientific or management purposes. Refuelling of aircraft or vehicles is prohibited on land within the Area. Anything introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of any introduction into the environment is minimised. If release occurs which is likely to compromise the values of the Area, removal is encouraged only where the impact of removal is not likely to be greater than that of leaving the material *in situ*. The appropriate authority should be notified of anything released and not removed that was not included in the authorised Permit.

7(vi) Taking or harmful interference with native flora or fauna

Taking or harmful interference with native flora or fauna is prohibited, except by Permit issued in accordance with Annex II to the Protocol on Environmental Protection to the Antarctic Treaty. Where taking or harmful interference with animals is involved, the *SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica* should be used as a minimum standard.

7(vii) Collection or removal of anything not brought into the Area by the Permit holder

Material may be collected or removed from the Area only in accordance with a Permit and should be limited to the minimum necessary to meet scientific or management needs. Permits shall not be granted if there is a reasonable concern that the sampling proposed would take, remove or damage such quantities of soil, native flora or fauna that their distribution or abundance on Avian Island would be significantly affected. Samples of flora or fauna found dead within the Area may be removed for analysis or audit without prior authorisation by Permit. Material of recent human origin likely to compromise the values of the Area, which was not brought into the Area by the Permit Holder, or is not otherwise authorised, shall be removed unless the impact of removal is likely to be greater than leaving the material *in situ*: if this is the case the appropriate authority should be notified.

7(viii) Disposal of waste

All wastes, except human wastes, shall be removed from the Area. Human wastes shall be removed from the Area or disposed of into the sea.

7(ix) Measures that are necessary to ensure that the aims and objectives of the Management Plan can continue to be met

5. Permits may be granted to enter the Area to carry out monitoring and site inspection activities, which may involve the small-scale collection of samples for analysis or review, or for protective measures.
6. Any specific long-term monitoring sites shall be appropriately marked.
7. To help maintain the ecological and scientific values found at Avian Island visitors shall take special precautions against introductions. Of concern are pathogenic, microbial or plant introductions sourced from other Antarctic sites, including stations, or from regions outside Antarctica. Visitors shall ensure that sampling equipment or markers brought into the Area are cleaned or sterilised. To the maximum extent practicable, footwear and other equipment used or brought into the Area (including backpacks, carry-bags and tents) shall be thoroughly cleaned before entering the Area.
8. Poultry products and other introduced avian products, which may be a vector of avian diseases, are prohibited within the Area.

7(x) Requirements for reports

Parties should ensure that the principal holder for each Permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the management plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly

accessible archive to maintain a record of usage, to be used both in any review of the management plan and in organising the scientific use of the Area.

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ANNEX 1

6(i) Additional information on the natural features of the Area.

CLIMATE AND SEA ICE

No extended meteorological records are available for Avian Island, but records from 1962-74 for Adelaide Base (formerly UK; now Teniente Luis Carvajal, Chile), 1.2 km distant, show a mean daily maximum temperature of 3°C in February (extreme maximum 9°C) and a mean daily minimum of -8°C in August (extreme minimum -44°C). The same general pattern was observed in year-round observations made on the island in 1978-79 (Poncet and Poncet 1979). Precipitation on the island in this year was usually as snow, most of which fell between August and October, but with occasional snowfalls and some rain in the summer.

Marguerite Bay usually freezes in winter, although the extent and character of sea ice shows considerable inter-seasonal variation. Occasionally Marguerite Bay may not clear of ice completely until February or March, at which time the sea may again begin to freeze. Despite the extent and frequent persistence of regional sea ice, a recurrent polynya has been observed near Avian Island, which can provide locally ice-free conditions from October onward. In addition, strong tidal currents around Avian Island help to keep surrounding waters ice-free for much of the year, which facilitates easy access to feeding grounds for several species. The island is not

particularly windy, with an annual average of 10 knots in 1978-79. However, the strong katabatic winds that descend from Adelaide Island, perhaps for 1-3 days a few times every month, reduce snow accumulation on the island and push sea ice away from the coast, helping to form the polynya. The relatively snow-free conditions are important for bird colonisation.

GEOLOGY, GEOMORPHOLOGY AND SOILS

The bedrock of Avian Island forms the eastern limb of a NNE – SSW trending synclinal structure at the southwestern end of Adelaide Island and is composed of interbedded lithic-rich and feldspar-rich volcanoclastic sandstones. Bedded tuffaceous sandstones, pebbly sandstones rich in volcanic lithics, and a volcanic granule breccia also occur. The latter is probably a primary volcanic deposit, while the rest of the sequence is largely composed of reworked volcanic material. The sequence forms part of the Antarctic Peninsula Volcanic Group and is of Jurassic to early Tertiary age (Griffiths 1992, Moyes *et al* 1994). Apart from rock outcrop, the surface consists mainly of frost-shattered rock with permafrost. Ormithogenic soils are widespread, particularly in the north; organic peat soil is virtually absent, but where present is not well developed and is associated with moss growth. Several raised beaches have been noted on Avian Island, but the geomorphology has not otherwise been described.

STREAMS AND LAKES

Avian Island has several ephemeral freshwater ponds of up to 10,000 m² and of about 40 cm in depth, the largest being on the eastern coast, at about 5 m altitude, and on the north-western coast near sea level. Numerous small pools and meltwater channels develop from seasonal snow melt, and small streams drain valleys in the vicinity of the ponds. Both the ponds and melt-pools freeze solid in winter. Freshwater bodies on the island are organically enriched by guano, a source of nutrients, and in summer a number of the ponds show a rich benthic flora and fauna of algae, phyllopod, copepods, Nematoda, Protozoa, Rotifera, and Tardigrada. Large numbers of the crustacean *Branchinecta* sp. have also been observed (Poncet and Poncet 1979). The freshwater ecology of the island has not been studied in detail.

BREEDING BIRDS

Seven species of birds breed on Avian Island, which is a relatively high number compared to other sites on the Antarctic Peninsula. Several species have unusually high populations, being some of the largest for their species in the Antarctic Peninsula region (Map 3). Detailed year-round data for all species were collected in 1978-79 (Poncet and Poncet 1979), while data are otherwise sporadic. Descriptions below are thus often based on a single season's observations and it should be emphasised that these data are therefore not necessarily representative of longer-term population trends. However, this is the best information that is presently available.

The most recent data available for Adélie penguins (*Pygoscelis adeliae*) on Avian Island indicated a population of 35,600 breeding pairs (11/1/78) (Poncet and Poncet 1979, Woehler 1993). The colony occupies the northern half and central eastern coast of the island (Map 3). The former management plan referred to the Avian Island colony as "the largest on the Antarctic Peninsula [containing] a third of the total population breeding in the region". While this is not substantiated by recent data (e.g. one Antarctic Peninsula colony has over 120,000 pairs and several others have over 30,000 (Woehler 1993)), the Avian Island colony represents one of the largest breeding populations in this region. It contains perhaps as much as 9% of the total Adélie breeding population along the Antarctic Peninsula, excluding the South Shetland Islands.

In 1978-79 Adélie penguins were recorded on the island from October until the end of April, with egg laying occurring through October and November, and the first chicks hatching around mid-December. Chick crèches were observed around mid-January, with the first chicks becoming independent near the end of January. Most of the moulting adults and independent chicks had departed the island by the third week of February, although groups returned periodically throughout March and April.

A large colony of blue-eyed cormorants (*Phalacrocorax atriceps*) has been recorded in three groups located on the southwestern coastal extremity of the island (Map 3). Stonehouse (1949) reported about 300 birds present in October 1948; a similar number were recorded in mid-November 1968, most of which were breeding (Willey 1969). Poncet and Poncet (1979) observed 320 pairs in 1978, and approximately 670 pairs on 17 January 1989 (Poncet 1990). A count on 23 February 2001 recorded 185 chicks, although it is probable some had departed by the time of the count; approximately 250 nest sites were counted. In 1968 blue-eyed cormorants were observed present on the island from 12 August, with egg laying occurring from November, and chicks hatching in December (Willey 1969). In 1978-79 they were observed from September until June, with egg laying occurring from November through to January, when the first chicks hatched, and chicks started to become independent in the third week of February (Poncet and Poncet 1979).

Of the thirteen southern giant petrel (*Macronectes giganteus*) colonies known south of the South Shetland Islands, Avian Island is one of the two largest, and comprises about one fifth of the breeding population in the southern Antarctic Peninsula region (Patterson *et al* in press). In 1979 the southern giant petrels occupied

principally the elevated rocky outcrops of the central and southern half of the island in four main groups (Map 3). Data on the numbers of birds present on the island are shown in Table 2.

Table 2: Southern giant petrel (*Macronectes giganteus*) numbers at Avian Island.

Year	Number of birds	Number of pairs	Number of chicks	Source
1948	~100	n/a	n/a	Stonehouse 1949
1965	n/a	160	n/a	Patterson <i>et al</i> 2000 (?)
1968	400	163	n/a	Willey 1969
1979	n/a	197	n/a	Poncet and Poncet 1979
1989	n/a	250	n/a	Poncet 1990
2001	n/a	n/a	237	Harris 2001

n/a - not available.

In 1978-79 the birds were present on Avian Island from mid-September through to as late as June. In this season, egg laying occurred from late October through to the end of November, with hatching occurring throughout January and chicks generally achieving independence by April. In the 1978-79 austral summer up to 100 non-breeders were observed on the island during the courtship period in October, with these numbers decreasing to a few non-breeders as the season progressed.

Approximately 200 adult Kelp gulls (*Larus dominicanus*), of which over 60 pairs were breeding, were recorded on Avian Island in 1978-79. These birds were distributed widely, but principally in the elevated central and southern parts of the island (Poncet and Poncet 1979) (Map 3). In the 1978-79 austral summer the majority of breeders arrived in early October, followed by egg laying around mid-November and hatching a month later. Detailed data are not available because of concern that human disturbance by data collection would seriously impair the breeding performance of this species. However, no more than 12 chicks were observed on the island near the end of January 1979, which would suggest breeding performance in this season was low: the exact cause – whether human disturbance or natural factors – could not be determined. In 1967, 19 pairs and 80-120 birds were recorded (Barlow 1968).

An estimate of at least several hundred pairs of breeding Wilson's storm petrels (*Oceanites oceanicus*) on the island was made in 1978-79 (Poncet and Poncet 1979). Wilson's storm petrels were observed on the island from the second week of November, with laying and incubation probably occurring through to mid-December. Departure of adults and independent chicks was largely complete by the end of March. Most of the rocky outcrops on the northern half of the island and all of the stable rocky slopes in the south are ideal habitat for this species.

In 1978-79 about 25-30 pairs of south polar skuas (*Catharacta maccormicki*) were breeding on Avian Island. The skua nests were distributed widely over the island, although the majority were on the central and eastern part of the island, especially on slopes overlooking the Adélie penguin colony (Map 3). Large groups of non-breeders (around 150 birds; Poncet and Poncet 1979) were observed to congregate around the shallow lake on the eastern side of the island. Barlow (1968) reported approximately 200 non-breeding birds in 1968. In the 1978-79 austral summer the south polar skuas took up residence around the end of October, with egg laying in early December and hatching complete by the end of January. Independent chicks and adults generally departed by the end of March, with some late-breeders remaining until mid-April. A breeding success of one chick per nest was reported in the 1978-79 austral summer. Barlow (1968) reported 12 breeding pairs of brown (=subantarctic) skuas (*Catharacta loennbergi*), although this number could include south polar skuas. One breeding pair of brown skuas was recorded on the southwest of the island in the 1978-79 austral summer. This is the southernmost record of this species breeding along the Antarctic Peninsula. Several non-breeding brown skuas were also recorded in the same season.

Several other bird species, known to breed elsewhere in Marguerite Bay, are frequent visitors to Avian Island, notably Antarctic terns (*Sterna vittata*), snow petrels (*Pagodroma nivea*), and southern fulmars (*Fulmarus glacialisoides*). These species have not been observed to nest on Avian Island. Small numbers of Antarctic petrels (*Thalassoica antarctica*) have been seen on a few occasions. The cape petrel (*Daption capense*) was observed on Avian Island in October 1948 (Stonehouse 1949). Solitary individuals of king (*Aptenodytes patagonicus*) and chinstrap (*Pygoscelis antarctica*) penguins were observed in 1975 and 1989, respectively.

TERRESTRIAL BIOLOGY

Vegetation on Avian Island is generally sparse, and the flora has not been described in detail. Phanerogams are absent from the island and there is a limited range of cryptogams, although there is a rich lichen flora. To date, nine moss and 11 lichen species have been identified within the Area.

Mosses described are *Andreaea depressinervis*, *Brachythecium austro-salebrosum*, *Bryum argenteum*, *B. pseudotriquetrum*, *Pohlia cruda*, *P. nutans*, *Sanionia uncinata* (= *Drepanocladus uncinatus*), *Syntrichia princeps* (= *Tortula princeps*) and *Warnstorfia laculosa* (= *Calliergidium austro-stramineum*). The latter species is at the southern limit of its known range on Avian Island (Smith 1996). Moss development is confined to those parts of the island that are unoccupied by breeding Adélie penguins or blue-eyed cormorants, and occurs in moist depressions or by melt pools. Patches of moss of up to 100 m² surround the shore of a small pond on the hill in the south of the Area, at ca. 30 m elevation. The green foliose alga *Prasiola crispa* is widespread in wet areas of the island.

Lichens identified on Avian Island are *Acarospora macrocyclos*, *Cladonia fimbriata*, *C. gracilis*, *Dermatocarpon antarcticum*, *Lecanora dancoensis*, *Lecidea brabantica*, *Physcia caesia*, *Rinodina egentissima*, *Siphulina orphnina*, *Thamnolecania brialmontii*, and *Usnea antarctica*. The most extensive communities are on the rocky outcrops in the south of the island.

The micro-invertebrate fauna, fungi and bacteria on Avian Island have yet to be investigated in detail. Thus far only one mesostigmatid mite (*Gamasellus racovitzaei*) (BAS Invertebrate Database 1999) has been described, although a Collembollan (springtail) and several species of Acari (mites) have been observed but not identified (Poncet 1990). A number of nematode species (dominated by *Plectus* sp.) (Spaull 1973) and one fungus (*Thyronectria hyperantarctica*) (BAS Invertebrate Database 1999) have been recorded on the island.

BREEDING MAMMALS AND MARINE ENVIRONMENT

Weddell seals (*Leptonychotes weddellii*) were common on and around Avian Island in 1978-79. During the winter more than a dozen remained, hauled out on coastal ice (Poncet 1990). Several pups were born on the shores of the island in the last week of September 1978. An elephant seal (*Mirounga leonina*) was reported pupping on the northeastern coast of Avian Island on 10 October 1969 (Bramwell 1969). Aerial photography taken on 15 December 1998 revealed 182 elephant seals hauled out in groups, mostly close to the ponds. Leopard seals (*Hydrurga leptonyx*) have been observed around the shoreline, and one was observed ashore in winter 1978. A number of non-breeding Antarctic fur seals (*Arctocephalus gazella*) were reported on the island in March 1997 (Gray and Fox 1997), and again at the end of January 1999 (Fox pers comm 1999). At least several hundred were present on 23 February 2001 (Harris 2001), particularly on beaches and low-lying ground in the central and northern parts of the island. Crabeater seals (*Lobodon carcinophagus*) are regularly seen in Marguerite Bay, but have not been reported on Avian Island. The marine environment surrounding Avian Island has not been investigated.

HUMAN ACTIVITIES / IMPACTS

Human activity at Avian Island has been sporadic. The first record of a visit was made in October 1948, when members of the UK Stonington Island expedition discovered the large Adélie penguin colony on Avian Island (then referred to as one of the Henkes Islands). Subsequent visits have comprised a mixture of science, base personnel recreation, tourism and logistic activity (survey etc.). Refuges were constructed on the island in 1957 and 1962 by Argentina and Chile respectively (see Section 6(iii)).

A geological field party of two camped for about 10 days on the southeast of the island in November 1968 (Elliott 1969). In the same year, a UK Naval hydrographic survey team camped on the eastern coast of Avian Island over the summer. Permanent chains and rings for mooring lines to the survey vessel were installed in a small bay on the northwestern coast, and were still present in 1989 (Poncet 1990).

In 1969, a field party camped on the island for a month conducting research on the common cold virus: accompanying dogs were inoculated with a virus and then returned to base (Bramwell 1969). Dogs often accompanied personnel on the regular visits to Avian Island during the period of operation of the UK base on Adelaide Island, but impacts are unknown.

A two-person party spent a year on the island in 1978-79, based on the yacht *Damien II*, making detailed observations of the avifauna and other aspects of the biology and natural environment of the island (Poncet and Poncet 1979, Poncet 1982, Poncet 1990). The yacht was moored in a small cove on the NW coast. This yacht party regularly visited the island over the next decade before SPA designation.

Map survey work and aerial photography was conducted on and over the island in 1996-98 (Fox and Gray 1997, Gray and Fox 1997), and 1998-99 (Fox pers. comm. 1999).

The impacts of these activities have not been described and are not known, but are believed to have been relatively minor and limited to transient disturbance to breeding birds, campsites, footprints, occasional litter, human wastes, scientific sampling and markers. Despite the likely transient nature of most disturbances, it has been reported that human visits have caused loss of eggs and chicks, either through nest abandonment or by

opportunistic predation. Several species, such as southern giant petrels and kelp gulls are particularly vulnerable to disturbance, and have been observed to abandon nests at particular periods of the nesting cycle, perhaps at the sight of people as much as 100 m distant (Poncet 1990). Approximately 140 people, including a tour vessel of 100, were reported to have visited Avian Island in the 1989-90 summer. Growing concern over the number and unregulated nature of visits prompted SPA designation.

The most lasting and visually obvious impacts are associated with the two refuges and beacon structures described in Section 6(iii), which are situated close to breeding birds. Both refuges were in poor repair in February 2001, with rubbish such as rusting cans, glass, wood, roofing iron and empty fuel drums nearby. Birds and seals were observed among this rubbish in February 2001. The older of the two beacon structures is disused and its iron structure, while standing, is rusting and deteriorating. The new beacon, erected in February 1998, was in good repair in February 2001.

Management Plan for Antarctic Specially Managed Area (ASPA) No. 121 CAPE ROYDS, ROSS ISLAND

1. Description of values to be protected

An area of about 300 m² at Cape Royds was originally designated in Recommendation VIII-4 (1975, SSSI No. 1) after a proposal by the United States of America on the grounds that it supports the most southerly established Adelie penguin (*Pygoscelis adeliae*) colony known. The Adelie penguin population at Cape Royds had declined from 1956 as a consequence of human interference during a period when heavy sea ice cover made the colony particularly susceptible to reduced recruitment. In 1963 United States and New Zealand authorities agreed to restrict activities and develop a management plan for the Area in order to protect the scientific values related to penguin research. The site was specially protected to allow the population to recover and protect on-going science programs. The population has recovered and now exceeds pre-1956 levels; since 1990 numbers have fluctuated between 2,500 and 4,500 pairs, primarily due to natural variation in local sea ice extent. The colony remains of high scientific and ecological value and as such merits continued long-term special protection, especially in view of ongoing visits to Cape Royds from nearby stations and tourist groups.

The original Area was enlarged in 1985 as a result of a proposal by New Zealand (Recommendation XIII-9) to include a 500 m-wide coastal strip to protect the seaward access and nearshore feeding ground of the Adelie penguins, as well as projected research on the Cape Royds inshore marine ecosystem. This coastal area of Cape Royds is a site of continuing studies on Nototheniid fish population structure and dynamics.

Shackleton's Hut (Historic Monument No. 15), located in ASPA No. 157 (Backdoor Bay), is located 170 meters to the northeast of the colony and together with the colony itself are attractions to these visitors. Regular and frequent visits to Cape Royds means that the Area could easily be damaged by human impact if not provided with adequate protection. The scientific and ecological values of the Area require long-term protection from possible adverse impacts associated with these activities.

The boundaries have been further extended in this plan to encompass the entire Adelie penguin colony. The new boundary extends farther north to include all of Pony Lake, and farther east to include the penguin nesting areas.

2. Aims and objectives

Management at Cape Royds aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance to the Area;
- allow scientific research on the ecosystem, and in particular on the avifauna in the Area, while ensuring protection from disturbance;
- minimize the possibility of introduction of alien plants, animals and microbes into the Area;
- allow visits for management purposes in support of the aims of the management plan.

3. Management activities

- Brightly colored markers, which should be clearly visible from the air and pose no significant threat to the environment, should be placed to mark the helicopter landing pads adjacent to the protected area (see maps).
- Signs illustrating the location and boundaries with clear statements of entry restrictions shall be placed at appropriate locations at the boundaries of the Area to help avoid inadvertent entry. In addition, flags should be placed on the sea-ice in Backdoor Bay along the southeast boundary of the marine area (offshore from Derrick Point) on the first visit over sea-ice each season to indicate the restricted area so those traveling to Cape Royds over sea ice are aware of the marine boundary of the Area. Flags placed shall be removed immediately prior to closure of sea-ice travel each season.

- Signs showing the location of the Area (stating the special restrictions that apply) shall be displayed prominently, and a copy of this management plan shall be kept available, in all research hut facilities located at Cape Royds.
- Markers, signs or structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition, and removed when no longer necessary.
- Visits shall be made as necessary (no less than once every five years) to assess whether the Area continues to serve the purposes for which it was designated and to ensure management and maintenance measures are adequate.
- National Antarctic Programs operating in the region shall consult together with a view to ensuring these steps are carried out.

4. Period of designation

Designated for an indefinite period.

5. Maps and photographs

Map A: Cape Royds regional topographic map.

The map is derived from digitized contours from NZ Lands and Survey Plan 37/108 (1982) combined with an orthophotograph using the following specifications:

Projection: Lambert conformal conic

Standard parallels: 1st 76° 40' 00" S; 2nd 79° 20' 00" S

Central Meridian: 166° 10' 00" E

Latitude of Origin: 78° 01' 16.211" S

Spheroid: WGS84. Positional accuracy of original orthophotograph at 1:10,000 is ±5.0 m (horizontal) and ±5.0 m (vertical) with an on-ground pixel resolution of 2-m. Photography: USGS/DoSLI (SN7847) 16 November 1993.

Inset: Ross Island, showing the location of McMurdo Station (US) and Scott Base (NZ), and the location of other nearby protected areas on Ross Island (Arrival Heights, ASPA No. 122, Cape Crozier, ASPA No. 124, Tramway Ridge, ASPA No. 130, and New College Valley, ASPA No. 116 at Cape Bird)

Map B: Cape Royds terrestrial area topographic map. Specifications are the same as those described in Map A. Contours are derived from the digital elevation model used to generate the orthophotograph.

6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

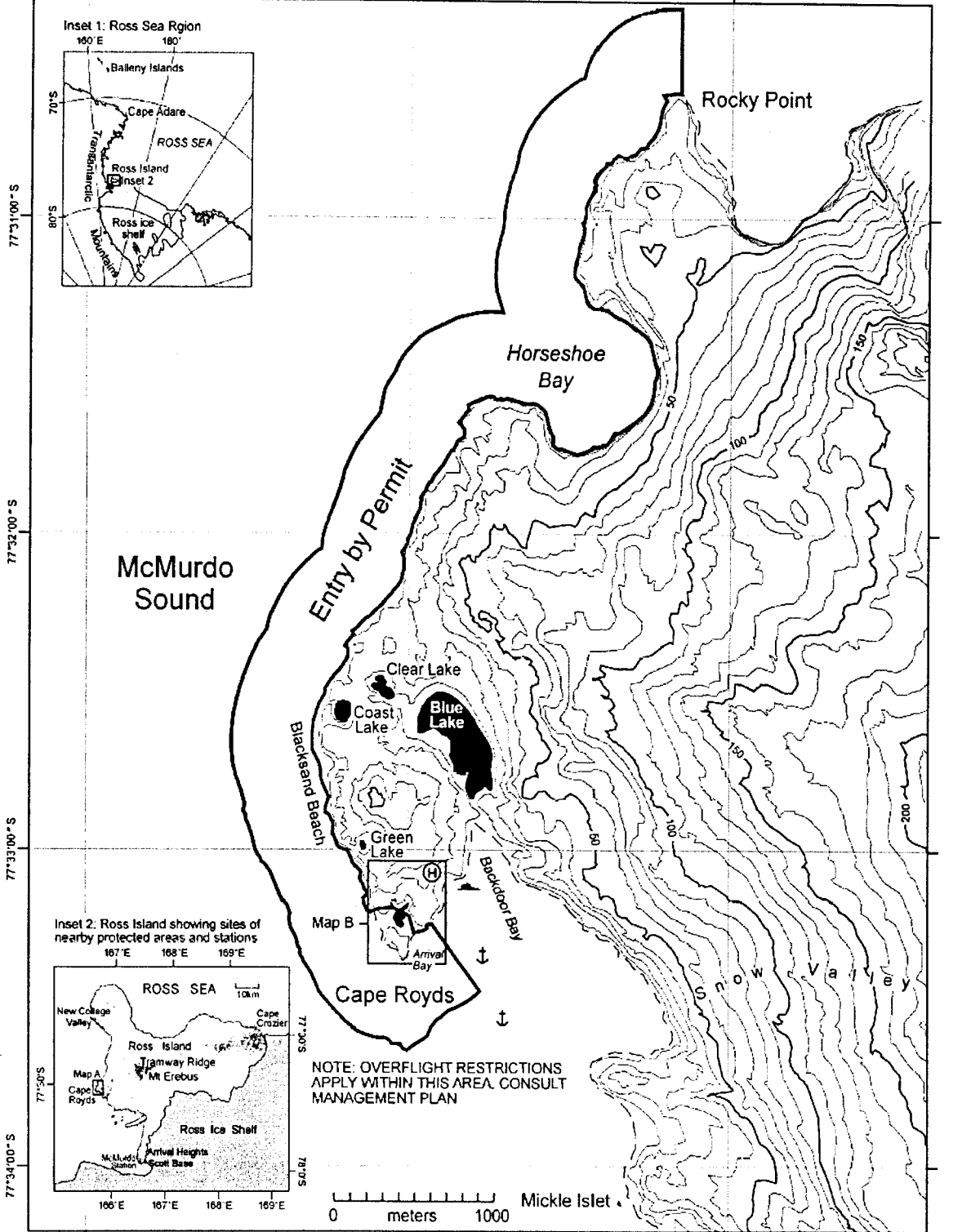
Cape Royds (166°09'56" E, 77°33'20"S) is situated on the west side of Ross Island, McMurdo Sound, at the western extremity of a coastal strip of ice-free land approximately 8 km wide, on the west slope of Mount Erebus. The Area comprises both a terrestrial and marine component.

The marine component of the Area extends for approximately 5 km from Derrick Point in the south to Rocky Point in the north, including Horseshoe Bay. The marine boundary is defined as extending NE along the Arrival Bay coastline from the most easterly corner of the terrestrial boundary at Arrival Bay (166°10'06" E, 77°33'15.9"S) to Derrick Point (166°10'22" E, 77°33'14.1"S). From Derrick Point the marine boundary extends offshore 500 m in a SE direction and thence extends parallel to the coast 500 m offshore from the mean high water mark, around Cape Royds and north for 5.3 km to a point 500 m due north of Rocky Point then due south to Rocky Point.

The terrestrial component of the Area consists of ice-free land within approximately 350 m of Cape Royds itself (166°09'56" E, 77°33'20"S). Much of this land is seasonally occupied by a breeding Adelle penguin colony. The boundary of this part of the Area has been revised from the original description so as to include all of the area occupied by breeding penguins in 1995/96 and the main southern access route of the penguins to the sea. The north boundary of the territorial component of the Area extends 45 m from a small embayment on the west side and 350 m north of Cape Royds, in a straight line NE to a survey mark identified on earlier New Zealand maps as IT2 (166°09'33.3" E, 77°33'11.1"S), which is an iron tube embedded in the ground. This line extends 10 m east from IT2 to a signpost (166°09'34.8" E, 77°33'11.1"S), then a further 80 m east to a signpost (166°09'46.1" E, 77°33'11.0"S) at the south end of a small pond at the north end of Pony Lake. From this signpost the boundary extends in a SE direction for 114 m just north of the lake to the eastern edge of the lake (166°10'01.3" E, 77°33'12.6"S). The east boundary then extends 86 m in a SSE direction to a third signpost (166°10'05" E, 77°33'15.2"S), thence to the coast on the east side of Arrival Bay (166°10'06.0" E, 77°33'15.9"S). All of the ice-free ground, snow-patches and freshwater bodies contained west and south of the line defined above to the coast extending around Cape Royds is included within the Area. The terrestrial component of the Area comprises terrain of irregular lava flows, volcanic gravels and dark reddish scoria, with a low 3-m cliff face on the seaward side. Much of the Area is covered with thick deposits of guano and bird remains.

Map A - Cape Royds, Site of Special Scientific Interest No. 1: regional topographic map

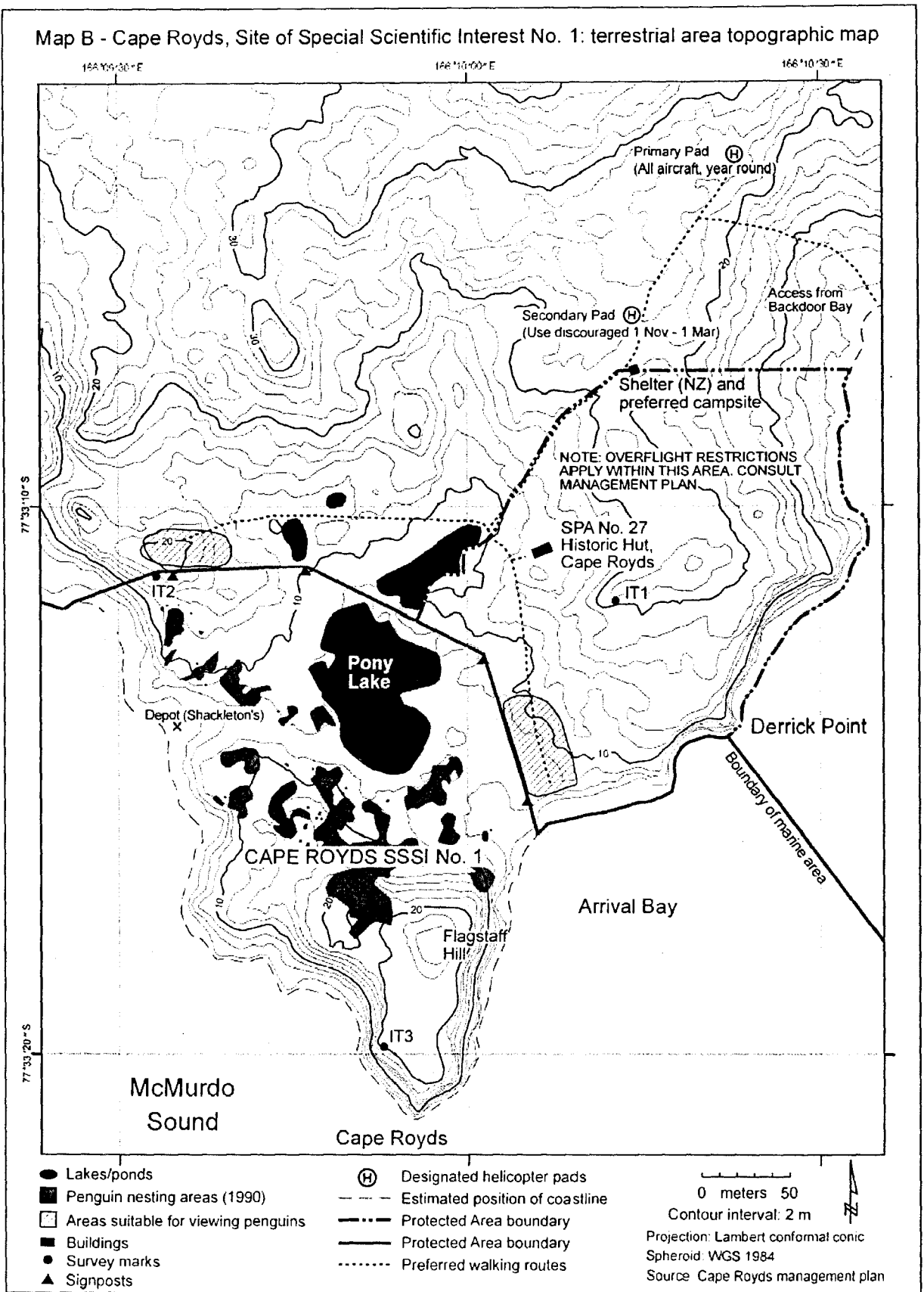
165°05'00"E 165°10'00"E 166°15'00"E



NOTE: OVERFLIGHT RESTRICTIONS APPLY WITHIN THIS AREA. CONSULT MANAGEMENT PLAN

- Estimated coastline
- Protected area boundary
- Lakes/ponds
- ▲ Landing place
- ⊕ Helicopter landing area
- ↓ Ship anchorage
- Contour interval: 10 m
- Projection: Lambert conformal conic
- Spheroid: WGS84
- Source: Cape Royds management plan

Map B - Cape Royds, Site of Special Scientific Interest No. 1: terrestrial area topographic map



The Area contains the world's most southerly established Adelie penguin colony, with annual population numbers currently fluctuating between 2,500 and 4,500 breeding pairs during the approximate mid-October to mid-February occupation. The population size in 1959 was deemed to be equivalent to that in 1910 but then dropped somewhat, to fewer than 1,000 breeding pairs in 1963, as a result of severe ice conditions which made the colony more susceptible to disturbance by visitation and helicopter movements. Following visitor restrictions and relocation of the helicopter pad away from the colony, as well as a shift in climate beginning in the late 1970s, numbers have gradually recovered, with the population in 1998 numbering 4,000 pairs. The Area has been monitored regularly since 1965 and has been photographed from the air during the incubation phase of breeding annually since 1981.

The marine component of the Area has neither been intensively studied nor fully described. To 500 m west of the shore the sea floor generally drops off steeply down to several hundred meters. The bottom has not been surveyed fully, but samples show that it consists of coarse volcanic gravels and small to large boulders, with some submarine cliffs, in the area approximately 100 m offshore from Coast Lake. Research on the Nototheniid fish population and structure in this region suggests it is very abundant for fish, which have not been subjected to a level of sampling that has occurred close to Hut Point further to the south on Ross Island. A series of surveys between 1978–81 suggested that *Trematomus bernacchii* was the most common fish. The survey also recorded the presence of *Trematomus hansonii*, *T. centronotus*, *T. nicolai* and *Gymnodraco acuticeps*. The surveys also identified the presence of invertebrates such as echinoids, asteroids (e.g. *Odontaster validus*), ophiuroids, pycnogonids (e.g. *Pentanyphon antarcticum*, *Colossendeis robusta*), pteropods, copepods, amphipods, isopods, hirudinea, bryozoa, polychaetes, ctenophores, mollusca, and medusae.

The coastal region between Arrival Bay and Green Lake is the main access route for birds traveling to and from the nesting site, often over the sea ice that can extend up to 40 km from the colony during the breeding season. When ice-free, the near-shore marine area is likely to be an important feeding ground for the birds, and as such may be considered an integral part of the Cape Royds ecosystem.

6(ii) Restricted and managed zones within the Area

None.

6(iii) Structures within and near the Area

Shackleton's Hut (Historic Monument No. 15 and ASPA No. 157) (166°10'06.4" E, 77°33'10.7"S) is situated approximately 70 m from the NE boundary sign of the terrestrial component of the Area, 100 m northeast of which is a small research shelter (New Zealand) (166°10'10.6" E, 77°33'07.5"S). Two survey markers are present within the Area — marker IT2 is on the north boundary of the terrestrial part of the Area and is described above, while marker IT3 (166°09'52.7" E, 77°33'19.7"S) (also an iron tube embedded in the ground) is 64 m SW of Flagstaff Hill. Relics at the site of a small depot from the time of Shackleton's voyages are present in a small embayment on the west side of the penguin nesting area (166°09'35.2" E, 77°33'14.3"S: Map B). The depot should not be disturbed except by permit for conservation or management purposes.

6(iv) Location of other protected areas within close proximity of the Area

The nearest protected areas to Cape Royds are Backdoor Bay (ASPA No. 157) adjacent to the Area, Cape Evans (ASPA No. 155) 10 km to the south, Tramway Ridge (ASPA No. 130) close to the summit of Mt. Erebus situated 20 km east, and New College Valley (ASPA No. 116) 35 km to the north at Cape Bird, and Arrival Heights (ASPA No. 122) which is adjacent McMurdo Station 35 km to the south. Cape Crozier (ASPA No. 124) is 75 km to the east on Ross Island.

7. Permit conditions

Entry into the Area is prohibited except in accordance with a permit issued by an appropriate national authority. Conditions for issuing a permit to enter the area are that:

- it is issued for scientific reasons or for essential management purposes consistent with plan objectives such as inspection or review;
- the actions permitted will not jeopardize the ecological or scientific values of the Area and support of the objectives of the management plan;
- the permit, or a copy, shall be carried within the Area;
- a report or reports shall be supplied to the authority or authorities named in the permit;
- permits should be valid for a stated period.

7(i) Access to and movement within the Area

Within the terrestrial part of the Area access shall be on foot and vehicles are prohibited. Within the marine part of the Area, access should be by foot or vehicle when sea-ice is present, or by ship or small boat during open water periods. Access into the Area should be from the direction of the helicopter pads, and if arriving over the

sea ice or by boat, then access should be from the embayment below and east of the helicopter pads on the NW shore of Backdoor Bay (see Maps A and B). Access to ASPA No. 157, including Shackleton's Hut, is by permit only. Helicopters are prohibited from landing within the terrestrial part of the Area. Helicopters should land throughout the year at the Primary Pad (166°10'22.9" E, 77°33'03.5"S), 250 m northeast of the northern point of Pony Lake.

Overflight of the Area is prohibited by single-engine helicopters to altitudes lower than 750 m (~2,500 ft), by dual-engine helicopters lower than 1,000 m (~3,300 ft), by single or dual engine fixed-wing aircraft lower than 450 m (~1,500 ft), and by quadruple-engine fixed-wing aircraft lower than 1000 m (~3,300 ft), except when required for essential scientific or management purposes specifically authorized by permit. Minimum horizontal distance for aircraft approach is 500 m (~1600 ft) for single-engine helicopters, 750 m (~2,500 ft) for dual-engine helicopters, 450 m (~1,500 ft) for single or dual engine fixed-wing engines, and 1000 m (~3,300 ft) for quadruple-engine fixed-wing aircraft. Use of helicopter smoke grenades is prohibited unless absolutely necessary for safety, and all grenades should be retrieved.

Foot traffic within the Area should be kept to the minimum necessary consistent with the objectives of any permitted activities. Permitted visitors should keep to the natural penguin access routes through the colony and not approach occupied nests except as required for scientific or management purposes. Access to the marine component of the Area should generally avoid the main seaward access routes used by the penguins, or be from outside of the terrestrial part of the Area.

7(ii) Activities that are or may be conducted in the Area, including restrictions on time or place

- Scientific research that will not jeopardize the ecosystem of the Area;
- Essential management activities, including monitoring and inspection.

7(iii) Installation, modification or removal of structures

No structures are to be erected within the Area except as specified in a permit. All scientific equipment installed in the Area must be authorized by permit and clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of contamination of the Area. Removal of specific equipment for which the permit has expired shall be a condition of the permit.

7(iv) Location of field camps

Camping within the terrestrial part of the Area is prohibited. A field camp site exists 175 m northeast of the Area adjacent to the New Zealand shelter. Camping within the marine part of the Area when sea ice is present is allowed by permit. Such camps should avoid the penguin approach routes within 200 m of the breeding colony, but are otherwise not restricted to a particular location.

7(v) Restrictions on materials and organisms that can be brought into the Area

No living animals, plant material or microorganisms shall be deliberately introduced into the Area and precautions should be taken against accidental introductions. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management purposes specified in the permit, shall be removed from the Area at or before the conclusion of the activity for which the permit was granted. Fuel is not to be stored in the Area, unless required for essential purposes connected with the activity for which the permit has been granted. Dressed poultry should be free of disease or infection before shipment to the Antarctic and, if introduced into the Area for food, all parts and waste of poultry shall be completely removed from the Area and incinerated or boiled long enough to kill any potentially infective bacteria or viruses.

All materials introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of their introduction into the environment is minimized.

7(vi) Taking or harmful interference with native flora or fauna

Taking or harmful interference with native flora and fauna is prohibited, except in accordance with a permit issued under Article 3 of Annex II by the appropriate national authority specifically for that purpose. Where animal taking or harmful interference is involved, this should as a minimum standard be in accordance with the SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica.

7(vii) Collection or removal of anything not brought into the Area by the permit holder

Material may be collected or removed from the Area only in accordance with a permit and should be limited to the minimum necessary to meet scientific or management needs. Material of human origin likely to compromise the values of the Area, which was not brought into the Area by the permit holder or otherwise authorized, may be removed unless the impact of removal is likely to be greater than leaving the material *in situ*: if this is the case the appropriate authority should be notified.

Unless specifically authorized by permit, visitors are prohibited from interfering with or from handling, taking or damaging any historic artifacts found within the Area. Any new artifacts observed should be notified to the appropriate national authority. Relocation or removal of artifacts for the purposes of preservation, protection or to re-establish historical accuracy is allowable by permit.

7(viii) Disposal of waste

All wastes shall be removed from the Area.

7(ix) Measures that are necessary to ensure that the aims and objectives of the management plan can continue to be met

- Permits may be granted to enter the Area to carry out biological monitoring and site inspection activities, which may involve the collection of small samples for analysis or audit, to erect or maintain signposts or for management activities.
- Any specific sites of long-term monitoring should be appropriately marked.
- To help maintain the ecological and scientific values of the isolation and relatively low level of human impact at the Area visitors shall take special precautions against introductions. Of particular concern are microbial and vegetation introductions from soils at other Antarctic sites, including stations, or from regions outside Antarctica. To minimize the risk of introductions, visitors shall thoroughly clean footwear and any equipment to be used in the area – particularly sampling equipment and markers – before entering the Area.

7(x) Requirements for reports

Parties should ensure that the principal holder for each permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the visit report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the management plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be used both in any review of the management plan and in organizing the scientific use of the Area.

**Management Plan for Antarctic Specially Protected Area (ASPA) No. 123
BARWICK and BALHAM VALLEYS, SOUTH VICTORIA LAND**

1. Description of values to be protected

An area of 325 km² at Barwick Valley, including part of adjacent Balham Valley, was originally designated in Recommendation VIII-4 (1975, SSSI No. 3) after a proposal by the United States of America on the grounds that it provided an outstanding example of Antarctic wilderness. The proposal described the Area as, “one of the least disturbed and contaminated of the Dry Valleys of Victoria Land”. The site is distant from field stations and has not been subjected to intensive visitation or research. The Barwick Valley was first visited in 1958 and several subsequent expeditions were conducted in the 1960s through to 1975, after which time visits have been few because of the designation of the SSSI. Although some human impacts from these early expeditions were visible within the region in 1993-94, Barwick and Balham Valleys are believed to remain one of the least impacted areas in the Victoria Land Dry Valleys region of Antarctica. The region is therefore of high value as a reference area against which to measure changes in comparable ecosystems of other dry valleys, which have undergone a variety of scientific investigations.

The boundaries of the original Area have been enlarged to include more of the Balham Valley catchment, and rationalized to exclude the Victoria Upper Glacier catchment which was previously within the Area, resulting in a total area of 480 km².

The Victoria Land Dry Valleys have a unique and extreme polar desert ecosystem. The Area contains examples of a wide variety of the environments found in this ecosystem, including desert pavements, sand dunes, patterned ground, glacial and moraine features, streams, freshwater and saline lakes, valleys and high-altitude ice-free ground. Some of the best examples of ventifact pavements and weathering-pitted dolerites are found on the valley floors, along with examples of chasmolithic lichens, layered communities of endolithic lichens, fungi, algae and associated bacteria, and populations of soil and lake microflora. Special protection of the Area provides the opportunity to conserve a relatively pristine example of this ecosystem as a baseline for future reference. Protection on a catchment basis serves to provide greater representation of the ecosystem features, and also facilitates management of the Area as a geographically distinct and integrated ecological system. The high ecological values, as well as the scientific, aesthetic and wilderness values derived from the isolation and relatively low level of human impact are important reasons for special protection at Barwick and Balham Valleys.

2. Aims and objectives

Management at Barwick and Balham Valleys aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance to the Area;
- conserve the natural ecosystem as a reference area largely undisturbed by direct human activities;
- allow scientific research on the natural ecosystem and physical environment in the Area provided it is for compelling reasons which cannot be served elsewhere;
- minimize human disturbance to the Area by preventing unnecessary sampling;
- minimize the possibility of introduction of alien plants, animals and microbes to the Area;
- allow visits for management purposes in support of the protection of the values and features of the Area.

3. Management activities

- Copies of this management plan, including maps, shall be kept available in the principal research hut facilities within the Area and at McMurdo Station and Scott Base.
- Visits shall be made as necessary (no less than once every five years) to assess whether the Area continues to serve the purposes for which it was designated and to ensure management and maintenance measures are adequate.
- National Antarctic Programs operating in the region shall consult together for the purpose of ensuring that the above provisions are implemented.

4. Period of designation

Designated for an indefinite period.

5. Maps

Map A: Barwick and Balham Valleys topographic map.

Map specifications:

Projection: Lambert conformal conic

Standard parallels: 1st 79° 18' 00" S; 2nd 76° 42' 00" S

Central Meridian: 162° 30' 00" E

Latitude of Origin: 78° 01' 16.2106" S

Spheroid: WGS84 approximation

Datum: 'Camp Area' Local

Inset: McMurdo Dry Valleys and Ross Sea Region, showing the location of McMurdo Station (US) and Scott Base (NZ), and the location of the other specially protected areas in the Victoria Land Dry Valleys (Canada Glacier, ASPA 131, and Linnaeus Terrace, ASPA No. 138).

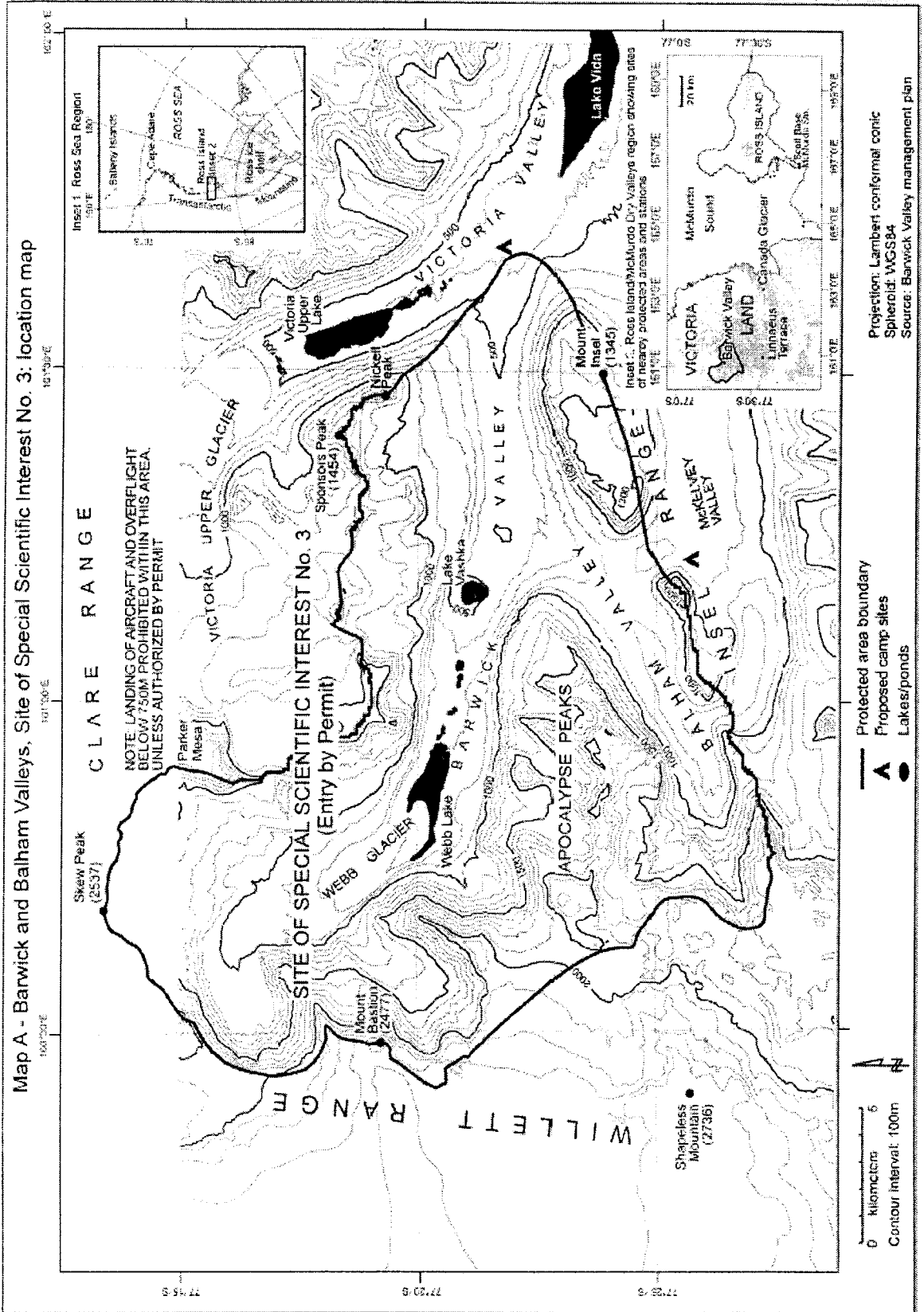
6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

Barwick Valley is situated about 65 km inland from the Ross Sea coast of South Victoria Land. The Area includes Barwick and Balham Valleys and their respective catchments and is bordered on the south, west and north by the McKelvey Valley, the Willet Range and the divide between the Victoria and Barwick Valleys, respectively.

The boundary of the Area extends from its eastern extremity in the lower Barwick Valley (around the confluence of the Barwick, Victoria and McKelvey Valleys) several kilometers south towards the ridge leading SW to the summit of Mount Insel (1,345 m), from where the boundary follows the high points of the ridge of the Insel Range for 5 km before descending to a low pass between the McKelvey and Balham Valleys at the location of Bullseye Lake. The boundary crosses the lake before ascending the ridge to a further high point on the Insel Range (approximately 1,250 m), and continues towards the upper reaches of the Balham Valley. As the terrain becomes gentler in the upper Balham, the boundary sweeps north approximately above the 1800 m contour line. The boundary skirts around the summit of Shapeless Mountain until it cuts NW at a point west of the Apolcolypse Peaks. The boundary joins and follows a prominent ridge to the summit of Mount Bastion (2477 m, 160°34'E, 77°19'S). This ridge is followed in a northerly direction to Skew Peak (2535 m, 160°26'E, 77°13'S), located at the head of the Barwick Valley. The boundary then descends along the East Ridge of Skew Peak above Webb Glacier, before following the catchment boundary in a more southerly direction toward Parker Mesa. From Parker Mesa the boundary descends further to follow the dividing ridge between the catchments of the Victoria Upper Glacier and the Barwick Valley. The boundary extends east along this ridge for 13 km to Sponsors Peak (1,454 m, 161°24E, 77°18S). The boundary descends the SW Ridge of Sponsors Peak and

Map A - Barwick and Balham Valleys, Site of Special Scientific Interest No. 3: location map



Nickell Peak (approximately 1,400 m) to the lower Barwick to the eastern extremity of the Area, which is about 3 km northeast of Lake Vida, Victoria Valley.

An extensive névé south of Skew Peak feeds the Webb Glacier in the upper Barwick Valley. Very little ice from the Polar Plateau actually flows over the scarp into the Barwick Valley, as flow vectors and debris cover patterns on the Webb Glacier in this location indicate that this part of the glacier is almost stationary. The Barwick and Balham Valleys merge in the southeast of the Area, 5 km from where the Barwick joins the Victoria Valley. A series of lakes occupy the Barwick Valley, the largest being Webb Lake (approximate elevation 650 m) at the snout of Webb Glacier. Lake Vashka (approximate elevation 507 m), partially filling an unusually deep circular depression, is the second largest and 5 km down-valley from Webb Lake. Hourglass Lake (approximate elevation 625 m), the next largest, is approximately half way between Webb Lake and Lake Vashka. An intermittent stream connecting this series of lakes terminates at Lake Vashka, which has a level well below its overflow threshold. Early observations of the smooth surfaces of Lakes Webb and Vashka suggested that they are "ice-block" lakes that contain no significant liquid water. However, liquid water up to several meters in depth was observed at the perimeter of Lake Vashka in December 1993. Recent studies on the physical features of any of the Barwick Valley lakes have not been made. Lake Balham, a small lake in a depression (<700 m elevation) below Apocalypse Peaks, is the only lake in Balham Valley (generally around 800 m in elevation).

Multiple glaciations, mainly between 13 Ma and 3.5 Ma ago, have resulted in a thick ground moraine on both valley floors. These deposits are mantled by solifluction sheets at the head of Balham Valley. In addition the valleys bear a small number of fresh and saline lakes on the drift surfaces. In many cases the lakes have evaporated to leave extensive salt deposits. The walls of Barwick and Balham Valleys display remnants of glacial benches at about 800 m and 1,200-1,500 m altitude. The soils near Lake Vashka consist of moraine debris derived largely from dolerite and sandstone, but granites, gneiss and schist make up as much as 35% of boulders locally. Weathering is often indicated by deep red staining due to oxidation of iron compounds, usually eroded by wind-driven sand on the boulders' windward side. The valley floors are extensively covered with patterned ground of sand-wedge polygons, typical of permafrost areas in the Dry Valleys. The majority is old (high centered), with young (hollow centered) polygons found in recent stream channels, and both typically measure 20 m across.

No invertebrates have been found in the dry soils of the Barwick Valley and there is little obvious vegetation. Algal crusts and mats fringe the lakes and streams but the flora reported is essentially microbial: chasmotholithic lichens are present in jagged scree of the Apocalypse Range and dense layered communities of endolithic lichens, fungi, algae and associated bacteria are occasionally found in boulders of Beacon Sandstone. Black lichen growth is reported to be well developed in areas of sandstone on the valley floor of Balham Valley. Significant heterotrophic bacterial populations have been reported in sandy samples from Barwick Valley. The population contained lactose-fermenters, nitrate-reducers, nitrogen-fixers, yeasts and algae but no detectable filamentous fungi or Protozoa.

While the Barwick and Balham Valleys are one of the most remote areas of the Dry Valleys, south polar skuas (*Catharacta maccormicki*) are known to visit the Area, with about 40 carcasses found at Lake Vashka in 1959-60. The mummified carcasses of two seals have been found near the snout of Webb Glacier, and seven more, mainly crabeaters (*Lobodon carcinophagus*) were found near the Balham / Barwick Valley junction.

Inspection of the Barwick and Balham Valleys in December 1993 from Bullseye Lake to Lake Vashka revealed evidence of prior human activity, particularly around Lake Vashka where field camps had been in use for scientific research in the 1960s. Impacts observed in the Lake Vashka vicinity included stone circles for tents at old camp sites, soil pits and a trench, remains of a wooden crate, a wooden box containing rocks and a paper poster, and a broken food cache partially submerged in the lake. Bamboo poles are situated near the snout of Webb Glacier and at Vashka Crag. Dynamite charges have been used in the vicinity of Lake Vashka and at least one other unknown location in the Barwick Valley. Remediation of the site was carried out in 1995/6 by a New Zealand team.

6(ii) Restricted and managed zones within the Area

None.

6(iii) Structures within and near the Area

None.

6(iv) Location of other protected areas within close proximity of the Area

The nearest protected areas to Barwick / Balham Valleys are Linnaeus Terrace (ASPA No. 138) 35 km south in the Wright Valley, and Canada Glacier (ASPA No. 131) 50 km SE in Taylor Valley (Inset, Map A).

7. Permit conditions

Entry into the Area is prohibited except in accordance with a permit issued by an appropriate national authority. Conditions for issuing a permit to enter the Area are that:

- it is issued for compelling scientific reasons or for essential management purposes consistent with plan objectives such as inspection or review;
- the actions permitted will not jeopardize the physical, ecological, scientific or aesthetic and wilderness values of the Area;
- the actions permitted are in accordance with the management plan;
- the permit, or a copy, shall be carried within the Area;
- a report or reports shall be supplied to the authority or authorities named in the permit;
- permits should be valid for a stated period.

7(i) Access to and movement within the Area

Access to the Area shall be by foot and vehicles are prohibited from the Area. Landing of aircraft and overflight below 750 m (~2,500 ft) is prohibited within the Area, except for scientific or management purposes specifically authorized by permit. Use of smoke grenades is prohibited within the Area and discouraged within 1 km of the Area.

No special restrictions apply to the air or land routes used to move to and from the Area. Scientists are encouraged to access the Area at a practicable point closest to their site of study to minimize the amount of the Area that is traversed. Pedestrian routes should avoid lakes, ponds, streambeds, areas of damp ground and areas of soft sediments or dunes. Pedestrian traffic should be kept to the minimum necessary consistent with the objectives of any permitted activities and every reasonable effort should be made to minimize effects.

7(ii) Activities that may be conducted in the Area

Activities that may be conducted within the Area include:

- scientific research that has strong justification for occurring within the Area, and that will not jeopardize the ecosystem of the Area;
- essential management activities, including monitoring.

7(iii) Installation, modification or removal of structures

No structures are to be erected within the Area except as specified in a permit. All scientific equipment installed in the Area must be approved by permit and clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of contamination of the Area. Removal of specific equipment for which the permit has expired shall be a condition of the permit.

7(iv) Location of field camps

Camping should generally be avoided within the Area, and two campsites outside of, but close to, the east and south boundaries are identified for access into the Area. One of these is at the confluence of the lower Barwick and Victoria Valleys (161° 41' 15" E, 77° 21' 45" S), while the other is close to Bullseye Lake in the McKelvey Valley (161° 13' 08" E, 77° 25' 40" S) (see Maps A and B, Figure 1). If deemed to be essential, camping should be at previously impacted sites, preferably on snow or ice-covered ground if available. Researchers should consult with the appropriate national authority to obtain up-to-date information on any sites where camping may be preferred.

7(v) Restrictions on materials and organisms that can be brought into the Area

No living animals, plant material or microorganisms shall be deliberately introduced into the Area. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management purposes specified in the permit, shall be removed from the Area at or before the conclusion of the activity for which the permit was granted. Fuel is not to be brought into the Area, unless specifically authorized by permit for specific scientific or management purposes. All materials introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of their introduction into the environment is minimized.

7(vi) Taking or harmful interference with native flora or fauna

Taking or harmful interference of native flora and fauna is prohibited, except in accordance with a separate permit issued under Article 3 of Annex II by the appropriate national authority specifically for that purpose. Where animal taking or harmful interference is involved, this should, as a minimum standard, be in accordance with the SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica.

7(vii) Collection or removal of anything not introduced by a visitor

Material may be collected or removed from the Area only in accordance with a permit and should be limited to the minimum necessary to meet scientific or management needs. Material of human origin likely to compromise the values of the Area, which was not brought into the Area by the permit holder or otherwise authorized, may be removed unless the impact of removal is likely to be greater than leaving the material *in situ*: if this is the case the appropriate authority should be notified.

7(viii) Disposal of waste

All wastes shall be removed from the Area.

7(ix) Measures that are necessary to ensure that the aims and objectives of the management plan can continue to be met

- Any specific sites of long-term monitoring should be appropriately marked.
- To help maintain the ecological and scientific values of the isolation and relatively low level of human impact at the Area visitors shall take special precautions against introductions. Of particular concern are microbial and vegetation introductions from soils at other Antarctic sites, including stations, or from regions outside Antarctica. To minimize the risk of introductions, visitors shall thoroughly clean footwear and any equipment to be used in the area – particularly sampling equipment and markers – before entering the Area.

7(x) Requirements for reports

Parties should ensure that the principal holder for each permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the management plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be used both in any review of the management plan and in organizing the scientific use of the Area.

Management Plan for Antarctic Specially Managed Area (ASPA) No. 124 CAPE CROZIER, ROSS ISLAND

1. Description of values to be protected

An area at Cape Crozier was originally designated as Specially Protected Area No. 6 by Recommendation IV-6 (1966) after a proposal by the United States of America on the grounds that the region supports a rich bird and mammal fauna as well as microfauna and microflora, and that the ecosystem depends on a substantial mixing of marine and terrestrial elements of outstanding scientific interest. With adoption by Antarctic Treaty Parties of the Site of Special Scientific Interest (SSSI) category of protection in 1972, Cape Crozier's designation as an SPA was terminated by Recommendation VIII-2 (1975) and the site was re-designated as SSSI No. 4 by Recommendation VIII-4 (1975). The reason for designation of SSSI No. 4 was to protect long-term studies of the population dynamics and social behavior of Emperor (*Aptenodytes forsteri*) and Adelie (*Pygoscelis adeliae*) penguin colonies in the region. These grounds for designation of the Area are still valid. Information gathered since the designation of the Area supports the inclusion of skua populations and vegetation assemblages as important values to be protected at Cape Crozier. The boundaries have been extended south to Igloo Spur to protect the range of vegetation assemblages representative of the Cape Crozier region.

The Emperor penguin colony at Cape Crozier was first recorded by members of the British National Antarctic Expedition in 1902. The colony is the most southerly known and has the longest Emperor population record. The colony breeds on fast ice that forms between large cracks, which develop where the Ross Ice Shelf abuts Cape Crozier. The positions of these cracks shift with movement of the ice shelf, and the colony itself is known to move around different parts of the cracks during the breeding season. The boundaries of the Area have been designed to include fast-ice areas consistently occupied by breeding birds.

Cape Crozier has a large Adelie penguin (*Pygoscelis adeliae*) population numbering around 150,000 breeding pairs, and is probably the second-largest Adelie colony in Antarctica. The colony is divided into two main groups 1 km apart known as East and West Colonies. Associated with the penguin colonies is a large South Polar skua (*Catharacta maccormicki*) colony, estimated at 1,000 breeding pairs.

There are moss, algae and lichen assemblages in the Area. Expanses of snow algae at Cape Crozier cover an area of more than 4 ha adjacent to the skua and penguin colonies. Growths as extensive as those at Cape Crozier have been remarked on only once before in the Continental Antarctic Zone, on the Wilkes Land Coast, and Ross

Island has the southernmost record of snow algae. Lichens are also abundant, with large areas of bright orange encrusting (crustose) lichens on rocks and stones on the slopes above the Adelie colony, and rich growths of foliose and fruticose lichens in the vicinity of Wilson's Stone Igloo.

A message post from Scott's National Antarctic Expedition (1901-04) is situated in West Colony (169°16'14"E, 77°27'15"S) and was designated Historic Monument No. 69 in Measure 4 (1995). Wilson's Stone Igloo (169°18'E, 77°51'S), designated as Historic Site No. 21 in Recommendation VII-9 (1972), is situated in the south of the Area. The rock shelter was constructed in July 1911 by members of the 1910-1913 British Antarctic Expedition during their winter journey to Cape Crozier to collect Emperor penguin eggs.

The high scientific, ecological and historic values of this area along with its vulnerability to disturbance through trampling, sampling, pollution or alien introduction, are such that this Area requires long-term special protection.

2. Aims and objectives

Management at Cape Crozier aims to:

- avoid degradation of, or substantial risk to, the values of the Area, and in particular the avifauna and vegetation assemblages within the Area;
- allow scientific research, especially of the avifauna and vegetation assemblages, in the Area while ensuring it is protected from oversampling or other possible scientific impacts;
- minimize the possibility of introduction of alien plants, animals and microbes into the Area;
- allow visits to the historic sites, but under strict control by permit;
- allow visits for management purposes in support of the aims of the management plan.

3. Management activities

- Durable wind direction indicators should be erected close to the designated helicopter landing site whenever it is anticipated there will be a number of landings at the Area in a given season. These should be replaced as needed and removed when no longer required.
- Brightly colored markers, which should be clearly visible from the air and pose no significant threat to the environment, should be placed to mark the helicopter landing pad.
- Signs showing the location and boundaries with clear statements of entry restrictions shall be placed at appropriate locations at the boundaries of the Area to help avoid inadvertent entry.
- Signs showing the location of the Area (stating the special restrictions that apply) shall be displayed prominently, and a copy of this management plan shall be kept available, in the research hut facility at Cape Crozier.
- Markers, signs or structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition, and removed when no longer necessary.
- Visits shall be made as necessary (no less than once every five years) to assess whether the Area continues to serve the purposes for which it was designated and to ensure management and maintenance measures are adequate.
- National Antarctic Programs operating in the region shall consult together for the purpose of ensuring that the above provisions are carried out.

4. Period of designation

Designated for an indefinite period.

5. Maps and photographs

Map A: Cape Crozier regional topographic map.

Map specifications:

Projection: Lambert conformal conic

Standard parallels: 1st 76° 40' 00" S; 2nd 79° 20' 00" S

Central meridian: 166° 10' 00" E

Latitude of Origin: 78° 01' 16.211" S

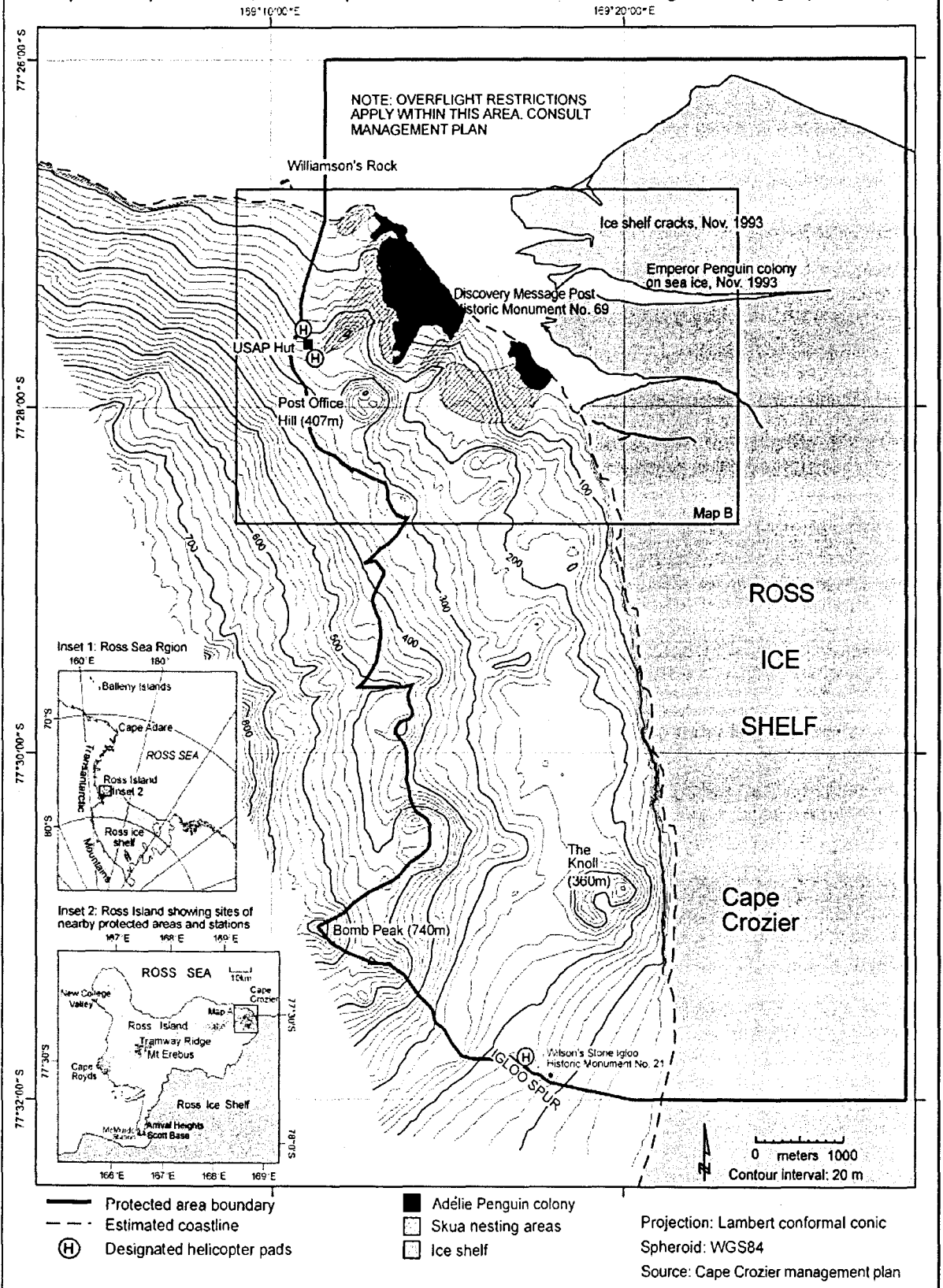
Spheroid: WGS84

Datum: McMurdo Sound Geodetic Control Network 1992

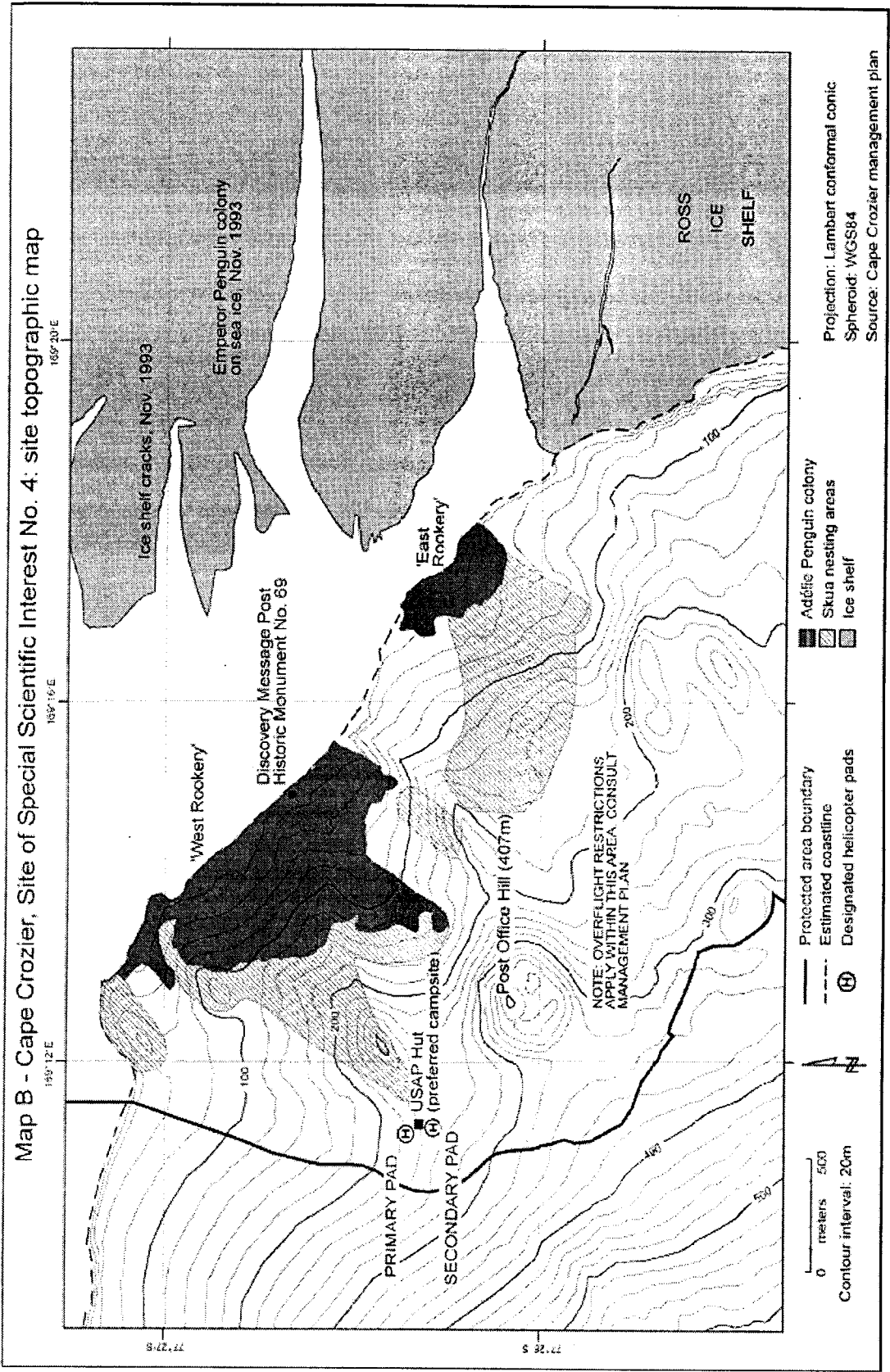
Inset: Ross Island region, showing the location of McMurdo Station (US) and Scott Base (NZ), and the location of the other protected areas on Ross Island (New College Valley, ASPA No. 116) at Cape Bird (Cape Royds, ASPA No. 121, Arrival Heights, ASPA No. 122, Tramway Ridge, ASPA No. 130, and Lewis Bay, ASPA No. 156)

Map B: Cape Crozier site topographic map. Map specifications are the same as those for Map A.

Map A - Cape Crozier, Site of Special Scientific Interest No. 4: regional topographic map



Map B - Cape Crozier, Site of Special Scientific Interest No. 4: site topographic map



6. Description of the Area

6(i) Geographical co-ordinates, boundary markers and natural features

Cape Crozier is at the eastern extremity of Ross Island, where an ice-free area comprises the lower eastern slopes of Mount Terror. The designated area is situated in the vicinity of Post Office Hill (407 m), extending to encompass the adjacent Ross Ice Shelf where large cracks in the shelf are covered by fast-ice which is occupied annually by breeding Emperor penguins.

The Area includes a terrestrial region and ice shelf above the mean high water mark as well as the adjacent fast-ice within the boundaries occupied by breeding Emperor penguins. The north boundary of the Area extends 6.5 km along the 77°26'03"S line of latitude from 169°11'43"E to 169°28'00"E. The west boundary extends 1.5 km south from the northern boundary to the coast, thence in a NE direction following a low ice-free ridge that passes 30 m west of the hut and helicopter pad. The boundary then follows this ridge in a southerly direction to be SW of the summit of Post Office Hill before following another ridge in a SE direction to the summit of a small unnamed peak (335 m) 1.2-km SSE of Post Office Hill. The boundary descends down a SW ridgeline, before following this ridge to ascend to the summit of a large unnamed volcanic cone (520 m) 3.6-km south of Post Office Hill. The boundary follows around the eastern side of this cone before descending south through a valley to another unnamed conic peak (580 m) 1.5 km NNE of Bomb Peak. The boundary follows a ridge through the middle of the cone before descending down a ridge on the southern side of the peak into a valley at the base of Bomb Peak. The boundary ascends the northern side of Bomb Peak to the summit (>610 m) before extending down a ridge line on the SE side of Bomb Peak to Igloo Spur and thence due east along latitude 77°32'00"S to the east boundary at 169°28'00"E.

The ice-free ground at Cape Crozier is of recent volcanic origin, with numerous small cones and craters evident among gentle slopes of scoria and fine-grained basalt lava. Several of these hills, including Post Office Hill, shelter the penguin colonies from southwesterly winds. On the surface are many volcanic bombs and other evidence of small-scale volcanic explosions. To the south of the Area coastal cliffs adjacent to the ice shelf are up to 150 m high. The cliff faces show bedded lava and brown palagomite tuffs with several lenticular patches of columnar basalt towards the base. Large rocks of continental origin transported by glacial action can be found on the northern side of Cape Crozier. Prevailing winds tend to be from between the southwest and west, with temperatures generally about 8° colder than those at McMurdo Sound.

The Emperor penguin (*Aptenodytes forsteri*) colony at Cape Crozier was discovered in October 1902 by R.S. Skelton, a member of Scott's Discovery Expedition. The presence of the colony depends on fast-ice locked between cracks in the Ross Ice Shelf where it abuts Cape Crozier. The size of the colony is limited by the area and condition of the fast ice, which also affects the availability of breeding sites sheltered from the strong katabatic winds that descend from Mount Terror. The location of the colony varies from year to year and the colony moves within a breeding season, beginning the season near to shore and moving off shore as fledging approaches. The breeding population has fluctuated widely since the turn of the century, with 400 adults recorded in 1902, 100 in 1911, and 1,300 in 1969. In 1983, 78 chicks fledged and the fledging success of the colony has improved every year since then. December 1990 counts recorded 324 chicks fledging. Between 1994 and 2001 the count of breeding pairs fluctuated between 650 and 1201, with the notable exception of 2001, when the colony failed completely.

A comprehensive population study of Adelie penguins occurred at Cape Crozier from 1961-62 through the 1981-82 austral summers, with 2,000 to 5,000 chicks banded yearly. There are two Adelie penguin (*Pygoscelis adeliae*) colonies at Cape Crozier, known as East and West Colonies. These are about 1 km apart, separated by a 45-m high ridge and a sloping ice field across which the birds do not travel. A coastline of 1.6 km with three beaches separated by rock outcrops provides penguins with access to West Colony. By contrast, East Colony has one 50-m wide rocky beach and 550 m of sea cliffs. The population of the two colonies has increased substantially over the last 50 years, numbering 65,000 breeding pairs in 1958, 102,500 in 1966 and 177,083 in 1987. Numbers fell to 136,249 in 1989 and 106,184 in 1994. The combined population of the East and West Rookeries at Cape Crozier make it the second largest Adelie colony in Antarctica after Cape Adare, Northern Victoria Land.

Approximately 1,000 pairs of South Polar skuas (*Catharacta maccormicki*) breed on ice-free ground surrounding the Adelie penguin colony. A demographic study of this colony began in 1961-62 and was still continuing in 1996-97. Chinstrap penguins (*Pygoscelis antarctica*), Wilson's storm petrels (*Oceanites oceanicus*), snow petrels (*Pagodroma nivea*), Antarctic petrels (*Thalassoica antarctica*), Southern fulmars (*Fulmaris glacialisoides*), giant petrels (*Macronectes giganteus*), black-backed gulls (*Larus dominicanus*), and South Polar skuas from more northerly breeding sites, have been recorded as visitors to Cape Crozier.

Algae can be found throughout the Area on large patches of snow and on soils and stones, often below the soil surface layer. Large areas of green snow algae, covering more than 4 ha, can be found in the north of the Area in snowfields around the periphery of the Adelie penguin colony and skua nesting areas. Particularly large patches

have been reported in the snow-filled valley between the two coastal hills at the northern end of the Adelie colony, with snow-tinted green over at least one hectare. However, the extent of snow algae is not always obvious, with the green color often not revealed until a surface crust of white ice is broken away. Snow algae samples are dominated by a species of *Chlamydomonas*, and associated with occasional *Ulothrix*-like filaments and diatoms. Growth requires percolating meltwater during summer and nutrients derived from the bird colonies.

Prasiola crispa grows in slow water flows in the vicinity of the penguin colonies and ribbon-like growths of *P. calophylla* are found where water percolates over stones on the tallus slopes. Numerous small ponds are found throughout the Area, from small pools 1-m in diameter to a lake 150-m in diameter situated immediately south of The Knoll. The four ponds in the penguin colonies contain abundant phytoplankton populations of *Chlamydomonas* cf. *snowiae*, while ponds elsewhere support growths of red-brown to dark blue-green benthic felts dominated by Oscillatoriaceae. Occasional epilithic algae (dominated by *Gloeocapsa*, *Nostoc* and *Scytonema*) are found as blackish crusts coating rock surfaces where meltwater percolates.

Mosses are sparse and scattered in their distribution with most occurrences being of one or a small number of isolated cushions no larger than 10 cm in diameter. Richer growths than this occur up to 0.5 km NE of the hut on north and NW facing slopes and on slopes immediately above the coastal cliffs about 1 km south of the penguin colonies.

Encrusting orange lichens are present in shallow hollows, on rock outcrops, boulders and encrusting bryophytes on the slopes above the penguin colonies. Also present adjacent to Wilson's Stone Igloo is the fruticose lichen *Usnea* and the foliose lichen *Umbilicaria*, both duller in color but structurally more complex. Green algal crusts are found throughout the Area

6(ii) Restricted and managed zones within the Area

None.

6(iii) Structures within and near the Area

The Cape Crozier Hut (US) (169°11'14"E, 77°27'39"S) is situated on the NW side of Pat's Peak. An observation hide dating from research programs in the 1960–80 period is located at the base of Post Office Hill (north side). An old Jamesway Hut was built on a small terrace approximately 1 km NE of the present hut. This was destroyed by fire and all hut debris has since been removed. Materials such as nails, screws and hinges remain at the site.

A historic message post, designated as Historic Site No. 69 under Measure 4 (1995), is situated in the West Rookery on the NE coast of the Area (169°16'14"E, 77°27'15"S). The post was used by the 1901–04 British National Antarctic Expedition to provide information to the expedition's relief ships. An historic rock hut known as Wilson's Stone Igloo (Historic Monument No. 21) (169°17'48"E, 77°31'48"S) is located on Igloo Spur.

6(iv) Location of other protected areas within close proximity of the Area

The nearest protected areas to Cape Crozier are on Ross Island: Lewis Bay (ASPANo. 156), the site of the 1979 DC-10 passenger aircraft crash is the closest and 45 km west; Tramway Ridge (ASPANo. 130) near the summit of Mt. Erebus is 55 km west; Discovery Hut on the Hut Point Peninsula (ASPANo. 158 and HSM No. 18); Arrival Heights (ASPANo. 122) is 70 km to the SW adjacent to McMurdo Station; Cape Royds (ASPANo. 121), Backdoor Bay (ASPANo. 157) and Cape Evans (ASPANo. 155) are 75 km west; and New College Valley (ASPANo. 116) are 75 km NW at Cape Bird.

7. Permit conditions

Entry into the Area is prohibited except in accordance with a permit issued by an appropriate national authority. Conditions for issuing a permit to enter the Area are that:

- it is issued for scientific research, and in particular for research on the bird fauna as well as on the vegetation assemblages in the Area, or for essential management purposes;
- access to the historic sites may be permitted for scientific, management, or historical purposes on the condition that movement in the Area be restricted to accessing the historic sites;
- the actions permitted will not jeopardise the ecological, scientific or historic values of the Area;
- the actions permitted are in accordance with the management plan;
- the permit, or an authorized copy, shall be carried within the Area;
- a report or reports shall be supplied to the authority or authorities named in the permit;
- permits should be valid for a stated period.

7(i) Access to and movement within the Area

Access into the Area is permitted by foot or by helicopter. Use of land vehicles within the Area is discouraged. Helicopters shall land at the designated site (169°11'25"E, 77°27'42"S; elevation 240 m) on the west side of Pat's Peak, 150 m from the refuge hut, except when specifically authorized by permit for scientific or management purposes.

Overflight is prohibited by single-engine helicopters at altitudes lower than 750 m (~2,500 ft) and by dual-engine helicopters lower than 1,000 m (~3,300 ft), except when required for essential scientific or management purposes specifically authorized by permit. Use of helicopter smoke grenades is prohibited unless absolutely necessary for safety, and all grenades should be retrieved.

Pedestrian traffic should be kept to the minimum necessary consistent with the objectives of any permitted activities and every reasonable effort should be made to minimize effects. Permitted visitors should keep to natural penguin tracks when walking through bird colonies and should not approach occupied nests except as required for scientific or management purposes. Care should be taken to avoid trampling nests when moving through skua territories. Visitors should avoid walking on visible vegetation and care should be exercised walking in areas of moist ground, where foot traffic can easily damage sensitive soils, plant and algal communities and degrade water quality.

Access to historic sites should preferably be from the south of the Area.

7(ii) Activities that are or may be conducted in the Area, including restrictions on time or place

Activities that may be conducted within the Area include:

- scientific research that will not jeopardise the ecosystem of the Area;
- essential management activities, including monitoring;
- visits to historic sites for scientific, management or historical reasons subject to the conditions described within this plan;
- activities with the aim of preserving or protecting the historic resources within the Area.

7(iii) Installation, modification or removal of structures

No structures are to be erected within the Area except as specified in a permit. All scientific equipment installed in the Area must be approved by permit and clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of contamination of the Area. Removal of specific equipment for which the permit has expired shall be a condition of the permit.

7(iv) Location of field camps

Camping within the Area should be within a 100-m radius of the hut (169°11'14"E, 77°27'39"S). Camping is permitted outside of the hut vicinity where access is required to distant parts of the Area for extended time periods.

7(v) Restrictions on materials and organisms that can be brought into the Area

No living animals, plant material or microorganisms shall be deliberately introduced into the Area and precautions shall be taken against accidental introductions. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management purposes specified in the permit, shall be removed from the Area at or before the conclusion of the activity for which the permit was granted. Fuel is not to be stored in the Area outside of the hut facilities, unless specifically authorized by permit for specific scientific or management purposes. Dressed poultry should be free of disease or infection before shipment to the Antarctic and, if introduced into the Protected Area for food, all parts and waste of poultry shall be completely removed from the Protected Area and incinerated or boiled long enough to kill any potentially infective bacteria or viruses.

All materials introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of their introduction into the environment is minimized.

7(vi) Taking or harmful interference with native flora or fauna

Taking or harmful interference of native flora and fauna is prohibited, except in accordance with a permit issued under Article 3 of Annex II by the appropriate national authority specifically for that purpose. Where animal taking or harmful interference is involved, this should, as a minimum standard, be in accordance with the SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica.

7(vii) Collection or removal of anything not brought into the Area by the permit holder

Material may be collected or removed from the Area only in accordance with a permit and should be limited to the minimum necessary to meet scientific or management needs. Material of human origin likely to compromise the values of the Area, which was not brought into the Area by the permit holder or otherwise authorized, may be

removed from any part of the Area, including the restricted zone, unless the impact of removal is likely to be greater than leaving the material *in situ*: if this is the case the appropriate authority should be notified.

Unless specifically authorized by permit, visitors are prohibited from interfering with or attempting restoration of Wilson's Stone Igloo in any way, or from handling, taking or damaging any artifacts. Evidence of recent changes, damage or new artifacts observed should be notified to the appropriate national authority. Relocation or removal of artifacts for the purposes of preservation, protection, or to re-establish historical accuracy is allowable by permit.

7(viii) Disposal of waste

All wastes shall be removed from the Area.

7(ix) Measures that are necessary to ensure that the aims and objectives of the management plan can continue to be met

- Permits may be granted to enter the Area to carry out biological monitoring and site inspection activities, which may involve the collection of small samples for analysis or audit, or for protective measures.
- Any specific sites of long-term monitoring shall be appropriately marked.
- To help maintain the ecological and scientific values of the Area, visitors shall take special precautions against introductions. Of particular concern or microbial and vegetation introductions from soils at other Antarctic sites, including stations, or from regions outside Antarctica. To minimize the risk of introductions, visitors shall thoroughly clean footwear and any equipment to be used in the area – particularly sampling equipment and markers – before entering the Area.

7(x) Requirements for reports

Parties shall ensure that the principal holder for each permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report Form suggested by SCAR. Parties shall maintain a record of such activities and, in the Annual Exchange of Information, shall provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the management plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be used both for review of the management plan and in organizing the scientific use of the site.

Management Plan for Antarctic Specially Protected Area No. 126 BYERS PENINSULA, LIVINGSTON ISLAND, SOUTH SHETLAND ISLANDS

1. Description of values to be protected

Byers Peninsula (latitude 62°34'35" S, longitude 61°13'07" W, 60.6 km²), Livingston Island, South Shetland Islands, was originally designated as Specially Protected Area (SPA) No. 10 through Recommendation IV-10 in 1966. This area included the ice-free ground west of the western margin of the permanent ice sheet on Livingston Island, below Rotch Dome, as well as Window Island about 500 m off the northwest coast and five small ice-free areas on the south coast immediately to the east of Byers Peninsula. Values protected under the original designation included the diversity of plant and animal life, many invertebrates, a substantial population of southern elephant seals (*Mirounga leonina*), small colonies of Antarctic fur seals (*Arctocephalus gazella*), and the outstanding scientific interest associated with such a large variety of plants and animals within a relatively small area.

Designation as an SPA was terminated through Recommendation VIII-2 and redesignation as a Site of Special Scientific Interest (SSSI) was made through Recommendation VIII-4 (1975, SSSI No. 6). The new designation as an SSSI more specifically sought to protect three smaller ice-free sites on the peninsula of Jurassic and Cretaceous sedimentary and fossiliferous strata, considered of outstanding scientific value for study of the former link between Antarctica and other southern continents. Following a proposal by Chile and the United Kingdom, the SSSI was subsequently extended through Recommendation XVI-5 (1991) to include boundaries similar to those of the original SPA: i.e. the entire ice-free ground of Byers Peninsula west of the margin of the permanent Livingston Island ice sheet, including the littoral zone, but excluding Window Island and the five southern coastal sites originally included, as well as excluding all offshore islets and rocks. Recommendation XVI-5 noted that in addition to the special geological value, the Area was also of considerable biological and archaeological importance. Biological values noted were:

- Sparse but diverse flora of calcicolous and calcifuge plants and cyanobacteria associated with the lavas and basalts respectively;

- Particularly well-developed vegetation on basaltic plugs;
- Several rare cryptogams and two native vascular plants (*Deschampsia antarctica* and *Colobanthus quitensis*) occur at several sites;
- Coastal and inland lakes, the latter with a particularly important biota, including aquatic mosses, and serving as breeding sites for the midge *Parochlus steinenii*, the only native winged insect in the Antarctic and which has an exceptionally restricted distribution;
- The only other Antarctic dipteran, the wingless midge *Belgica antarctica*, occurs with restricted distribution in stands of moist moss near Cerro Negro.

In addition, the archaeological values were described as unique in possessing the greatest concentration of historical sites in Antarctica, namely the remains of refuges, together with contemporary artefacts, and shipwrecks of early nineteenth century sealing expeditions.

The values recorded in the original management plans, are reaffirmed in the present management plan. Further values not referred to originally, but evident from scientific descriptions of Byers Peninsula, are also considered important as reasons for special protection of the Area. These values are:

- well-preserved sub-fossil whale bones are present in raised beaches, which are important for radiocarbon dating of beach deposits;
- the described terrestrial flora and fauna is of exceptional diversity, with one of the broadest representations of species known in the maritime Antarctic;
- with over 60 lakes, numerous freshwater pools and a great variety of often extensive streams, it is the most significant limnological site in the South Shetland Islands – and perhaps the Antarctica Peninsula region – and also one which has not been subjected to significant levels of human disturbance;
- the lakes and their sediments constitute one of the most important archives for study of the Holocene palaeoenvironment in the Antarctic Peninsula region, as well as for establishing a regional Holocene tephrochronology;
- *Parochlus steinenii* is of limited distribution in the South Shetland Islands, and *Belgica antarctica* has a very restricted distribution on the Antarctic Peninsula, but both species are abundant at several of the lakes and pools on Byers Peninsula;
- unusually thick (3-10 cm) and extensive cyanobacterial mats of *Phormidium* sp., particularly on the upper levels of the central Byers Peninsula plateau, are the best examples so far described in the maritime Antarctic;
- the breeding avifauna within the Area is diverse, including two species of penguin (chinstrap *Pygoscelis antarctica* and gentoo *P. papua*), Antarctic tern (*Sterna vittata*), Wilson's storm petrel (*Oceanites oceanicus*), cape petrel (*Daption capense*), kelp gull (*Larus dominicanus*), southern giant petrel (*Macronectes giganteus*), black-bellied storm petrel (*Fregetta tropica*), blue-eyed cormorant (*Phalacrocorax atriceps*), brown skua (*Catharacta loennbergi*), and sheathbill (*Chionis alba*).

While the particular status of designation and boundaries have changed from time to time, Byers Peninsula has in effect been under special protection for most of the modern era of scientific activity in the region. Recent activities within the Area have been almost exclusively for scientific research. Most visits and sampling within the Area, since original designation in 1966, have been subject to permit conditions.

2. Aims and objectives

Management at Byers Peninsula aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance;
- allow scientific research on the ecosystem and geology;
- allow other scientific research within the Area provided it is for compelling reasons which cannot be served elsewhere;
- allow archaeological research and measures for artefact protection, while protecting historic artefacts present within the Area from unnecessary destruction, disturbance, or removal;
- minimise the possibility of introduction of alien plants, animals and microbes to the Area;
- allow visits for management purposes in support of the aims of the management plan.

3. Management activities

The following management activities shall be undertaken to protect the values of the Area:

- A map showing the location of the Area (stating the special restrictions that apply) shall be displayed prominently at Base Juan Carlos I (Spain) and St. Kliment Ochridski Station (Bulgaria) on Hurd Peninsula, where copies of this management plan shall be made available;
- Markers, signs, fences or other structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition;
- Visits shall be made as necessary (preferably no less than once every five years) to assess whether the Area continues to serve the purposes for which it was designated and to ensure management and maintenance measures are adequate.

4. Period of designation

Designated for an indefinite period.

5. Maps and photographs

Map 1: Byers Peninsula ASPA No. 126 in relation to the South Shetland Islands, showing the location of Base Juan Carlos I (Spain) and St. Kliment Ochridski Station (Bulgaria), and showing the location of protected areas within 75 km of the Area. Inset: the location of Livingston Island along the Antarctica Peninsula.

Map 2: Byers Peninsula ASPA No. 126 topographic map. Topographic information simplified after SGE *et al* (1993). Map specifications: Projection UTM Zone 20; Spheroid: WGS84; Datum: Mean Sea Level. Horizontal accuracy of control: ± 0.05 m. Vertical contour interval 25 m, vertical accuracy unknown but expected to be better than ± 12.5 m.

6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

GENERAL DESCRIPTION

Byers Peninsula (between latitudes 62°34'35" and 62°40'35" S and longitudes 60°54'14" and 61°13'07" W, 60.6 km²) is situated at the west end of Livingston Island, the second-largest of the South Shetland Islands (Map 1). The peninsula has a central west-east extent of about 9 km and a NW-SE extent of 18.2 km, and is the largest ice-free area in the South Shetland Islands. The peninsula is generally of low, gently rolling relief, although there are a number of prominent hills ranging in altitude between 80 – 265 m (Map 2). The interior is dominated by a series of extensive platforms at altitudes of up to 105 m, interrupted by isolated volcanic plugs such as Chester Cone (188 m) and Cerro Negro (143 m) (Thomson and López-Martínez 1996). There is an abundance of rounded, flat landforms resulting from marine, glacial and periglacial erosional processes. The most rugged terrain occurs on Ray Promontory, a ridge forming the northwest-trending axis of the roughly 'Y'-shaped peninsula. Precipitous cliffs surround the coastline at the northern end of Ray Promontory with Start Hill (265 m) at the NW extremity being the highest point on the peninsula.

The coast of Byers Peninsula has a total length of 71 km (Map 2). Although of generally low relief, the coast is irregular and often rugged, with numerous headlands, cliffs, offshore islets, rocks and shoals. Byers Peninsula is also notable for its broad beaches, prominent features on all three coasts (Robbery Beaches in the north, President Beaches in the west, and South Beaches). The South Beaches are the most extensive; extending 12 km along the coast and up to almost 0.9 km in width, these are the largest in the South Shetland Islands (Thomson and López-Martínez 1996). For a detailed description of the geology and biology of the Area see Annex 1.

BOUNDARIES

The boundaries of the Area designated under Recommendation XVI-5 have been changed in this management plan. The Area now includes two islets several hundred metres SW of Devils Point and a small area of ice-free ground at Clark Nunatak in the SE corner as these sites also support values consistent with the remainder of the Peninsula. The Area is now defined to include the whole of Byers Peninsula west of the permanent ice sheet of Rotch Dome, Livingston Island, above the low tide water level, including the two islets adjacent to Devils Point noted above, but excluding all other offshore islets and rocks (Map 2).

6(ii) Restricted and managed zones within the Area

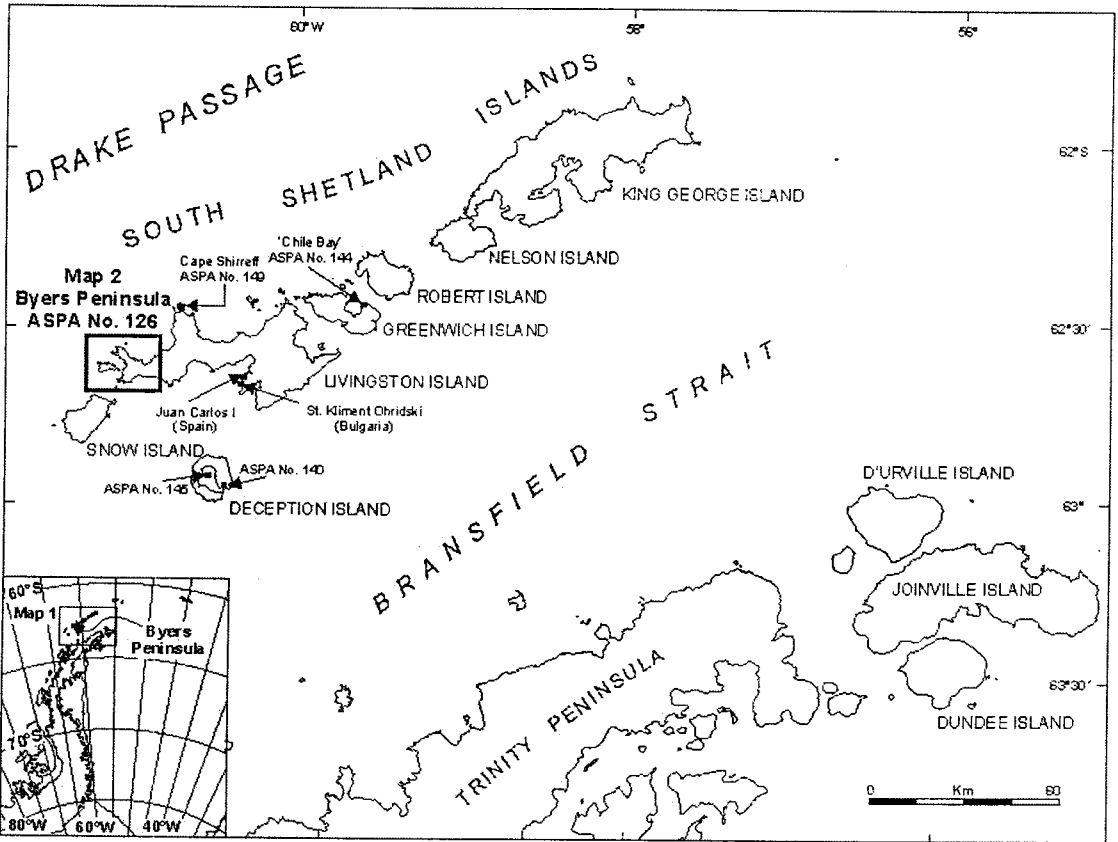
None.

6(iii) Structures within and near the Area

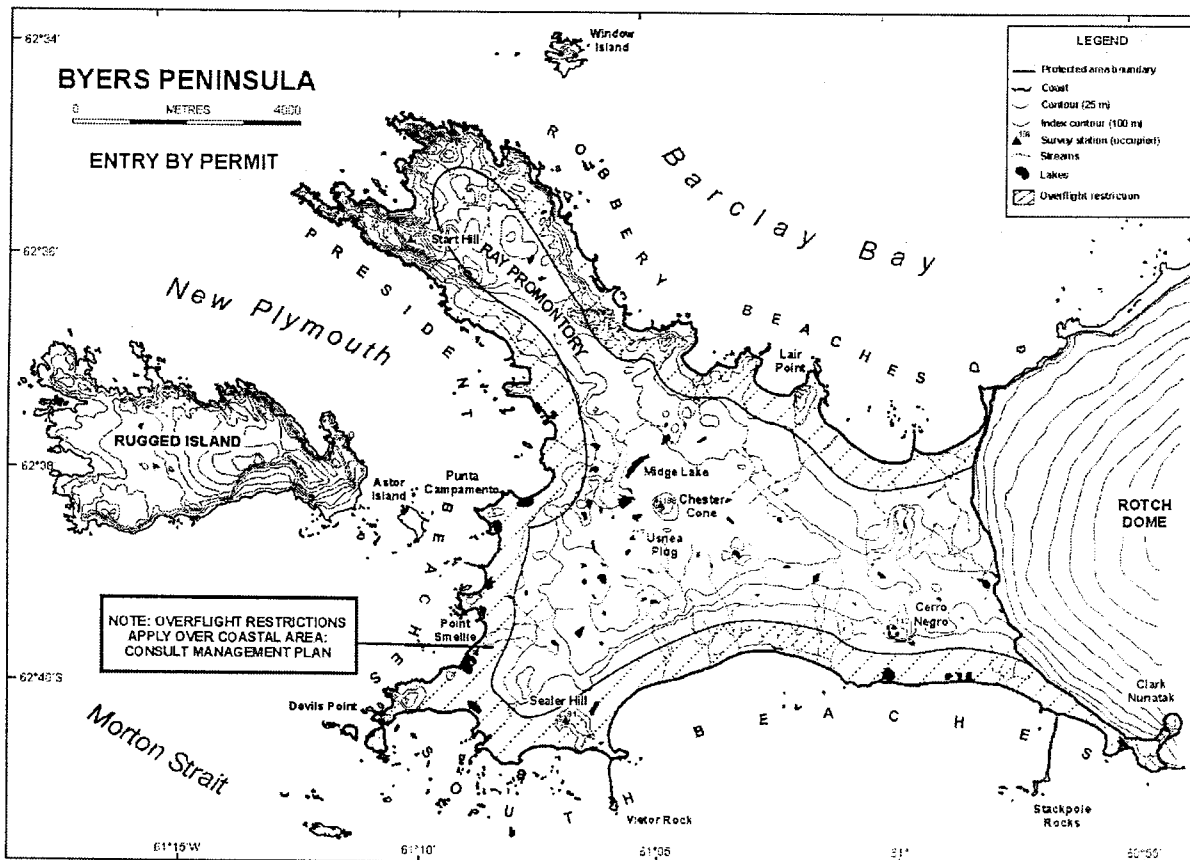
Besides the sealers' refuges, there are no structures known to be present in the Area. Several cairns marking sites used for topographical survey are present within the Area. The nearest scientific research stations are 30 km east at Hurd Peninsula, Livingston Island (Base Juan Carlos I (Spain) and St. Kliment Ochridski (Bulgaria)).

6(iv) Location of other protected areas within close proximity of the Area

The nearest protected areas to Byers Peninsula are: Cape Shirreff, ASPA No. 149, which lies about 20 km to the northeast; Port Foster and other parts of Deception Island, ASPAs No. 140 and No. 145 respectively, which are approximately 40 km SSE; and 'Chile Bay' (Discovery Bay), ASPA No. 144, which is about 70 km to the east at Greenwich Island (Map 1).



Map 1. Byers Peninsula, ASPA No. 126, Livingston Island, South Shetland Islands, location map. Inset: location of Byers Peninsula on the Antarctic Peninsula



Map 2. Byers Peninsula, ASPA No. 126, topographic map.

7. Permit conditions

Entry into the Area is prohibited except in accordance with a Permit issued by an appropriate national authority. Conditions for issuing a Permit to enter the Area are that:

- it is issued only for scientific study of the ecosystem, geology or archaeology of the Area, or for compelling scientific reasons that cannot be served elsewhere; or
- it is issued for essential management purposes consistent with plan objectives such as inspection, maintenance or review;
- the actions permitted will not jeopardise the ecological, geological, historical or scientific values of the Area;
- the sampling proposed will not take, remove or damage such quantities of soil, rock, native flora or fauna that their distribution or abundance on Byers Peninsula would be significantly affected;
- any management activities are in support of the objectives of the management plan;
- the actions permitted are in accordance with the management plan;
- the Permit, or an authorised copy, shall be carried within the Area;
- a visit report shall be supplied to the authority named in the Permit;
- permits shall be issued for a stated period;
- the appropriate authority should be notified of any activities/measures undertaken that were not included in the authorised Permit.

7(i) Access to and movement within the Area

- Vehicles are prohibited within the Area and access shall be by small boat or by helicopter.
- There are no special restrictions on landings from the sea, or that apply to the sea routes used to move to and from the Area.
- During the period 1 October – 30 April inclusive, aircraft should avoid landing within 500 m of the coast (Map 2). Within this zone the overflight guidelines, specified in Table 1 (below), should be followed to the maximum extent practicable in order to protect the numerous birds and seals concentrated along the coast.
- Helicopters may land elsewhere within the Area when necessary for purposes consistent with the objectives of the Plan, although landings should, where practicable, be made on ridge and raised beach crests.
- Helicopters should avoid sites where there are concentrations of birds or well-developed vegetation. When conditions require aircraft to fly at lower elevations than recommended in the guidelines, aircraft should maintain the maximum elevation possible and minimise the time taken to transit the coastal zone.
- Use of helicopter smoke grenades is prohibited within the Area unless absolutely necessary for safety. If used all smoke grenades should be retrieved.
- Subject to the guidelines in Table 1, movement within the Area shall be on foot or by helicopter.
- Pilots, air or boat crew, or other people on aircraft or boats, are prohibited from moving on foot beyond the immediate vicinity of their landing site unless specifically authorised by the permit.
- All movement should be undertaken carefully so as to minimise disturbance to animals, soils, geomorphological features and vegetated surfaces, walking on rocky terrain or ridges if practical to avoid damage to sensitive plants, patterned ground and the often waterlogged soils.
- Pedestrian traffic should be kept to the minimum consistent with the objectives of any permitted activities and every reasonable effort should be made to minimise trampling effects.

Table 1: Aircraft overflight guidelines applying 1 October – 30 April inclusive within a 500 m coastal zone at Byers Peninsula.

Aircraft type	Number of engines	Minimum approach distance (m)	
		Vertical (above ground)	
		Feet	Metres
Helicopter	1	2460	750
Helicopter	2	3300	1000
Fixed-wing	1 or 2	1480	450
Fixed-wing	4	3300	1000

7(ii) Activities that are or may be conducted in the Area, including restrictions on time or place

- Scientific research that will not jeopardise the ecosystem of the Area;
- Essential management activities, including monitoring;
- Specific guidelines on times and locations at which aircraft may operate within the Area apply, specified in Section 7 (i) of this Management Plan.

7(iii) Installation, modification or removal of structures

Structures shall not be erected within the Area except as specified in a Permit. Permanent structures are prohibited. All structures or scientific equipment installed in the Area shall be approved by Permit for a specified period and clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of contamination to the Area. Removal of specific equipment for which the Permit has expired shall be a condition of the Permit.

7(iv) Location of field camps

When necessary for purposes specified in the Permit, temporary camping is allowed within the Area. Specific camp site locations have not been designated, although camps should be located on non-vegetated sites, such as on the drier parts of the raised beaches, or on thick (>0.5 m) snow-cover when practicable, and should avoid concentrations of breeding birds or mammals. It is prohibited to camp within 50 m of any historic sealer's refuge or shelter.

7(v) Restrictions on materials and organisms which can be brought into the Area

No living animals, plant material or microorganisms shall be deliberately introduced into the Area and the precautions listed in 7(ix)(3) below shall be taken against accidental introductions. In view of the presence of breeding bird colonies on Byers Peninsula, no poultry products, including products containing uncooked dried eggs, including wastes from such products, shall be released into the Area or into the adjacent sea. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management purposes specified in the Permit, shall be removed from the Area at or before the conclusion of the activity for which the Permit was granted. Fuel is not to be stored in the Area, unless specifically authorised by the Permit for specific scientific or management purposes. Anything introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of any introduction into the environment is minimised. If release occurs which is likely to compromise the values of the Area, removal is encouraged only where the impact of removal is not likely to be greater than that of leaving the material *in situ*. The appropriate authority should be notified of anything released and not removed that was not included in the authorised Permit.

7(vi) Taking or harmful interference with native flora or fauna

Taking or harmful interference with native flora or fauna is prohibited, except by Permit issued in accordance with Annex II to the Protocol on Environmental Protection to the Antarctic Treaty. Where taking or harmful interference with animals is involved, the *SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica* should be used as a minimum standard.

7(vii) Collection or removal of anything not brought into the Area by the Permit holder

Collection or removal of anything not brought into the Area by the Permit holder shall only be in accordance with a Permit and should be limited to the minimum necessary to meet scientific, archaeological or management needs. Anything of recent human origin likely to compromise the values of the Area, which was not brought into the Area by the Permit holder, or is not an historic artefact or otherwise authorised, may be removed unless the impact of removal is likely to be greater than leaving the material *in situ*: if this is the case the appropriate authority should be notified.

7(viii) Disposal of waste

All wastes, including all human wastes, shall be removed from the Area. Human wastes may be disposed of into the sea.

7(ix) Measures that are necessary to ensure that the aims and objectives of the management plan can continue to be met

9. Permits may be granted to enter the Area to carry out monitoring and site inspection activities, which may involve the small-scale collection of samples for analysis or review, or for protective measures.
10. Any specific long-term monitoring sites shall be appropriately marked.
11. To help maintain the ecological and scientific values derived from the relatively low level of recent human impact at Byers Peninsula special precautions shall be taken against introductions. Of concern are microbial or plant introductions sourced from other Antarctic sites, including stations, or from regions outside

Antarctica. All sampling equipment or markers brought into the Area shall be cleaned or sterilised. To the maximum extent practicable, footwear and other equipment used or brought into the Area (including backpacks, carry-bags and tents) shall be thoroughly cleaned before entering the Area.

12. Poultry products and other introduced avian products, which may be a vector of avian diseases, shall not be released into the Area.

7(x) Requirements for reports

Parties should ensure that the principal holder for each Permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the Management Plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be used both in any review of the management plan and in organising the scientific use of the Area.

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Annex 1

Geographical coordinates, boundary markers and natural features

CLIMATE

No extended meteorological records are available for Byers Peninsula, but the climate is expected to be similar to that at Base Juan Carlos I, Hurd Peninsula. Conditions there indicate a mean annual temperature of below 0°C, with temperatures >0°C for at least several months each summer, and a relatively high precipitation rate estimated at about 800 mm/yr, much of which falls as rain in summer (Ellis-Evans 1996). The peninsula is snow-covered for much of the year, but is usually completely snow-free by the end of the summer. The peninsula is exposed to weather from the Drake Passage in the north and northwest, the directions from which winds prevail, and Bransfield Strait to the south.

GEOLOGY

The bedrock of Byers Peninsula is composed of Upper Jurassic to Lower Cretaceous marine sedimentary, volcanic and volcanoclastic rocks, intruded by igneous bodies (see Smellie *et al* 1980; Crame *et al* 1993, Hathway and Lomas 1998) (Map 3 – IN PREP). The rocks represent part of a Mesozoic-Cenozoic magmatic arc complex, which is exposed throughout the whole of the Antarctic Peninsula region, although most extensively on the Byers Peninsula (Hathway and Lomas 1998). The interior, elevated, region of the eastern half of the peninsula – surrounded to the north and south by Holocene beach deposits – is dominated by Lower Cretaceous non-marine tuffs, volcanic breccias, conglomerates, sandstones and minor mudstones, with intrusions in several places by volcanic plugs and sills. The western half of the peninsula, and extending NW half-way along Ray Promontory, is predominantly Upper Jurassic-Lower Cretaceous marine mudstones, with sandstones and conglomerates, with frequent intrusions of volcanic sills, plugs and other igneous bodies. The NW half of Ray Promontory comprises mainly volcanic breccias of the same age. Mudstones, sandstones, conglomerates and pyroclastic rocks are the most common lithologies found on the peninsula. Expanses of Holocene beach gravels and alluvium are found in coastal areas, particularly on South Beaches and the eastern half of Robbery Beaches, with less-extensive deposits on President Beaches.

The Area is of high geological value because “the sedimentary and igneous rocks exposed at Byers Peninsula constitute the most complete record of the Jurassic-Early Cretaceous period in the northern part of the Pacific flank of the magmatic arc complex, and they have proved a key succession for the study of marine molluscan faunas (e.g. Crame 1984, 1995, Crame and Kelly 1995) and non-marine floras (e.g. Hernandez and Azcárate 1971, Philippe *et al* 1995, Hathway and Lomas 1998).

GEOMORPHOLOGY AND SOILS

Much of the terrain consists of lithosols, essentially a layer of shattered rock, with permafrost widespread below an active layer of 30-70 cm depth (Thom 1978, Ellis-Evans 1996, Serrano *et al* 1996). Stone fields (consisting of silty fines with dispersed boulders and surficial clasts), gelifluction lobes, polygonal ground (both in flooded and dry areas), stone stripes and circles, and other periglacial landforms dominate the surface morphology of the upper platforms where bedrock outcrop is absent (Serrano *et al* 1996). Debris- and mud-flows are observed in several localities. Beneath some of the moss and grass communities there is a 10-20 cm deep layer of organic matter although, because vegetation is sparse over most of Byers Peninsula, there are no deep accumulations of

peat (Bonner and Smith 1985). Ornithogenic soils are present especially in the Devils Point vicinity and on a number of knolls along President Beaches (Ellis-Evans 1996).

Parts of the interior of the peninsula have been shaped by coastal processes, with a series of raised beaches ranging from 3 to 54 m in altitude, some of which are over 1 km wide. A radiocarbon date for the highest beach deposits suggests that Byers Peninsula was largely free of permanent ice by 9700 yr B.P., while the lowest beach deposits are dated at 300 yr B.P. (John and Sugden 1971, Sugden and John 1973). Lake sediment analyses, however, suggest a more recent general deglaciation of central Byers Peninsula of around 4000-5000 yr B.P., and radiocarbon dates in the locality need to be interpreted cautiously (Björck *et al* 1991a, b). In several places sub-fossil whalebones are embedded in the raised beaches, occasionally as almost entire skeletons. Radiocarbon dates of skeletal material from about 10 m a.s.l. on South Beaches suggest an age of between 2000 and 2400 yr B.P. (Hansom 1979). Pre-Holocene surfaces of Byers Peninsula exhibit clear evidence of a glacial landscape, despite the gentle landforms. Today only three small residual glaciers (comprising less than 0.5 km²) remain on Ray Promontory. The pre-existing, glacially modified, landforms have been subsequently overprinted by fluvial and periglacial processes, and moraines and other glacial deposits are scarce (Martinez de Pison *et al* 1996).

STREAMS AND LAKES

Byers Peninsula is perhaps the most significant limnological site in the South Shetland Islands / Antarctica Peninsula region, with over 60 lakes, numerous freshwater pools (differentiated from lakes in that they freeze to the bottom in winter), and a dense and varied stream network probably has the most stream types in the Maritime Antarctic. The gentle terrain favours water retention and waterlogged soils are common in the summer. However, the water capacity of the thin soils is limited, and many of the channels are frequently dry, with flow often intermittent except during periods of substantial snow melt or where they drain glaciers (Lopez-Martinez *et al* 1996). Most of the streams drain seasonal snowfields and are often no more than 5-10 cm in depth (Ellis-Evans 1996). The larger streams are up to 4.5 km in length, up to 20 m in width, and 30-50 cm in depth in the lower reaches during periods of flow. Streams that drain to the west often have sizeable gorges (Lopez-Martinez *et al* 1996), and gullies up to 30 m in depth have been cut into the uppermost, and largest, of the raised marine platforms (Ellis-Evans 1996). Above the Holocene raised beaches the valleys are gentle, with widths of up to several hundred metres.

Lakes are especially abundant on the higher platforms (i.e. at the heads of basins) and on the Holocene raised beaches near the coast. Midge Lake is the largest at 587x112 m, and deepest with a maximum depth of 9.0 m (Map 2). The inland lakes are all nutrient-poor and highly transparent, with extensive sediments in deeper water overlain by cyanobacterial mats. In some lakes, notably Chester Cone Lake about 500 m to the south of Midge Lake (Map 2), stands of aquatic moss *Drepanocladus longifolius* (= *D. aduncus*) are found growing at one to several metres in depth. Large masses of this moss are sometimes washed up along parts of the shoreline and may serve as an opportunistic habitat for *Parochlus* larvae (Bonner and Smith 1985).

The lakes are generally frozen to a depth of 1.0-1.5 m for 9-11 months of the year, overlain by snow, although surfaces of some of the higher lakes remain frozen year-round (Ellis-Evans 1996, Lopez-Martinez *et al* 1996). On the upper levels of the central plateau, many small, shallow, slow-flowing streams flow between lakes and drain onto large flat areas of saturated lithosol covered with thick (3-10 cm) cyanobacterial mats of *Phormidium* sp.. These mats are more extensive than in any other Maritime Antarctic site thus far described, and reflect the unique geomorphology and relatively high annual precipitation of the Area. With spring melt there is considerable flush through most lakes, but outflow from many lakes may cease late in the season as seasonal snowmelt decreases. Some of the streams also contain substantial growths of cyanobacterial and green filamentous algae, along with diatoms and copepods. A number of relatively saline lakes of lagoonal origin occur close to the shore, particularly on President Beaches, and where these are used as southern elephant seal (*Mirounga leonina*) wallows these have been highly organically enriched. Those coastal shallow lakes and pools located behind the first raised beach often have abundant algal mats and crustaceans, including the copepods *Boeckella poppei* and *Parabroteas sorsii*, and occasionally the fairy shrimp *Branchinecta gainii*.

VEGETATION

Although much of Byers Peninsula lacks abundant vegetation, especially inland (see Lindsay 1971), the sparse communities contain a diverse flora, with at least 56 lichen species, 29 mosses, 5 hepatics and 2 phanerogams having been identified as present within the Area. Numerous unidentified lichens and mosses have also been collected. This suggests the Area contains one of the most diverse representations of terrestrial flora known in the maritime Antarctic. A number of the species are rare in this part of the maritime Antarctic. For example, of the bryophytes, *Anthelia juratzkana*, *Brachythecium austroglareosum*, *Chorisodontium aciphyllum*, *Ditrichum hyalinum*, *Herzogobryum teres*, *Hypnum revolutum*, *Notoligotrichum trichodon*, *Pachyglossa dissitifolia*, *Platydictya jungermanniioides*, *Sanionia* cf. *plicata*, *Schistidium occultum*, *Syntrichia filaris* and *Syntrichia saxicola* are considered rare. For *A. juratzkana*, *D. hyalinum*, *N. trichodon* and *S. plicata*, their furthest-south

record is on Byers Peninsula. Of the lichen flora, *Himantormia lugubris*, *Ochrolechia parella*, *Peltigera didactyla* and *Pleopsidium chlorophanum* are considered rare.

Vegetation development is much greater on the south coast than on the north. Commonly found on the higher, drier raised beaches in the south is an open community dominated by abundant *Polytrichastrum alpinum* (= *Polytrichum alpinum*), *Polytrichum piliferum* (= *Polytrichum antarcticum*), *P. juniperinum*, *Ceratodon purpureus*, and the moss *Pohlia nutans* and several crustose lichens are frequent. Some large stands of mosses occur near President and South Beaches, where extensive snowdrifts often accumulate at the base of slopes rising behind the raised beaches, providing an ample source of meltwater in the summer. These moss stands are dominated mainly by *Sanionia uncinata* (= *Drepanocladus uncinatus*), which locally forms continuous carpets of several hectares. The vegetation composition is more diverse than on the higher, drier areas. Inland, wet valley floors have stands of *Brachythecium austro-salebrosum*, *Campyllum polygamum*, *Sanionia uncinata*, *Warnstorfia laculosa* (= *Calliergidium austro-stramineum*), and *W. sarmentosa* (= *Calliergon sarmentosum*). In contrast, moss carpets are almost non-existent within 250 m of the northern coast, replaced by scant growth of *Sanionia* in hollows between raised beaches of up to 12 m in altitude, and of lichens principally of the genera *Acarospora*, *Buellia*, *Caloplaca*, *Verrucaria* and *Xanthoria* on the lower (2-5 m) raised beach crests, with *Sphaerophorus*, *Stereocaulon* and *Usnea* becoming the more dominant lichens with increasing altitude (Lindsay 1971).

On better drained ash slopes *Bryum* spp., *Dicranoweisia* spp., *Ditrichum* spp., *Pohlia* spp., *Schistidium* spp., and *Tortula* spp. are common as isolated cushions and turves with various liverworts, lichens (notably the pink *Placopsis contortuplicata* and black foliose *Leptogium puberulum*), and the cyanobacterium *Nostoc commune*. *P. contortuplicata* occurs in inland and upland habitats lacking in nitrogen, and is typical of substrata with some degree of disturbance such as solifluction; it is often the only plant to colonise the small rock fragments of stone stripes and frost-heave polygons (Lindsay 1971). It is usually found growing alone, though rarely with species of *Andreaea* and *Usnea*. *N. commune* covers extensive saturated areas on level or gently sloping, gravelly boulder clay from altitudes of between 60-150 m, forming discrete rosettes of about 5 cm in diameter 10-20 cm apart (Lindsay 1971). Scattered, almost spherical, cushions of *Andreaea*, *Dicranoweisia*, and *Ditrichum* are found on the driest soils. In wet, bird- and seal-influenced areas the green foliose alga *Prasiola crispa* is sometimes abundant.

Rock surfaces on Byers Peninsula are mostly friable, but locally colonised by lichens, especially near the coast. Volcanic plugs are composed of harder, more stable rock and are densely covered by lichens and occasional mosses. *Usnea* Plug is remarkable for its luxuriant growth of *Himantormia lugubris* and *Usnea aurantiaco-atra* (= *U. fasciata*). More generally, *H. lugubris* and *U. aurantiaco-atra* are the dominant lichen species on inland exposed montane surfaces, growing with the moss *Andreaea gainii* over much of the exposed rock with up to 80% cover of the substratum (Lindsay 1971). In sheltered pockets harbouring small accumulations of mineral soil, the liverworts *Barbilophozia hatcheri* and *Cephaloziella varians* (= *exiliflora*) are often found, but more frequently intermixed with cushions of *Bryum*, *Ceratodon*, *Dicranoweisia*, *Pohlia*, *Sanionia*, *Schistidium*, and *Tortula*. *Sanionia* and *Warnstorfia* form small stands, possibly correlated with the absence of large snow patches and associated melt streams. *Polytrichastrum alpinum* forms small inconspicuous cushions in hollows, but it may merge with *Andreaea gainii* cushions in favourable situations (Lindsay 1971).

Crustose lichens are mainly species of *Buellia*, *Lecanora*, *Lecedella*, *Lecidea*, *Placopsis* and *Rhizocarpon* growing on rock, with species of *Cladonia* and *Stereocaulon* growing on mosses, particularly *Andreaea* (Lindsay 1971). On the south coast moss carpets are commonly colonised by epiphytic lichens, such as *Leptogium puberulum*, *Peltigera rufescens*, *Psoroma* spp., together with *Coclocaulon aculeata* and *C. epiphorella*. On sea cliffs *Caloplaca* and *Verrucaria* spp. dominate on lower surfaces exposed to salt spray up to about 5 m, with nitrophilous species, such as *Caloplaca regalis*, *Haematomma erythromma*, and *Xanthoria elegans* often dominant at higher altitudes where seabirds are frequently nesting. Elsewhere on dry cliff surfaces a *Ramalina terebrata* - crustose lichen community is common. A variety of ornithocrophilous lichens, such as *Catillaria corymbosa*, *Lecania brialmontii*, and species of *Buellia*, *Haematomma*, *Lecanora*, and *Physcia* occur on rocks near concentrations of breeding birds, along with the foliose lichens *Mastodia tessellata*, *Xanthoria elegans* and *X. candelaria* which are usually dominant on dry boulders.

Antarctic hairgrass (*Deschampsia antarctica*) is common in several localities, mainly on the south coast, and occasionally forms closed swards (e.g. at Sealer Hill); Antarctic pearlwort (*Colobanthus quitensis*) is sometimes associated. Both plants are quite abundant in southern gullies with a steep north-facing slope, forming large, occasionally pure stands with thick carpets of *Brachythecium* and *Sanionia*, although they are rarely found above 50 m in altitude (Lindsay 1971). An open community of predominantly *Deschampsia* and *Polytrichum piliferum* extends for several kilometres on the sandy, dry, flat raised beaches on South Beaches. A unique growth-form of the grass, forming isolated mounds 25 cm high and up to 2 m across, occurs on the beach near Sealer Hill. *Deschampsia* has been reported at only one locality on the north coast (Lair Point), where it forms small stunted tufts (Lindsay 1971).

INVERTEBRATES, FUNGI AND BACTERIA

The microinvertebrate fauna on Byers Peninsula thus far described comprises 23 taxa (Usher and Edwards 1986, Richard *et al* 1994, Block and Stary 1996, Convey *et al* 1996): six Collembola (*Cryptopygus antarcticus*, *Cryptopygus badasa*, *Friesea grisea*, *Friesea woyciechowskii*, *Isotoma (Folsomotoma) octooculata* (= *Parisotoma octooculata*) and *Tullbergia mixta*; one mesostigmatid mite (*Gamasellus racovitzae*), five cryptostigmatid mites (*Alaskozetes antarcticus*, *Edwardzetes dentifer*, *Globoppia loxolineata* (= *Oppia loxolineata*), *Halozetes belgicae* and *Magellozetes antarcticus*); nine prostigmatid mites (*Bakerdania antarcticus*, *Ereynetes macquariensis*, *Eupodes minutus*, *Eupodes parvus grahamensis*, *Nanorchestes berryi*, *Nanorchestes nivalis*, *Pretriophydeus tilbrooki*, *Rhagidia gerlachei*, *Rhagidia leechi*, and *Stereotydeus villosus*); and two Dipterans (*Belgica antarctica* and *Parochlus steinenii*).

Larvae of the wingless midge *Belgica antarctica* occur in limited numbers in moist moss, especially carpets of *Sanionia*, although it is of very restricted distribution on Byers Peninsula (found especially near Cerro Negro) and may be near its northern geographical limit. The winged midge *Parochlus steinenii* and its larvae inhabit the margins of inland lakes and pools, notably Midge Lake and another near Usnea Plug, and are also found amongst the stones of many stream beds (Bonner and Smith 1985, Richard *et al* 1994, Ellis-Evans pers comm 1999). During warm calm weather, swarms of adults may be seen above lake margins.

The diversity of the arthropod community described at Byers Peninsula is greater than at any other documented Antarctic site (Convey *et al* 1996). Various studies (Usher and Edwards 1986, Richard *et al* 1994, Convey *et al* 1996) have demonstrated that the arthropod population composition on Byers Peninsula varies significantly with habitat over a small area. *Tullbergia mixta* has been observed in relatively large numbers; it appears to be limited in Antarctic distribution to the South Shetland Islands (Usher and Edwards 1986). Locally, the greatest diversity is likely to be observed in communities dominated by moss cushions such as *Andreaea* spp. (Usher and Edwards 1986). Further sampling is required to establish populations and diversities with greater reliability. While further sampling at other sites may yet reveal the communities described at Byers Peninsula to be typical of similar habitats in the region, available data on the microfauna confirm the biological importance of the Area.

An analysis of soil samples collected from Byers Peninsula yielded several nematophagous fungi: in *Deschampsia* soil *Acrostalagmus goniodes*, *A. obovatus*, *Cephalosporium balanoides* and *Dactylaria gracilis*; in *Colobanthus* soil, *Cephalosporium balanoides* and *Dactylella gephyropaga* were found (Gray and Smith 1984). The basidiomycete *Omphalina antarctica* is often abundant on moist stands of the moss *Sanionia uncinata* (Bonner and Smith 1985).

BREEDING BIRDS

The avifauna of Byers Peninsula is diverse, although breeding colonies are generally not large. Two species of penguin, the chinstrap (*Pygoscelis antarctica*) and the gentoo (*P. papua*), breed in the Area; although widely distributed in the region, Adélie Penguins (*P. adeliae*) have not been observed to breed on Byers Peninsula or its offshore islets. The principal chinstrap penguin colony is at Devils Point in the SW, where a rough estimate of about 3000 pairs was made in 1987; a more accurate count made in 1965 indicated about 5300 pairs in four discrete colonies, of which almost 95% were nesting on an islet 100 m to the south of Devils Point (Croxall and Kirkwood 1979, Woehler 1993). Small chinstrap penguin colonies have been reported on the northern coast, but no breeding pairs were reported in a 1987 survey. Gentoo penguins breed at several colonies on Devils Point, with approximately 750 pairs recorded in 1965. Two smaller gentoo colonies totalling about 400 pairs were reported on the northern coast in 1965 (Croxall and Kirkwood 1979, Woehler 1993). More recent data are not available.

The most recent data available for other breeding species are from a detailed survey conducted in 1965 (White 1965, in Croxall – BAS internal bird data reports). The most populous breeding species recorded then, with approximately 1760 pairs, was the Antarctic tern (*Sterna vittata*), followed by 1315 pairs of Wilson's storm petrels (*Oceanites oceanicus*), approximately 570 pairs of cape petrels (*Daption capense*), 449 pairs of kelp gulls (*Larus dominicanus*), 216 pairs of southern giant petrels (*Macronectes giganteus*), 95 pairs of black-bellied storm petrels (*Fregetta tropica*), 47 pairs of blue-eyed cormorants (*Phalacrocorax atriceps*) (including those on nearshore islets), 39 pairs of brown skuas (*Catharacta loennbergi*), and 3 pairs of sheathbills (*Chionis alba*). In addition, prions (*Pachytilla* sp.) and snow petrels (*Pagodroma nivea*) have been seen on the peninsula but their breeding presence has not been confirmed. The census of burrowing and scree-nesting birds is considered an underestimate (White pers. comm. 1999). The majority of the birds nest in close proximity to the coast, principally in the west and south.

BREEDING MAMMALS

Large groups of southern elephant seals (*Mirounga leonina*) breed on the Byers Peninsula coast, with a total of over 2500 individuals reported on South Beaches (Torres *et al.* 1981) – which is one of the largest populations of this species recorded in the South Shetland Islands. Large numbers haul out in wallows and along beaches in summer. Weddell (*Leptonychotes weddellii*), crabeater (*Lobodon carcinophagous*) and leopard (*Hydrurga*

leptonyx) seals may be seen around the shorelines. Antarctic fur seals (*Arctocephalus gazella*) were once very abundant on Byers Peninsula (see below), but have not substantially recolonised the Area in spite of the recent rapid population expansion in other parts of the maritime Antarctic.

HISTORICAL FEATURES

Following discovery of the South Shetland Islands in 1819, intensive sealing at Byers Peninsula between 1820 and 1824 exterminated almost all local Antarctic fur seals and southern elephant seals (Smith and Simpson 1987). During this period there was a summer population of up to 200 American and British sealers living ashore in dry-stone refuges and caves around Byers Peninsula (Smith and Simpson 1987). Evidence of their occupation remains in their many refuges, many of which still contain artefacts (clothing, implements, structural materials, etc.). Several sealing vessels were wrecked near Byers Peninsula and timbers from these ships may be found along the shores. Byers Peninsula has the greatest concentration of early 19th Century sealers' refuges and associated relics in the Antarctic, and these are vulnerable to disturbance and/or removal.

Elephant seal numbers, and to some extent fur seal numbers, recovered after 1860, but were again decimated by a second sealing cycle extending to the first decade of the twentieth century.

HUMAN ACTIVITIES / IMPACTS

The modern era of human activity at Byers Peninsula has been largely confined to science. The impacts of these activities have not been described, but are believed to be minor and limited to items such as campsites, footprints, markers of various kinds, sea-borne litter washed onto beaches (e.g. from fishing vessels), and from human wastes and scientific sampling. Several wooden stake markers and a plastic fishing float were observed in the SW of the Area in a brief visit made in February 2001 (Harris 2001).

Management Plan for Antarctic Specially Protected Area (ASP) No. 130 TRAMWAY RIDGE, MT. EREBUS, ROSS ISLAND

1. Description of values to be protected

The lower end of Tramway Ridge was originally designated in Recommendation XIII-8 (1985, SSSI No. 11) after a proposal by New Zealand on the grounds that the Area supports an unusual ecosystem of exceptional scientific value to botanists, phycologists and microbiologists. Mt. Erebus (3794 m) is one of only three known high altitude localities of fumarolic activity and associated vegetation in the Antarctic (Mt Erebus, Mt Melbourne and Mt Rittman).

Tramway Ridge is an ice-free area of gently sloping warm ground 1.5 km to the Northwest of the main crater of Mt. Erebus, located at an elevation of between 3350 m and 3400 m. The area has significant gas emission and its soil has the highest surface temperatures on Mt Erebus, making it of interest to volcanologists as well as biologists.

The single, as yet unidentified, moss species found in the Area is unusual in that it persists in the protonematal stage. An unusual variety of a common thermophilic cyanobacterium is especially noteworthy. The plant communities which have developed on the fumarolic soils within the Area differ significantly from those found elsewhere in Antarctica. The regional uniqueness of the communities is of substantial scientific interest and value. The very limited geographical extent of the ecosystem, its unusual biological features, its exceptional scientific values and the ease with which it could be disturbed through trampling or alien introductions, are such that the Area requires long-term special protection.

2. Aims and objectives

Management at Tramway Ridge aims to:

- avoid degradation of, or substantial risk to, the values of the Area;
- prevent unnecessary human disturbance to the Area;
- permit research on the unique physical environment and associated vegetation and microbial communities while ensuring they are protected from over-sampling;
- minimise the possibility of introduction of alien plants, animals and microbes to the Area;
- preserve a part of the Area, which is declared a Prohibited Zone, as a reference site for future studies;
- permit visits for management purposes in support of the objectives of the management plan.

3. Management activities

The following management activities are to be undertaken to protect the values of the Area:

- Durable wind direction indicators should be erected close to the designated helicopter landing site whenever it is anticipated there will be a number of landings near the Area in a given season. These should be replaced as needed and removed when no longer required.

- Markers, which should be clearly visible from the air and pose no significant threat to the environment, should be placed to mark the helicopter landing pad.
- A line of flags should be placed to mark the preferred snowmobile route (Map A) between the USAP Upper and Lower Erebus Huts, which should pass no closer than 200 m to the Area.
- Signs illustrating the location, boundaries and clearly stating entry restrictions shall be placed on posts marking the boundaries of the Area.
- Signs showing the location of the Area (stating the special restrictions that apply) shall be displayed prominently, and a copy of this Management Plan should be kept available, in all of the research hut facilities located close to the summit of Mt. Erebus.
- Markers, signs or structures erected within the Area for scientific or management purposes shall be maintained in good condition.
- Visits shall be made as necessary to assess whether the Area continues to serve the purposes for which it was designated and to ensure management and maintenance measures are adequate.
- National Antarctic Programmes operating in the region shall consult together with a view to ensuring these steps are carried out.

4. Period of designation

Designated for an indefinite period.

5. Maps and photographs

Map A: Tramway Ridge, Mt. Erebus, location image map. Image is rectified by affine transformation and scale is approximate. Photography USGS/DOSLI (SN7842) 11 November 1993.

Map B: Tramway Ridge, Mt. Erebus, location contour map. Contours are derived from a digital elevation model generated using a 10 m grid for the orthophotograph in Map A. Precise area of warm ground is subject to variation seasonally and inter-annually.

Map C: Tramway Ridge, site image map. Orthophoto and protected area boundary coordinates are tied to the Camp Area Plane Datum 1981, a local framework, using the WGS72 spheroid. Precise GPS coordinates for the site will differ: these were unavailable at the time of mapping. Photography US Navy (SN6480) 9 February 1980.

Map D: Tramway Ridge, site contour map. Contours are derived from a digital elevation model generated using a 10 m grid for the orthophotograph in Map B: accuracy \pm 2m. Precise area of warm ground is subject to variation seasonally and inter-annually.

Figure 1: Perspective view of the Tramway Ridge area from an elevation of 6200 m, 5000 m out from the Area at a bearing of 215°SW, showing the protected area boundary, the location of the USAP Erebus huts, and the preferred helicopter landing site and snowmobile route. Image source: Map A.

6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

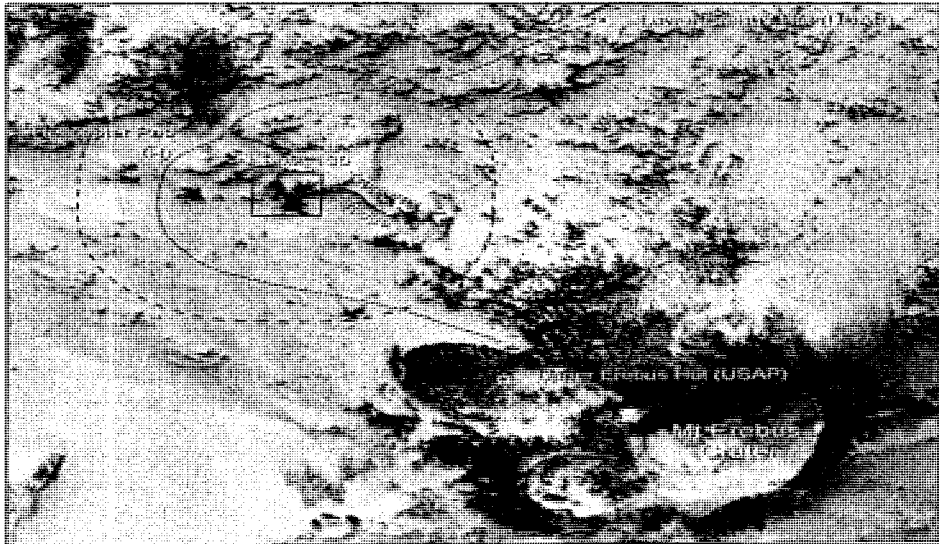
The boundary of the designated Area is defined as a square of 200 m by 200.8 m which encompasses most of the warm ground area of lower Tramway Ridge (167°06'35"E, 77°31'05"S: Map B). The Area is divided into two parts of almost equal size, the northern half being a Prohibited Zone. The boundaries of the Area and the Prohibited Zone (marked by signposts at each corner) and prominent features are shown on Map B. Several boundary signposts have been offset owing to dangerous ground at the actual corner point.

The Area is in general on a gentle slope of about 5°, with much of the ice-free ground in the form of terraces which have a typical vertical height of about 0.5 m and steeper sides of up to 30° in slope. The steep sides of the terraces have the maximum development of crusts of vegetation, and it is from these sides that visible steam emissions occur. Visible vegetation covers about 16% of the Area. Low ice hummocks of up to about 1 m high are distributed over the Area where steam has frozen. Surface ground temperatures are up to about 75°C.

The steam-warmed lithosols in the Area provide an unusual habitat of limited extent. The acid reaction of the soils, the constant supply of moisture by condensation of steam and the regular supply of geothermal heat produce conditions which contrast markedly with most Antarctic soils. There is no evidence of the presence of microinvertebrate animals in the soils. The vegetation comprises protonematal moss and diverse microalgae, which have developed on the fumarolic soils and differs significantly from other Antarctic plant communities. The single moss species, *Campylopus pyriformis*, is unusual in that it has never been seen to produce leaves but persists in the protonematal stage. The vegetation occurs in zones related to surface temperature. Warmest ground, from about 35 to 60°C, is colonised by dark blue-green and reddish-brown mats of cyanobacteria, whereas cooler surfaces of about 10 to 30°C are dominated by green crusts of coccoid chlorophytes and moss protonema. Bare ground lacking a macroscopically visible vegetation occurs between 0 and 20°C.

The algal flora comprises six cyanobacteria and five chlorophytes. The presence of a thermophilic cyanobacterium is especially noteworthy as it is an unusual variety of the hot spring cyanobacterium

Map A - Tramway Ridge, Mt Erebus:
Antarctic Specially Managed Area 130
location image-map



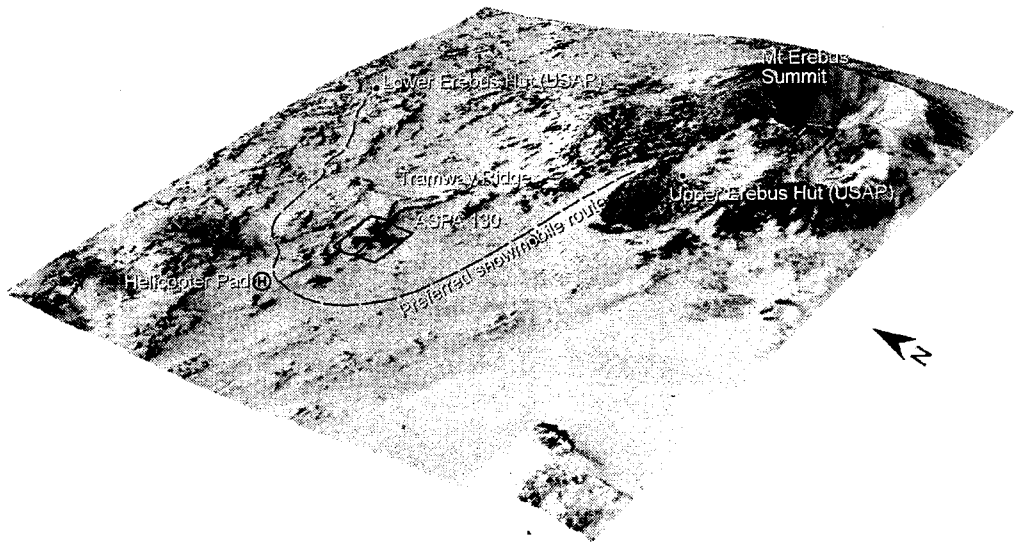
Photography, 11 November 1993; rectified using affine transformation.

Approximate scale
0 Metres 500

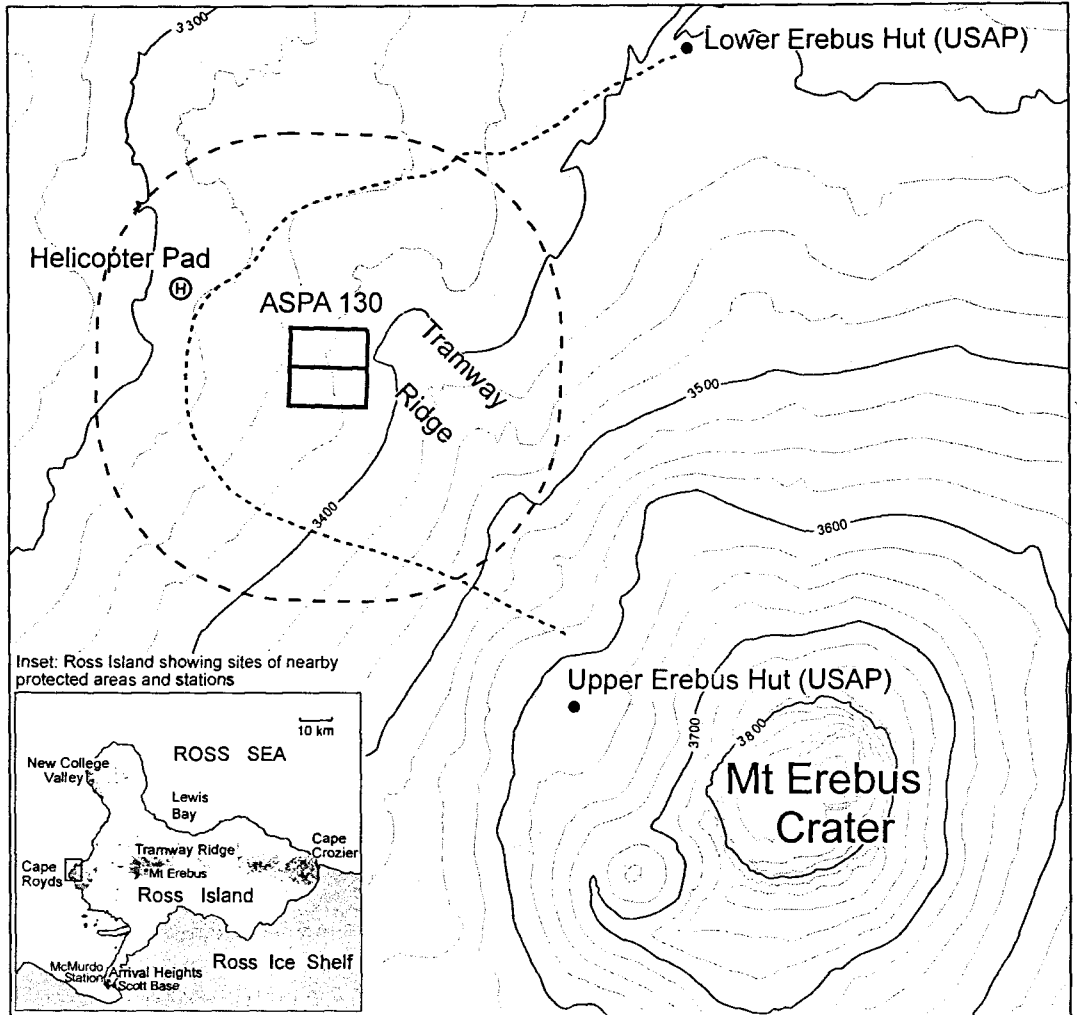
- Protected area boundary
- - - Preferred snowmobile route
- · · · · Camping discouraged inside of this area



Figure 1 - Tramway Ridge, Mt. Erebus Antarctic Specially Protected Area 130: Perspective view



Map B Tramway Ridge, Mt. Erebus :
Antarctic Specially Managed Area 130
location contour map.

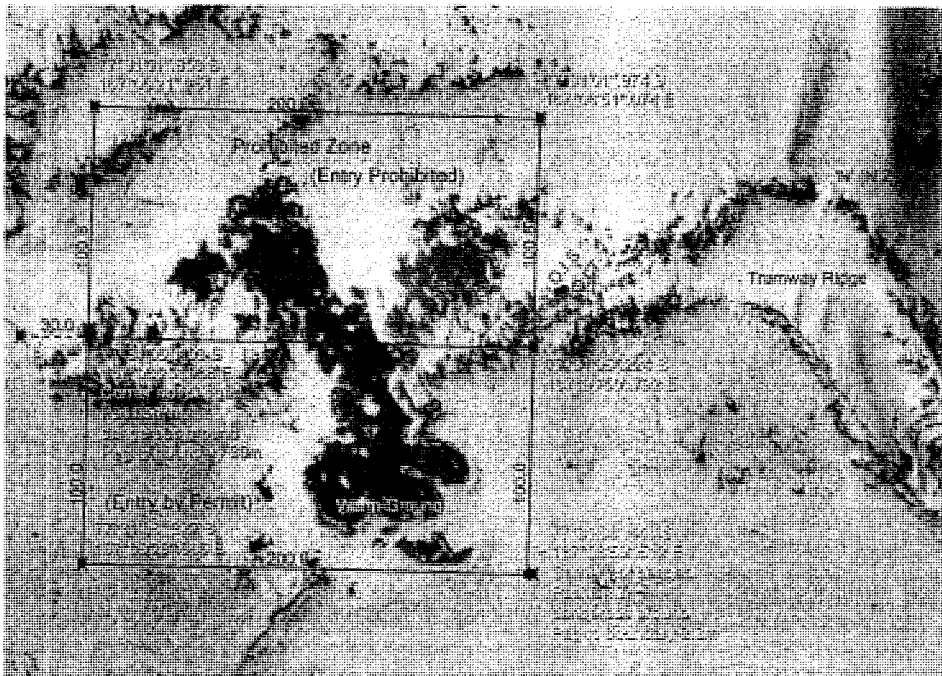


Contour interval: 25m
0 metres 500
(Approximate scale)

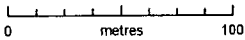
- Protected area boundary
- Preferred snowmobile route
- · - · - · Camping discouraged inside of this area



Map C - Tramway Ridge, Mt Erebus: Antarctic Specially Protected Area 130 site image map



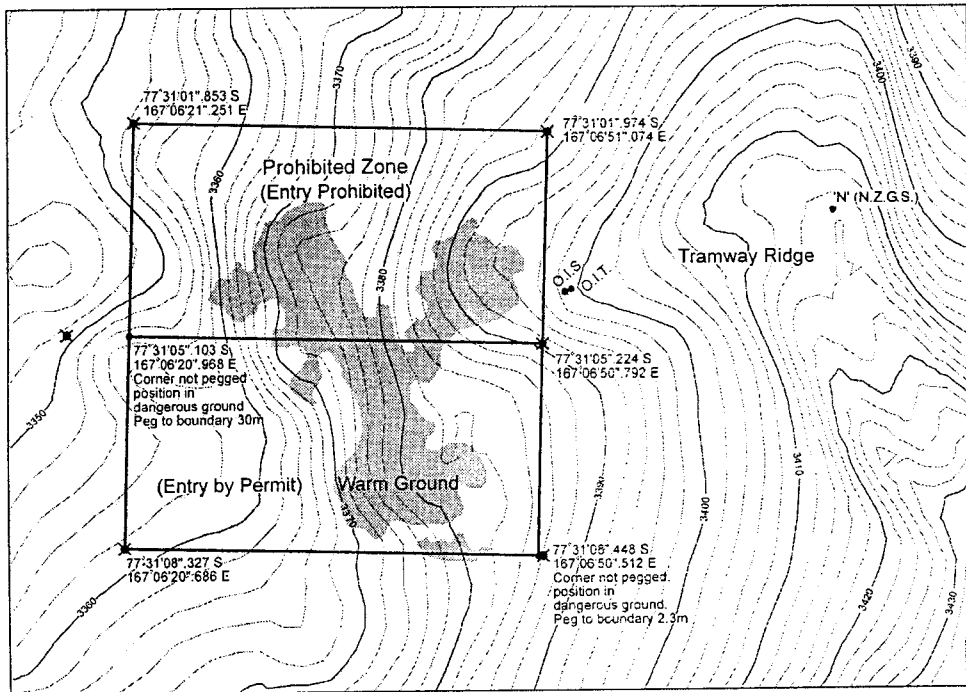
Photography, 9 February 1980



- Protected area boundary
- Survey marks
- ✕ Boundary signpost

Orthophoto positional accuracy: +/- 2m
 Protected Area boundary origin of coordinates:
 Station E8, Camp Area Plane Datum 1981, WGS72
 DOSLI survey: 37/142

Map D - Tramway Ridge, Mt. Erebus: Antarctic Specially Managed Area 130 site contour map



Contour interval: 2m



- Protected area boundary
- Survey marks
- ✕ Boundary signpost

Planimetric positional accuracy +/- 2m
 Protected Area boundary origin of coordinates:
 Station E8, Camp Area Plane Datum 1981, WGS72
 DOSLI survey: 37/142
 Area of warm ground subject to change.

Mastigocladus laminosus, which is common elsewhere in the world. Thermophilic bacteria have been isolated at 60°C. These include heterotrophic and a thiosulfate-utilising autotrophic species.-

6(ii) Prohibited, restricted or managed zones within the Area

The northern half of the Area is designated a Prohibited Zone in order to preserve part of the Area as a reference site for future comparative studies, while the southern half of the Area (which is essentially similar in biology, features and character) is available for research programmes and sample collection. The south boundary of the Prohibited Zone is defined by a line that bisects the Area into two halves (Map B), and is marked at both ends by signposts. This boundary may be identified on the ground approximately as an extension westwards of the south ridge line of lower Tramway Ridge. The other three boundaries of the Prohibited Zone are defined by the boundaries of the Area. Access to the Prohibited Zone is strictly prohibited until such time it is agreed by management plan review that access should be allowed.

6(iii) Structures within and near the Area

Signposts mark the corner points of the boundaries. The USAP Lower and Upper Erebus Huts are located approximately 1 km to the Northeast (3400 m) and Southeast (3612.5 m) respectively.

6(iv) Location of other ASPAs within close proximity of the Area

The closest ASPAs are the historic huts at Cape Evans (ASPA No. 154) and Cape Royds (ASPA No. 156) approximately 20 km south west.

7. Permit conditions

Permits may be issued only by appropriate national authorities as designated under Article 7 of Annex V to the Protocol on Environmental Protection to the Antarctic Treaty. Conditions for issuing a Permit to enter the Area are that:

- it is issued only for scientific study of the ecosystem, or for a compelling scientific or management purpose that cannot be served elsewhere;
- access to the Prohibited Zone shall be prohibited;
- the actions permitted are not likely to jeopardise the natural ecological system or scientific values of the Area;
- any management activities are in support of the objectives of the Management Plan;
- the actions permitted are in accordance with the Management Plan;
- any Permit issued shall be valid for a stated period.

7(i) Access to and movement within the Area

Landing of helicopters within the Area is strictly prohibited. Helicopter overflight of the Area should be avoided, except for essential scientific or management purposes when helicopters shall in no instance fly lower than 50 m above the ground surface of the Area. Use of helicopter smoke bombs is strictly prohibited within 200 m of the Area. For short-duration visits which do not require camp establishment, access by helicopter should be to a designated landing site, located outside of the Area and 300 m to the Northwest (Map A and Figure 1). For visits which require camp establishment, helicopter access should be to the USAP Upper or Lower Erebus Huts, and thence on foot or by land vehicle to the edge of the Area at Tramway Ridge. Landing of helicopters at other sites close to the Area is strongly discouraged. Only those persons specifically authorised by Permit are allowed to enter the Area. No special restrictions apply to the air or land routes used to move to and from the Area, although those traveling between the Upper and Lower Erebus Huts should keep to the preferred snowmobile route and, wherever practicable, stay at least 200 m from the protected area boundary.

Access into the Area shall be on foot and land vehicles are prohibited. Visitors should avoid walking on visible vegetation and, as far as practicable, areas of warm ground. Visitors should be aware that walking in the Area can compact soil, alter temperature gradients (which may change rates of steam release), and break thin ice crusts which may form over warm ground, with resulting damage to soil and biota below. The presence of snow or ice surfaces is not a guaranteed indication of a suitable pathway; therefore every reasonable effort should be made to minimise the effects of walking activity. Pedestrian traffic should be kept to the minimum necessary consistent with the objectives of any permitted activities.

7(ii) Activities that are or may be conducted in the Area, including restrictions on time or place

- Scientific research which will not jeopardise the ecosystem of the Area;
- Essential management activities, including monitoring;
- Entry to the Prohibited Zone is prohibited.

7(iii) Installation, modification or removal of structures

No structures, except boundary markers and signs, are to be erected within the Area except as specified in a Permit. All scientific equipment installed in the Area must be approved by Permit and clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of contamination of the Area. Removal of specific equipment for which the Permit has expired shall be the responsibility of the authority which granted the original Permit.

7(iv) Location of field camps

Camping required for work in the Area should be near the existing USAP Upper or Lower Erebus Hut sites, and is discouraged anywhere within 500 m of the boundaries of the Area (Map A).

7(v) Restrictions on materials and organisms which can be brought into the Area

To avoid compromising the microbial ecosystem for which this site is protected no living animals, plant material or microorganisms shall be deliberately introduced into the Area and precautions shall be taken against accidental introductions. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management purposes specified in the Permit, shall be removed from the Area at or before the conclusion of the activity for which the Permit was granted.

Fuels are not to be brought into the Area. Food shall not be consumed within the Area. Equipment and other materials are not to be stored in the Area, unless required for essential purposes connected with the activity for which the Permit has been granted. All such materials introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of their introduction into the environment is minimised.

7(vi) Taking of or harmful interference with native flora or fauna

Taking of or harmful interference with native flora or fauna is prohibited, except in accordance with a Permit. Where taking of animals or harmful interference is involved this should be in accordance with the SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica, as a minimum standard.

7(vii) Collection or removal of anything not brought into the Area by the Permit holder

Material may be collected or removed from the Area only in accordance with a Permit. Material of human origin, not brought into the Area by the Permit Holder, but which is likely to compromise the values of the Area may be removed from any part of the Area, including the Prohibited Zone.

7(viii) Disposal of waste

All wastes, including all human wastes, must be removed from the Area. Excretion of human wastes is prohibited within the Area.

7(ix) Measures that are necessary to ensure that the aims and objectives of the Management Plan can continue to be met

1. The Permit, or an authorised copy, must be carried within the Antarctic Specially Protected Area.
2. Permits may be granted to enter the Area to carry out biological or physical monitoring and site inspection activities, which may involve the collection of small samples for analysis or audit, to erect or maintain signposts, or protective measures.
3. To help maintain the scientific value derived from the unique communities found at Tramway Ridge visitors shall take special precautions against introductions, especially when visiting several thermal regions in a season. Of particular concern are microbial or vegetation introductions sourced from:
 - thermal areas, both Antarctic and non-Antarctic;
 - soils at any other Antarctic sites, including those near stations;
 - soils from regions outside Antarctica.

To this end, visitors shall take the following measures to minimise the risk of introductions:

- (a) Any sampling equipment or markers brought into the Area shall be sterilised and maintained in a sterile condition before being used within the Area. To the maximum extent practicable, footwear and other equipment used or brought into the Area (including backpacks or carry-bags) shall be thoroughly cleaned or sterilised and maintained in this condition before entering the Area;
- (b) Sterilisation should be by an acceptable method, such as by UV light, autoclave or by washing exposed surfaces in 70% ethanol solution in water.
- (c) Sterile protective overclothing shall be worn. The overclothing shall be suitable for working at temperatures of -20°C or below and comprise at a minimum sterile overalls to cover arms, legs and body and sterile gloves suitable for placing over the top of cold-weather gloves.

7(x) Requirements for reports

Parties shall ensure that the principal holder for each Permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report Form suggested by SCAR. Parties shall maintain a record of such activities and, in the Annual Exchange of Information, shall provide summary descriptions of activities conducted by persons subject to their jurisdiction, in sufficient detail to allow evaluation of the effectiveness of the Management Plan. Parties should, wherever possible, deposit originals or copies of such reports in a publicly accessible archive to maintain a record of usage, to be used both for review of the Management Plan and in organising the scientific use of the site.

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Management Plan for Antarctic Specially Managed Area (ASPA) No. 137 NORTHWEST WHITE ISLAND, McMURDO SOUND (167° 20' E, 78° 00' S)

1. Description of values to be protected

An area of 150 km² of coastal shelf ice on the northwest side of White Island was originally designated by Recommendation-XIII-8 (1985, SSSI No. 18) after a proposal by the United States of America on the grounds that this locality contains an unusual breeding population of Weddell seals (*Leptonychotes weddellii*) which is the most southerly known, and which has been physically isolated from other populations by advance of the McMurdo Ice Shelf and Ross Ice Shelf. The original boundaries have been adjusted in the current plan in light of recent data recording the spatial distribution of the seals on the ice shelves. In the south, the boundary of the Area has been shifted north and east to exclude the region north of White Strait where no observations of the seals have been recorded. In the north, the Area has been extended to encompass an additional part of the Ross Ice Shelf in order to ensure inclusion of more of the region within which the seals may be found. The Area is now approximately 130 km².

The colony appears unable to relocate to another area because of its distance from the open ocean of McMurdo Sound, and as such is highly vulnerable to any human impacts that might occur in the vicinity. Year-round studies have detected no evidence of immigration or emigration of seals from the population, which appears to have grown to around 25 to 30 animals from a population of around 11 in the 1960s. The seals do not have the breathing capacity required to dive the 20 km required to reach the open ocean, and there is no evidence that they make the journey over the ice shelf surface.

The seals gain access to the sea below the ice shelf through pressure cracks, which are formed by tidal motion and movement of the McMurdo and Ross ice shelves. Only one crack remains open year-round. The Weddell seals at White Island are on average greater in size and weight than their McMurdo Sound counterparts and have been shown to make more shallow dives. NW White Island is one of very few sites where Weddell seals are known to feed under shelf ice. The population is considered to have exceptional scientific value because of its period of physical isolation from interaction with other seals, thought to be perhaps up to several hundred years, and investigations are being undertaken of the extent to which the group may be considered a genetically distinct population.

NW White Island is relatively accessible by shelf ice from the nearby United States and New Zealand research stations at Hut Point, Ross Island. In addition, a flagged access road between these stations and Black Island traverses within one kilometer of the Area. The Area requires long-term special protection because of the exceptional importance of the Weddell seal colony, outstanding scientific values and opportunities for research, and the potential vulnerability of the Area to disturbance from scientific and logistic activities in the region.

2. Aims and objectives

Management at NW White Island aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance to the Area;
- allow scientific research on the ecosystem, in particular on the Weddell seals, while ensuring protection from excessive disturbance or other possible scientific impacts;
- allow other scientific research provided it will not jeopardize the values of the Area;
- minimize the possibility of introduction of alien animals and microbes into the Area;
- allow visits for management purposes in support of the aims of the management plan.

3. Management activities

- To the greatest extent practicable, signs showing the location and boundaries with clear statements of entry restrictions shall be placed at appropriate locations at the boundaries of the Area to help avoid inadvertent entry.
- Signs showing the location of the Area (stating the special restrictions that apply) shall be displayed prominently, and a copy of this management plan shall be kept available in appropriate places, in particular at McMurdo Station, Scott Base and at the Black Island facilities.
- Markers, signs or structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition, and removed when no longer necessary.
- Visits shall be made as necessary (no less than once every five years) to assess whether the Area continues to serve the purposes for which it was designated and to ensure management and maintenance measures are adequate.
- National Antarctic Programs operating in the region shall consult together for the purpose of ensuring these steps are carried out.

4. Period of designation

Designated for an indefinite period.

5. Maps and photographs

Map A: NW White Island, ASPA No. 137, topographic map.

Map specifications:

Projection: Lambert Conformal conic

Standard parallels: 1st 79° 20' 00" S; 2nd 76° 40' 00" S

Central Meridian: 167° 30' 00" E

Latitude of Origin: 78° 01' 16.211" S

Spheroid: GRS80 shifted to approximate WGS84

Inset: Ross Island region, showing sites of nearby protected areas and stations

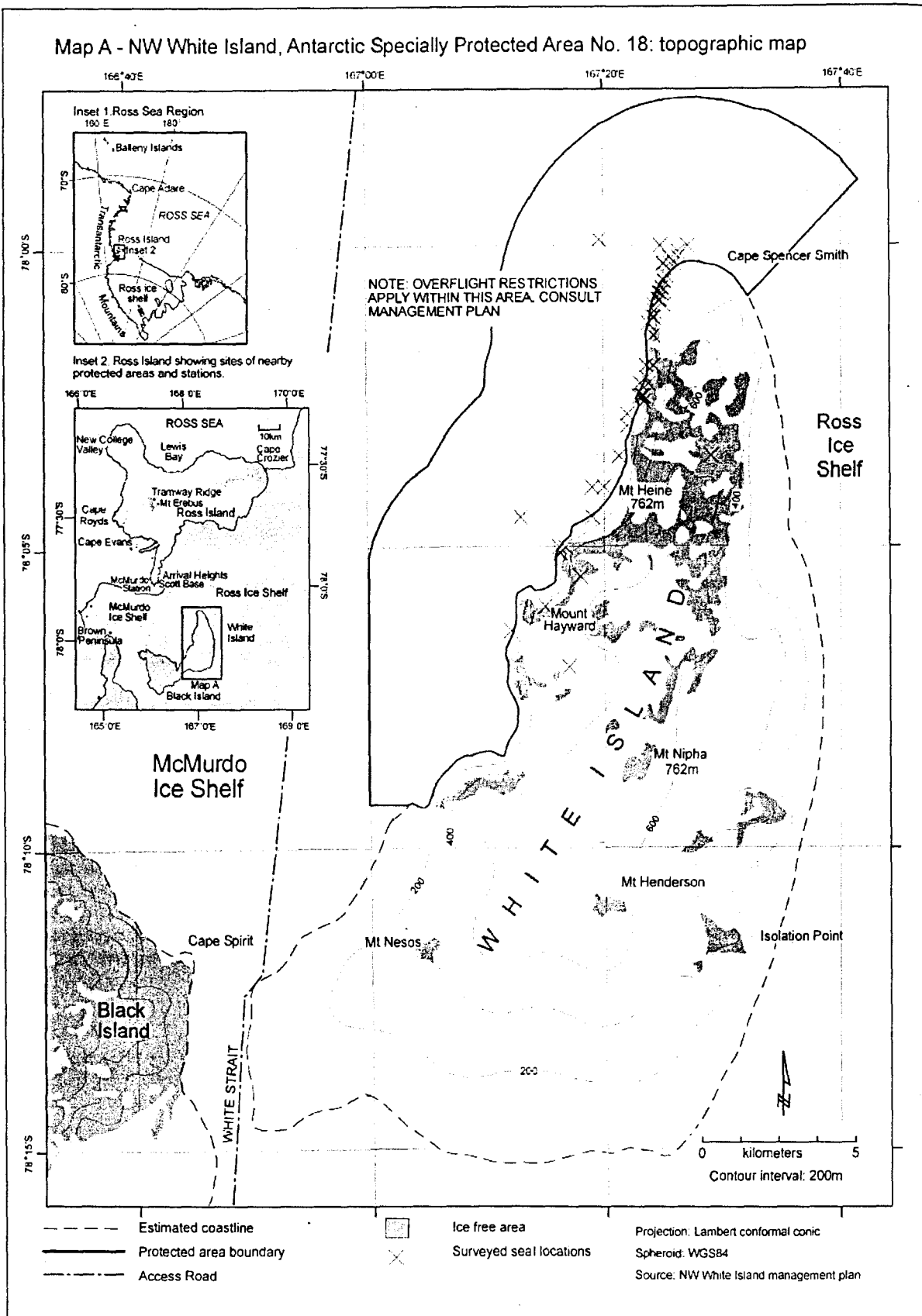
Note: Map A is derived from the Antarctic Digital Database (Version 1.0, SCAR, 1993). This framework has been identified as positionally inaccurate in the Ross Island / White Island region. Accurate ground control available for 6 sites around Ross Island was used to apply a shift of approximately +160 m (x direction) and +140 m (y direction) in the geographical position of the framework. This shift is considered to improve the accuracy of Map A, but the result is only an approximation. Global Positioning Systems (GPS, in WGS-84) observations of seals shown on Map A was not differentially corrected and are considered accurate to approximately 200 m of their true positions. While most of the positions shown are within 500 m of the sites where they might be expected, most appear systematically shifted to the east of the coastline. Several factors may account for this: error known to exist in the map framework, ambiguity in the actual position of the snowy coastline of White Island, and error within the GPS observations themselves. The several GPS observations recording seals high on White Island appear to be spurious.

6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

White Island, part of the McMurdo volcanic complex, is situated approximately 20 km SE of the edge of the McMurdo Ice Shelf and 25 km SE of Hut Point, the location of McMurdo Station (United States) and Scott Base (New Zealand) on Ross Island. The roughly triangular island is approximately 30 km long and 15 km wide at its maximum, and rises to a maximum elevation of 762 m in several locations. The northern and western shores of

Map A - NW White Island, Antarctic Specially Protected Area No. 18: topographic map



White Island descend steeply, with water depths of 600 m occurring within 5 km of the island. The island is predominantly ice-covered with most of the rock outcrops being in the north, and is completely surrounded by the permanent shelf ice, between 10 m and 100 m in thickness, of the McMurdo Ice Shelf and Ross Ice Shelf. Black Island is situated 2.5 km west of White Island, separated by the shelf ice of White Strait. The GPS entry and exit points for the access road to Black Island from McMurdo are 78° 08' 19" S, 166° 50' 43" E and 78° 11' 30" S, 166° 50' 43" E, respectively.

The westward movement of the McMurdo Ice Shelf is greatest at the northern end of White Island and movement of ice away from the NW coast ensures open water in cracks in the shelf at this locality is present year-round. The Weddell seal population uses the cracks for access to seawater and feeding grounds under the shelf ice, and inhabits and breeds in the region within approximately 5-km of their positions. The cracks occur parallel to and within a few hundred meters of the coast of White Island, and intermittently extend along the coast from the northern extremity of the island up to 15 km to the south.

The Area includes 130 km² of the shelf ice and open-water cracks of both the Ross Ice Shelf and McMurdo Ice Shelf up to 5-km offshore northeast, north and west from the White Island coast. The Area extends along the coast from a northern point on the east side of Cape Spencer-Smith (167° 32' 42" E, 78° 00' 43" S) 19 km south to the southern-most significant coastal outcrop of rock on the NW side of White Island (167° 05' 00" E, 78° 09' 08" S). At this southern point, the boundary extends approximately 1 km due west to the 167° 00' 00" E parallel, from where it extends due north to the 78° 05' 00" S latitude, after which the boundary continues north at a constant distance of 5 km from the shore of White Island to the eastern extremity of the Area at 167° 41' 35" E, 77° 58' 48" S. The White Island coast is distinguished by a change in surface slope where the transition between the floating ice-shelf and land occurs: the transition is in some places gradual and indistinct, and the exact position of the coast is not precisely known. For this reason the coastal (generally east) boundary of the Area is considered to follow the line of the coast as evidenced by a surface elevation rise towards the land of two meters above the average elevation of the adjacent McMurdo Ice Shelf.

The Weddell seal population was estimated at around 25 to 30 animals in 1991. A 1981 study estimated "about 30" seals, while 1991 studies estimated 26 seals greater than one year of age. Between two and four live pups have been recorded in several seasons for which reliable data are available (1963-1968, 1981, 1991). The seals are physically isolated by the barrier of the shelf ice, and are unable to swim the 20 km distance under the ice to reach the seasonally open waters of McMurdo Sound: Weddell seals have been estimated to be capable of swimming a distance of around 4.6 km (2.5 nautical miles) on a single breath. The apparent isolation of the colony is substantiated by tag observation data on Weddell seals in McMurdo Sound, where in more than 100,000 tag observations over a 20-year period no tagged seals from White Island have been observed in McMurdo Sound. These data suggest that the White Island seals do not generally traverse the 20 km distance to the open ocean over the surface of the shelf ice.

Adult female seals begin to appear on the shelf ice in early November, one month later than other pupping areas in the southern Ross Sea. They pup at the NW extremity of the island during which time sub-adults and non-breeding adults can be found up to 15 km to the SW near open cracks on the west side of the island. Adult male seals are not observed on the sea-ice during this time, remaining in the water to establish and defend territories. The females remain on the ice until pups are weaned at about 6-8 weeks of age. After December, adults and sub-adults mix in the pupping area and along the cracks formed at the NW corner of the island.

It is thought that the harsh surface conditions confine the seals to the water during the winter months. Winter surface temperatures reach as low as -60°C and it is thought that the seals expend considerable time maintaining an open air hole in the cracks. This is thought to be a key factor limiting the population size, with pups and sub-adults possibly excluded from use of the limited breathing holes by more dominant and aggressive adults. Some pups may be unable to maintain their own breathing holes and may become trapped on the ice surface if dominant seals do not allow them entry into the water.

Studies have suggested that the Weddell seals at White Island have a similar diet to their counterparts at McMurdo Sound. Studies of fish otoliths recovered from Weddell seal fecal samples have revealed a diet comprised primarily of the nototheniid fish *Pleuragramma antarcticum*, also with fish from the genus *Trematomus*. Invertebrates are thought to comprise the remainder of the diet along with a cephalopod belonging to the family *Mastogoteuthidae*. Consumption of the latter was found to be considerably greater amongst White Island seals than those at McMurdo Sound.

Other aspects of the physiology and behavior of seals at White Island appear to differ from nearby populations at McMurdo Sound and at Terra Nova Bay: the seals at White Island appear to be significantly fatter, with recorded weights of up to 686 kg (1500 lb.) at White Island compared to no more than 500 kg at McMurdo Sound or Terra Nova Bay. A 1991 study revealed that on average adult female seals are considerably longer than those in McMurdo Sound, and young seals at White Island have been observed to exhibit faster growth rates than their McMurdo counterparts. Average diving depths at White Island are shallower than at McMurdo Sound.

6(ii) Restricted and managed zones within the Area

None.

6(iii) Structures within and near the Area

There are no structures within or near the Area.

6(iv) Location of other protected areas within close proximity of the Area

The nearest protected areas to NW White Island are on Ross Island: Arrival Heights (ASPA No. 122) adjacent to McMurdo Station and Discovery Hut (ASPA No. 158) on the Hut Point Peninsula is the closest at 20 km to the north; Cape Evans (ASPA 155); Cape Royds (ASPA No. 121) and Backdoor Bay (ASPA No. 157) are 47 km and 55 km north respectively; and Tramway Ridge (ASPA No. 130) near the summit of Mt. Erebus is 60 km north.

7. Permit conditions

Entry into the Area is prohibited except in accordance with a permit issued by appropriate national authorities. Conditions for issuing a permit to enter the Area are that:

- it is issued only for scientific study of the Weddell seal ecosystem, or for scientific reasons or management purposes consistent with plan objectives such as inspection or review;
- the actions permitted will not jeopardize the ecological or scientific values of the Area;
- the actions permitted are in accordance with the management plan;
- the permit, or a copy, shall be carried within the Area;
- a visit report shall be supplied to the authority named in the permit;
- permits shall be issued for a stated period.

7(i) Access to and movement within the Area

Access into the Area is permitted on foot, by vehicle, or by aircraft. Landing of aircraft and overflight lower than 750 m (~2,500 ft) within the Area, is normally prohibited. When required for scientific or management purposes, transient overflight down to a minimum altitude of 250 m (800 ft) or landing may be allowed within the Area. Conduct of such overflights or landings must be specifically authorized by permit. Use of helicopter smoke grenades is prohibited unless absolutely necessary for safety, and all grenades should be retrieved.

Vehicles are strongly discouraged from approaching closer than 50 m from seals, and closer approaches should be on foot. Vehicle and pedestrian traffic should be kept to the minimum necessary consistent with the objectives of any permitted activities.

7(ii) Activities that are or may be conducted in the Area, including restrictions on time or place

Activities that may be conducted within the Area include:

- scientific research that will not jeopardize the ecosystem of the Area;
- essential management activities, including monitoring.

7(iii) Installation, modification or removal of structures

No structures are to be erected within the Area except as specified in a permit. All scientific equipment installed in the Area must be authorized by permit and clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of contamination of the Area. Removal of specific equipment for which the permit has expired shall be a condition of the permit.

7(iv) Location of field camps

Permanent field camps are prohibited within the Area. Temporary campsites are permitted within the Area. There are no specific restrictions to a precise locality for temporary camp sites within the Area, although sites selected shall be more than 200 m from the ice-shelf cracks inhabited by the seals, unless authorized by permit when deemed necessary to the accomplishment of specific research goals.

7(v) Restrictions on materials and organisms that can be brought into the Area

No living animals, plant material or microorganisms shall be deliberately introduced into the Area and precautions shall be taken against accidental introductions. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management purposes specified in the permit, shall be removed from the Area to the maximum extent practicable at or before the conclusion of the activity for which the permit was granted. Fuel is not to be stored in the Area, unless required for essential purposes connected with the activity for which the permit has been granted. All materials introduced shall be for a stated period only, shall be removed at or before the conclusion of

that stated period, and shall be stored and handled so that risk of their introduction into the environment is minimized.

7(vi) Taking or harmful interference with native flora or fauna

Taking or harmful interference with native flora and fauna is prohibited, except in accordance with a separate permit issued under Article 3 of Annex II by the appropriate national authority specifically for this purpose. Where animal taking or harmful interference is involved, this should, as a minimum standard, be in accordance with the SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica.

7(vii) Collection or removal of anything not brought into the Area by the permit holder

Material may be collected or removed from the Area only in accordance with a permit and should be limited to the minimum necessary to meet scientific or management needs. Material of human origin likely to compromise the values of the Area, which was not brought into the Area by the permit holder or otherwise authorized, may be removed unless the impact of removal is likely to be greater than leaving the material *in situ*: if this is the case the appropriate authority should be notified.

7(viii) Disposal of waste

All wastes shall be removed from the Area.

7(ix) Measures that are necessary to ensure that the aims and objectives of the management plan can continue to be met

Permits may be granted to enter the Area to carry out biological monitoring and site inspection activities, which may involve the collection of small samples for analysis or audit, or for protective measures.

Any specific sites of long-term monitoring shall be appropriately marked.

The use of explosives is prohibited within the Area.

To help maintain the ecological and scientific values of the Area visitors shall take special precautions against introductions. Of particular concern are microbial and viral introductions from other seal populations. Precautions should also be exercised if such activities are being undertaken on seals originating from the White Island colony but which may have wandered outside of the Area.

7(x) Requirements for reports

Parties should ensure that the principal holder for each permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the management plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be used both in any review of the management plan and in organizing the scientific use of the Area.

Management Plan for Antarctic Specially Protected Area No. 147 ABLATION VALLEY AND GANYMEDE HEIGHTS, ALEXANDER ISLAND

1. Description of values to be protected

Ablation Point – Ganymede Heights (latitude 70°48' S, longitude 68°30' W, approximately 180 km², Alexander Island, was originally designated in 1989 as Site of Special Scientific Interest (SSSI) No. 29 through Recommendation XV-6, after a proposal by the United Kingdom. Included was a largely ice-free region between latitudes 70°45' S and 70°55' S and from longitude 68°40' W to George VI Sound coastline. The Area comprised several valley systems separated by ridges and plateau of about 650-760 m high.

The original management plan (Recommendation XV-6) described the Area as “one of the largest ablation areas in West Antarctica...[with]...a complex geology, the main rock types being conglomerates, arkosic sandstones and shales with subordinate pebbly mudstones and sedimentary breccias. The base of the succession is formed of a spectacular *mélange*, including large blocks of lava and agglomerate. This outcrops on the valley floors and at the base of several cliffs. [The Area] possesses a wide range of geomorphological features including raised beaches, moraine systems and patterned ground. There are several permanently frozen freshwater lakes and many ice-free ponds supporting a diverse flora (including aquatic bryophytes) and fauna. The vegetation is generally sparse, with the unique moss and liverwort-dominated community type being restricted to ‘oases’ where water issues from otherwise dry barren hillsides. The terrestrial and freshwater ecosystems are vulnerable to human impact and therefore merit protection from uncontrolled human presence”. In summary, the principal values of the Area were considered to be the geological, geomorphological, glaciological, limnological, and

ecological features, and the associated outstanding scientific interest of one of the largest ice-free ablation area in West Antarctica.

The values noted in the original designation are reaffirmed and expanded in the present management plan. Further values evident from scientific descriptions of Ablation Valley – Ganymede Heights, are also considered important as reasons for special protection of the Area. These values are:

- The presence of exposures of the Fossil Bluff Formation, which is of prime geological importance because it is the only known area of unbroken exposure of rocks spanning the Jurassic – Cretaceous boundary in the Antarctic, which makes this a critical locality for understanding the change in floras and faunas at this temporal boundary;
- The presence of an exceptional and unique contiguous geomorphological record of glacier and ice-shelf fluctuations extending over several thousand years, together with an outstanding assemblage of other geomorphological features derived from glacial, periglacial, lacustrine, aeolian, alluvial and slope processes;
- Two perennially frozen freshwater lakes (Ablation and Moutonnée lakes) which have the unusual property of contact with the saline waters of George VI Sound;
- The presence of marine biota, including the fish *Trematomus bernacchii*, in Ablation Lake, where several seals have also been observed, despite the fact that it is almost 100 km from open sea;
- The Area has the greatest bryophyte diversity of any site at this latitude in Antarctica (at least 21 species); it also has a diverse lichen (>35 taxa), alga and cyanobacteria biota. Many of the bryophytes and lichens are at the southern limit of their known distributions. There are several species which are very rare in the Antarctic;
- Several mosses occur in lakes and ponds to depths of 9 m. Although these are all terrestrial species, they tolerate inundation for several months each year when their habitat floods. One species, *Campyliadelphus polygamus*, has adapted to an aquatic existence, and some permanently submerged colonies reach large dimensions, with shoots in excess of 30 cm length. These are the best examples of aquatic vegetation in the Antarctic Peninsula region;
- Several bryophyte species within the Area are fertile (producing sporophytes), and some of these are not known or very rare in this condition elsewhere in the Antarctic (e.g. the liverwort *Cephaloziella varians*, and mosses *Bryoerythrophyllum recurvirostrum*, *Distichium capillaceum*, *Schistidium* spp.);
- With the exception of one site on the northwestern coast, the Area has the most extensive stands of vegetation on Alexander Island. Many of these occur on seepage areas where the bryophyte and lichen communities cover up to 100 m² or more. In the sheltered seepage area assemblages of terricolous species develop communities not known elsewhere in Antarctica, while exposed rock ridges and stable boulder fields support a community of locally abundant lichens, usually dominated by *Usnea sphacelata*;
- Ablation Valley is comparatively rich in the number and abundance of microarthropod species for its locality this far south, with representation of the springtail *Friesia topo* which is thought to be endemic to Alexander Island. Ablation Valley is also the only site on Alexander Island where the predatory mite *Rhagidia gerlachei* has been described, making the food web more complex than other sites at this latitude.

The boundaries of the Area designated under Recommendation XV-6 have been changed, replacing the former rectangular-shaped boundary with one that is defined on the basis of prominent geographical features and the regional hydrological catchments.

2. Aims and objectives

Management at Ablation Valley – Ganymede Heights aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance and sampling in the Area;
- preserve the Area for its potential as a largely undisturbed reference site;
- allow scientific research in the Area consistent with the objectives of the management plan;
- minimise the possibility of introduction of alien plants, animals and microbes to the Area;
- allow visits for management purposes in support of the aims of the management plan.

3. Management activities

The following management activities shall be undertaken to protect the values of the Area:

- A map showing the location of the Area (stating the special restrictions that apply) shall be displayed prominently at General San Martín (Argentina) and at Rothera (UK) scientific stations in Marguerite Bay, where copies of this Management Plan shall be made freely available.
- Abandoned equipment or materials shall be removed to the maximum extent practicable.
- Markers, signs or other structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition.
- Visits shall be made as necessary (preferably at least once every five years) to assess whether the Area continues to serve the purposes for which it was designated and to ensure management and maintenance measures are adequate.

4. Period of designation

Designated for an indefinite period.

5. Maps and photographs

Map 1: Ablation Valley – Ganymede Heights ASPA No. 147 location map. Inset: Location of Ablation Valley on the Antarctic Peninsula

Map 2: Ablation Valley – Ganymede Heights ASPA No. 147 topographic sketch map.

6. Description of the Area

6(i) Geographical coordinates, boundary markers and natural features

GENERAL DESCRIPTION

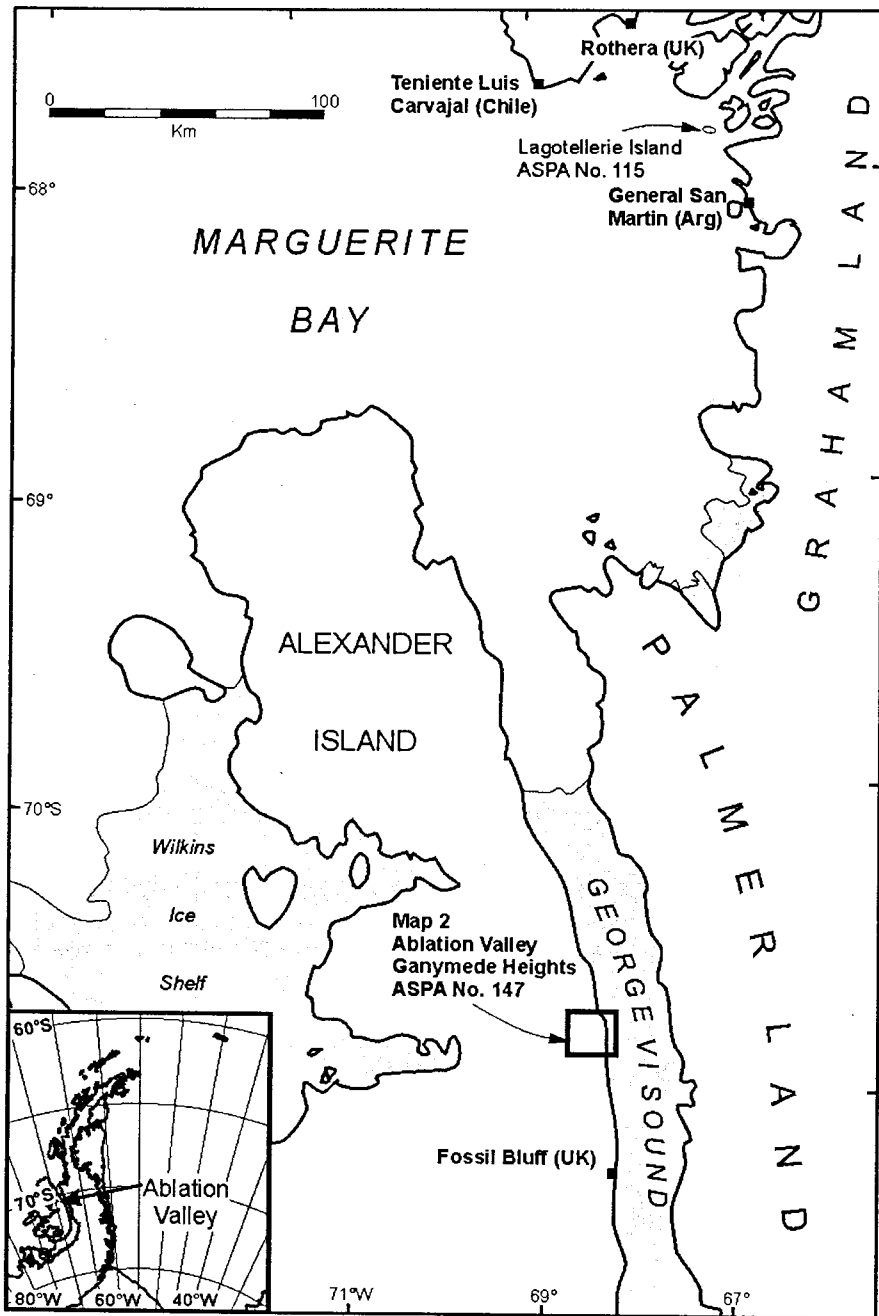
Ablation Valley – Ganymede Heights (between latitudes 70°45' S and 70°55' S and longitudes 68°21' and 68°40' W, approximately 180 km², is situated on the east side of Alexander Island, the largest island off the western coast of Palmer Land, Antarctic Peninsula (Map 1). The Area has a central west–east extent of about 10 km and a north–south extent of about 18 km, flanked to the west by the upper part of Jupiter Glacier, to the east by the permanent ice shelf in George VI Sound, to the north by Grotto Glacier and to the south by the lower reaches of Jupiter Glacier. Ablation Valley – Ganymede Heights contains the largest contiguous ice-free area in the Antarctic Peninsula sector of Antarctica, with the smaller permanent ice fields and valley glaciers within the massif representing only about 17% of the Area. The topography of the region is mountainous, comprising steep-sided valleys separated by gently undulating plateau-like ridge crests lying generally between 650–750 m, rising to a maximum altitude of 1070 m (Clapperton and Sugden 1983). The region has been heavily glaciated, although the relatively flat-lying attitude of the sedimentary rocks and rapid weathering have contributed to a generally rounded form of topography, coupled with sheer cliff ‘steps’ of thickly-bedded sandstones and conglomerates (Taylor et al 1979).

The Area includes four principal ice-free valleys (Ablation, Moutonnée, Flatiron and Striation), the first three of which contain large ice-covered freshwater lakes (Heywood 1977, Convey and Smith 1997). The largest of these is the proglacial Ablation Lake (approximately 7 km²), which has been impounded by shelf ice penetrating up-valley under pressure from the westward movement of the 100–500 m thick George VI Ice Shelf, the surface of which lies 30 m above sea level (Heywood 1977, Clapperton and Sugden 1982). Biologically, the terrestrial ecosystem is intermediate between the relatively mild maritime Antarctic farther north and the colder, drier continental Antarctic to the south. As a “dry valley” area it is extremely rich in biota and serves as a valuable contrast to the more extreme and biologically impoverished ablation areas on the Antarctic continent (Smith 1988). For a detailed description of the geology and biology of the Area see Annex 1.

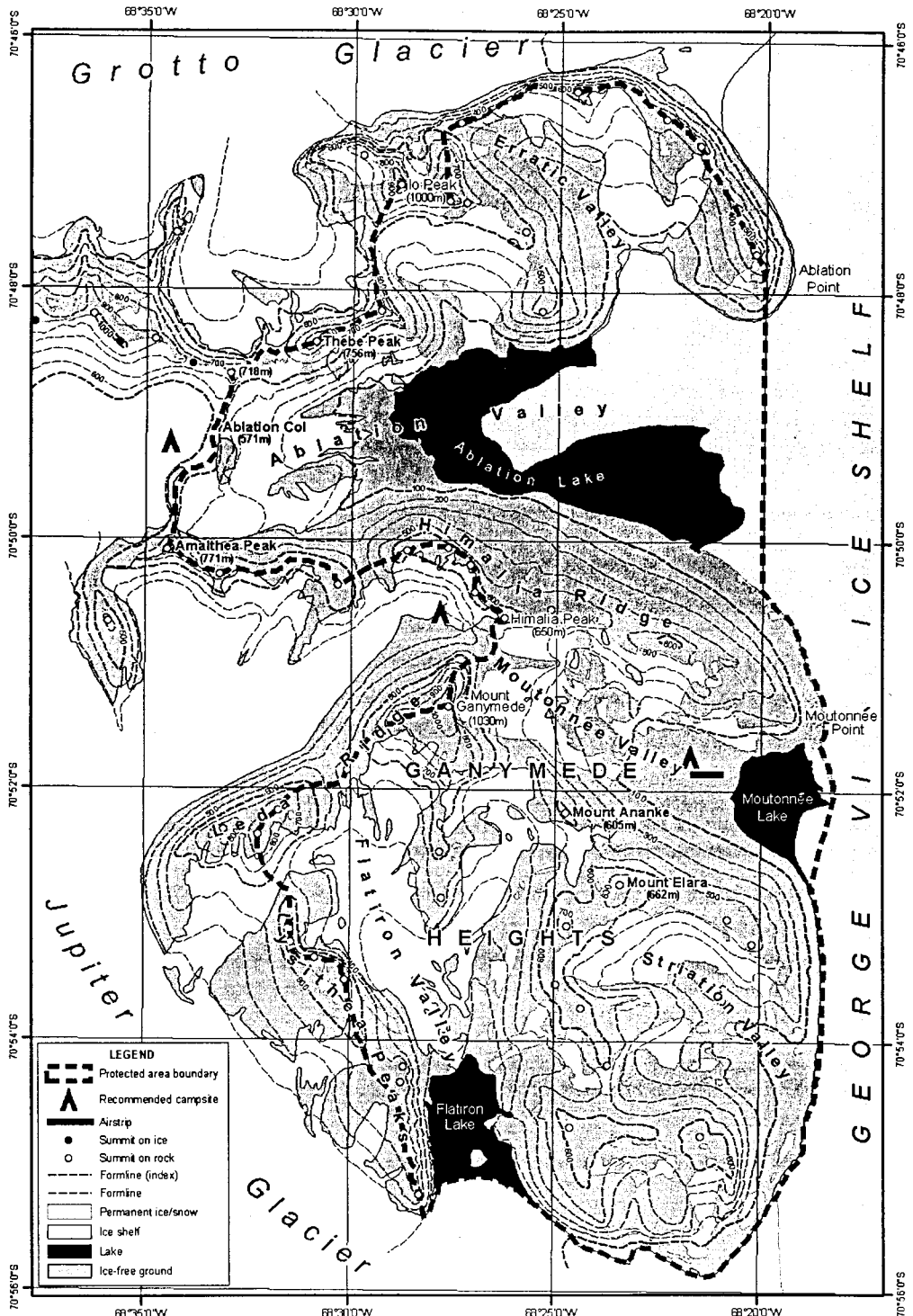
BOUNDARIES

The designated Area comprises the entire Ablation Valley – Ganymede Heights massif, bounded in the west by the principal ridge dividing Jupiter Glacier from the main Ablation – Moutonnée – Flatiron valleys (Map 2). In the east, the boundary is defined by the western margin of George VI Ice Shelf. The northern boundary of the Area is defined as the principal ridge dividing Grotto Glacier from Erratic Valley and other tributary valleys feeding into Ablation Valley, immediately to the south. In the northwest of the Area, the boundary extends across the mostly-glaciated col separating upper Jupiter Glacier from Ablation Valley. The southern boundary of the Area, from east of the principal ridge on the west side of Flatiron Valley to where Jupiter Glacier joins George VI Ice Shelf, is defined as the northern lateral margin of Jupiter Glacier.

As the margin between Ablation Lake and George VI Ice Shelf is in places indistinct, the eastern boundary of the Area at Ablation Valley is defined as a straight line extending due south from the eastern extremity of Ablation Point to where the ice shelf abuts land, and from where the eastern boundary follows the land / ice shelf margin. The physiography is similar further south at Moutonnée Lake, and the eastern boundary in this locality is defined as a straight line extending from the eastern extremity of the point on the northern side of (and partially enclosing) Moutonnée Lake to the locality of a prominent meltwater pool where the ice shelf abuts land, and from where the boundary follows the land / ice shelf margin south to where Jupiter Glacier and George VI Ice



Map 1. Ablation Valley - Ganymede Heights, ASPA No. 147, location map



Projection: Lambert Conformal Cone
 Spheroid: WGS84
 Formline contour interval: 100 m
 WARNING: Positions and elevations approximate
 Height accuracy <5m for features with heights named in bold
 Data source: BAS 25 Series, Print/Laydown, Edn. 1, 1000 Sheets 3-6

Map 2. Ablation Valley and Ganymede Heights
ASPA No. 147, topographic map
Alexander Island, Antarctic Peninsula

0 400 1000 2000
 Metres
 Environmental Research and Assessment
 Cambridge, July 2002

Shelf adjoin. The Area thus includes the entirety of Ablation and Moutonnée lakes and those parts of the ice shelf behind which they are impounded.

6(ii) Restricted and managed zones within the Area

None.

6(iii) Structures within and near the Area

There are no structures known to be present in the Area. A number of cairns have been installed as survey markers in throughout the Area (Perkins 1995, Harris 2001). Nine plastic bright red reflector markers (30 cm high, held down by rocks) have been placed to mark the airstrip in Moutonnée Valley. The nearest structure to the Area appears to be an abandoned caboose at Spartan Cwm, approximately 20 km south of the Area, although in 2001 the structure was reported to be buried by snow. A summer-only scientific camp facility exists at Fossil Bluff (UK), approximately 60 km to the south on the eastern coast of Alexander Island. The nearest permanently occupied scientific research stations are in Marguerite Bay (General San Martín (Argentina) and Rothera Research Station (UK)), approximately 350 km to the north (Map 1).

6(iv) Location of other protected areas within close proximity of the Area

There are no other protected areas within 300 km of the Area. The nearest protected area to Ablation Valley – Ganymede Heights is Lagotellerie Island, ASPA No. 115, approximately 350 km north in Marguerite Bay (Map 1).

7. Permit conditions

Entry into the Area is prohibited except in accordance with a Permit issued by an appropriate national authority. Conditions for issuing a Permit to enter the Area are that:

- it is issued only for compelling scientific reasons that cannot be served elsewhere, or for essential management purposes consistent with plan objectives such as inspection, maintenance or review;
- the actions permitted will not jeopardise the natural or scientific values of the Area;
- any proposed sampling will not take, displace, remove or damage such quantities of rock, soil, water, or native flora or fauna so that their distribution or abundance at Ablation Valley – Ganymede Heights is significantly affected;
- any management activities are in support of the objectives of the Management Plan;
- the actions permitted are in accordance with the Management Plan;
- the Permit, or an authorised copy, shall be carried within the Area;
- a visit report shall be supplied to the authority named in the Permit;
- permits shall be issued for a stated period;
- the appropriate authority should be notified of any activities/measures undertaken that were not included in the authorised Permit.

7(i) Access to and movement within the Area

- Access to the Area shall be by aircraft, vehicle or on foot.
- Movement over land within the Area shall be on foot.
- Movement by vehicle within the Area shall be restricted to snow or ice surfaces.
- Movement by aircraft within the Area is subject to the restrictions described below.

There are no special restrictions on the points of access to the Area, nor on the overland or air routes used to move to and from the Area. However, access from George VI Ice Shelf may be difficult because of pressure ice, and some routes into the Area from the glaciers to the west are steep, crevassed and arduous.

- Landing of fixed-wing aircraft within the Area is restricted to the ice-covered lakes or to a single terrestrial site immediately west of Moutonnée Lake, provided landings are feasible.

Pressure deformation of the ice surface of lakes, meltwater and thinning ice-cover may make landing on lake ice impractical later in the summer. Landings at Ablation Lake and the terrestrial site were carried out in November 2000. The terrestrial landing site near Moutonnée Lake (Map 2) is oriented E–W and consists of approximately 350 m of gently sloping coarse gravel on a bench raised approximately 2 m above the surrounding valley. The gravel bench was mostly frozen in November 2000, and generally dry and well drained in February 2001 (some 50 m was moist and soft at the western end of the strip at that time). Red reflective markers at both ends mark the landing site and mid-way on the side, with some red-painted stones also marking the western (upper) end in the form of an arrow. Tyre-impressions are evident in the gravel. Should helicopter access prove feasible, specific landing sites have not been designated but landings are prohibited from within 200 m of lake shores, or within 100 m of any vegetated or moist ground, or in stream beds. Access is also possible by aircraft to upper Jupiter

Glacier (550 m), immediately west of Ablation Valley and outside of the Area, from where access may be made into the Area overland on foot.

- Pilots, air crew, or other people on aircraft, are prohibited from moving on foot beyond the immediate vicinity of their landing site unless specifically authorised by Permit.
- Any visitors should move carefully so as to minimise disturbance to soil and vegetated surfaces. Avoid walking in stream or dry lake beds, or on moist ground, if practical, to avoid disturbance to the hydrology and / or damage to sensitive plant communities. Care should be taken even when moisture is not obviously present, as inconspicuous plants may still colonise the ground. Visitors should by preference and where practical walk on rocky or ice-covered terrain, and avoid sensitive geomorphological features such as dunes. Pedestrian traffic should be kept to the minimum consistent with the objectives of any permitted activities and every reasonable effort should be made to minimise trampling effects.
- Diving in lakes within the Area is normally prohibited unless it is necessary for compelling scientific purposes. If diving is undertaken, great care should be taken to avoid disturbance of the water column and of sensitive sediments and biological communities. The sensitivity of the water column, sediments and biological communities to disruption by diving activities shall be taken into account before Permits are granted for these purposes.

7(ii) Activities that are or may be conducted in the Area, including restrictions on time or place

- Scientific research that will not jeopardise the ecosystem or scientific values of the Area, and which cannot be served elsewhere;
- Essential management activities, including monitoring.

7(iii) Installation, modification or removal of structures

Structures shall not be erected within the Area except as specified in a Permit and permanent structures or installations, other than the airstrip markers, are prohibited. All scientific equipment installed in the Area shall be approved by Permit and clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of contamination of the Area. Removal of specific equipment for which the Permit has expired shall be a condition of the Permit.

7(iv) Location of field camps

When necessary for purposes specified in the Permit, temporary camping is allowed within the Area. One camp site has been designated within the Area: it is located on the north-western (upper) end of the airstrip in Moutonnée Valley (latitude 70°51'48" S, longitude 68°21'39" W) (Map 2). The site is not marked, although tents should be erected as close as practicable to the marker on the north-western end of the airstrip. This site should be used by preference when working in this vicinity. Other specific camp site locations have not, as yet, been designated, although camping is prohibited on sites where significant vegetation is present. Camps should be located as far as practicable (preferably at least 200 m) from lakeshores, and avoid dry lake or stream beds (which may host an inconspicuous biota). By preference and where practical, camps should be located on snow or ice surfaces. Previously existing campsites should be re-used where possible, except where the above guidelines suggest these were inappropriately located.

7(v) Restrictions on materials and organisms which can be brought into the Area

No living animals, plant material or microorganisms shall be deliberately introduced into the Area and the precautions listed in 7(ix) below shall be taken against accidental introductions. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management purposes specified in the Permit, shall be removed from the Area at or before the conclusion of the activity for which the Permit was granted. Fuel is not to be stored in the Area, unless authorised by Permit for specific scientific or management purposes. All materials introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of their introduction into the environment is minimised. If release occurs which is likely to compromise the values of the Area, removal is encouraged only where the impact of removal is not likely to be greater than that of leaving the material *in situ*. The appropriate authority should be notified of any materials released and not removed that were not included in the authorised Permit.

7(vi) Taking or harmful interference with native flora or fauna

Killing of any seal within the Area is prohibited. Any other taking or harmful interference with native flora or fauna is prohibited, except by Permit issued in accordance with Annex II to the Protocol on Environmental Protection to the Antarctic Treaty. Where taking or harmful interference with animals is involved, the *SCAR Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica* should be used as a minimum standard.

7(vii) *Collection or removal of anything not brought into the Area by the Permit holder*

Material may be collected or removed from the Area only in accordance with a Permit and should be limited to the minimum necessary to meet scientific or management needs. Material of human origin likely to compromise the values of the Area, which was not brought into the Area by the Permit Holder or otherwise authorised, may be removed unless the impact of removal is likely to be greater than leaving the material *in situ*: if this is the case the appropriate authority should be notified.

7(viii) *Disposal of waste*

All wastes, except human and domestic liquid wastes, shall be removed from the Area. Human and domestic liquid wastes may be disposed of within the Area down ice cracks along the margin of George VI Ice Shelf or Jupiter Glacier, or by burying in moraine along the ice margin in these localities as close as practical to the ice. Disposal of human and domestic liquid wastes in this manner shall be more than 200 m from, and avoiding the catchments of, the main lakes in Ablation, Moutonnée or Flatiron valleys, or shall otherwise be removed from the Area.

7(ix) *Measures that are necessary to ensure that the aims and objectives of the Management Plan can continue to be met*

13. Permits may be granted to enter the Area to carry out monitoring and site inspection activities, which may involve the small-scale collection of samples for analysis or review, or for protective measures.

14. Any specific long-term monitoring sites shall be appropriately marked.

15. To help maintain the ecological and scientific values derived from the relatively low level of recent human impact at Ablation Valley – Ganymede Heights, visitors shall take special precautions against introductions. Of concern are microbial, invertebrate or plant introductions derived from soils at other Antarctic sites, including stations, or from regions outside Antarctica. Visitors shall ensure that sampling equipment or markers brought into the Area are thoroughly cleaned or sterilised. To the maximum extent practicable, footwear and other equipment to be used in the Area shall be thoroughly cleaned beforehand.

7(x) *Requirements for reports*

Parties should ensure that the principal holder for each Permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the Management Plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be used both in any review of the management plan and in organising the scientific use of the Area.

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Annex 1.

6(i) Additional information on the natural features of the Area.

CLIMATE

No extended meteorological records are available for the Ablation Valley – Ganymede Heights area, but the climate has been described as dominated by the dual influences of easterly-moving cyclonic depressions of the Southern Ocean, against the more continental, north to northwesterly, flow of cold anticyclonic air from the West Antarctic Ice Sheet (Clapperton and Sugden 1983). The former bring relatively mild weather, strong northerly winds and a heavy cloud cover to the region, whereas the latter induces clear, cold and stable conditions with temperatures below 0°C, and relatively light winds from the south. Based on data recorded nearby (25 km) in the early 1970s, the mean summer temperature was estimated as just below freezing point, with mean annual temperature estimated at about -9°C (Heywood 1977); precipitation was estimated at <200 mm of water equivalent per year, with little snow falling in summer. A thin snow cover is common after winter, but the region is generally snow-free by the end of the summer, apart from isolated snow patches that may persist in places.

GEOLOGY

The geology of Ablation Valley – Ganymede Heights is complex, but is dominated by well-stratified sedimentary rocks. The most prominent structural feature of the massif is a large asymmetrical anticline with a northwest–southeast orientation, extending from Grotto Glacier to Jupiter Glacier (Bell 1975, Crame and Howlett 1988). Thrust faults in the central part of the massif suggest vertical displacements of strata of up to 800 m (Crame and Howlett 1988).

The main lithologies are conglomerates, arkosic sandstones and fossiliferous shales, with subordinate pebbly mudstones and sedimentary breccias (Elliot 1974, Taylor *et al* 1979, Thomson 1979). A range of fossils have been found in the strata, which are of Upper Jurassic–Lower Cretaceous age, including bivalves, brachiopods, belemnites, ammonites, shark teeth and plants (Taylor *et al* 1979, Thomson 1979, Crame and Howlett 1988, Howlett 1989). Several interstratified lavas have been observed in the lowest exposures at Ablation Point (Bell 1975). The base of the succession is formed of a spectacular mélange, including large blocks of lava and agglomerate which crop out on the valley floors and at the base of several cliffs (see Bell 1975; Taylor *et al* 1979). The presence of exposures of the Fossil Bluff Formation is of prime geological importance because it is the only known area of unbroken exposure of rocks spanning the Jurassic – Cretaceous boundary in the Antarctic, which makes this a critical locality for understanding the change in floras and faunas at this temporal boundary.

GEOMORPHOLOGY AND SOILS

The entire area was at one time over-run by glacier ice from the interior of Alexander Island. Thus, landforms of both glacial erosion and deposition are widespread throughout the Area, providing evidence of a former general eastward flow of ice into George VI Sound (Clapperton and Sugden 1983). Misfit glaciers, striated bedrock, and erratics indicate considerable deglaciation since the Pleistocene glacial maximum (Taylor *et al* 1979). Numerous terminal moraines fronting present remnant glaciers, several unexpectedly talus-free sites, and polished and striated roches moutonnées indicate that glacial retreat may have been rapid (Taylor *et al* 1979). There is evidence that George VI Ice Shelf did not exist around 6500 yr B.P., which suggests that the Ablation Valley – Ganymede Heights massif is likely to have been largely free of permanent ice around that time, although there have been a number of subsequent glacier fluctuations in the region (Clapperton and Sugden 1982).

The landforms have been modified by periglacial, gravitational and fluvial processes. Bedrock on the upper plateau surfaces (where it has been largely scraped free of a till overburden) has been shattered by frost action into platy or blocky fragments (Clapperton and Sugden 1983). On valley slopes gelifluction lobes and stone stripes and circles are common, while on valley floors stone circles and polygonal patterned ground are frequently found in glacial till and in fluvio-glacial sediments subjected to frost action. Valley walls are also dominated by landforms derived from frost action, rock/ice-fall activity, and seasonal meltwater flows, which have led to ubiquitous talus slopes and, commonly, boulder fans below incised gullies. Mass wasting of fissile sedimentary rocks has also led to the development of steep (about 50°) horizontally rectilinear bedrock slopes thinly veneered with debris. Occasional aeolian landforms have been observed, with dunes of up to 1 m in height and 8 m in length as, for example, in Erratic Valley (Clapperton and Sugden 1983). ‘Raised beaches’ mentioned in the original management plan are not described in other literature (Clapperton and Sugden 1983); it is likely the reference is either to elevated moraines derived from a formerly more extensive George VI Ice Shelf, or perhaps to raised alluvial or lacustrine beaches. Thin layers of peat of up to 10–15 cm in depth are occasionally associated with vegetated areas, and these are the most substantial developments of soil within the Area.

FRESHWATER ECOLOGY

Ablation Valley – Ganymede Heights is an exceptional limnological site that contains a number of lakes, ponds and streams and a generally rich benthic flora. From late December until February running water develops from three main sources: precipitation, glaciers and from melting on George VI Ice Shelf, with run-off generally converging toward the coast (Clapperton and Sugden 1983). Most of the streams, which are up to several kilometres in length, drain glaciers or permanent snowfields. The principal streams drain into Ablation Lake and Moutonnée Lake, both dammed by the ice shelf. Surveys in the early 1970s recorded these lakes as frozen to 2.0–4.5 m depth year-round, with maximum water depths of around 117 m and 50 m respectively (Heywood 1977). A stable upper layer of fresh water, down to approximately 60 m and 30 m respectively, overlies increasingly saline waters influenced by interconnection with the ocean beneath the ice shelf and which subjects the lakes to tidal influence (Heywood 1977). Surface meltwater pools – which in summer form particularly in hollows between lake-ice pressure ridges – flood to higher levels daily and encroach up alluvial fans in the lower valleys (Clapperton and Sugden 1983). Some recent observations suggested a decrease in the permanent ice cover of the lakes, for example with about 25% of Moutonnée Lake being free of ice cover in the 1994–95 and 1997–98 summers (Convey and Smith 1997, Convey pers comm 1999). However, all three of the main lakes in the Area showed almost complete ice cover in early February 2001 (Harris 2001).

Numerous ephemeral, commonly elongated, pools and ponds form laterally along the land / ice shelf margin, varying in length from 10 to 1500 m and up to 200 m wide, with depths ranging from 1 to 6 m (Heywood 1977, Clapperton and Sugden 1983). These pools / ponds often rise in level over the melt period, yet on occasion may drain suddenly via sub-ice fissures opening into the ice shelf, leaving former lake shorelines evident in surrounding moraines. The pools / ponds vary widely in their turbidity depending on the presence of suspended glacial sediment. The pools are typically ice-free in summer, while the larger ponds often retain a partial ice cover, and all but the deeper ponds probably freeze solid in winter (Heywood 1977).

Numerous ponds of up to 1 ha and 15 m in depth are present within the valleys, some with moss growth covering extensive areas down to 9 m in depth (Light and Heywood 1975). The dominant species described were *Campylidelfus polygamus* (= *Campylium polygamum*) and *Dicranella*, stems of which reached 30 cm in length. *Bryum pseudotriquetrum* (and possibly a second *Bryum* species), *Distichium capillaceum*, and an unidentified species of *Dicranella* all grew on the benthic substratum at or below 1 m in depth (Smith 1988). Moss cover was 40-80% in the 0.5-5.0 m depth zone (Light and Heywood 1975). Much of the remaining area was covered by dense cyanobacterial felts (11 taxa) up to 10 cm thick, dominated by species of *Calothrix*, *Nostoc* and *Phormidium* together with 36 taxa of associated microalgae (Smith 1988). The extensive growths of moss suggest that these ponds are probably relatively permanent, although their levels may fluctuate from year to year. The water temperature reaches 7°C in the deeper ponds and 15°C in the shallower pools in summer, offering a relatively favourable and stable environment for bryophytes. The shallower pools, in which several mosses have been found, may normally be occupied by terrestrial vegetation and flooded for short periods during summer (Smith 1988).

Algae are abundant in slow-moving streams and ephemeral melt runnels, although they do not colonise the unstable beds of fast-flowing streams. For example, large wet areas of level ground in Moutonnée Valley have particularly rich floras, in places forming over 90% cover, with five species of desmid (which are rare in Antarctica) and the filamentous green *Zygnema* being abundant, and *Nostoc* sp. and *Phormidium* spp. colonising drier, less stable and silted areas (Heywood 1977).

Protozoa, Rotifera, Tardigrada and Nematoda form a benthic fauna in the pools, ponds and streams, and probably occur in the lakes although none has thus far been caught (Heywood 1977). Densities are generally highest in the slow-moving streams. The copepod *Boeckella poppei* was abundant in lakes, ponds and pools, but absent from streams. The marine fish *Trematomus bernacchii* was captured in traps laid in Ablation Lake at a depth of 70 m, within the saline water layer (Heywood and Light 1975, Heywood 1977). A seal (species unidentified, but probably crabeater (*Lobodon carcinophagus*) or Weddell (*Leptonychotes weddellii*)) was reported at the edge of Ablation Lake in mid-December 1996 (Rossoak 1997), and isolated sightings of solitary seals have also been reported in earlier seasons. The fish and seals may be part of a marine ecosystem present beneath the adjacent ice shelf that is capable of travel to the open sea, or may represent isolated vestigial populations confined to the Ablation Point region following the relatively recent re-formation of George VI Ice Shelf (Clapperton and Sugden 1982). If the latter, then the populations may have special genetic significance because of their extended isolation. However, the seals may be capable of travel to the sea overland on George VI Ice Shelf. Further research is required to explain these observations.

VEGETATION

Much of the Ablation Valley – Ganymede Heights area is arid, and overall vegetation abundance is low with a discontinuous distribution. However, complex plant communities exist in seepage areas and along stream margins, which are of particular interest because:

- a) they occur in an otherwise almost barren landscape;
- b) the mixed bryophyte and lichen communities are the best-developed and most diverse of any south of 70°S (Smith 1988);
- c) some bryophyte taxa are profusely fertile and fruiting at their southern limit – an unusual phenomenon in most Antarctic bryophytes, especially so far south;
- d) the region represents the southernmost known locality for many taxa; and
- e) although some of these communities also occur at other sites on southeastern Alexander Island, the Area contains the best and most extensive examples known at this latitude.

The diversity of mosses is particularly high for this latitude, with at least 21 species recorded within the Area, which represents 73% of those known to occur on Alexander Island, and half of all those occurring on the Antarctic Peninsula (Smith 1997). The lichen flora is also diverse with more than 35 taxa known. Of the macrolichen flora, 12 of the 15 species known to occur on Alexander Island are represented within the Area, which is about one third of the 35 species described on the Antarctic Peninsula as a whole (Smith 1997). Moutonnée and Striation valleys, and the SE coastal area, contain the most extensive stands of both terrestrial and freshwater vegetation (Smith 1998, Harris 2001).

Smith (1988, 1997) reported the bryophyte vegetation is generally found in patches of about 10 to 50 m², with some stands up to 625 m², occurring from around 5 m to 40 m altitude on the north- and east-facing gentle slopes of the main valleys. More recently, Harris (2001) recorded large stands of near-continuous bryophyte vegetation of up to approximately 8000 m² on gentle SE-facing slopes on the south-eastern coast of the Area, at an elevation of approximately 10 m, close to where the Jupiter Glacier joins George VI Ice Shelf. A continuous stand of approximately 1600 m² was recorded on moist slopes in lower Striation Valley. Several large patches of continuous moss (of up to 1000 m²) were observed on SW/NW-facing eastern slopes of Flatiron Valley, at elevations of 300-400 m. Small discontinuous patches of moss were recorded in this vicinity up to an elevation of 540 m. Mosses were observed on peaks above Ablation Valley at elevations of up to approximately 700 m. Samples are being analysed to identify species.

The dominant bryophyte in the wettest areas is frequently the liverwort *Cephaloziella varians* (= *C. exiliflora*), which forms a blackish mat of densely interwoven shoots. Although the most southerly record of *C. varians* has been reported at 77°S from Botany Bay (SSSI No. 37) in Victoria Land, the extensive mats it forms in the Ablation Valley – Ganymede Heights massif represent the most substantial stands of this species this far south. Cyanobacteria, notably *Nostoc* sp., are usually associated either on the surface of the liverwort or soil, or with moss shoots. Beyond the wettest areas, undulating carpets of pleurocarpous mosses dominated by *Campyliadelphus polygamus* forms the greenest stands of vegetation, with associated *Hypnum revolutum*. These carpets overlie up to 10-15 cm of peat composed of largely undecomposed moribund moss shoots. Intermixed with these mosses, but often predominating on the drier margins, *Bryum pseudotriquetrum* grows as isolated cushions that may coalesce to develop a convoluted turf. In these drier, peripheral areas, several other turf-forming bryophytes are often associated with *Bryum*. Besides the more hydric species already cited, these include the calcicolous taxa *Bryoerythrophyllum recurvirostrum*, *Didymodon gelidus*, *Distichium capillaceum*, *Encalypta rhaptocarpa* (= *E. patagonica*), *E. procera*, *Pohlia cruda*, *Schistidium antarcticum*, *S. fragilis*, *Syntrichia princeps* (= *Tortula princeps*), *Tortella alpicola*, and several unidentified species of *Bryum* and *Schistidium*.

A significant characteristic of the vegetation in the Ablation Valley – Ganymede Heights massif is the unusual occurrence of a number of fertile bryophytes. Antarctic bryophytes seldom produce sporophytes, yet *Bryum pseudotriquetrum*, *Distichium capillaceum*, *Encalypta rhaptocarpa*, *E. procera* and *Schistidium* spp. have all been recorded in the Area as frequently fertile. Most unusually, small quantities of the moss *Bryoerythrophyllum recurvirostre* and the liverwort *Cephaloziella varians* have been observed fruiting in Ablation Valley, which was the first time this had been recorded anywhere in Antarctica (Smith pers comm., cited in Convey 1995; Smith 1997); in addition, *D. capillaceum* has never before been recorded with sporophytes throughout the maritime Antarctic (Smith 1988). *E. procera* has only been reported as fertile in one other Antarctic location (on Signy Island, South Orkney Islands: Smith 1988).

Beyond the permanent seepage areas, bryophyte vegetation is extremely sparse and restricted to habitats where there is free water for at least a few weeks during the summer. Such sites occur sporadically on the valley floors, stone stripes on slopes, and also in crevices in north-facing rock faces. Most of the species occurring in the bryophyte patches have also been observed in these habitats, including lichens, most frequently in the shelter of, or even in crevices beneath, larger stones – especially at the margins of patterned ground features. At elevations of over 100 m aridity increases, and at higher altitudes only *Schistidium antarctici* (at 500 m in Moutonnée Valley) and *Tortella fragilis* (near the summit of the highest peak south-west of Ablation Valley (775 m) have been recorded.

In these drier habitats lichens tend to become more frequent, especially where the substratum is stable. Lichens are widespread and locally abundant on the more stable screes, ridges, and plateaux above the valleys, the most predominant species being *Usnea sphacelata* (= *U. sulphurea*), giving rock surfaces a black hue. This species is often associated with *Pseudophebe minuscula*, several crustose lichen species and, rarely, *Umbilicaria decussata* reaching the highest part of the massif; all but the latter species are also common in Moutonnée Valley. Epiphytic and terricolous lichens, predominantly the white encrusting species *Leproloma cacominum*, are often frequent where the marginal bryophyte surface is driest. Other genera such as *Cladonia galindezii*, *C. pocillum* and several crustose lichens are also sometimes present. Various lichens colonise the dry soil and pebbles in these localities, occasionally spreading onto cushions of moss. These include *Candelariella vitellina*, *Physcia caesia*, *Physconia muscigena*, occasional *Rhizoplaca melanophthalma*, *Usnea antarctica*, *Xanthoria elegans*, and several unidentified crustose taxa (especially species of *Buellia* and *Lecidea*). An abundance of *Physcia* and *Xanthoria* in isolated places suggests nitrogen enrichment deriving from south polar skuas (*Catharacta maccormicki*). A few ornithocoprophilous lichens occur on occasional boulders used as bird perches.

Many of the bryophytes and lichens are at the southern limit of their known distributions and several species are very rare in the Antarctic. Rare moss species within the Area include *Bryoerythrophyllum recurvirostrum*, *Campylium polygamum*, *Encalypta rhaptocarpa*, *Tortella alpicola*, and *Tortella fragilis*. Several *Bryum*

species, *Encalypta raptocarpa*, *Schistidium occultum* and *Schistidium chrysoneurum* are all at the southern limit recorded for these species. Of the lichen flora, Ablation Valley is the only known site where *Eiglera flavida* has been observed in the S. Hemisphere, and *Mycobilimbia lobulata* and *Stereocaulon antarcticum* are also rare. Lichen species with furthest-south records are *Cladonia galindezii*, *Cladonia pocillum*, *Ochrolechia frigida*, *Phaeorrhiza nimbosa*, *Physconia muscigena*, and *Stereocaulon antarcticum*.

INVERTEBRATES, FUNGI, BACTERIA

The microinvertebrate fauna thus far described is based on ten samples from Ablation Valley, and comprises seven confirmed taxa (Convey and Smith 1997): two Collembola (*Cryptopygus badasa*, *Friesea topo*); one cryptostigmatid mite (*Magellozetes antarcticus*); and four prostigmatid mites (*Eupodes parvus*, *Nanorchestes nivalis* (= *N. gressitti*), *Rhagidia gerlachei* and *Stereotydeus villosus*). A number of specimens collected were earlier reported as *Friesea grisea*, a widespread maritime Antarctic species. However, specimens of *Friesea* collected subsequently from Alexander Island (i.e. from 1994 onwards) have been described as a distinct new species, *F. topo* (Greenslade 1995), which is itself currently thought to be endemic to Alexander Island. The earlier specimens from Ablation Valley have been re-examined, with all those that remain identifiable being reassigned as *F. topo*.

While the same number of species has been described at one other site on Alexander Island, the samples from Ablation Valley exhibited a mean total microarthropod population density about seven times greater than other sites in the region. Diversity at Ablation Valley was also greater than at several other documented sites on Alexander Island. Both diversity and abundance are considerably less than has been described at sites in Marguerite Bay and further north (Starý and Block 1998, Convey et al 1996, Convey and Smith 1997, Smith 1996). The most populous species recorded in Ablation Valley was *Cryptopygus badasa* (96.6% of all arthropods extracted), which was particularly common in moss habitats. *Friesea topo* was found on stones at low population densities and was virtually absent from the moss habitat, showing these species to have distinct habitat preferences. Ablation Valley is the only site on Alexander Island where the predatory mite *R. gerlachei* has been described. Very little research has been conducted on fungi in the Area, and the only publication available reported an unidentified nematode-trapping fungus present in a pond in Ablation Valley (Maslen 1982). While further sampling is required to describe the terrestrial microfauna more fully, available data support the biological importance of the Area.

BREEDING BIRDS

The avifauna of Ablation Valley – Ganymede Heights has not been described in detail. A few pairs of south polar skuas (*Catharacta maccormicki*) have been reported as nesting close to some of the moist vegetated sites (Smith 1988). Snow petrels have been noted as “probably breeding” in the vicinity of Ablation Point (Croxall *et al* 1995, referring to Fuchs and Adie 1949). No other bird species has been recorded in the Ablation Valley – Ganymede Heights massif.

HUMAN ACTIVITIES / IMPACTS

Human activity at Ablation Valley – Ganymede Heights has been exclusively related to science. The first visit to the Ablation Valley area was by members of the British Graham Land Expedition in 1936, who collected about 100 fossil specimens from near Ablation Point (Howlett 1988). The next visits were about a decade later, when basic geological descriptions and further fossil collections were undertaken. More intensive palaeontological investigations were made by British geologists in the 1960s through to the 1980s, with detailed studies of the geomorphology (Clapperton and Sugden 1983). Limnological investigations were undertaken in the 1970s, with a number of expeditions examining the terrestrial biology being initiated in the 1980s and 1990s. All known expeditions into the Area have been by British scientists. The impacts of these activities have not been fully described, but are believed to be minor and limited to footprints, aircraft tracks at the Moutonnée Valley terrestrial airstrip (see Section 7.1), removal of small quantities of geological and biological samples, markers, abandoned items such as supplies and scientific equipment, and the remains of human wastes.

In February 2001 an abandoned depot remained on the moraine bench adjacent to George VI Ice Shelf, approximately 500 m north of Moutonnée Lake. The depot consists of a number of fuel and oil containers, an old food box, poles, disintegrating cardboard and string. Various expeditions in the 1970s-80s placed empty fuel drums as route markers through pressure ice from George VI Sound into Ablation Valley, and a large onshore rock is painted yellow SE of Ablation Lake (McAra 1984, Hodgson 2001). Nearby is a large cross made from red painted rocks and cairns, with a wooden marker board in the centre.

Evidence of campsites close to the shore of Ablation Lake remained in 2000-01 (Harris 2001, Hodgson 2001). One site is on the SW shore near a rich area of vegetation, and another is approximately four kilometres east on the SE shore. At both sites circles of stones mark old tent sites, and circular structures have been built with low (0.8 m) stone walls. At the former site a number pieces of wood (including old markers), an old food box, string and human wastes were observed (Harris 2001, Hodgson 2001). Several red-painted rocks were found around the southern and western shores of Ablation Lake in February 2001, and paint fragments were sometimes

observed in sediments. In 2000-01 some of the abandoned materials in Ablation Valley were removed: three fuel drums on lake ice, the old food box and some wood and string on the SW shore, and numerous fragments from broken perspex acrylic cloches on the SW shore (nine were deployed in January 1993 – Wynn-Williams 1993, Rossaak 1997 – all were destroyed by wind) (Harris 2001, Hodgson 2001). The painted rocks and other materials remain.

Snowmobiles have been used on lake and glacier ice, and modified snowmobiles with front wheels were used over gravel terrain in a limited vicinity of the SW shore of Ablation Lake in 1983–84 (McAra 1984). Some evidence of erosional paths forming on steep scree slopes, presumably a result of field work, was recorded in Moutonnée Valley (Howlett 1988). Cairns have been built on a number of mountain summits and to mark a number of survey sites throughout the Area.

Management Plan for Antarctic Specially Protected Area No. 148 MOUNT FLORA, HOPE BAY, ANTARCTIC PENINSULA

1. Description of values to be protected

Mount Flora (Latitude 63°25' S, Longitude 57°01' W, 0.3 km²), Hope Bay, Antarctic Peninsula was originally designated as a Site of Special Scientific Interest through Recommendation XV-6 (1989, SSSI No. 31) after a proposal by the United Kingdom. It was designated on the grounds that “the site is of exceptional scientific importance for its rich fossil flora. It was one of the first fossil floras discovered in Antarctica and has played a significant role in deducing the geological history of the Antarctic Peninsula. Its long history as an easily accessible site and the large amount of fossiliferous debris occurring in scree has made it vulnerable to souvenir collectors, and the amount of material available for serious research has been considerably depleted.”

Geologist Johann Gunnar Andersson discovered Mount Flora during the Swedish South Polar Expedition (1901-04), whose original stone hut (Historic Monument No. 39) remains nearby at Seal Point, Hope Bay. Otto Nordenskjöld, the leader of the expedition, named Mount Flora (as ‘Flora-Berg’) following the geological observations of Andersson, recognising it as the first significant fossil locality discovered in Antarctica. The Area subsequently became of great scientific importance for interpreting key geological relationships in the region. Mount Flora has important values associated with this significant heritage of geological discovery in Antarctica.

The scientific values of the rich fossil flora are reaffirmed in this revised management plan. Mount Flora is characterised by three distinct geological formations: the Hope Bay Formation (Trinity Peninsula Group), which is separated by an unconformity from the overlying gently tilted plant beds of the Mount Flora Formation (Botany Bay Group), which in turn are overlaid by ignimbrites and welded tuffs of the Kenney Glacier Formation (Antarctic Peninsula Volcanic Group). The relationships between these formations have been fundamental for determining the age of the plant beds, which has been vital to the interpretation of the geology of the Antarctic Peninsula. Historically, the site has also played an important role in comparisons with other Southern Hemisphere floras. The fossil flora has also been important for providing Mesozoic palaeoclimate data from a region where such information is otherwise sparse. Moreover, Mount Flora holds one of the few Jurassic floras known from Antarctica and it is the only site that has been relatively well studied and documented. The Mesozoic plant assemblages from Mount Flora include members of the sphenophytes, ferns, cycadophytes (cycads and bennetites), pteridosperms and conifers. Samples of the fossils have served as a major reference source for many studies of Jurassic and Cretaceous palaeobotany.

The Area is approximately three kilometres southeast of Esperanza Station (Argentina) and Teniente de Navio Ruperto Elichiribehety Station (Uruguay). The Area is easily accessible on foot from both the stations and Hope Bay. The boundaries designated in the original management plan were inaccurate and excluded some of the fossiliferous strata. The boundaries have therefore been revised in the current management plan to include all of the exposed fossiliferous strata, which are found on the northern slopes of Mount Flora.

2. Aims and objectives

Management at Mount Flora aims to:

- avoid degradation of, or substantial risk to, the values of the Area by preventing unnecessary human disturbance and sampling in the Area;
- allow scientific geological and palaeontological research, while ensuring protection from over-sampling;
- allow other scientific research within the Area provided it will not compromise the values for which the Area is protected;
- allow visits for management purposes only in support of the aims of the management plan.

3. Management activities

The following management activities shall be undertaken to protect the values of the Area:

- A map showing the location of the Area (stating the special restrictions that apply) shall be displayed prominently at Esperanza Station (Argentina) and Teniente de Navio Ruperto Elichiribehety Station (Uruguay), where copies of this management plan shall be made available.
- A sign showing the location and boundaries of the Area with clear statements of entry restrictions shall be placed in a prominent location on the lower NE ridge at the northeastern boundary (approximate elevation 200 m) to help avoid inadvertent entry.
- Persons wishing to make the ascent of Mount Flora shall be instructed not to enter the Area without a Permit issued by the appropriate authority.
- Markers, signs or other structures erected within the Area for scientific or management purposes shall be secured and maintained in good condition.
- Visits shall be made as necessary (at least once every five years) to assess whether the Area continues to serve the purposes for which it was designated and to ensure management and maintenance measures are adequate.
- Increasing exposure of fossiliferous rocks on Mount Flora is expected if glacial ice in the vicinity continues to retreat, as has occurred in recent years. Periodic updating of the boundaries should be undertaken to ensure any newly-exposed fossiliferous rocks are included within the Area, which should be considered at the time of review of the management plan.

4. Period of designation

Designated for an indefinite period.

5. Maps and photographs

Map 1: Mount Flora ASPA No. 148 in relation to Hope Bay, Trinity Peninsula, and the South Shetland Islands, showing the location of the nearest protected areas. The location of Esperanza Station (Argentina) and Teniente de Navio Ruperto Elichiribehety Station (Uruguay) are also shown.

Inset: the location of Mount Flora on the Antarctic Peninsula.

Map 2: Mount Flora ASPA No. 148, Hope Bay, topographic map. Map specifications: Projection: Lambert Conformal Conic; Standard parallels: 1st 76° 40' S; 2nd 63° 20' S Central Meridian: 57° 02' W; Latitude of Origin: 70° 00' S; Spheroid: WGS84. Vertical datum: mean sea level. Vertical contour interval 25 m. Horizontal and vertical accuracy unknown. Note: topography and positions are based on original 1950s survey data, and true positions are known to be in error by up to 500 m (a new map correcting the positional errors is in preparation). Ice margins are updated to approximate present positions using 1999 aerial photography.

Map 3: Mount Flora ASPA No. 148 geological sketch map, based on data from Birkenmajer 1993a&b, aerial photography, and field observations by Smellie (unpublished, pers. comm. 2000).

6. Description of the Area

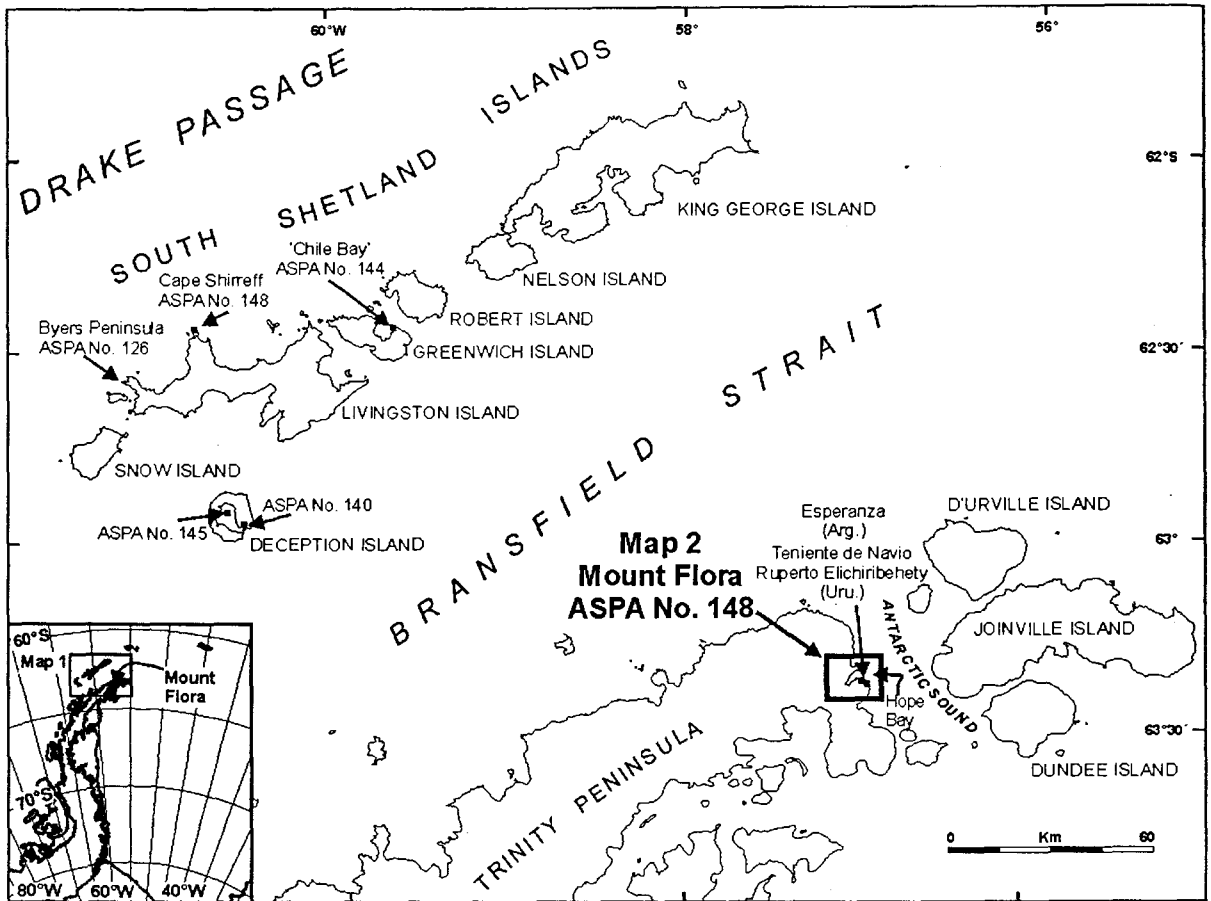
6(i) Geographical coordinates, boundary markers and natural features

GENERAL DESCRIPTION

Mount Flora (latitude 63°25' S, longitude 57°01' W, 0.3 km²) is situated on the southeastern flank of Hope Bay, at the northern end of Trinity Peninsula, Antarctic Peninsula (Map 1). The summit of Mount Flora (520 m) is approximately 1 km from the southern shore of Hope Bay. Four glaciers surround Mount Flora. The Flora Glacier extends from the cirque below the summit of Mount Flora in a northeasterly direction for one kilometre before it flows into a larger glacier that flanks the eastern and southern slopes of Mount Flora, extending northeast from The Pyramid (565 m) (Map 2). The western slopes of Mount Flora are bounded by the Kenney Glacier, which joins Depot Glacier before flowing into the head of Hope Bay. The Pyramid is a distinctive peak 1.5 km to the SSE of Mount Flora. To the north of the Area is the ice-free Five Lakes Valley and Scar Hills, and to the northeast is Lake Boeckella.

BOUNDARIES

The boundaries designated in the original management plan have been revised in the current management plan to include all of the known exposed fossiliferous strata on the northern slopes of Mount Flora. The summit ridge and highest peak of Mount Flora (520 m), which were formerly within the boundary, are comprised of non-fossiliferous volcanic rocks and have now been excluded from the Area. The boundary runs from the north summit of Mount Flora (516 m) – the highest point of the boundary – westward down the ridge to the Kenney Glacier, the eastern margin of Kenney Glacier northward to the 150m contour, eastward along the 150m contour to the northwestern margin of the Flora Glacier, the northwestern margin of the Flora Glacier south-westward to the ridge leading westward to the north summit of Mount Flora. Where present, the glacier margins, lower outcrops, western ridge and northern summit of Mount Flora form visually obvious features that indicate the boundaries: the Area remains otherwise unmarked.



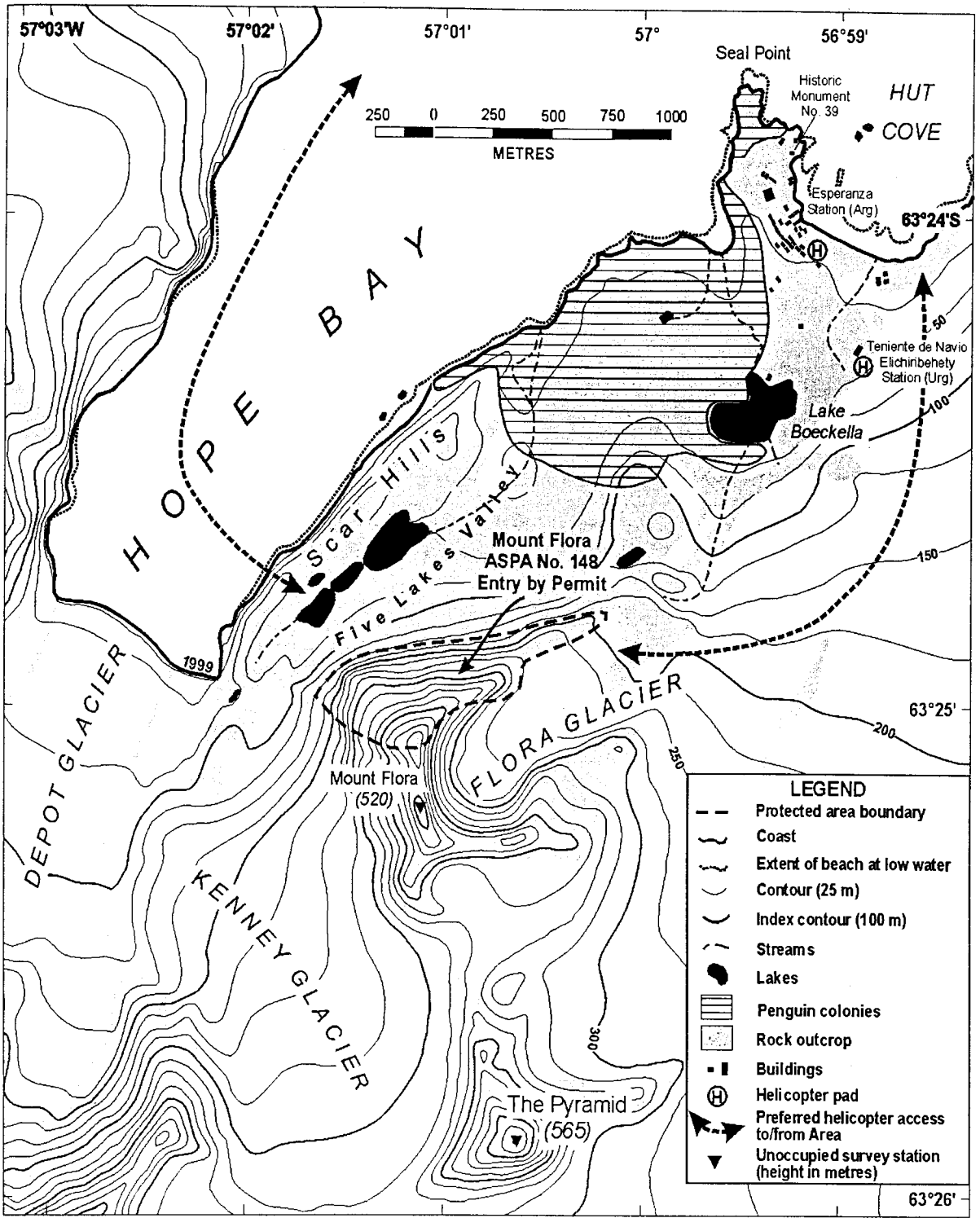
Map 1. Mount Flora (ASPANo. 148), Hope Bay, Antarctic Peninsula, location map.
Inset: location of Mount Flora on the Antarctic Peninsula.

CLIMATE

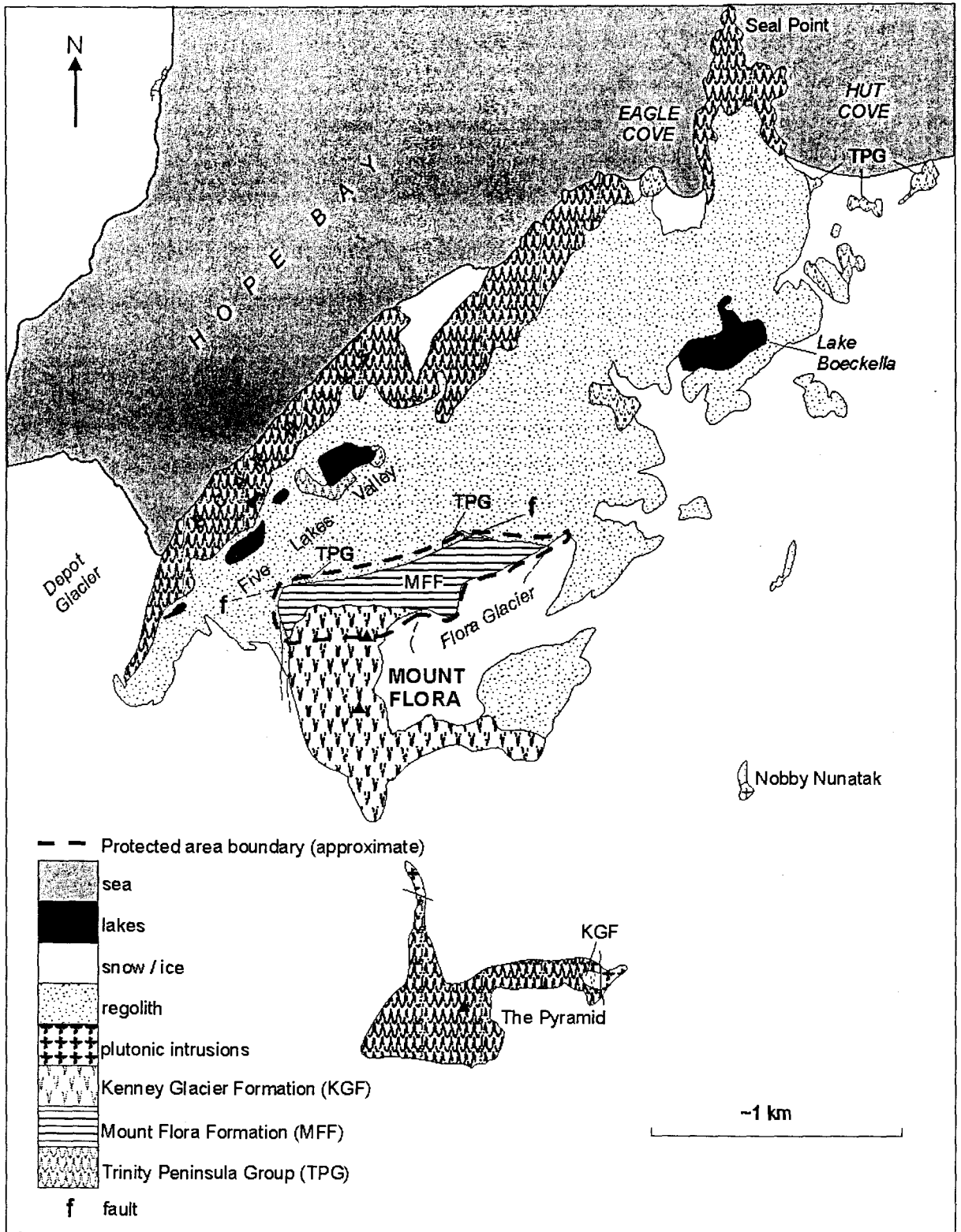
No climate data are available for Mount Flora but local conditions are indicated by those at Esperanza Station. Average summer temperatures (October – March) at Esperanza Station over the 1990s were -0.7°C , while the average in winter was -8.6°C . Over the 1990s, the warmest month was January with an average of $+1.5^{\circ}\text{C}$, while the coldest was August with an average of -11.2°C . Temperatures at Mount Flora are likely to be lower owing to its greater elevation.

GEOLOGY, SOILS AND PALAEOLOGY

The geology of the Area comprises three main formations: the Hope Bay Formation, the Mount Flora Formation and the Kenney Glacier Formation. At the base, the Hope Bay Formation (Trinity Peninsula Group) is more than 1200 m thick and is characterised by marine siliciclastic turbidite and sandstone. It has an inferred Permo-Carboniferous age based on supposed Carboniferous spores (Grikurov and Dibner 1968) and Rb-Sr isotopic dating of 'grits' and mudstones (281 ± 16 Ma; Pankhurst 1983) but the age evidence is sparse and open to ambiguous interpretation (Smellie and Millar 1995). The Hope Bay Formation is separated by an angular unconformity and a long stratigraphic gap from the overlying Mount Flora Formation. The Mount Flora Formation (Botany Bay Group) is composed mainly of sandstones, conglomerates and shale, and contains the most significant fossil strata. The overlying Kenney Glacier Formation (Antarctic Peninsula Volcanic Group), which is also separated from the Mount Flora Formation by an angular unconformity, is composed of ignimbrites and welded tuffs. There has been debate over the age of the Mount Flora Formation (Andersson 1906, Halle 1913, Bibby 1966, Thomson 1977, Farquharson 1984, Francis 1986, Gee 1989, Rees 1990); the



Map 2. Mount Flora (ASPANo. 148), Hope Bay, topographic map.



Map 3. Mount Flora (ASPA No. 148), Hope Bay, geological sketch map.

most recent palaeobotanical and radiometric data available support an age of Early to Middle Jurassic (Rees 1993a&b, Rees and Cleal 1993, Riley and Leat 1999). Faults have been observed in the northern face of Mount Flora (Birkenmajer 1993a: 30-31) and mapped separating the Trinity Peninsula Group and Mount Flora Formation (Smellie pers. comm. 2000).

The Mount Flora Formation is about 230-270 m thick and may be subdivided into an older Five Lakes Member and an upper Flora Glacier Member, which contains the most important fossil deposits. The Five Lakes Member is about 170 m thick and consists of plant-bearing coarse sedimentary breccias, conglomerates and sandstones. The dominant lithology, particularly in the lower part of the succession, is clast-supported cobble to boulder conglomerate (Farquharson 1984). It is well-exposed on the northern and northeastern slopes of Mount Flora between the Flora Glacier and Five Lakes Valley. The lower boundary of this member is an angular unconformity against the Hope Bay Formation. The contact between the Mount Flora Formation and the Hope Bay Formation is covered by scree: this is mapped as a fault on Map 3 (Smellie, unpublished data, pers. comm. 2000). Some 50 m of basal beds of the Five Lakes Member are presumed unexposed. A higher section of the Five Lakes Member is well-exposed at a buttress which separates Flora Glacier from Five Lakes Valley.

The Flora Glacier Member comprises a sandstone-conglomerate complex 60-100 m thick, locally overlain by a shale complex up to 10 m thick, which is the main fossiliferous zone. It is best exposed at a buttress that divides the Flora Glacier cirque from Five Lakes Valley at approximately 350 m. A one metre-thick sill occurs in the upper section of the shale, close to the contact with the Kenney Glacier Formation. The sandstone association is dominated by fining-upward cycles (characterised by decreasing grain size) that range in thickness from 2.5 – 11.5 m (Farquharson 1984). Although mostly inaccessible, good exposures of the Flora Glacier Member continue in the steep slopes of Mount Flora above Five Lakes Valley, extending westward to the margin of the Kenney Glacier. The thickness of the unit increases from 50-60 m at the buttress to about 100 m at the glacier margin. Volcanogenic deposits form a small but significant part of the Mount Flora Formation. A single ignimbrite 26 m thick forms a pale band across the north face of Mount Flora, approximately halfway up the sedimentary sequence (Farquharson 1984).

The Kenney Glacier Formation volcanic rocks overlie the Mount Flora Formation, exposed in the highest part of Mount Flora. It also unconformably overlies the Hope Bay Formation on the eastern spur of the Pyramid (Smellie, pers. comm. 2000). The incomplete formation is a complex of predominantly evolved, rhyolite-dacite lavas, ignimbrites, agglomerates and tuffs (Birkenmajer 1993a & b). Farquharson (1984) identified the presence of tuffs, fine-grained agglomerates and welded tuffs.

The most significant fossil exposures are found on the northern and northwestern faces of Mount Flora. Most research has been conducted on samples from the relatively accessible northern face. The fossil flora was first comprehensively described by Halle (1913) and since then has been considered a standard for Mesozoic gondwanan floristic and biostratigraphic studies (Rees and Cleal 1993). Halle (1913) originally described 61 species from the fossils: more recently this was revised to 43 species (Gee 1989), and later to 38 species (Rees 1990, Rees and Cleal in press). The flora is represented typically by stems of sphenophytes (*Equisetum*), as well as foliage of ferns and gymnosperms (cycadophytes, pteridosperms and conifers). Cycadophyte and conifer cone scales, seeds and other unidentifiable stems, leaves and foliage branches are also preserved (Taylor, no date; Rees pers. comm. 1999). Four beetle elytra (exoskeletons) have been identified from a small sample of shale from Mount Flora (Zeuner 1959). These were identified as *Grahamelytron croftii* and *Ademosynoides antarctica*. No other examples of fossil fauna have been recorded. There are no known marine fossil floral or faunal deposits in the Area.

TERRESTRIAL AND FRESHWATER BIOLOGY

The living flora within the Area is sparse and patchily distributed. Although a full floristic survey has not been made, a number of moss and lichen species have been identified as present. Moss species identified are: *Andreaea gainii*, *Bryum argenteum*, *Ceratodon purpureus*, *Hennediella heimii*, *Pohlia nutans*, *Sanionia uncinata*, *Schistidium antarctici* and *Syntrichia princeps*. Lichen species identified are: *Acarospora macrocyclos*, *Buellia anisomera*, *Buellia* spp., *Caloplaca* spp., *Candelariella vitellina*, *Cladonia pocillum*, *Haematomma erythromma*, *Physcia caesia*, *Pleopsidium chlorophanum*, *Pseudophebe minuscula*, *Rhizocarpon geographicum*, *Rhizoplaca aspidophora*, *Stereocaulon antarcticum*, *Tremolecia atrata*, *Umbilicaria antarctica*, *Umbilicaria decussata*, *Umbilicaria kappenii*, *Usnea antarctica*, *Xanthoria candelaria* and *Xanthoria elegans*.

There are no permanent streams or lakes within the Area. No information is available on the invertebrate fauna or microbial communities present at Mount Flora.

BREEDING BIRDS

Little information is available on bird communities present at Mount Flora, although a report on the exact nesting sites of some species suggested that birds are unlikely to breed within the Area (Marshall 1945). However, the breeding birds of Hope Bay generally have been well-studied, and part of a large Adélie penguin (*Pygoscelis adeliae*) colony, numbering around 125 000 pairs, is situated about 500 m northeast of the Area

(Woehler 1993) (Map 2). Other birds breeding at Hope Bay include gentoo penguins (*Pygoscelis papua*), brown skua (*Catharacta loennbergi*), Antarctic tern (*Sterna vittata*), Wilson's storm petrel (*Oceanites oceanicus*), kelp gull (*Larus dominicanus*), and sheathbill (*Chionis alba*). Further information on the number of breeding birds in the vicinity of Mount Flora can be found in Argentina (1997).

HUMAN ACTIVITIES AND IMPACTS

Mount Flora was discovered in 1903 by Johann Gunnar Andersson, a member of the Swedish South Polar Expedition of 1901-04, which explored and mapped much of the northern Antarctic Peninsula. Andersson collected fossil and mineralogical specimens from Mount Flora while stranded and awaiting rescue at Hope Bay over the winter of 1903. Andersson and his companions over-wintered in a stone hut (Historic Monument No. 39). The leader of the expedition was Otto Nordenskjöld, who named Mount Flora because of the geological findings of Andersson.

The United Kingdom established Base 'D' at Hope Bay in 1945 as part of 'Operation Tabarin'. The station was operational until February 1964 with a winter complement of 7-19 personnel. Base 'D' was transferred from the United Kingdom to Uruguay in 1997 and renamed as Teniente de Navio Ruperto Elichiribehety Station. Argentina established Esperanza Station on 31 December 1951 and has operated the station continuously since, with approximately 50 winter and up to 70 summer personnel.

Mount Flora was designated as a Site of Special Scientific Interest in 1989 as a result of concern that the best examples of fossils were being collected by casual visitors and might therefore be lost to science.

6(ii) Restricted and managed zones within the Area

None.

6(iii) Structures within and near the Area

There are no structures present within the Area. The nearest scientific research stations are Esperanza Station (Argentina) (latitude 63°24'S, longitude 56°59'W) and Teniente de Navio Ruperto Elichiribehety Station (Uruguay) (latitude 63°24'S, longitude 56°59'W), both approximately 1.5 kilometres northeast of the Area.

The remains of a British Base, which burnt down in 1948, are situated 300 metres to the Northeast of the Uruguayan base. The graves of two British men who died in the above fire are located on a small promontory some 300 metres to the north of the Uruguayan base.

An Argentine hut is located close to the Area at 63°25'S, 56°58'W. It was established in 1956 and re-built in 1971.

6(iv) Location of other protected areas within close proximity of the Area

The nearest protected areas to Mount Flora are Potter Peninsula (ASPA No. 132) and the western shore of Admiralty Bay (ASPA No. 128), both located on King George Island, South Shetland Islands, lying approximately 150 km to the west (Map 1). A stone hut (Historic Monument No. 39) built by members of the Swedish South Polar Expedition is present within the vicinity of Esperanza Station (Map 2).

7. Permit conditions

Entry into the Area is prohibited except in accordance with a Permit issued by an appropriate national authority. Conditions for issuing a Permit to enter the Area are that:

- it is issued for scientific study of the geology or palaeontology of the Area, or for other scientific study which will not compromise the values for which the Area is protected;
- should the applicant for a Permit propose to make rock collections, the applicant shall demonstrate to an appropriate national authority that the research proposed cannot be adequately served by samples already collected and held in the various collections world-wide, before a Permit is granted;
- it is issued for essential management purposes consistent with plan objectives such as inspection, maintenance or review;
- the actions permitted will not jeopardise the geological or scientific values of the Area;
- any management activities are in support of the objectives of the management plan;
- the actions permitted are in accordance with the management plan;
- the Permit, or an authorised copy, shall be carried within the Area;
- a visit report shall be supplied to the authority named in the Permit;
- permits shall be issued for a stated period;
- the appropriate authority should be notified of any activities/measures undertaken that were not included in the authorised Permit.

7(i) Access to and movement within the Area

- Access to and movement within the Area shall be on foot or by helicopter.
- Vehicles are prohibited from the Area.
- Access to the area by helicopter should avoid the penguin colony, either by a route following central Hope Bay and over Scar Hills to Five Lakes Valley, or over the ice cap about one kilometre east of Esperanza Station and Lake Boeckella (Map 2).
- No special restrictions apply to where helicopters may land within the Area.
- Pedestrian traffic should be kept to the minimum consistent with the objectives of any permitted activities and every reasonable effort should be made to minimise trampling effects such as breakage of rocks, especially of rocks *in situ*.

7(ii) *Activities that are or may be conducted in the Area, including restrictions on time or place*

- Scientific research that will not jeopardise the scientific values of the Area;
- Essential management activities, including monitoring.

7(iii) *Installation, modification or removal of structures*

Structures shall not be erected within the Area except as specified in a Permit and permanent structures are prohibited. All scientific equipment installed in the Area must be approved by Permit and clearly identified by country, name of the principal investigator and year of installation. All such items should be made of materials that pose minimal risk of contamination of the Area. Removal of specific equipment for which the Permit has expired shall be a condition of the Permit.

7(iv) *Location of field camps*

Camping is prohibited within the Area.

7(v) *Restrictions on materials and organisms which can be brought into the Area*

No living animals, plant material or microorganisms shall be deliberately introduced into the Area. No herbicides or pesticides shall be brought into the Area. Any other chemicals, including radio-nuclides or stable isotopes, which may be introduced for scientific or management purposes specified in the Permit, shall be removed from the Area at or before the conclusion of the activity for which the Permit was granted. Fuel is not to be stored in the Area, unless specifically authorised by Permit for specific scientific or management purposes. All materials introduced shall be for a stated period only, shall be removed at or before the conclusion of that stated period, and shall be stored and handled so that risk of their introduction into the environment is minimised. If release occurs which is likely to compromise the values of the Area, removal is encouraged only where the impact of removal is not likely to be greater than that of leaving the material *in situ*. The appropriate authority should be notified of any materials released and not removed that were not included in the authorised Permit.

7(vi) *Taking or harmful interference with native flora or fauna*

There are no described fauna or flora within the Area.

7(vii) *Collection or removal of anything not brought into the Area by the Permit holder*

Material may be collected or removed from the Area only in accordance with a Permit and should be limited to the minimum necessary to meet scientific or management needs. Permits shall not be granted if there is a reasonable concern that the sampling proposed would take, remove or damage such quantities of fossiliferous rocks that their abundance on Mount Flora would be significantly affected. Material of human origin likely to compromise the values of the Area, which was not brought into the Area by the Permit Holder or otherwise authorised, may be removed unless the impact of removal is likely to be greater than leaving the material *in situ*: if this is the case the appropriate authority should be notified.

7(viii) *Disposal of waste*

All wastes, including all human wastes, shall be removed from the Area.

7(ix) *Measures that are necessary to ensure that the aims and objectives of the management plan can continue to be met*

In view of the fact that geological sampling is both permanent and of cumulative impact the following measures shall be taken to safeguard the scientific values of the Area:

16. Visitors removing geological samples from the Area shall complete a record describing the geological type, quantity and location of samples taken, which should, at a minimum, be deposited with their National Antarctic Data Centre or with the Antarctic Master Directory.
17. Visitors planning to sample within the Area shall demonstrate that they have familiarised themselves with earlier collections to minimise duplication. Sample collections exist in repositories around the world, namely in: Museum of Natural Sciences B. Rivadavia, Buenos Aires; Museum of Natural

Sciences, La Plata, Argentina; Natural History Museum, London; Swedish Natural History Museum, Stockholm; the Byrd Polar Research Centre, Ohio; Institute of Geological Sciences, Polish Academy of Sciences, Krakow, Poland; Department of Geology, Institute of Geosciences, Federal University of Rio de Janeiro, Brazil, British Antarctic Survey, Cambridge.

7(x) Requirements for reports

Parties should ensure that the principal holder for each Permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, which should be in sufficient detail to allow evaluation of the effectiveness of the management plan. Parties should, wherever possible, deposit originals or copies of such original reports in a publicly accessible archive to maintain a record of usage, to be used both in any review of the management plan and in organising the scientific use of the Area.

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**Proposed Boundary Change to Antarctic Specially Protected Area (SPA No. 27)
for Historic Site No. 15
BACKDOOR BAY, CAPE ROYDS, ROSS ISLAND**

The revised management plan for Site of Special Scientific Interest No. 1, Cape Royds, Ross Island proposed by the United States (Working Paper No. 21), includes a revision to the boundary for the Area. This revision would necessitate a concurrent change to the common western boundary of the adjacent Specially Protected Area No. 27.

The boundary change to SPA No. 27 is detailed on Map B which is provided in the revised management plan for SSSI No.1 contained in the United States Working Paper No. 21.

New Zealand has reviewed the proposed change and, in particular, has consulted with the New Zealand Antarctic Heritage Trust regarding potential impacts on the historic site and values of the Area. All those consulted believe that the proposed boundary change will not compromise the values of SPA No. 27 and that it will enhance management of both protected areas.

The change will require amendment to Map A and Map B in the management plan for SPA No. 27 (as detailed in the revised maps for SSSI No. 1). A small change is also required to *Section 6, Description of the Area* in the text of the management plan as follows:

West, by a line following the boundary of SSSI No. 1 from the coastline at Arrival Bay to a signpost (77°31'12.6"S, 166°10'01.3"E) and then continuing to follow the boundary of SSSI No. 1 for 40m in a NE direction.

Northwest, by a line extending in a NW direction from the boundary of SSSI No. 1 and following the shore of a small lake to the NW of Pony Lake and then along a gully leading to a point at 77°33'7.5"S 166°10'13"E.

New Zealand recommends that the proposed boundary change for SPA No. 27 be approved concurrently with approval of the revised management plan for Cape Royds SSSI No. 1.

**Management Plan for Antarctic Specially Protected Area 157 (SPA No 27)
for Historic Site No. 15
(containing the historic hut of Sir Ernest Shackleton and its precincts)
BACKDOOR BAY, CAPE ROYDS, ROSS ISLAND
(Lat. 77° 33' 10.7" S, Long. 166° 10' 6.5" E)**

1. Description of Values to be Protected

This site was originally listed as Historic Site 15 in ATCM Recommendation VII-9 proposed by New Zealand.

The hut on which this Area is centred was built in February 1908 by the British Antarctic (*Nimrod*) Expedition of 1907-1909 which was led by Sir Ernest Shackleton. It was also periodically used by the Ross Sea Party of Shackleton's Imperial Trans-Antarctic Expedition of 1914-1917.

Structures associated with the hut include stables, kennels, a latrine and a garage created for the first motor vehicle in Antarctica. Other significant relics in the Area include an instrument shelter, supply depots, and a rubbish site. Numerous additional artefacts are distributed around the Area.

Cape Royds is one of the principal areas of early human activity in Antarctica. It is an important symbol of the Heroic Age of Antarctic exploration and, as such, has considerable historical and cultural significance. Some of

the earliest advances in the study of earth sciences, meteorology, flora and fauna in Antarctica are associated with the *Nimrod* Expedition which was based at this site. The history of these activities and the contribution they have made to the understanding and awareness of Antarctica give this Area significant scientific, technical, architectural, aesthetic and social values.

2. Aims and Objectives

The aim of the management plan is to provide protection for the Area and its features so that its values can be preserved. The objectives of the Plan are to:

- avoid degradation of, or substantial risk to, the values of the Area;
- maintain the historic values of the Area through planned restoration and conservation work which may include;
 - a. an annual 'on-site' maintenance programme
 - b. a programme of monitoring the condition of artefacts and structures, and the factors which affect them
 - c. a programme of conservation of artefacts conducted on and off site;
- allow management activities which support the protection of the values and features of the Area including;
 - a. mapping and otherwise recording the disposition of historic items in the hut environs
 - b. recording other relevant historic data.
- prevent unnecessary human disturbance to the Area, its features and artefacts through managed access to the *Nimrod* hut.

3. Management Activities

- A regular programme of restoration and preservation work shall be undertaken on the *Nimrod* hut and associated artefacts in the Area.
- Visits shall be made as necessary for management purposes.
- Control of the number of visitors.
- National Antarctic Programmes operating in, or those with an interest in, the region shall consult together with a view to ensuring the above provisions are implemented.

4. Period of designation

Designated under Measure XXII-2 (1998) for an indefinite period.

5. Maps

Map A: Cape Royds regional map. This map shows the location of the Area in relation to the existing SSSI No.1 and significant topographic features in the vicinity. Inset: shows the position of the site in relation to other protected sites on Ross Island.

Map B: Cape Royds Area map. This map shows the boundaries of the Area and the adjacent SSSI No.1. Also shown are the approaches, field camp and helicopter landing sites.

6. Description of the Area

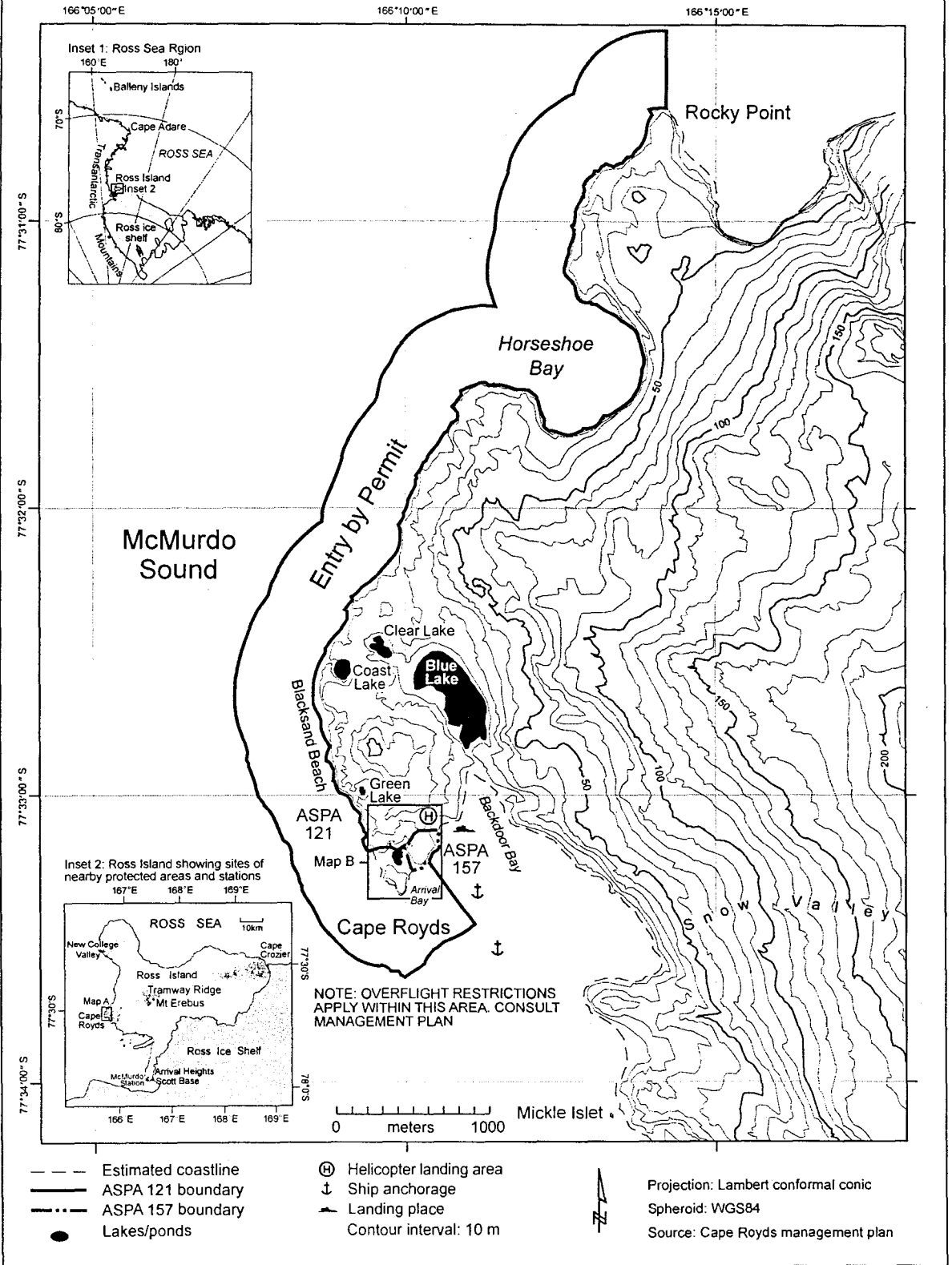
6(i) Geographical coordinates, boundary markers and natural features

Cape Royds is an ice free area at the western extremity of Ross Island, approximately 40 kilometres to the south of Cape Bird and 35 kilometres to the north of Hut Point Peninsula on Ross Island. The ice free area is composed of till covered basalt bedrock. The designated Area is located to the north east of Cape Royds adjacent to Backdoor Bay. It is immediately to the east of the existing SSSI No.1, an Adélie penguin rookery. The Area is centred on Shackleton's *Nimrod* expedition hut.

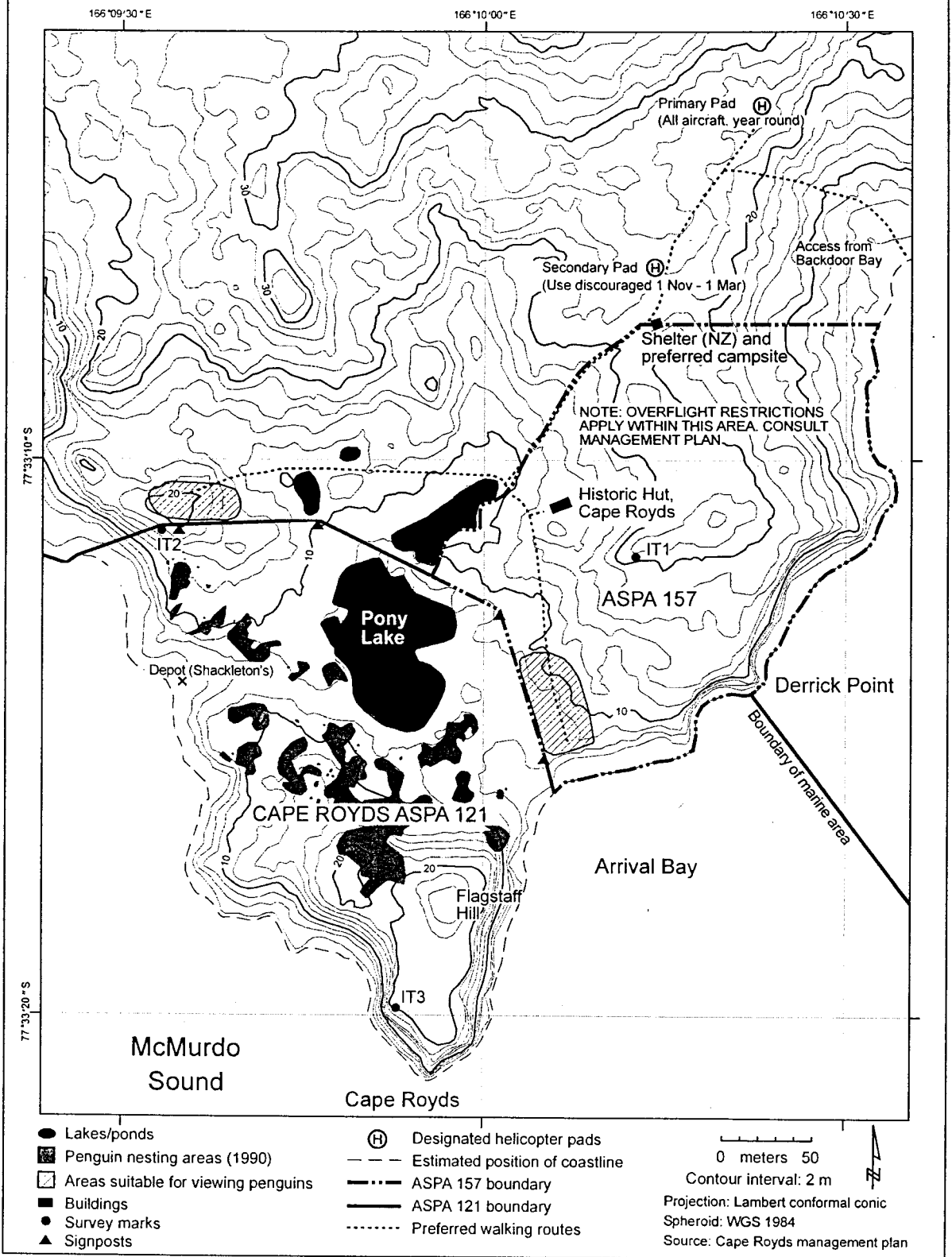
The boundaries of the proposed Area are:

- South and East, by the shoreline of the eastern coast of Cape Royds including Arrival and Backdoor Bays.
- West, by a line following the boundary of SSSI No. 1 from the coastline at Arrival Bay to a signpost (77°31'12.6"S, 166°10'01.3"E) and then continuing to follow the boundary of SSSI No. 1 for 40m in a NE direction.
- Northwest, by a line extending in a NW direction from the boundary of SSSI No. 1 and following the shore of a small lake to the NW of Pony Lake and then along a gully leading to a point at 77°33'7.5"S 166°10'13"E.
- North, by a line extended due east from a point at 77° 33' 7.5" S, 166° 10' 13" E to the coastline of Backdoor Bay.

Map A - Cape Royds, Antarctic Specially Protected Area 157 (SPA No. 27): regional topographic map



Map B - Cape Royds, Antarctic Specially Protected Area 157 (SPA No. 27): site topographic map



A major feature of the Area is Shackleton's *Nimrod* expedition hut located in a sheltered basin. The hut is surrounded by many other historic relics including an instrument shelter, supply depots, and a dump site. Numerous additional artefacts are distributed around the site.

Adélie penguins (*Pygoscelis adeliae*) from the adjacent rookery at Cape Royds often transit the Area. Skuas (*Catharacta maccormicki*) nest in the vicinity.

6(ii) Restricted zones within the Area

None.

6(iii) Structures within the Area

Apart from a Treaty plaque all structures within the Area are of historic origin.

6(iv) Location of other Protected Areas within close proximity

SSSI No 1 Cape Royds is immediately adjacent to this Area. SSSI No 2 Arrival Heights, Hut Peninsula is 32 kilometres south of Cape Royds ; and SSSI No 11 Tramway Ridge is 20 kilometres east of Cape Royds. SSSI No 10, New College Valley, and SPA No 20, Caughley Beach are located 35 kilometres north in the vicinity of Cape Bird. SPA No. 25, Cape Evans is 12 kilometres south, and SPA No. 26, Lewis Bay is 36 kilometres to the north east.

All sites are located on Ross Island.

7. Permit Conditions

Entry to the Area is prohibited except in accordance with a permit.

Permits shall be issued only by appropriate national authorities and may contain both general and specific conditions. A permit may be issued by a national authority to cover a number of visits in a season. Parties operating in the Ross Sea Area shall consult together and with groups and organisations interested in visiting the Area to ensure that visitor numbers are not exceeded.

General conditions for issuing a permit may include :

- activities related to preservation, maintenance, research and/or monitoring purposes;
- management activities in support of the objectives of this plan;
- activities related to tourism, educational or recreational activities providing they do not conflict with the objectives of this plan;
- the permit should be valid for stated period;
- a copy of the permit must be carried within the Area.

7(i) Access to and movement within the Area

Control of movement within the Area is necessary to prevent damage caused by crowding around the many vulnerable features within the Area. The maximum number in the Area at any time (including those within the hut) is: **40 people**

Control of numbers within the hut is necessary to prevent damage caused by crowding around the many vulnerable features within the hut. The maximum number within the hut at any time (including guides) is: **8 people**

Avoidance of cumulative impacts on the interior of the hut require an annual limit on visitor numbers. The effects of current visitor levels (approximately 1,000 per calendar year) suggest that an increase of more than 100% could cause significant adverse impacts. The annual maximum number of visitors is: **2000 people**

These limits have been based on current visitor levels and on the best advice available from conservation advisory agencies (which include conservators, archaeologists, historians, museologists and other heritage protection professionals). The limits are based on the proposition that any significant increase in the current level of visitors would be detrimental to the values to be protected. An ongoing monitoring programme of the effect of visitors is in place. This will provide the basis for future reviews of the management plan, in particular whether the current annual maximum number of visitors to the area is appropriate. This could result in the annual maximum number either increasing or decreasing.

Helicopter landings are prohibited within the Area as they have the potential to damage the site by blowing scoria and ice particles and to accelerate the abrasion of the hut and surrounding artefacts. Landings may be made at the designated landing sites (see Map B.). One site is approximately 50 metres to the north of the New Zealand shelter, outside the Area. A further designated site is located 100 metres further north east.

Vehicles are prohibited within the Area. Landings from the sea by boat, or vehicle travelling on the sea ice, may be made by approaching from Backdoor Bay.

7(ii) Activities which may be conducted within the Area

Activities which may be conducted within the Area includes:

- visits for restoration, preservation and/or protection;
- educational and/or recreational visits including tourism;
- scientific activity which does not detract from the values of the Area.

7(iii) Installation, modification and removal of structures

No new structures are to be erected in the Area, or scientific equipment installed, except for conservation or scientific activities that do not detract from the values of the Area as specified in 1. No historic structure relic or artefact shall be removed from the Area, except for the purposes of restoration and/or preservation and then only in accordance with a permit.

7(iv) Location of field camps

Use of the historic hut for living purposes is not permitted.

Camping is prohibited within the Area. An existing field camp site and a New Zealand shelter is located at the north western boundary of the Area (see Map B).

7(v) Restrictions on materials and organisms which may be brought into the Area

No living animals or plant material shall be introduced to the Area.

No food products shall be taken into the Area.

Chemicals which may be introduced for management purposes shall be removed at or before the conclusion of the activity for which they are required.

Fuel or other materials are not to be left in depots in the Area, unless required for essential purposes connected with the preservation and conservation of the historic structures or the associated relics. All such materials are to be removed when no longer required.

Use of combustion type lanterns is not permitted in the hut under any circumstances.

Smoking in the Area is not permitted.

7(vi) Taking or harmful interference with native flora and fauna

This activity is prohibited except in accordance with a separate permit issued by the appropriate national authority specifically for that purpose.

7(vii) Collection of anything not introduced by a visitor

Material may be collected and removed from the Area only for restoration, preservation or protection purposes, or scientific reasons consistent with the objectives of this plan, and only in accordance with a separate permit issued by the appropriate national authority specifically for that purpose.

Visitors must remove objects, substances and waste introduced by them during their time in the Area.

7(viii) Disposal of waste

All waste generated by work parties or visitors shall be removed from the Area.

7(ix) Measures that may be necessary to ensure that the aims and objectives of the plan continue to be met

The provision of information for visitors.

The development of skills and resources, particularly those related to conservation and preservation techniques, to assist with the protection of the Area's values.

7(x) Requirements for reports

Parties should ensure that the principal holder for each Permit issued submits to the appropriate authority a report describing the activities undertaken. Such reports should include, as appropriate, the information identified in the Visit Report Form suggested by SCAR. Parties should maintain a record of such activities and, in the Annual Exchange of Information, should provide summary descriptions of activities conducted by persons subject to their jurisdiction, in sufficient detail to allow evaluation of the effectiveness of the Management Plan. Parties should wherever possible deposit originals or copies of such reports in a publicly accessible archive to maintain a record of usage, to be used both for review of the Management Plan and in organising the use of the site.

Annex B
Decisions

Decision 1 (2002)

Naming and Numbering System for Antarctic Specially Protected Areas

The Representatives,

Noting the entry into force of Annex V to the Environmental Protocol on 24 May 2002;

Noting also the provision of Article 3(3) of Annex V that all SPAs and SSSIs designated as such by past Antarctic Treaty Consultative Meetings are hereby designated as Antarctic Specially Protected Areas (ASPAs) on the entry into force of Annex V, and shall be renamed and renumbered accordingly;

Recognising the naming and numbering system for ASPAs adopted by means of Resolution V (1996) and the need to update this system to include new protected areas adopted by subsequent ATCMs;

Decide:

1. That the naming and numbering system for ASPAs annexed to this Decision be adopted;
2. That all ASPAs adopted by the present, and any subsequent ATCM, be added to the list in consecutive order of adoption and be numbered accordingly.

Annex to the Decision 1 (2002):

Naming and numbering system for Antarctic Specially Protected Areas

No.	Antarctic Specially Protected Area name	Previous site number	Year adopted in Annex V format
101	Taylor Rookery, Mac. Robertson Land	SPA No. 1	1992
102	Rookery Islands, Holme Bay, Mac. Robertson Land	SPA No. 2	1992
103	Arderly Island and Odber Island, Budd Coast	SPA No. 3	1992
104	Sabrina Island, Balleny Islands	SPA No. 4	
105	Beaufort Island, Ross Sea	SPA No. 5	1997
	Cape Crozier, Ross Island	SPA No. 6 [redesignated SSSI No. 4]	
106	Cape Hallett, Victoria Land	SPA No. 7	
107	Dion Islands, Marguerite Bay, Antarctic Peninsula	SPA No. 8	
108	Green Island, Berthelot Islands, Antarctic Peninsula	SPA No. 9	
	Byers Peninsula, Livingston Island, South Shetland Islands	SPA No. 10 [redesignated SSSI No. 6]	
	Cape Shirreff, Livingston Island, South Shetland Islands	SPA No. 11 [redesignated SSSI No. 32]	
	Fildes Peninsula, King George Island, South Shetland Islands	SPA No. 12 [redesignated SSSI No. 5]	
109	Moe Island, South Orkney Islands	SPA No. 13	1995
110	Lynch Island, South Orkney Islands	SPA No. 14	2000
111	Southern Powell Island and adjacent islands, South Orkney Islands	SPA No. 15	1995
112	Coppermine Peninsula, Robert Island, South Shetland Islands	SPA No. 16	
113	Litchfield Island, Arthur Harbour, Anvers Island, Palmer Archipelago	SPA No. 17	
114	Northern Coronation Island, South Orkney Islands	SPA No. 18	
115	Lagotellerie Island, Marguerite Bay, Antarctic Peninsula	SPA No. 19	1992 / 2000
116	New College Valley, Caughley Beach, Cape Bird, Ross Island	SPA No. 20	1992/ 2000
117	Avian Island, off Adelaide Island, Antarctic Peninsula	SPA No. 21 [formerly SSSI No. 30]	
118	'Cryptogam Ridge', Mount Melbourne, Victoria Land	SPA No. 22	
119	Forlidas Pond and Davis Valley ponds, Dufek Massif	SPA No. 23	
120	Pointe-Geologie Archipelago, Terre Adélie	SPA No. 24	1995
121	Cape Royds, Ross Island	SSSI No. 1	
122	Arrival Heights, Hut Point Peninsula, Ross Island	SSSI No. 2	
123	Barwick Valley, Victoria Land	SSSI No. 3	
124	Cape Crozier, Ross Island	SSSI No. 4 [formerly SPA No. 6]	
125	Fildes Peninsula, King George Island, South Shetland Islands	SSSI No. 5 [formerly SPA No. 12]	
126	Byers Peninsula, Livingston Island, South Shetland Islands	SSSI No. 6 [formerly SPA No. 10]	
127	Haswell Island	SSSI No. 7	
128	Western shore of Admiralty Bay, King George Island	SSSI No. 8	2000

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No.	Antarctic Specially Protected Area name	Previous site number	Year adopted in Annex V format
129	Rothera Point, Adelaide Island	SSSI No. 9	1996
	Caughley Beach, Cape Bird, Ross Island	SSSI No. 10 [incorporated into SPA No. 20]	
130	'Tramway Ridge', Mount Erebus, Ross Island	SSSI No. 11	1995
131	Canada Glacier, Lake Fryxell, Taylor Valley, Victoria Land	SSSI No. 12	1997
132	Potter Peninsula, King George Island, South Shetland Islands	SSSI No. 13	1997
133	Harmony Point, Nelson Island, South Shetland Islands	SSSI No. 14	1997
134	Cierva Point and offshore islands, Danco Coast, Antarctic Peninsula	SSSI No. 15	1997
135	North-eastern Bailey Peninsula, Budd Coast, Wilkes Land	SSSI No. 16	
136	Clark Peninsula, Budd Coast, Wilkes Land	SSSI No. 17	2000
137	North-west White Island, McMurdo Sound	SSSI No. 18	
138	Linnaeus Terrace, Asgaard Range, Victoria Land	SSSI No. 19	1996
139	Biscoe Point, Anvers Island	SSSI No. 20	
140	Parts of Deception Island, South Shetland Islands	SSSI No. 21	
141	'Yukidori Valley', Langhovde, Lützow-Holmbukta	SSSI No. 22	2000
142	Svarthamaren, Mühlig-Hofmannfjella, Dronning Maud Land	SSSI No. 23	1999
118	Summit of Mount Melbourne, Victoria Land	SSSI No. 24	
143	Marine Plain, Mule Peninsula, Vestfold Hills, Princess Elizabeth Land	SSSI No. 25	
144	Chile Bay (Discovery Bay), Greenwich Island, South Shetland Islands	SSSI No. 26	
145	Port Foster, Deception Island, South Shetland Islands	SSSI No. 27	
146	South Bay, Doumer Island, Palmer Archipelago	SSSI No. 28	
147	Ablation Point-Ganymede Heights, Alexander Island	SSSI No. 29	
	Avian Island, off Adelaide Island, Antarctic Peninsula	SSSI No. 30 [redesignated SPA No. 21]	
148	Mount Flora, Hope Bay, Antarctic Peninsula	SSSI No. 31	
149	Cape Shirreff, Livingston Island, South Shetland Islands	SSSI No. 32 [formerly SPA No. 11]	
150	Ardley Island, Maxwell Bay, King George Island	SSSI No. 33	
151	Lions Rump, King George Island, South Shetland Islands	SSSI No. 34	2000
152	Western Bransfield Strait off Low Island, South Shetland Islands	SSSI No. 35	
153	Eastern Dallmann Bay off Brabant Island, Palmer Archipelago	SSSI No. 36	
154	Botany Bay, Cape Geology, Victoria Land	SSSI No. 37 [includes HSM No. 67]	1997
155	Cape Evans, Ross Island	SPA No. 25 [includes HSM Nos. 16 & 17]	1997
156	Lewis Bay, Mount Erebus, Ross Island	SPA No. 26 [designated a Tomb in 1981]	1997
157	Backdoor Bay, Cape Royds, Ross Island	SPA No. 27 [includes HSM No. 15]	1998
158	Hut Point, Ross Island	SPA No. 28 [includes HSM No. 18]	1998
159	Cape Adare, Borchgrevink Coast	SPA No. 29 [includes HSM No. 22]	1998

Decision 2 (2002)

Emblem of the Antarctic Treaty

Desiring to provide a clear identity to the work of the ATCM and its Secretariat;

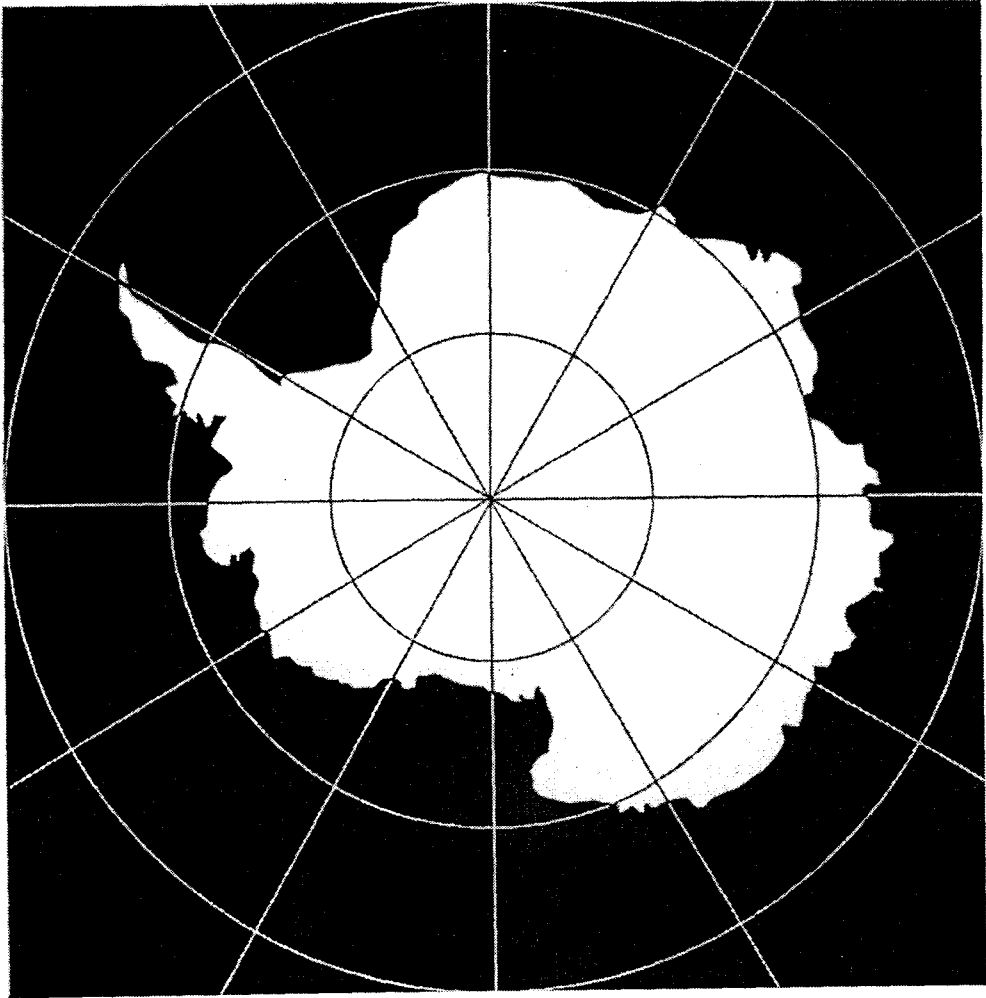
Conscious that there exists a design traditionally employed by the Antarctic Treaty parties to identify their work, but that the design has no formal status;

Believing that the adoption of such a design would enhance presentationally the work of the ATCM and its Secretariat when located in Buenos Aires;

Decide:

1. That the design annexed to this Decision shall constitute the formal emblem of the Antarctic Treaty.
2. That it may be used by:
 - The Secretariat of the Antarctic Treaty;
 - The host state of the ATCM or Special ATCM in the period of preparation for and during a Consultative Meeting;
 - By any other Consultative Party when hosting other meetings under the auspices of the Antarctic Treaty of its Environmental Protocol;
 - By others with the authority of the ATCM.
3. That the design shall be shown on the official Reports of the ATCM and may be employed at the premises of the Antarctic Treaty Secretariat, on its official means of transport, as well as on stationary, electronic communications, reports, flags, signs, etc.

Annex to the Decision 2(2002)
Emblem of the Antarctic



Decision 3 (2002)

The Status of ATCM Recommendation

The Representatives,

Conscious of the significant number of measures* adopted by previous Antarctic Treaty Consultative Meetings;

Desiring to clarify which of these measures, whether approved or not, still require action by the Parties;

Recognising that some of these measures are spent as a result of the passing of a specific event, or of time;

Recognising also that the review of measures is an ongoing process required to maintain an accurate record of the instruments of the ATCM, and their content if relevant;

Decide that,

- the measures listed in Annex A are spent, and, as such, these measures will require no further action by the Parties; and
- the Parties will continue the review of measures adopted at ATCM I to XXIV, on an informal basis intersessionally so that further consideration can be undertaken at ATCM XXVI concerning which other measures may be considered spent, superseded or otherwise obsolete.

*Note: measures previously adopted under Article IX of the Antarctic Treaty were described as recommendations up to ATCM XIX (1995).

Appendix to Decision 3(2002)

Spent recommendations

I-11 (Canberra, 1961)
Spent Consultative Parties to convene a meeting of experts in Antarctic radio communications

The Representatives recommend to their Governments:

1. that they convene as soon as practicable a meeting of specialists in Antarctic radio communications;
2. that this meeting of specialists should discuss the telecommunications facilities needed for scientific, technical and other purposes in the Treaty Area, and their use;
3. that the meeting should take into consideration:
 - a. the requirements of governments;
 - b. the viewpoint of the United Nations Specialized Agencies and other international organizations having a scientific or technical interest in Antarctic communications;
 - c. the relevant recommendations of the Communications Working Group of SCAR;
 - d. the experience of the various Antarctic expeditions;
4. that the meeting should examine and make recommendations regarding such matters as:
 - i. the routing required to meet demands of users most effectively;
 - ii. the modes of transmission;
 - iii. the power requirements for effective reception;
 - iv. the rationalization of schedules and the evaluation of priorities for traffic in normal and post blackout conditions;
 - v. new developments in the field of communications relevant to Antarctic requirements;
 - vi. emergency radio procedures;
 - vii. such other matters of an engineering or traffic nature as may be appropriate;
5. that the governments should consult regarding the date, place and definitive agenda of the meeting, and as to which Specialized Agencies and other internal organizations referred to in paragraph 3(b) should be informed of the meeting and be invited to send observers.

I-15 (Canberra, 1961) ATCM II
Spent

The Representatives recommend to their Governments that they accept the offer by the delegation of Argentina of the city of Buenos Aires as the seat of the second consultative meeting under Article IX of the Antarctic Treaty, to be held on a date mutually decided upon by the Participating Governments.

II-3 (Buenos Aires, 1962)
Spent Meeting of Antarctic radio communications specialists to be held between

1 May and 31 August 1963 The Representatives, taking into consideration Recommendation I-XI of the First Consultative Meeting concerning Antarctic radio communications, recommend to their Governments that the proposed meeting of specialists in Antarctic radio communications would take place between 1st May and 31st August 1963, on a date and at a place to be fixed.

II-5 (Buenos Aires, 1962)
Spent Consultative Parties to hold an Expert Meeting on logistics

The Representatives recommend to their Governments that in view of Recommendation I-VII of the First Consultative Meeting designed to achieve one of the objectives of the Antarctic Treaty, namely the creation of conditions necessary for carrying out scientific investigation, and in view of the logistic symposium organized by SCAR which is soon to take place:

- a. a meeting or symposium of experts should be held, to review the present state of knowledge acquired on the organization of expeditions, logistic support and transport, in order to evaluate such knowledge;
- b. consultations be held during the preparations for the next Consultative Meeting to fix a suitable date, place, organization and agenda for such meeting or symposium.

II-8 (Buenos Aires, 1962)
Spent

Consultative Parties to encourage cooperation with regard to the International Year of the Quiet Sun (1964/5)

The Representatives recommend to their Governments that they should encourage, by whatever means they consider appropriate, international cooperation and the exchange of scientific personnel, observations and results, in connection with their respective national programmes of Antarctic scientific investigation and research associated with the International Year of the Quiet Sun

II-10 (Buenos Aires, 1962)ATCM III
Spent

The Representatives recommend that their Governments accept the offer made by the Delegation of Belgium, to the effect that the Third Consultative Meeting under Article IX of the Antarctic Treaty be held in Brussels. This Meeting will be held on a date to be decided upon by agreement among the participating governments.

III-3 (Brussels, 1964)
Spent

Arrangements for the Expert Meeting on logistics to be considered at the ATCM IV preparatory meeting.

In view of the Recommendations by the First and Second Consultative Meetings (I-VII and II-V) concerning logistics. Taking into consideration the Logistics Symposium which took place at Boulder, Colorado, USA, in August 1962, under the auspices of the Scientific Committee on Antarctic Research (SCAR), and the Report on this Symposium published in 1963.

The Representatives recommend to their Governments that the organization, agenda, date and place for the inter-governmental meeting of experts, on the present state of knowledge about useful aspects of logistic activities in the Antarctic to which the above recommendations refer, be considered during the preparatory meetings for the Fourth Consultative meeting.

III-4 (Brussels, 1964)ATCM IV
Spent

The Representatives recommend to their Governments that they accept the offer of the Chilean Delegation to hold the Fourth Consultative Meeting under Article IX of the Antarctic Treaty, in Santiago, Chile. The Meeting shall take place at a date which will be agreed upon by the participating Governments.

III-6 (Brussels, 1964)
Spent

Consultative Parties to examine questions concerning expert meetings and come back to it during ATCM IV.

The Representatives, recognizing the importance of the problem raised during the examination of Item 7 (that is, the Item entitled 'Questions concerning Meetings of Specialists'), recommend their

governments to examine this question attentively before the Fourth Consultative Meeting and to consider including it on the Agenda of that Meeting.

III-9 (Brussels, 1964)
Spent

Agreed Measures to be used as guidelines until approved.

The Representatives recommend to their Governments that until such time as the Agreed Measures on the Conservation of Antarctic Fauna and Flora may become effective in accordance with Article IX of the Antarctic Treaty, these Agreed Measures as far as feasible be considered as guide lines in this interim period.

IV-20 (Santiago, 1966)
Spent

Consultative Parties to consider Recommendations IV-1 to IV-19 as guidelines until the Agreed Measures are approved.

The Representatives recommend to their Governments that, until such time as the Agreed Measures on the Conservation of Antarctic Fauna and Flora may become effective in accordance with Article IX of the Antarctic Treaty, the following Recommendations as far as feasible be considered as guide lines in the interim period. Recommendations IV-1 to IV-19 inclusive.

IV-25(Santiago, 1966)
Spent

Meeting in Japan on logistic cooperation.

The Representatives recommend to their Governments that they accept the offer made by the Government of Japan to hold a meeting on logistics in Japan in June 1968.

1. The meeting will be held in furtherance of principles and objectives of the Antarctic Treaty.
2. The meeting will be for a period of about one week and will be attended by experts in selected fields. The meeting will have the following terms of reference:
 - i. to discuss problems in the fields of Antarctic logistics specified in paragraph 3 below;
 - ii. to exchange views on possible solutions which have been tried recently;
 - iii. to examine critically new solutions which may be proposed in papers submitted at the meeting.
3. The fields for discussion will include aspects of:
 - i. design of buildings and building services, including waste disposal and water supply
 - ii. oversnow transport
 - iii. air transport, including airfields
 - iv. sea transport
 - v. safety measures
 - vi. new and urgent problems which Governments agree require discussion.

IV-26 (Santiago, 1966)
Spent

Consultative Parties to include an item on telecommunications in the agenda of ATCM V Considering the need to keep up to date the traffic system of Antarctic radio communications and to transmit observational data from the Treaty Area to the world system for the collection and transmission of meteorological information.

The Representatives recommend to their Governments that, before the Consultative Meeting scheduled to take place in Paris in 1968, they consider including in the Agenda an examination of the Recommendations made by the Washington Meeting on Telecommunications in 1963, in the light of conditions prevailing in 1968.

IV-28 (Santiago, 1966) ATCM V

Spent

The Representatives recommend to their Governments that they accept the offer of the French Delegation to hold a Consultative Meeting under Article IX of the Antarctic Treaty in Paris in 1968, on a date to be agreed upon by the Consultative Governments.

V-1(Paris, 1968)

Spent

Consultative Parties to issue stamps to commemorate the Tenth Anniversary of the Antarctic Treaty.

The Representatives recommend to their Governments:

- 1) that, on the occasion of the Tenth Anniversary of the entry into force of the Antarctic Treaty, each Consultative Party should issue a commemorative postage stamp during 1971;
- 2) that this stamp should bear, in the language or languages of each issuing country, the following words: 'Antarctic Treaty 1961-71';
- 3) that the most prominent feature of the stamp should be the Antarctic Treaty emblem representing a map of Antarctica, which appears on the official documents of Consultative Meetings;
- 4) that any additional matter should be consonant with the provisions and the spirit of the Antarctic Treaty;
- 5) that the denominations of the stamp should remain at the discretion of each issuing country.

V-8 (Paris, 1968)

Spent

Consultative Parties to study draft CCAS before ATCM VI

The Representatives, Having had a preliminary exchange of views at the Fifth Consultative Meeting on the draft Convention for the Regulation of Antarctic Pelagic Sealing annexed to the Final Report of the Meeting [not reproduced];

Recognizing the need to study the preparation of such a Convention;

Recommend to their Governments that, before the next Consultative Meeting, they study the draft Convention with a view to its consideration at that Meeting.

V-9 (Paris, 1968)

Spent

ATCM VI

The Representatives recommend to their governments that they accept the offer by the Delegation of Japan to hold the Sixth Consultative Meeting under Article IX of the Antarctic Treaty in Tokyo on a date in 1970 to be mutually decided upon by the Consultative Governments.

VI-15 (Tokyo, 1970) ATCM VII

Spent

The Representatives, Recommend to their Governments that they accept the offer by the Delegation of New Zealand to hold the Seventh Consultative Meeting under Article IX of the Antarctic Treaty in Wellington, on a date in 1972 to be mutually decided upon by the Consultative Governments.

IX-3(London, 1977)

Spent

Consultative Parties to collect data on Antarctic tele-communications, to exchange these among themselves, to ask SCAR for advice and to arrange for another Expert Meeting.

The Representatives, Considering that requirements in the field of telecommunications as regards collection and dissemination of meteorological data, and the need for scientific, administrative and

operational traffic have developed substantially since the second telecommunications meeting of experts of the Consultative Parties held in Buenos Aires in 1969;

Considering that the implementation of Recommendation VI-1 and VII-7, and participation in the programs of the World Meteorological Organisation, particularly the World Weather Watch, require a thorough review and improvement of the network operating in the Antarctic;

Recommend to their Governments that they:

1. Compile comprehensive data, each for its own part, on the types of traffic, modes of transmission, timing, frequencies of their telecommunications schedules and current equipment of their telecommunications programmes in the Antarctic, as well as on projects in the process of implementation and proposed improvements, in particular by designating, where appropriate, stations capable of replacing others in the event of breakdown;
2. Forward all such data to each of the other Consultative parties via diplomatic channels on the one hand and on the other by direct dispatch to the departments concerned;
3. Arrange for a meeting of telecommunications experts to be held, on the initiative of the Government of the host country, before the Tenth Consultative Meeting, to analyze the data thus compiled, suggest desirable measures of harmonization and put forward recommendations on improvements to be made in the operation of the telecommunications network in the Antarctic;
4. Request SCAR through their National Antarctic Committees to undertake, at the earliest opportunity, a study of the most recent applications of science and technology to the specific problems of the Antarctic in the field of propagation of radio waves, and to pass on its conclusions to the Consultative Parties prior to their Tenth Meeting or if necessary to the next Consultative Meetings.

X-9 (Washington, 1979)
Spent

Consultative Parties to thank the Antarctic scientific community and to consider ways of commemorating the 20th anniversary of the Antarctic Treaty

The Representatives,

Noting that the Tenth Antarctic Treaty Consultative Meeting marks the twentieth anniversary of the signature in Washington of the Antarctic Treaty and that the Eleventh Consultative Meeting in Argentina will mark the twentieth anniversary of its entry into force;

Recalling the second preambular paragraph of the Antarctic Treaty in which it is recognized that is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord;

Conscious of:

- a) the responsibility assumed by the Consultative Parties for the Protection of the environment and the wise use of the Treaty area;
- b) the increased understanding of the Antarctic and of its relationship to the world as a whole that has resulted from the endeavours of the Antarctic scientific community;
- c) the benefits derived from the coordination of Antarctic scientific research through the Scientific Committee on Antarctic Research (SCAR), its subsidiary institutions and from its cooperation with other international organizations having a scientific or technical interest in the Antarctic; and
- d) the value of the scientific advice from SCAR, requested by their Governments through their respective National Antarctic Committees, in connection with the development of the Antarctic Treaty system;

Recommend to their Governments that:

I. Scientific research.

Through their respective National Antarctic Committees, or the offices administering their Antarctic research programmes, as appropriate, they express their gratitude to the members of the Antarctic scientific community, past and present, and to SCAR for the devoted service which they have given to the achievement of a better understanding of the Antarctic and to the development of the Antarctic Treaty System;

II. Commemoration of the twentieth anniversary of the entry into force of the Antarctic Treaty.

1. They consider suitable ways of commemorating the twentieth anniversary of the entry into force of the Antarctic Treaty, including the possibility of issuing a commemorative postage stamp during 1981 on the lines indicated in Recommendation V-1;
2. Any commemorative event should be consonant with the provisions and spirit of the Antarctic Treaty.

XI-2 (Buenos Aires, 1981)
Spent

Consultative Parties to seek the earliest possible entry into force of CAMLR and to facilitate early operation of bodies for which CCAMLR provides

The Representatives,

Recalling the responsibilities of the Consultative Parties regarding the conservation of Antarctic marine living resources;

Recalling further the history of actions taken by Consultative Parties concerning protection of the Antarctic ecosystem, including in particular, Recommendations III-VIII, VIII-10, VIII-13, IX-2, IX-5 and X-2;

Welcoming the conclusion of the Convention on the Conservation of Antarctic Marine Living Resources at a diplomatic conference held in Canberra, Australia in May 1980 and the signature of that convention, also in Canberra, Australia in September 1980;

Noting that a meeting is to be held later this year in Hobart, Tasmania to consider steps to facilitate the early operation of the Commission, the Scientific Committee and the Executive Secretariat to be established under the Convention on the Conservation of Antarctic Marine Living Resources,

Recommend to their Governments that:

1. They seek the earliest possible entry into force of the Convention on the Conservation of Antarctic Marine Living Resources; and
2. They take all possible steps to facilitate the early operation of the bodies to be established by the Convention on the Conservation of Antarctic Marine Living Resources upon entry into force.

XIV-9(Rio de Janeiro, 1987)
Spent

Consultative Parties to convene an Expert Meeting on air safety.

The Representatives,

Recalling Recommendation 1-X;

Recognizing the importance of safe air operations in the Antarctic and:

- i. that there is a wide range of problems in air operations, which are becoming more important and urgent with increasing activity;

- ii. that the principal body of knowledge and experience of Antarctic air operations, and its current problems, lies with the operators of national Antarctic programmes;

Recommend to their Governments that:

1. Arrangements be made for a meeting of experts in accordance with Recommendation IV-24, to be held well in advance of the Fifteenth Consultative Meeting, at a time and place to be decided through diplomatic channels, and that the host Government for the XVth Consultative Meeting should initiate the necessary consultations. Delegations from Consultative Parties to the meeting should include experts with direct experience in Antarctic operations. In the course of preparing for the meeting, consideration shall be given to the invitation of ICAO and other experts to attend the meeting in accordance with paragraph 1 of Recommendation IV-24 (e.g. WMO, ITU);
2. The terms of reference for the meeting shall be to provide for:
 - i. avoidance of inter-operator air-incidents;
 - ii. mutual assistance in the course of Antarctic operations, including medical evacuations;
 - iii. coordinated measures to improve search and rescue procedures;
3. In the fulfillment of these terms of reference, the meeting shall have regard to:
 - i. existing systems for safe air operations;
 - ii. means of mutually coordinating air traffic movements in Antarctica;
 - iii. means of ensuring adequate communications between operators originating air traffic movements, between aircraft and stations in the vicinity of their operations and between aircraft, including consideration of the possible advantages of satellite communications and adoption of predetermined radio frequencies;
 - iv. means of rapidly initiating search and rescue operations, including the advantages of using common dedicated calling frequencies and of coordinating subsequent operations;
 - v. how best to ensure that all operators in the Antarctic are aware of air-operational safety requirements and search and rescue procedures;
 - vi. air operations from ships.
4. In order to facilitate the work of the Meeting they provide relevant information to the host government, preferably 3 months in advance of the meeting, for circulation to other Consultative Parties. An indicative list of such information is set out in the Annex to this recommendation.
5. The report of the meeting be circulated to all Consultative Parties and be referred for consideration at the XVth Consultative Meeting in accordance with Paragraphs 3 and 4 of Recommendation IV-24.

Annex

The following information is an indicative list of the relevant information to be circulated to all Consultative Parties prior to the Meeting of Experts in Air Safety in Antarctica as recommended at the XIVth Consultative Meeting:

- i. current areas of air operation;
- ii. period and frequency of operation;
- iii. types of aircraft used and their navigation and communication equipment;
- iv. operating altitudes and ranges;
- v. other airborne devices (e.g. balloons, rockets) or other uses of air space in Antarctica
- vi. runway length, width, slope, orientation, surface type and condition, load capacity and markings;
- vii. Radio Direction Finding and Distance Measuring equipment;

- viii. navigation aids, including beacon power and frequencies and communications equipment;
- ix. features in the vicinity of landing facilities, which could be hazardous to aircraft;
- x. prevailing weather conditions of significance to air operations in the vicinity of landing facilities;
- xi. service facilities;
- xii. type and specification of fuel used;
- xiii. operating times of landing and communication facilities;
- xiv. available air navigation charts and published visual and instrument approach procedures;
- xv. medical facilities available, including medical personnel, and whether stations have trained search and rescue personnel.

XV-22(Paris, 1989)
Spent

Consultative Parties to issue a commemorative stamp on the 30th anniversary of the Antarctic Treaty.

The Representatives,

Recommend to their Governments that:

1. On the occasion of the Thirtieth Anniversary of the entry into force of the Antarctic Treaty, each Consultative party should issue a commemorative stamp (or stamps) on a common date in 1991 (e.g.. 23 June 1991).
2. The stamp (or stamps) should bear, in the language or languages of each issuing country, the following words: 'Antarctic Treaty 1961-1991'
3. Consideration be given to the themes of protecting the Antarctic environment and international cooperation in Antarctic scientific research for the most prominent features of the design.
4. There should be incorporated into the design of the stamp (or stamps), the Antarctic Treaty emblem representing a map of Antarctica which appears on the official documents of Consultative Meetings.
5. Any additional matter should be consonant with the provisions and the spirit of the Antarctic Treaty.
5. The number of stamps to be issued and the denominations of the stamp or stamps should remain at the discretion of the issuing country.

XVI-13 (Bonn, 1991)
Spent

Intersessional meeting to be held to make proposals on tourism and non-governmental activities to ATCM XVII.

The Representatives,

Bearing in mind that the XVth Consultative Meeting agreed that a comprehensive review of tourism and non-governmental activities was required;

Noting that the Protocol on Environmental Protection to the Antarctic Treaty and its Annexes apply to tourist and non-governmental activities in Antarctica;

Recalling that the XIth Special Consultative Meeting asked the XVIth Consultative Meeting to address the issue of tourism and non-governmental activities;

Acknowledging that the Protocol constitutes the framework for further progress in Antarctic environmental protection;

Concerned about the possible effect of increased tourism and non-governmental activities in Antarctica;

Conscious of the need to ensure that the presence of tourists and other visitors in Antarctica be regulated so as to limit adverse impacts on the Antarctic environment;

Recommend to their Governments that:

1. An informal meeting of the Parties be convened with a view to making proposals to the XVIIth Consultative Meeting on the question of a comprehensive regulation of tourist and non-governmental activities in Antarctica in accordance with the Protocol and taking into account the proposals made at the present XVIth Consultative Meeting, including proposals for a future Annex to the Protocol on Environmental Protection;

2. Prior to the convening of that meeting and in order to ensure due preparation of its work, proposals should be prepared by them taking into account the list of issues stated below, which meeting should, inter alia, primarily address:

a. environmental issues implementation of the Protocol on Environmental Protection to the Antarctic Treaty and its Annexes

- number of tourists / carrying capacity
- homologation of standards relating to vessels
- permanent infrastructure for tourists
- concentration / dispersal of tourist activities
- access to unexplored areas

b. operational issues

- notification and expansion of information to be exchanged
- system for granting permission to visit stations
- self sufficiency
- insurance, including search and rescue insurance
- information obligation of Parties
- preparation and training of tour guides, and visitors' guides
- examination of the need for specific kinds of control and monitoring
- requirements for organizational procedures

3. The meeting shall begin its work in Venice on 9 November 1992.

4. Representatives of the WTO, IUCN, IAATO, IMO, ASOC, PATA, SCAR and COMNAP be invited to attend the Meeting as observers.

Annex C
Resolutions

Resolution 1 (2002)

Review of Conservation Status of Antarctic Species

The Representatives,

Noting that the provisions of Article 8 of the Annex II to the Environmental Protocol require that the Consultative Parties keep under continuing review measures for the conservation of Antarctic fauna and flora,

Recalling Resolution 2(1999), which had charged SCAR with a review of the list of Specially Protected Species included in Appendix A to the Environmental Protocol,

Taking into account that the CEP has noted the need to assess the status of native species to justify designation as Antarctic Specially Protected Species, on the basis of IUCN criteria used to evaluate designation as (at least) “Vulnerable” in the IUCN Red List scheme,

Aware that SCAR, through its expert bodies has the necessary data and expertise to provide independent scientific advice to the ATCM in this field,

Recommend that:

SCAR be requested to:

- assist the ATCM in reviewing (in close cooperation with IUCN) of the current status of all species which occur in the Antarctic Treaty Area, included as “vulnerable”, “endangered” or “critically endangered” in the IUCN Red List; taking into consideration regional differences in status;
- conduct a similar review for those species which occur in the Antarctic Treaty Area included in the IUCN Red List as “data deficient” or “near threatened”;
- undertake, as a later step, a further assessment of all other indigenous species not included in such categories of the IUCN Red List, and
- report to the CEP on progress on these issues.

Resolution 2 (2002)

Revision of Antarctic Specially Protected Area Management Plans

The Representatives,

Welcoming the entry into force of Annex V to the Environmental Protocol on 24 May 2002;

Recalling Resolution 1 (1998) on the allocation of responsibilities for revision of protected area management plans;

Noting that the management plans for many ASPAs have yet to be revised in the format required by Annex V;

Urge:

Those Parties that have yet to revise management plans in the format of Annex V take steps to do so at the earliest opportunity, with a view to their submission at CEP VII.

Resolution 3 (2002)

Support for CCAMLR and action to combat Illegal, Unreported and Unregulated Fishing for *Dissostichus* spp (toothfish)

The Representatives,

Recalling ATCM XXIII Resolution 3 (1999), SATCM XII Resolution 2 (2000) and ATCM XXIV Resolution 2 (2001) providing support for the Commission for the Conservation of Antarctic Marine Living resources (CCAMLR) in its continued efforts aimed at eliminating illegal, unreported and unregulated (IUU) fishing in the Convention Area;

Noting with appreciation the Report of CCAMLR to ATCM XXV; and

Recognising that illegal, unreported and unregulated fishing threatens the conservation objectives of the Convention on the Conservation of Antarctic Marine Living Resources and thus is undermining the integrity of the Antarctic Treaty System;

Recommend that:

All parties to the Antarctic Treaty which are Party to the Convention on the Conservation of Antarctic Marine living Resources, but not yet members of its Commission, take steps to implement all relevant Conservation Measures adopted by CCAMLR, in particular Measures relating to the *Dissostichus* Catch Documentation Scheme; and

Parties to the Antarctic Treaty which are not Party to the Convention on the Conservation of Antarctic Marine Living Resources but which nevertheless are involved in the harvesting and trade of toothfish, consider acceding to the Convention and, in the meantime, agree voluntarily to implement the *Dissostichus* Catch Documentation Scheme.

PART III

**Opening Addresses and Reports
from ATCM XXV**

Annex D
Opening Addresses

**Address by HE Leszek Miller, the Prime Minister,
to the XXV Antarctica Conference
(Delivered by Prof. Tadeusz Iwiński, Secretary of State at the Chancellery
of the Prime Minister)**

Excellencies,
Distinguished Guests,
Ladies and Gentlemen,
Senoras y Senores,
Mesdames et Messieurs,
Дамы и Господа.

It is really a great pleasure for me also as a scholar to present the address of Mr Leszek Miller, the Prime Minister of Poland.

The Antarctica Treaty, as we all know, was signed in Washington forty-three years ago, in 1959. Antarctica had become a demilitarized zone protected from the negative consequences of man's activities to serve the world's scientific community in its research designed to bring multiple benefits to mankind. Taking due account of the specific and unique natural environment of the continent, the Treaty set out to establish mechanisms of cooperation there between States-Parties in a spirit of peace and mutual understanding.

For more than four decades now have the signatories to the Treaty been responsible for the management of Antarctica's natural resources, protecting its fauna and flora, running diverse research projects and organising visits there by touring parties. They largely relied on the support of many international scientific institutions, non-governmental organisations and those brought into being on the initiative of many countries. It would be hard to overrate the importance of their work and achievement in this field of endeavour.

Poland for decades has been contributing to the research work of the international scientific community. I would like to remind you we have great tradition in this field. Let me recall the names of Polish scientists Arctowski and Dobrowolski who, as early as the end of 19th century took part in the Belgian expedition. Already in 1961 Poland became a State-Party to the Antarctica Treaty and in 1977 gained the status of member of the Antarctic Treaty Consultative Meeting. I am also proud and happy to emphasize that Poland's own Henryk Arctowski yearlong station in Antarctica is now into its 25th year. By the way the non-permanent station named after Dobrowolski, established by the Polish Academy of Sciences in the Bunger Oasis, dates back to 1958.

The Republic of Poland has been actively contributing to international efforts designed to surmount global problems afflicting mankind. Poland in its role as the host of this jubilee XXV Meeting proves that even a country struggling with its domestic transformations and currently facing another important challenge to meet the requirements to become member of the European Union, can and, indeed, should be alert to problems of the modern world. For nothing can relieve the international community of its responsibility for the assets, which belong to this, and future generations.

Today, at the beginning of the 21st century we focus particular attention on ecology, environmental protection and global warming, resulting among others, in so called greenhouse effect. The latter is the number one problem facing mankind. Its disturbingly grave consequences are visible also in Antarctica. The Consultative Meeting of States-Parties to Antarctica Treaty is therefore the appropriate forum in which to discuss this and related themes of paramount importance for the future of our globe. We should also learn the lessons of the recent Johannesburg summit on the sustainable development.

This Meeting in Warsaw is being held at a time when the world is still recovering from the shock of the 11 September attack. Tomorrow is the anniversary of this tragic event. Sadly, cruel and barbarous acts stemming from human beings' tragic inability to peacefully sort out their differences are becoming increasingly frequent today. Therefore, the more than forty-year experience of fruitful and peaceful cooperation within the framework of the Antarctic Treaty offers an edifying and precious example of how much can be achieved by humanity through dialogue, compromise and concerted action.

Ladies and Gentlemen, welcome to Poland. I wish you fruitful debates and landmark decisions to make more efficient the cooperation of the international community in a region of great importance for the future of our global village.

I do hope that you will take with you home happy memories of your stay in Warsaw.

Thank you

Gracias,

Merci,

Спасибо.

Address by HE Włodzimierz Cimoszewicz Minister of Foreign Affairs of Poland

Mr. Chairman,
Distinguished Delegates,

It has been a great honor for Poland to host and chair the 25th Jubilee Session of the Antarctic Treaty Consultative Meeting. I have no doubt that the results of this meeting will make a positive contribution to our joint efforts to protect Antarctica and preserve its beautiful and diverse ecosystem for future generations. I personally appreciate this opportunity to address the closing session of such an important forum and share with you the views of the Polish Government.

For more than four decades, the Government of Poland has attached great importance to the Antarctic Treaty System and its successful operation. We support both: further development of scientific research in the region of Antarctica and the preservation of its present legal status. This is the only way to guarantee the peaceful and fruitful use of Antarctica in the interest of the whole mankind.

Poland has had a long record of participating in scientific exploration of Antarctica. We have also been involved in most aspects of Antarctica co-operation.

We have always taken an active part in negotiating the most important conventions and agreements related to this region, thus having our share in solving its problems. Poland is and will continue to be firmly present in the Antarctica's affairs.

Ladies and gentlemen,

Very few international instruments can be compared with the Antarctic Treaty and the whole Antarctic System, established on the basis of this Treaty. Treaties, in most cases, deal with various issues related to trade, borders, defense and other matters.

The Antarctic Treaty with its protocols is different, because it focuses on scientific investigation and protection of the Antarctic environment and dependent and associated ecosystems.

From the very beginning the implementation of the Antarctic Treaty has involved a great deal of consensus diplomacy and continuous cooperation. This is also an important achievement of Parties to the Treaty.

The effectiveness of the Antarctic Treaty lies, among other things, in its flexibility and adaptability to changing circumstances.

That is why we attach so great importance to Antarctic Treaty Consultative Meetings, which propose measures and adopt decisions and recommendations, thereby shaping the development of the Antarctic Treaty System.

The task to which you have dedicated so much time and energy during the Warsaw Meeting was the establishment of a Permanent Secretariat of the ATCM. You have made a great progress on this matter. I hope that all remaining legal and financial issues which are so crucial for the effectiveness of the Secretariat will be successfully agreed upon before the next Consultative Meeting.

Ladies and Gentlemen,

The beginning of the 21st Century brings new challenges in politics as well in science. In the Johannesburg Declaration, adopted by the World Summit on "Sustainable Development", on September 4, 2002, the international community recognized yet another time the direct link between the sustainable development process and the need to protect natural resources.

In this context I would like to express my appreciation of the work done at the 25th ATCM by the Committee for Environmental Protection, which has marked further progress in the area of preserving Antarctica's environment and its living resources, in full accordance with the Madrid Protocol on Environmental Protection.

Remarkably, this year's CEP Meeting has handled the largest number of Information and Working Papers in its history. This issue was discussed in relation to the complex question of liability for damages caused to the Antarctic environment.

That issue is becoming more and more important, given the fact that the popularity of tourism and its impact upon the Antarctica region is increasing.

Your deliberations on these matters will hopefully lead to the establishment of a mechanism for the protection of the environment in the area covered by the Antarctic Treaty against activities, which might be detrimental to the Antarctic ecosystems.

Let me also highlight the importance of other legal, organizational and operational aspects of the Antarctic Treaty System, which have been reviewed here in Warsaw.

Given the enormous number of challenges faced by the international community today, we must maximize the effectiveness of our joint pursuit of the Treaty's goals and principles, such as freedom of scientific research, exchange of personnel and information, cooperation among the Contracting Parties.

I believe the 25th ATCM marks another stage in our campaign to preserve the unique beauty of the southernmost region of our globe intact, so that the future generations could also benefit from it.

We live on the same planet and it is our responsibility to find solutions to the common dangers we are exposed to. The founders of the Antarctic Treaty understood this significant fact already a long time ago. We - their heirs and successors - still have a great deal of effort to make in order to deserve the words of recognition and gratitude from our children and grandchildren

Finally, let me thank you all for the excellent work you have done. I do hope that this Warsaw ATCM will remain in your memory as a successful one, full of constructive and useful exchanges of views and opinions, sharing interesting ideas and proposals, as well as adopting important decisions.

I believe that you will also remember the warmth and friendliness of the Polish people, you met during your visit to my country. Whenever you choose to come back to Poland in any capacity, you will wholeheartedly be welcome.

Thank you for your attention.

**Opening statement by Dr hab. Sławomir Dąbrowa
Undersecretary of State Ministry of Foreign Affairs,
Head of the Polish Delegation**

It is a great privilege for me to be the first speaker and to welcome you in Warsaw on behalf of the Polish Government.

We are very honored to host the 25th Antarctic Treaty Consultative Meeting.

I would like to wish all delegates much success at this important gathering, as well as the enjoyable stay in Poland.

I am convinced that this Warsaw meeting, thanks to your hard work during the next week will mark further progress in implementing the goals and principles of the Antarctic Treaty.

My country is especially delighted that this is happening exactly 25 years after the first Polish all-year-round polar station was opened on King George's Island in 1977.

This 25th ATCM is taking place at the time of increasing global dangers and enormous challenges such as pollution, depletion of the ozone layer, climate change and many other, caused also by human activity.

Our deliberations at the present Meeting are closely related to the worldwide discussion, animated recently by the summit in Johannesburg, on topics such as globalization, sustainable development and other global problems, which the international community is trying to solve.

One of them is international terrorism which I mention also because tomorrow the world will commemorate the first anniversary of the horrifying terrorism attacks on the United States.

The agenda of the 25th ATCM contains a number of important issues, whose solution may have a crucial impact on the functioning of the Antarctic Treaty System.

Let me briefly mention 3 of them.

1. For many years, the focal point of most discussions held at our meetings was the establishment of the Antarctic Treaty Secretariat. Today, we are all convinced of the need for a better organisational support of the Antarctic cooperation.

A qualitative improvement of the co-ordination of our joint efforts within the framework of the Treaty can be achieved only by establishing a permanent Secretariat.

It is the time to solve this issue by prompt adoption of a legal measure, according to Article IX of the Treaty.

The parallel step is to insure that the Secretariat's activity will be efficient. This needs consensus regarding its legal status, exact functions and, last but not least, its financing.

In this context I would like to express my appreciation on the work done at the meeting held in Buenos Aires earlier this year.

2. For the last few years, the Consultative Meetings have marked much progress in the important area of environment protection in the Antarctic to which we have consistently attached utmost attention.

The implementation of the Environmental Protection Protocol and the activity of the Committee for Environmental Protection as a whole, serve as a foundation for working out optimal approaches to this problem.

The entire international community is under the obligation to protect Antarctic area as a natural reserve to peace and science.

The Consultative Parties play the particular role in this process, which is the result of having at their disposal all the necessary instruments to ensure that Antarctic environment remains unspoiled.

3. The 25th should also mark progress on the complex question of liability for damage caused the Antarctic environment.

Only the viable liability regime might enforce full compliance with the provisions of the Madrid Protocol and would provide us with means to assigning responsibility for damages arising from the activities taking place in the Antarctic Treaty area.

Such a regime will be a clear message to the international community that protection of the environment is indeed of paramount importance.

4. Finally, let me remind that today more than forty nations are engaged in scientific activity in the Antarctic. Nevertheless, this part of the world is plenty of unrevealed secrets, still to be explored.

More than ever, international co-operation is necessary to preserve the Antarctic as an area of peace, harmony and mutual assistance, devoted to the purpose of science and research.

I am convinced this gathering will contribute to achieve these goals.

I hereby declare the 25th ATCM open.

**Opening speech on behalf of the Delegation of Bulgaria,
delivered by Ms. Katya Todorova on Sept. 10, 2002**

Mr. Chairman,

On behalf of the Bulgarian delegation allow me to congratulate you for your election and that of your assistants to their various posts.

I would like to assure you of our full cooperation in order to make sure this meeting becomes a successful one.

I would particularly like to thank the Polish Government for having so wonderfully organized the XXV Antarctic Treaty Consultative Parties Meeting and for the excellent facilities we have been provided to carry out our task.

**Opening address of Ambassador Luchino Cortese,
Head of the Italian Delegation to the XXV ATCM**

Mr Chairman,

On behalf of my Government I wish to congratulate you on your election as chairman of this XXV Meeting of the Antarctic Treaty Consultative Parties.

Together with the Italian Delegation I also wish to express our gratitude to the Polish Government for its hospitality in the beautiful city of Warsaw, for the excellent preparation of our work and our discussions.

During this meeting we hope that agreement will be reached on a number of issues still pending, in particular the important issue of liability. We would also welcome the completion of the corresponding annex to the Environmental Protocol within a short time frame.

Italy is deeply committed to the aims and the principles of the Antarctic Treaty and is convinced of the importance of cooperation in Antarctic activities. In this context, the establishment of a permanent Secretariat of the Antarctic Treaty is undoubtedly going to increase and improve Antarctic cooperation in a number of fields. The establishment of the Secretariat is hopefully becoming a closer target and we look forward to a closer cooperation among the partners as well as between the Secretariat and the CEP in the frame of the Antarctic Treaty System. This will certainly improve the efficiency of the system by making easier the exchange and the flow of information and the organization of the meetings.

This year Italy completed its XVII Antarctic campaign, during which several important objectives were attained. Two in particular are worth mentioning:

1. In the EPICA project, the European deep ice drilling project, a depth of over 2,800 m. was reached. The ice drilled is the oldest ice ever brought to the surface and its age is close to half a million years. Drilling will continue in the next campaign and will probably reach the bedrock, thus completing a history of climate going back to about half a million years.

2. Another objective reached at the same site of Dome C has been the completion of the construction of the Italian-French Research Station of Concordia; in the next campaign the station will be equipped with accommodation and scientific equipment.

In the last 2001-2002 campaign the Italian Antarctic Programme was carried out with the participation of about 250 people, between scientific and logistic personnel. The majority of them worked at the Research Station of Terra Nova Bay (TNB) in the Ross Sea Area and in the "Dome C" area on the Antarctic Plateau, where the EPICA Project and the construction of the Italian-French Station of Concordia are in progress.

Antarctica is unique in several ways. It is a continent where scientific and logistic cooperation are vital; it is unique in allowing possibilities of performing research work which would not be possible elsewhere; it, therefore, allows and demands a very high level of political cooperation.

Mr Chairman, I trust that in these two weeks, under your leadership, we shall make progress in the many questions in front of us.

Thank you.

Speech by the Representative of the Uruguayan Delegation

Our delegation wishes to congratulate the Chairman of this Consultative Meeting for his appointment, while thanking at the same time the Government and the People of Poland for their kind hospitality and the generous setting to hold our meeting.

This XXV Consultative Meeting represents a very special milestone along the development path of the Antarctic Treaty System. That is why its agenda contains issues, such as the Secretariat, which seek to deepen and enhance this balanced international cooperation framework, which in turn enables and fosters a very wide research spectrum in an area dedicated to peace.

Thus, Uruguay wishes to express its staunch and encouraging wish for hope regarding the continuous evolution of the Protocol on Environmental Protection to the Antarctic Treaty, as an understanding and harmonious tool for the environmental protection of Antarctica.

The entry into force of Annex V for Protected Areas is an important step of this evolution, by underpinning the generic environmental protection framework with a specific precautionary regime based upon the value of the good to be protected, which needs to be determined in order to adopt the appropriate measures, i.e., basically to know the status of the environment.

Regarding tourism in Antarctica, we wish to mention the positive advertisement effect of the Protocol, through its dissemination to the Antarctic visitors. This contributes to the awareness of the international community vis-à-vis the value of the continent as a laboratory of the global changes and as a natural reserve with gratifying aesthetic values for human beings.

As we speak, the Uruguayan Environmental Monitoring Program is being drafted. It includes an electromagnetic emissions analysis carried out with equipment developed with our own technology. The aim is to increase the knowledge base on the state of the environment, and to implement conservation measures accordingly, as well as to provide useful information to the Scientific Committee on Antarctic Research.

The approach taken towards the environmental issue underscores all other activities in Antarctica, especially after the widening scope of the Protocol by virtue of the liability annex, presently at quite an advanced stage. We must think in terms of a speedy behavior to implement it.

Uruguay also wishes to speak to the ethical values behind the commitment to contribute to the development of science in a framework of environmental conservation, because of the consequences for the future generations of any global scale phenomena. These phenomena could even have an impact on the right to have a healthy and balanced environment in which Antarctica plays a conspicuous role: it reserves the resources that may in the future provide sustainability to mankind.

Annex E
Report of the Committee for Environmental Protection
(CEP V)

Report of the Committee for Environmental Protection (CEP V) Warsaw, Poland, 10-20 September 2002

Item 1: Opening of the Meeting

(1) The CEP Chair, Dr. Olav Orheim (Norway), opened the meeting on Tuesday, 10 September 2002.

Item 2: Adoption of the Agenda

(2) The provisional agenda, as agreed at CEP IV and circulated by Poland, was adopted. Altogether 28 Working Papers and 58 Information Papers were considered under the various agenda items (Annex 1 of the CEP Report).

Item 3: Operation of the CEP

(3) The list of CEP contact points was updated (Annex 2).

Item 4: Compliance with the Protocol on Environmental Protection

4a) General matters

(4) Romania introduced Information Paper (XXV ATCM/IP37) reporting that the Romanian Parliament had passed the necessary legislation to implement the Protocol in early September 2002. The Committee welcomed this information and congratulated Romania on the steps it had taken towards ratification. Romania indicated that a formal notification would be sent to the Depository Government shortly.

(5) The Czech Republic presented Information Paper (XXV ATCM/IP70) noting that the Czech Parliament is expected to ratify the Protocol in January 2003. The Committee welcomed this information.

(6) The United Kingdom presented Information Paper (XXV ATCM/IP20) regarding the legal and administrative steps it had taken to control the collection and curation of meteorites with reference to Resolution 3 (2001). China submitted Information Paper (XXV ATCM/IP42) on the study and management of Antarctic meteorites. The United States reported that they had reviewed their legal and administrative arrangements with respect to meteorites collected by American scientists in Antarctica.

(7) The Meeting welcomed these developments made concerning the management of meteorites collected in Antarctica. It was agreed that members should provide further information on this issue to CEP VI.

(8) The following Information Papers giving annual reports were submitted to the Committee, in accordance with Article 17 of the Protocol: (XXV ATCM/IP6), (Uruguay); (XXV ATCM/IP8), (France); (XXV ATCM/IP19), (Ukraine); (XXV ATCM/IP23), (United Kingdom); (XXV ATCM/IP31), (New Zealand); (XXV ATCM/IP43), (China); (XXV ATCM/IP59), (Spain); (XXV ATCM/IP64), (Italy); (XXV ATCM/IP65), (South Africa); (XXV ATCM/IP66), (Japan); (XXV ATCM/IP80), (the Netherlands); (XXV ATCM/IP96), (Peru) and (XXV ATCM/IP104), (India). It was noted that many Parties now posted their annual reports on their websites.

(9) Spain noted that the annual reports differed in the time period they covered and sometimes did not indicate which year they referred to. It was suggested that harmonization might be useful and that this could be discussed at the CEP VI meeting after an appropriate analysis.

(10) Australia introduced Information Paper (XXV ATCM/IP56) on the Australian Antarctic Division's Environmental Management System and informed the Committee that it had received ISO 14001 certification.

(11) With reference to Article 6 of the Protocol, Australia presented Information Paper (XXV ATCM/IP50) on their participation in the SWEDARP Expedition to Dronning Maud Land in 2001-2002.

(12) ASOC presented Information Paper (XXV ATCM/IP52) regarding tourism and non-governmental activities in Antarctica.

(13) ASOC further introduced Information Paper (XXV ATCM/IP78) regarding the submission of annual reports under Article 17 of the Madrid Protocol, which draws on reports filed by Parties, inspection reports and direct contact with a number of Parties. The analysis shows that some countries still have not fully implemented the Protocol through legislation or regulations, and that there are gaps in the practical implementation of the Protocol.

4b) Consideration of Draft CEEs forwarded to the CEP in accordance with paragraph 4 of Article 3 of Annex I of the Protocol.

(14) The Russian Federation presented Working Paper (XXV ATCM/WP19) dealing with water sampling of the subglacial Lake Vostok. This was listed by the Russian Federation as a draft Comprehensive Environmental Evaluation (CEE), but not submitted in accordance with Article 3 of Annex I to the Protocol. The Committee agreed that the draft CEE would be formally considered at CEP VI.

(15) SCAR presented Information Paper (XXV ATCM/IP55) giving a progress report on their consideration of exploring subglacial Antarctic lakes. SCAR pointed out that there is as yet no international consensus among the scientific community on appropriate lake sampling or on drilling methods to penetrate into the lake. SCAR recommended that additional studies should be carried out before further drilling towards Lake Vostok is undertaken using the existing Russian drill hole. A SCAR group of experts will discuss the risks of deeper drilling at Lake Vostok, and SCAR will provide a report to CEP VI.

(16) Several delegations expressed their concern about the possibility of accidental penetration and contamination of Lake Vostok as a consequence of deeper drilling by the Russian Antarctic programme.

(17) The Russian Federation emphasized the potential benefits of further drilling activities for scientific research.

(18) Following discussion the Russian Federation advised that it would postpone drilling an additional 50 m of ice until the 2003/2004 season, and that it intends to produce an Initial Environmental Evaluation (IEE) for this drilling. The Russian Federation further advised that it intends to revise the Draft CEE concerning the drilling from 3673 m to 3753 m (the ice-water interface). This drilling is intended to start in the 2004/2005 season and will continue until contact is made with the lake surface in the season of 2006/07.

(19) The CEP established an intersessional contact group convened by Jean Jacques Reyser from France (jjreyser@ifrtp.ifremer.fr) to consider and advise on the draft CEE at CEP VI with the following terms of reference:

The ICG will address the generic terms of reference set out in Annex 3 of the CEP III Final Report:

- The extent to which the CEE conforms to the requirements of Article 3 of Annex I of the Environmental Protocol.

- Whether the conclusions of the draft CEE are adequately supported by the information contained within the document.
- The clarity, format and presentation of the draft CEE
- The ICG should also examine the extent to which the draft CEE addresses the following issues:
 - the likelihood of accidental contamination of the lake (for example due to rapid diffusion of drill fluid through the ice, failure of the ice below the drill bit, uncertainties such as ice properties or thickness below 3673m or transfer of non in-situ micro-organisms down the drill hole);
 - the ability to manage emergency situations such as accidental penetration of the lake or sudden change in drill-hole fluid pressure when the ice-lake interface is being approached;
 - the likelihood and consequences of deformation of the drill hole when it encounters the east edge of the lake basin, and methods of preventing consequent possible contamination of the lake by drilling fluid;

4c) Other matters covered by Annex I (Environmental Impact Assessment)

(20) The Russian Federation reintroduced Working Paper (XXIV ATCM/WP32) containing an IEE for their Antarctic programme. The paper presents strategic issues relating to assessment procedures, which the CEP agreed would be of interest to consider at a later meeting.

(21) The Russian Federation presented Working Paper (XXV ATCM/WP15) on the IEE for the reconstruction of the ice runway at Novolazarevskaya Station. The Meeting thanked the Russian Federation for this comprehensive IEE.

(22) ASOC questioned whether establishment of the ice runway should in fact warrant a CEE. The Russian Federation explained that they were only re-establishing a runway on snow and ice, which had no more than a minor or transitory environmental impact.

(23) Some Members asked the Russian Federation what actions were being taken with regard to clean-up and prevention of fuel spills, and whether it was envisaged that the runway would be used for tourism.

(24) The Russian Federation noted that procedures and equipment would be put in place for handling of accidental fuel spills and that Russian Federation aviation standards would apply. On the issue of tourism, the Russian Federation stated that it had not been contacted by tour companies about using the runway to date. Nevertheless, the Russian Federation did not exclude the possibility of the runway being used for tourism purposes in the future.

(25) SCAR presented Working Paper (XXV ATCM/WP23) and Information Paper (XXV ATCM/IP24) regarding marine acoustic technology and the Antarctic environment. SCAR reported that, after surveying all relevant literature, it concluded that there is no evidence of negative impacts on the Antarctic marine organisms from the appropriate use of acoustic technology equipment. SCAR proposed a number of mitigation measures to be used to minimize potential impacts on marine species from the use of acoustic technologies in Antarctica.

(26) Germany stated that in their view the SCAR report was not in all instances balanced and that some findings in the SCAR report were potentially misleading. Germany informed the CEP that a report from a meeting in Berlin on this subject would be published shortly.

(27) Delegations welcomed SCAR's initiative to produce this extensive report on this complex scientific issue and asked Germany to provide SCAR with comments for consideration by SCAR before final publication of the SCAR workshop report.

(28) The meeting asked SCAR to bring forward a final report on the environmental impacts of acoustic technology at CEP VI. This paper should address any issues raised by Germany and take into account the results from the Berlin meeting.

(29) COMNAP introduced Information Paper (XXV ATCM/IP26) containing its final report on an analysis of IEEs. The aim of the analysis was to achieve a better understanding of how the environmental impact assessment process is being used by national Antarctic programmes, and the strengths and weaknesses of past IEEs. To achieve this 13 IEEs from nine countries were examined.

(30) COMNAP concluded that:

The CEP *Guidelines for Environmental Impact Assessment in Antarctica* (1999) provide an excellent benchmark for best practice in Antarctic EIA, and authors of EIAs should be further encouraged to consult the guidelines throughout the IEE process;

As the number of IEEs increases, authors, when initiating an IEE process, should make use of accepted methodologies laid out in past IEEs completed for similar types of activities and in similar environments. To aid this, Parties should be encouraged to make IEE documents available through appropriate websites.

(31) The Committee thanked COMNAP for this useful work. Several Members requested that a more detailed analysis of the IEEs be provided which clearly identifies strengths and weaknesses and gaps in past IEEs. It was noted that the identification of impacts was often a weakness in many IEEs. COMNAP noted its continuing interest in this topic and confirmed that it would provide additional details of its analysis to CEP VI.

(32) New Zealand presented Information Paper (XXV ATCM/IP33) on the ANDRILL research programme - a nine year stratigraphic drilling programme in the McMurdo Sound area to investigate Antarctica's role in global environmental change over the last 65 million years. The CEP thanked New Zealand for the information and noted that a draft CEE for the programme would be prepared in advance of the next CEP meeting.

(33) New Zealand introduced Information Paper (XXV ATCM/IP34) concerning the utility of environmental impact assessment for fishing vessels. The CEP noted that New Zealand intended to pursue this issue in the context of CCAMLR.

(34) The Czech Republic submitted Information Paper (XXV ATCM/IP93) on the proposed Czech Summer Research Station, which is now planned for Brandy Bay, James Ross Island. A draft CEE is intended to be completed in October, for consideration at CEP VI and ATCM XXVI. The Committee welcomed the information and looked forward to seeing the revised plans for the Czech station.

(35) The United States introduced Information Paper (XXV ATCM/IP48) giving a progress report from the intersessional work on cumulative environmental impacts. The United States noted that several countries and ASOC were contributing to this work and that the results from the group will be presented at CEP VI.

(36) ASOC presented Information Paper (XXV ATCM/IP82) on how Strategic Environmental Assessment might be a useful tool for activities carried out in Antarctica. The Committee thanked ASOC for the information. Some Members questioned the complexity of strategic environmental assessment and asked to see a model example. ASOC noted that such an approach could take many forms, as a model example was not readily available. Some Members saw merit in using a strategic approach to EIA in Antarctica particularly for multi-activity or multi-year projects.

(37) Norway, on behalf of the host country, presented Information Paper (XXV ATCM/IP97), which contained the list of IEEs and CEEs submitted to the host country as required by Resolution 6 (1995).

(38) New Zealand introduced Information Paper (XXV ATCM/IP99) giving a final environmental report on the Cape Roberts Project for which a CEE was prepared. New Zealand noted that the results of the monitoring work indicated that the environmental impact of the project was less than predicted in the CEE. The Meeting congratulated New Zealand on this comprehensive report.

4d) Matters covered by Annex II (Conservation of Antarctic Fauna and Flora)

(39) Argentina introduced Working Paper (XXV ATCM/WP8) on the final report of the intersessional contact group that had been established to address the issue of specially protected species in Antarctica. The paper reviewed the findings of the contact group that considered how to improve the application of the category of specially protected species on the basis of IUCN's Red List criteria, and included ten recommendations for the CEP to consider. Argentina thanked all those who had participated in the contact group over the last two years.

(40) The Committee thanked the intersessional group and in particular Mr José Maria Acero for his excellent co-ordination of the intersessional work and agreed that the findings of the group provided a sound basis for resolving the matter.

(41) SCAR introduced Working Paper (XXV ATCM/WP38) on specially protected species. In parallel with the findings of the intersessional contact group, SCAR noted that Annex II to the Protocol currently does not provide adequate guidance on how special protection should be applied. SCAR agreed that the IUCN Red List criteria provided a sound basis for assessing the conservation status of Antarctic species.

(42) SCAR offered to undertake, in conjunction with IUCN, an assessment of the status of well documented species using the IUCN criteria, beginning with birds and seals. SCAR will provide advice to the CEP on the conservation status of such species and what management actions might be appropriate to protect or improve the status of the species concerned. SCAR noted that before undertaking assessments on any other groups it would wish to consider the implications of attempting this exercise on data deficient species.

(43) The Committee noted the broad agreement between the two papers on this issue. It was agreed that the IUCN Red List criteria should be used as the basis for SCAR's assessment of the status of species in Antarctica.

(44) The Committee thanked SCAR for their offer of assistance in assessing the conservation status of Antarctic species consistent with the approach submitted by the intersessional open-ended contact group (XXV ATCM/WP8 refers). This includes placing the IUCN category of conservation status (for example "vulnerable") in parentheses when recommending a species for special protection.

(45) The representative of the Scientific Committee of CCAMLR welcomed the recognition in both Working Papers that a dialogue with CCAMLR was needed on how the category of specially protected species under the Protocol might be applied to marine species that are under the purview of CCAMLR. CCAMLR looked forward to participating in further work on this matter. The representative of the CCAMLR Scientific Committee further noted that CCAMLR's ecosystem monitoring programme provides useful information on how targeted monitoring activities might be applied to species designated as specially protected.

(46) IUCN also welcomed the work that the Committee was undertaking on this matter and offered to assist the Committee in advising on the designation and management of specially protected species as required.

(47) Germany noted that the recent work of SCAR's Bird-biology Subcommittee and Bird Life International on the identification of important bird areas in Antarctica and trends in populations would be a useful source of information in assessing the status of all Antarctic bird species.

(48) The Committee's advice to the ATCM on Specially Protected Species is contained in Appendix I.

(49) The CEP further agreed that the issue of Specially Protected Species should continue to be on the agenda of the CEP.

(50) The CEP agreed to recommend draft Resolution 1 (2002) for consideration of the ATCM (Appendix 2).

(51) Argentina presented Working Paper (XXV ATCM/WP7) on a review of Annex II. SCAR introduced Working Paper (XXV ATCM/WP37) presenting comments on the revision of Annex II.

(52) The Committee expressed its gratitude for these two papers, and noted SCAR's scientific comments. In addition to the issues brought out by these papers, it was noted that the review of Annex II should aim at improving the Annex and its consistency with the other Annexes. The revision should give priority to harmonizing the text.

(53) The Committee agreed also that in its review of Annex II it would take into account the final report and recommendations in (XXV ATCM/WP8) of the intersessional contact group on Specially Protected Species.

(54) ASOC introduced Information Paper (XXV ATCM/IP60) on the capture of Antarctic wildlife for the purpose of exhibition. There were varying views on this issue but the CEP agreed that common criteria regarding collection of Antarctic wildlife for animal exhibits would be relevant. It was agreed that this issue would be considered further by the intersessional contact group working on revision of Annex II. SCAR noted that there is an agreed set of international rules for zoos on the collection of birds that might be useful for this discussion.

(55) The Committee decided to establish an Intersessional Contact Group (ICG) to be convened by José Maria Acero (Argentina), jmacero@dna.gov.ar, in order to advance the review of Annex II by the Committee in accordance with Article 12(1)(b) of the Environmental Protocol.

The agreed Terms of Reference for the ICG are to:

- examine the text of Annex II;
- identify those articles of Annex II requiring deletion, amendment or modification and to prepare an amended draft text of Annex II as appropriate ensuring consistency with the Protocol and its annexes;
- explore options for developing criteria that Parties could use in making their decisions on permit requests to collect specimens for educational or cultural purposes as provided for under Article 3 of Annex II.
- present a progress report to CEP VI to which would be attached an amended draft text of Annex II. This should indicate the changes proposed to the existing Annex as clearly as possible.

(56) The United Kingdom introduced Working Paper (XXV ATCM/WP26) containing proposed guidelines for the operation of aircraft near concentrations of birds in Antarctica. The Committee welcomed these guidelines and noted that they had been submitted as a draft. It was also noted that these general guidelines would be useful to aircrew operating aircraft in areas where site-specific plans or guidelines did not apply. The Committee therefore invited COMNAP, in consultation with SCAR, to review the guidelines, and to report back to the CEP.

(57) COMNAP told the Committee that they are interested in this issue, and would provide an interim report on the review of the guidelines at CEP VI and a final report to CEP VII.

(58) The United Kingdom presented Working Paper (XXV ATCM/WP43) on biological prospecting in Antarctica. The Meeting congratulated the United Kingdom on their paper, which raised a series of important questions resulting from advances in biotechnology.

(59) Several delegates pointed out that the subject of biological prospecting is complex, and includes legal and political issues. Comments from members covered items such as commercial confidentiality, cross-convention aspects, the legal basis for biological prospecting, intellectual property and patents etc., as well as consistency with Article III of the Antarctic Treaty.

(60) ASOC stated that biological prospecting would represent a further penetration of commercial and economic interest into Antarctica, and argued against accepting biological prospecting as a fait accompli.

(61) The CEP concluded that the complexities and rapid developments in this field were strong reasons for the Antarctic community to be preemptive on this issue and that biological prospecting needed to be discussed during the next CEP meeting. The CEP, however, is not in a position to address all the problems. It was suggested that many issues require consideration by the ATCM. Members were encouraged to submit papers on biological prospecting for consideration at CEP VI.

(62) Australia introduced Information Paper (XXV ATCM/IP62) on an emergency response plan in the event of unusual animal deaths, developed by the Australian Antarctic Division. A central element is the provision of a response kit at each Australian research station. The CEP found this to be valuable operational information. The full response plan can be found at the Australian Antarctic Division's website: http://www.aad.gov.au/response_plan.

4e) Matters covered by Annex III (Waste Disposal and waste management)

(63) COMNAP presented Information Paper (XXV ATCM/IP51) on best practice for waste water disposal on ice-free ground at inland stations. The COMNAP survey indicated that Parties generally work diligently to meet the requirements of Annex III to the Protocol with respect to the disposal of waste. COMNAP indicated that it would continue to provide information to the CEP on developments and capabilities of waste disposal technologies at appropriate times.

(64) The following papers were presented with regard to waste management and clean-up. The Russian Federation introduced Information Paper (XXV ATCM/IP16) on waste removal from the Bellingshausen station. The United Kingdom presented Information Paper (XXV ATCM/IP22) regarding the clean-up and removal of waste at abandoned British stations. Australia presented Information Paper (XXV ATCM/IP57) concerning the clean-up of a former research station at Heard Island, which showed the challenges of clean-up of derelict buildings which have historical value. The CEP welcomed these three papers and noted that they presented a wide variety of clean-up activities organized and undertaken in number of different ways.

(65) New Zealand submitted Information Paper (XXV ATCM/IP32) on a new waste water treatment system for New Zealand's Scott Base. The CEP thanked New Zealand for this valuable information.

4f) Matters covered by Annex IV (Prevention of Marine Pollution)

(66) There were no papers received and no discussion under this agenda item.

4g) Matters covered by Annex V (Area Protection and Management)

(67) The United Kingdom presented Working Paper (XXV ATCM/WP9) on the implications of the entry into force on 24th May 2002 of Annex V of the Environmental Protocol. The CEP thanked the

United Kingdom for this very useful work and agreed with the specific implications outlined by the United Kingdom. These are reproduced as **Annex 3**.

(68) The United Kingdom Working Paper also proposed a renumbering system for Antarctic Specially Protected Areas updating the system agreed by means of Resolution V (1996). The Committee agreed with the proposed renumbering system and recommended draft Decision 1 (2002) for consideration by the ATCM (**Appendix 3**).

(69) Germany suggested that members should present at CEP VI a timetable for revising and updating management plans for Antarctic Specially Protected Areas to be in the format required by Annex V. In this connection reference was made to the Appendix to Resolution 1 (1998). The Committee agreed to the importance of early revision of protected area management plans and recommended draft Resolution 2 (2002) for consideration by the ATCM (**Appendix 4**).

(70) For those protected areas containing a significant marine component the Committee agreed that it would be appropriate for the proponent to send the relevant draft management plan(s) directly to CCAMLR for its review. New Zealand offered to revise the applicable guidelines in Annex 4 of the Final Report of the CEP III so as to take account of the necessary consultation procedures with CCAMLR (see **Appendix 6**). The Committee thanked New Zealand for its offer and looked forward to seeing New Zealand's report at CEP VI.

(71) The following papers on Antarctic protected areas presented the results from intersessional working groups:

- (a) the United Kingdom introduced Working Paper (XXV ATCM/WP10) on the review of six draft Protected Area Management Plans for ASPA No. 107 (SPA No. 8), Dion Islands; ASPA No. 108 (SPA No.9) Green Island; ASPA No. 117 (SPA No. 21) Avian Island; ASPA No. 126 (Site of Special Scientific Interest- SSSI No.6) Byers Peninsula; ASPA No. 147 (SSSI No.29) Ablation Point - Ganymede Heights and ASPA No. 148 (SSSI No.31) Mount Flora;
- (b) The United States presented Working Paper (XXV ATCM/WP21) on the review of five draft Protected Area Management Plans for ASPA No. 106 (SPA No.7) Cape Hallett; ASPA No. 121 (SSSI No.1) Cape Royds; ASPA No. 123 (SSSI No.3) Barwick and Balham Valleys; ASPA No. 124 (SSSI No.4) Cape Crozier; ASPA No.137 (SSSI No. 18) NW White Island.

(72) New Zealand introduced Working Paper (XXV ATCM\WP17) containing a five-year review of the Management Plan for ASPA No. 130 (SSSI No.11), Tramway Ridge, Mt Erebus, Ross Island. The Contracting Parties congratulated New Zealand on this work and noted that this was the first five-year review in accordance with Annex V Article 6(3) of the Protocol.

(73) New Zealand presented Working Paper (XXV ATCM/WP39) regarding a proposed minor boundary change to ASPA No. 157 (SPA No.27) Backdoor Bay, Cape Royds, Ross Island. The Committee noted that the boundary change is to ensure concurrence with the change to the boundary of ASPA No. 121.

(74) Given the minor nature of these two revisions, the CEP considered that the plans for ASPAs No. 130 and 157 did not need to go to intersessional review.

(75) The Committee thanked the United Kingdom, the United States and New Zealand for carrying out these reviews and agreed to recommend to the ATCM formal adoption of these management plans by means of Measure 1 (2002) (**Appendix 5**).

(76) In this connection the Committee also agreed to advise the ATCM that ASPA No. 121 also includes marine areas requiring the consideration of CCAMLR.

(77) Members noted that different approaches were taken in these protected area management plans to the use of poultry products. SCAR advised that at present there is no evidence of a causal link between poultry products and the introduction of Newcastle disease in Antarctica. SCAR recognized,

however, that on a precautionary basis, restrictions on poultry products could be considered in areas that are protected particularly because of their values as sites for breeding birds.

(78) The United Kingdom introduced Working Paper (XXV ATCM/WP3) on the revision of the Management Plan for ASPA No. 114 (SPA No. 18) North Coronation Island. This area contains a marine component and the draft management plan will therefore be forwarded to CCAMLR for consideration. An open-ended intersessional contact group led by Dr. Neil Gilbert from the United Kingdom (neil.gilbert@fco.gov.uk) was established to consider the submitted draft Management Plan and to report back to CEP VI.

(79) New Zealand introduced Working Paper (XXV ATCM/WP16) on the revision of the Management Plan for Specially Protected Areas ASPA No 118 (SPA No. 22 and SSSI No. 24) Cryptogram Ridge, Mt Melbourne, North Victoria Land and summit of Mt Melbourne, North Victoria Land. The CEP agreed to refer the revised Management Plans to an intersessional contact group, led by Rebecca Roper-Gee from New Zealand (r.ropergee@antarcticanz.govt.nz), which would report back to CEP VI.

(80) The United States presented Working Paper (XXV ATCM/WP18) on the revision of Management Plans for ASPA No. 152 (SSSI No.35) Western Bransfield Strait, Antarctic Peninsula and ASPA No. 153 (SSSI No.36) Eastern Dallmann Bay, Antarctic Peninsula. The CEP agreed to refer these Management Plans to an intersessional contact group, led by the United States, which would report back to CEP VI. The United States noted that it had already transmitted its proposals for consideration by CCAMLR. It was agreed that Dr. Joyce Jatko, jjatko@nsf.gov would be the contact point for intersessional review.

(81) Australia introduced Working Paper (XXV ATCM/WP29) concerning revised Management Plans for ASPA No.135 (SSSI No. 16) North-East Bailey Peninsula, Budd Coast, Wilkes Land and ASPA No.143 (SSSI No. 25) Marine Plain, Mule Peninsula, Vestfold Hills, Princess Elizabeth Land. Australia introduced Working Paper (XXV ATCM/WP 33) regarding a proposed management plan for the Frazier Islands, Wilkes Land, East Antarctica, which aimed at providing further protection for the Southern Giant Petrel.

(82) These issues will be considered further by an open-ended intersessional contact group led by Bruce Hull from Australia (bruce.hull@aad.gov.au), which will report back to CEP VI.

(83) Italy introduced Working Paper (XXV ATCM/WP36) regarding a proposal for a new Antarctic Specially Protected Area in Terra Nova Bay, Ross Sea. Italy supported their initiative by presenting the special values of the area for scientific research.

(84) Italy recalled that according to Annex V (Article 6(2)) no marine area could be designated as a Protected area without prior approval of CCAMLR. Italy noted that it had already transmitted its proposal for consideration by CCAMLR.

(85) This issue will be considered further by an open-ended intersessional contact group led by Dr. Sandro Torcini from Italy (sandro.torcini@casaccia.enea.it), which will report back to CEP VI.

(86) India introduced Working Paper (XXV ATCM/WP47) on a draft management plan for a proposed site of Special Scientific Interest for Dakshin Gangotri Glacier Snout, Schirmacher Oasis, Dronning Maud Land. The Committee noted that this should now be termed an ASPA rather than SSSI.

(87) This issue will be considered further by an open-ended intersessional contact group led by Mr. Prem C. Pandey from India (pcpandey@ncaor.org), which will report back to CEP VI.

(88) New Zealand presented Working Paper (XXV ATCM/WP13) giving a progress report on the issue of a systematic environmental-geographic framework (SEGF) for protected areas. New Zealand suggested that SEGF could serve as a tool for the Protocol, such as establishing a framework

for protecting specific areas. Many delegations expressed their support for New Zealand to continue its work on SEGF.

(89) The CEP asked New Zealand to present further information on this issue to CEP VI. New Zealand agreed to this and asked interested parties to contact Dr Harry Keys (hkeys@doc.govt.nz).

(90) The United Kingdom introduced Working Paper (XXV ATCM/WP4) concerning the review of the list of Historic Sites and Monuments (HSM) identified in Resolution 4 (2001). The United Kingdom had distributed a questionnaire survey to all those Parties who were solely or jointly responsible for HSMs in Antarctica. Most Parties had replied to the questionnaire survey, but four had not yet replied. The United Kingdom offered to liaise intersessionally with these Parties and to provide an updated list of HSMs, which is as complete as possible to CEP VI.

(91) The Committee welcomed this work and asked the United Kingdom to bring a final report to CEP VI.

(92) The United Kingdom introduced Working Paper (XXV ATCM/WP22) containing a proposal for an information archive for the Antarctic Protected Areas System. (<http://www.era.gs/resources/apa>) contains the Antarctic Protected Areas Information Archive.

(93) The CEP congratulated the United Kingdom on this very valuable initiative. Several Members offered further information and their assistance in maintaining the archive. It was suggested that documents stored on the site be translated into the official ATCM languages. A number of members suggested that the United Kingdom website be added to the CEP website and to the ATCM website when this was possible, so that it could be made easily available to all of the Antarctic community. The UK agreed to complete the information archive as far as possible and then to hand it over to the CEP Chair for incorporation into the CEP website. The UK also agreed to consider the proposal for translating the site into the four Treaty languages.

(94) Australia announced that it was planning a conservation expedition to Mawson's Huts at Cape Denison in 2002/2003. Australia will bring a proposal to CEP VI for a Protected Area Management Plan for this important historic site.

(95) Germany introduced Information Paper (XXV ATCM/IP13) giving a research report on two tourist sites in the Antarctic. Germany intends to submit a Working Paper containing a draft ASMA management plan for Hannah Point to CEP VI.

(96) The CEP congratulated Germany on this very interesting report. Those wanting more information should contact Ms. Michaela Mayer from Germany (michaela.mayer@uba.de).

(97) Argentina introduced a joint Information Paper (XXV ATCM/IP28) (submitted by Argentina, Chile, Norway, Spain, the United Kingdom, The United States, ASOC, IAATO) on an international expedition to Deception Island for the purpose of establishing an ASMA. This issue would be discussed further at CEP VI.

(98) The United States introduced Information Paper (XXV ATCM/IP38) regarding a US-New Zealand plan for a proposed Antarctic Specially Managed Area in the McMurdo Dry Valleys, Southern Victoria Land. A draft ASMA plan will be submitted at CEP VI.

(99) Brazil introduced Information Paper (XXV ATCM/IP46) on the joint coordination of the ASMA of Admiralty Bay on King George Island, South Shetlands Islands. Brazil indicated that the coordination of the activities had now been formally transferred to Poland.

(100) New Zealand introduced Information Paper (XXV ATCM/IP58) related to a major initiative by the NZ Antarctic Heritage Trust regarding restoration of the historic huts in the Ross Sea Region.

(101) Chile introduced Information Paper (XXV ATCM/IP79) on the ruins of President Pedro Aguirre Cerda Base, Pendulum Cove, Deception Island and the protection of this HSM.

(102) ASOC presented Information Paper (XXV ATCM/IP101) on Marine Protected Areas.

(103) Chile presented Information Paper (XXV ATCM/IP102), which includes a publication reporting a workshop on Deception Island. Chile highlighted various aspects of administration and management of environmental threats to the area, and thanked the other participants for their input in the project. The CEP congratulated Chile on this effort.

Item 5: Environmental Monitoring

(104) Poland introduced Information Papers (XXV ATCM/IP1 and XXV ATCM/IP2) on long term monitoring of the avifauna and deglaciation in Admiralty Bay on King George Island. Poland highlighted the importance of monitoring the sea-ice zone ecosystem in the light of global climate changes. The CEP noted these interesting results.

(105) The United States presented a joint Information Paper (XXV ATCM/IP25) prepared by the United States and the United Kingdom relating to an Antarctic Site Inventory containing biological data and site-descriptive information on the Antarctic Peninsula collected since 1994.

(106) Chile welcomed the initiative and underlined the importance of the project as a source of information on environmental impacts and historical information.

(107) The CEP suggested that this Information Paper could be further considered within the groups discussing operational issues at ATCM XXV.

(108) Italy presented Information Paper (XXV ATCM/IP68) on environmental monitoring at Terra Nova Bay station.

Item 6: State of the Antarctic Environment Report

(109) SCAR presented Working Paper (XXV ATCM/WP31-rev.1) on the State of the Antarctic Environment Report (SAER) and thanked IUCN and CCAMLR for their assistance in the preparation of this paper. SCAR indicated that extensive and relevant data already existed for many of the key environmental variables but that there were some areas that were data deficient. SCAR reported that state of the environment reporting elsewhere in the world had already proven its value for decision making in environmental management.

(110) New Zealand introduced Information Paper (XXV ATCM/IP7) reporting on the key findings of the Ross Sea Region State of the Environment report published in November 2001.

(111) New Zealand presented Working Paper (XXV ATCM/WP12) concerning the process used for developing the Ross Sea Region report, including costs and subsequent follow-up work. Options for reporting on the State of the Antarctic environment were also presented. New Zealand noted that the type of reporting system adopted, and the way in which it is managed, should stem directly from a clear statement of the reasons for reporting. New Zealand suggested that the CEP should consider how to progress with state of the Antarctic environment reporting, and that the Ross Sea Region 2001 report provides as example of what such reporting might look like in an Antarctic context.

(112) Australia introduced Information Paper (XXV ATCM/IP54) describing a low cost, simple but powerful web-based system for tracking a set of indicators for monitoring environmental change.

(113) The Committee welcomed the information contained in these papers and congratulated Australia and New Zealand on the significant work they had undertaken on state of the environment reporting in Antarctica. Several Members noted that advising on the state of the Antarctic environment is a primary responsibility of the Committee under Article 12 of the Protocol and suggested the various papers on this issue provided a sound basis for developing a continent-wide state of the environment report. Chile noted the responsibility of the Consultative Parties to report to

the broader international community any significant changes in the state of the Antarctic environment.

(114) It was agreed that New Zealand and Australia (lee.belbin@aad.gov.au) jointly should lead informal intersessional work aimed at providing clear suggestions on how to move forward on developing a continent-wide state of the Antarctic environment report for consideration at CEP VI. Several members offered to assist in this intersessional work.

Item 7: Emergency Response and Contingency Planning

(115) COMNAP presented Working Paper (XXV ATCM/WP25 rev. 1) reflecting on "worst case" and "less than worst case" scenarios of possible environmental incidents in Antarctica. COMNAP emphasized the differences between primary and secondary response actions. COMNAP noted that the paper is essentially a "work in progress" and does not yet provide information on probability or costs. COMNAP advised that the Working Paper had undergone a minor revision taking into account comments received from SCAR and ASOC (XXV ATCM/IP81) regarding introduction of non-indigenous species.

(116) ASOC presented Information Paper (XXV ATCM/IP81) and pointed to the issue of introducing non-indigenous organisms to Antarctica.

(117) ASOC noted the importance of clarity in the use of the term "incident" when the CEP provides advice to the ATCM Liability Working Group given the differing uses of the term by scientific and legal experts.

(118) COMNAP introduced Working Paper (XXV ATCM/WP27) describing its newly implemented, web based Environmental Incident Reporting System (EIRS) and providing updated data on incidents that have occurred during the last thirteen years. The data indicated that oil spills are the dominant type of environmental incident and COMNAP accordingly urged Parties to ensure that the COMNAP Guidelines on oil storage, oil transfer and oil spill contingency planning are implemented as required by Resolution 6 (1998).

(119) IAATO presented Information Papers (XXV ATCM/IP39) and (XXV ATCM/IP75) on environmental emergencies arising from tourist activities in Antarctica.

(120) The CEP noted that the operational data in these papers would be brought into the liability discussions going on elsewhere in the ATCM.

Item 8: Data and Exchange of Information

(121) China submitted Information Paper (XXV ATCM/IP41) on the Chinese Antarctic Scientific Database, and provided information on the data management system. The CEP thanked China for their efforts and emphasized the value of their Information Paper. It was suggested that other parties should provide such information to CEP VI, as this would be useful in relation to reporting on the state of the Antarctic environment.

Item 9: Cooperation with other organizations in accordance with Article 11 of the Protocol

(122) Australia introduced Information Paper (XXV ATCM/IP49-rev.1) giving the report of the CEP observer to the Scientific Committee of CCAMLR XX held in October 2001 and highlighted the main aspects of the report, including the problem of illegal, unreported and unregulated (IUU) fishing in the Convention Area, statistical data, as well as the results of the Working Group on Ecosystem Monitoring and Management (WG-EMM).

(123) The CEP elected Dr. Tony Press to represent the CEP at the forthcoming meeting of the CCAMLR Scientific Committee.

(124) It was noted that there are several areas of joint interest to CEP and CCAMLR, including questions related to species protection and management plans for protected areas with a marine component.

(125) CCAMLR informed the Committee that it has established its procedure for handling such management plans. This involves first consideration by its Working Groups on Ecosystem Monitoring and Management (WG-EMM) and on Fish Stock Assessment (WG-FSA), then advice developed by the Scientific Committee, followed by consideration by the Commission. CCAMLR pointed out that depending upon submission of such management plans in relation to the timing of Working Group meetings the complete process could take many months.

(126) The Committee noted that it needed to establish how it should get such management plans rapidly to CCAMLR. Uruguay introduced Information Paper (XXV ATCM/IP67), which was relevant to this issue.

(127) The Committee's advice to the ATCM on the procedures for forwarding draft ASPA Management Plans to CCAMLR is attached in **Appendix 6**.

Item 10: Election of Officers

(128) The Committee warmly congratulated Dr. Tony Press from Australia on his election as the new Chair of the CEP. In accordance with the rules of procedures the new chair takes responsibility at the end of the CEP meeting in which the chair is elected. However, it was agreed that the outgoing chair should give the ATCM presentation of the CEP report.

(129) The Committee expressed its sincere gratitude to Dr. Olav Orheim for his hard work and commitment during his tenure as Chair of the CEP. The Committee warmly acknowledged Dr. Orheim's skills and enthusiasm, which have been a significant factor in the effectiveness of the Committee during its formative years.

Item 11: Preparation for CEP VI

(130) The Committee agreed that Biological Prospecting should be added to the Agenda at CEP VI as Agenda Item 7. It further agreed to include ATCM Agenda Item 7: Co-operation among Parties with respect to Article 6 of Protocol in the CEP Agenda Item 4a. The ATCM was asked to approve the provisional Draft Agenda for CEP VI reproduced as **Appendix 7**.

Item 12: Adoption of the Report

(131) The draft Report was adopted by the Committee.

Item 13: Closing of the Meeting

(132) The Chair Dr. Olav Orheim closed the Meeting, at the same time expressing the Committee's great gratitude to the work of the rapporteurs, the secretariat and the interpreters.

Annex 1

CEP V
Agenda and Final List of Documents
Draft allocation of documents to agenda items

Item 1: Opening of the Meeting

Item 2: Adoption of the Agenda

Item 3: Operation of the CEP

Item 4: Compliance with the Protocol on Environmental Protection

4 a) General matters

Paper No.	Title	Submitted by
IP 6	Informe anual de acuerdo al artículo 17 del Protocolo al Tratado Antártico sobre la Protección del Medio Ambiente	Uruguay
IP 8	Rapport annuel presente par la France conformément a l'article 17 du Protocole au Traite sur l'Antarctique relatif a la Protection de lenvironnement 2002	France
IP 19	Annual report pursuant to Article 17 of the Protocol on Environmental Protection to the Antarctic Treaty: The Ukraine (2001)	Ukraine
IP 20	Antarctic meteorites and UK law	United Kingdom
IP 23	Report on the implementation of the Protocol on Environmental Protection to the Antarctic Treaty as required by Article 17 of the Protocol.	United Kingdom
IP 31	Annual Report of New Zealand Pursuant to Article 17 of the Protocol on Environmental Protection to the Antarctic Treaty	New Zealand
IP 37	Report of Romania on the ratification on the Protocol of Madrid	Romania
IP 42	Antarctic Meteorites Study and Management in China	China
IP 43	2001/2002 Chinese Antarctic Environmental Report	China
IP 50	Report on Co-operation Among Parties with Respect to Article 6 of the Madrid Protocol - Australian Participation in the SWEDARP Expedition to Dronning Maud Land 2001-2002	Australia
IP 52	ATCM papers, discussions, & recommendations relating to tourism and non-governmental activities	ASOC
IP 56	The Australian Antarctic Division's Environmental Management System	Australia
IP 59	Informe anual de acuerdo con el Artículo 17 del Protocolo al Tratado Antártico sobre protección del Medio Ambiente	Spain
35IP 64	Annual Report Pursuant to the Protocol on Environmental Protection to the Antarctic Treaty	Italy
IP 65	Annual Report pursuant to the Protocol on Environmental Protection to the Antarctic Treaty	South Africa
IP 66	Annual Report under the Protocol on Environmental Protection to the Antarctic Treaty	Japan
IP 70	Information Paper on drafting of Czech Act on the Antarctic	Czech Republic
IP 78	Reports under Article 17 and the Implementation of the Madrid Protocol	ASOC
IP 80	Annual Report under the Protocol on Environmental Protection to the Antarctic Treaty	Netherlands
IP 96	Key activities undertaken by Peru in Antarctic matters during the 2001-2002 period	Peru

IP 104	Annual Report of India pursuant to Article 17 of the Environmental Protection to the Antarctic Treaty	India
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4 b) Consideration of Draft CEEs forwarded to the CEP in accordance with para. 4 of Article 3 of Annex I of the Protocol

Paper No.	Title	Submitted by
WP 19	Water sampling of the subglacial Lake Vostok - Draft Comprehensive Environmental Evaluation	Russia
IP 55	Exploring Subglacial Antarctic Lakes: A SCAR Report on Progress	SCAR

4c) Other Matters covered by Annex I (Environmental Impact Assessments)

Paper No.	Title	Submitted by
WP 15	Ice runway in the area of Novolazarevskaya Station: Initial Environmental Evaluation	Russia
WP 23	Marine Acoustic Technology and the Environment	SCAR
IP 24	Marine acoustic technology and the environment	SCAR
IP 26	An Analysis of Initial Environmental Evaluations (IEEs)	COMNAP
IP 33	ANDRILL - The McMurdo Sound Portfolio Environmental Impact Assessment Process	New Zealand
IP 34	Environmental Impact Assessment of Fishing Vessels	New Zealand
IP 48	Progress Report from the Intersessional Contact Group on Cumulative Impacts	United States
IP 82	Strategic Environmental Assessment in Antarctica: A "stepping stone" to Madrid Protocol objectives	ASOC
IP 93	Report on project of the Czech research station in Antarctica	Czech Republic
IP 97	Annual list of Initial Environmental Evaluations (IEE) and Comprehensive Environmental Evaluations (CEE) 2001/2002	Secretariat
IP 99	Cape Roberts Project Final Environmental Report 1995-2001	New Zealand

4d) Matters covered by Annex II (Conservation of Antarctic Flora and Fauna)

Paper No.	Title	Submitted by
WP 7	Annex II: Reasons for a review	Argentina
WP 8	Final report of the inter-sessional contact group on Specially Protected Species	Argentina
WP 26	Proposed Guidelines for the operation of aircraft near concentrations of birds	United Kingdom
WP 37	Comments on the revision of Annex II	SCAR
WP 38	Specially Protected Species	SCAR
WP 43	Biological Prospecting in Antarctica	United Kingdom
IP 60	Antarctic wildlife in captivity and the Madrid Protocol	ASOC
IP 62	Draft Response Plan in the Event that Unusual Animal Deaths are Discovered	Australia

4e) Matters covered by Annex III (Waste Disposal and waste management)

Paper No.	Title	Submitted by
IP 16	Results of the waste disposal project at Bellingshausen Station	Russia
IP 22	The clean-up and removal of abandoned British stations in Antarctica	United Kingdom
IP 32	A New Waste Water Treatment System for New Zealand's Scott Base - Rationale, Selection Process and Outcome	New Zealand

IP 51	Best Practice To Avoid Waste Water Disposal Onto Ice-free Ground at Inland Stations	COMNAP
IP 57	Clean up of a Former Subantarctic Research Station at Heard Island	Australia

4f) Matters covered by Annex IV (Prevention of Marine Pollution)

4g) Matters covered by Annex V (Area protection and management)

Paper No.	Title	Submitted by
WP 3	Antarctic Protected Areas System: Draft Management Plan for ASPA 114, North Coronation Island	United Kingdom
WP 4	Review of the List of Historic Sites and Monuments	United Kingdom
WP 9	Implications of the entry into force of Annex V to the Environmental Protocol	United Kingdom
WP 10	Review of draft Protected Area Management Plans: Report of the UK-led Intersessional Contact Group	United Kingdom
WP 13	Report back on a Systematic Environmental- Geographic Framework (SEGF) for Protected Areas under Annex V of the Environmental Protocol	New Zealand
WP 16	Revision of Antarctic Specially Protected Areas (ASPAs) Nos. 118a and 118b: Cryptogam Ridge, Mt Melbourne, North Victoria Land (SPA 22) and Summit of Mt Melbourne, North Victoria Land (SSSI 24)	New Zealand
WP 17	Five year review of Antarctic Specially Protected Area (ASPAs) No. 130 (SSSI No. 11), Tramway Ridge, Mt Erebus, Ross Island	New Zealand
WP 18	Antarctic Protected Area System: Revised Management Plans for: Site of Special Scientific Interest No. 35 – Western Bransfield Strait, Antarctic Peninsula and Site of Special Scientific Interest No. 36 – Eastern Dallmann Bay, Antarctic Peninsula	United States
WP 21	Antarctic Protected Area System: Revised Management Plans for: SPA No. 7, SSSI No. 1, SSSI No. 3, SSSI No. 4 and SSSI No. 18.	United States
WP 22	Antarctic Protected Areas System: A Proposed Information Archive	United Kingdom
WP 29	Antarctic Protected Areas System: Revised Management Plans for North-east Bailey Peninsula, Budd Coast, Wilkes Land (Antarctic Specially Protected Area No. 135) and Marine Plain, Mule Peninsula, Vestfold Hills, Princess Elizabeth Land (Antarctic Specially Protected Area No. 143)	Australia
WP 33	Antarctic Protected Areas System: Proposed Management Plan for Frazier Islands, Wilkes Land, east Antarctica (Antarctic Specially protected Area No. xxx)	Australia
WP 36	Antarctic Protected Areas System: Proposal for a new Antarctic Specially Protected Area Terra Nova Bay, Ross Sea	Italy
WP 39	Proposed Boundary Change to Specially Protected Area (SPA No. 27) Backdoor Bay, Cape Royds, Ross Island	New Zealand
WP 47	Draft Management Plan for proposed Site of Special Scientific Interest	India
IP 13	Research Report "Survey and Management Plans for two Tourist Sites in the Antarctic – Scientific Basis and Indicators for the Development of Management Plans for Frequently Used Visitor Sites in the Antarctic"	Germany
IP 28	An International Expedition to Deception Island	Argentina, Chile, Norway, Spain, UK, USA, ASOC and IAATO
IP 38	Antarctic Protected Area System: Proposed Antarctic Specially Managed Area in the McMurdo Dry Valleys, Ross Sea Region	United States and New Zealand
IP 46	Coordination of the Antarctic Specially Managed Area (ASMA) of Admiralty Bay, King George Island, South Shetland Islands	Brazil and Poland
IP 58	Antarctic Historic Resources	New Zealand
IP 79	Instalación de monolito histórico en Isla Decepción - Ruinas de la base pde. Pedro Aguirre Cerda	Chile

IP 101	Antarctic needs Marine Protected Areas	ASOC
IP 102	Workshop on a Management Plan for Deception Island	Chile

Item 5: Environmental Monitoring

Paper No.	Title	Submitted by
IP 1	The long-term monitoring of avifauna in Admiralty Bay in light of the changes in the sea-ice zone ecosystem (South Shetland Islands, Antarctica)	Poland
IP 2	Deglaciation at Admiralty Bay, King George Island (South Shetland Islands, West Antarctica)	Poland
IP 25	Antarctic Site Inventory: 1994-2002	United Kingdom and United States
IP 68	Environmental Monitoring in the Italian Antarctic Terra Nova Bay Station after the entry into force of the Madrid Protocol in 1998	Italy

Item 6: State of the Antarctic Environment Report

Paper No.	Title	Submitted by
WP 12	Ross Sea Region 2001: A State of the Environment Report for the Ross Sea Region of Antarctica . Process, Follow-up, and Options for Future Reporting	New Zealand
WP 31 rev.1	Scoping the data for a State of the Antarctic Environment Report	SCAR
IP 7	Ross Sea Region 2001: A State of the Environment Report for the Ross Sea Region of Antarctica	New Zealand
IP 54	Antarctic State of the Environment Reporting	Australia

Item 7: Emergency Response and Contingency Planning

Paper No.	Title	Submitted by
WP 25 rev.1	“Worst Case” & “Less than Worst Case” Environmental Scenarios	COMNAP
intblWP 27	An Assessment of Environmental Incidents Arising from Activities in Antarctica	COMNAP
IP 39	An Assessment of Environmental Emergencies Arising from Activities in Antarctica	IAATO
IP 75	IAATO-Wide-Emergency Contingency and Search and Rescue Plan: A Brief Summary of the Work in Progress	IAATO
IP 81	On Worst Case Scenarios	ASOC

Item 8: Data and Exchange of Information

Paper No.	Title	Submitted by
IP 41	Information exchanging, Chinese Antarctic Scientific Database	China

Item 9: Co-operation with other organizations in accordance with Article 11 of the Protocol

Paper No.	Title	Submitted by
IP 49 rev. 1	Report of the CEP Observer SC-CCAMLR XX, 22 October to 2 November 2001	Australia
IP 67	Issues referred to Management Plans for Antarctic Specially Protected Areas and Antarctic Specially Managed Areas which include marine areas	Uruguay

Item 10: Election of Officers

Item 11: Preparation for CEP VI

Item 12: Adoption of the Report

Item 13: Closing of the Meeting

Annex 2

Addresses of the National Contact Points

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Annex 3**Specific implications of the entry into force of Annex V**

Annex V Article:Provisions:Implications:3(3)* SPAs and SSSIs automatically designated as ASPAs;

Annex V Article:	Provisions:	Implications:
3(3)	<ul style="list-style-type: none"> • SPAs and SSSIs automatically designated as ASPAs; • ASPAs must be renumbered accordingly 	<ul style="list-style-type: none"> • Renumbering was agreed by means of Resolution V (1996), but this needs to be updated (see below); • Parties may need to give effect to renaming and renumbering in domestic legislation.
5(1)	<ul style="list-style-type: none"> • Any Party, the CEP, SCAR or CCAMLR may propose an area for designation as an ASPA or ASMA by submitting a proposed management plan to the ATCM 	<ul style="list-style-type: none"> • To note those eligible to submit ASPA and ASMA proposals.
6(1)	<ul style="list-style-type: none"> • Procedures for the submission and approval of management plans 	<ul style="list-style-type: none"> • CEP has already established guidelines for its consideration of draft management plans (paras 84 & 85 and Annex 4 of the Final Report of CEP III refer); • CEP has taken the view that SCAR's participation in intersessional review of draft management plans would satisfy the requirements of Article 6(1) (para 64 of the Final Report of CEP IV refers); • Article 6(1) introduces a fast-track mechanism for the approval of management plans, i.e. 90 days after the closure of the meeting at which they were adopted; • Many management plans still need to be revised and updated in Annex V format (Resolution 1 (1998) refers).
6(2)	<ul style="list-style-type: none"> • No marine area shall be designated without prior approval of CCAMLR 	<ul style="list-style-type: none"> • Consideration needs to be given over the means by which management plans with a marine component are referred to CCAMLR: should the proponent decide on referral or the CEP?; • Decision 4 (1998) sets out the criteria as to when such plans should be forwarded to CCAMLR.
6(3)	<ul style="list-style-type: none"> • A review of management plans shall be initiated every five years 	<ul style="list-style-type: none"> • CEP may wish to update the national responsibilities for revising management plans appended to Resolution 1 (1998) and to prepare an agreed timetable for review of these plans.
6(6)	<ul style="list-style-type: none"> • Upon approval management plans shall be circulated by the Depositary which shall also maintain a record of approved plans 	<ul style="list-style-type: none"> • CEP may wish to consider developing a central web-based archive for storing protected area information.
7(1)	<ul style="list-style-type: none"> • Permitting provisions for entry into protected areas 	<ul style="list-style-type: none"> • Parties are required to establish an appropriate authority to issue permits to enter ASPAs; this may require action to be taken in domestic law.
7(2)	<ul style="list-style-type: none"> • Permits may be issued to enter sites that do not have management plans, for compelling scientific purposes 	<ul style="list-style-type: none"> • Only two ASPAs appear not to have management plans: ASPA 104, Sabrina Island, and ASPA 113, Litchfield Island. Consideration should be given to addressing these sites with some priority.

8	<ul style="list-style-type: none"> • Historic Sites and Monuments can be designated as ASPAs, ASMAs or simply listed; • Procedures for adding new sites to the list of Historic Sites and Monuments; • Depositary shall maintain the list of Historic Sites and Monuments (HSMs) 	<ul style="list-style-type: none"> • Previous list of HSMs held under Recommendation VII-9 is transferred (Rec. VII-9 now obsolete); • Fast-track mechanism for the approval of new HSMs introduced, i.e. 90 days after the closure of the meeting at which they were adopted; • CEP may wish to consider developing a central web-based archive for storing HSM information (NB; HSM review currently underway)
9	<ul style="list-style-type: none"> • Principles established for making publicly available, information on ASPAs, ASMAs and HSMs; • Provides also for the marking of site boundaries where appropriate 	<ul style="list-style-type: none"> • Parties shall make available information on the location etc of protected areas to those intending to visit Antarctica; to this end the CEP may wish to consider developing a central web-based archive for storing and making available protected area information; • Parties shall mark protected areas on maps and charts; • Parties should consider (where appropriate) marking sites with boundary markers. This may extend to, for example, establishing permanent signs.
10	<ul style="list-style-type: none"> • Procedures for exchanging information set out 	<ul style="list-style-type: none"> • Parties shall, before 30 November each year, inform each other and the CEP of: the number of ASPA permits issued, measures taken to implement Annex V and any protected area inspections / visits undertaken; • Parties shall include in the annual Treaty exchange of information summary descriptions of activities undertaken in ASPAs and ASMAs.

Appendix 1

CEP Advice to the XXV ATCM on Specially Protected Species

With regard to Specially Protected Species (XXV ATCM/WP8), the Committee for Environmental Protection,

Noting that, there was agreement within the CEP that, from scientific and conservation perspectives, the Specially Protected Species provisions in Annex II should, in principle, be extended to all species indigenous to the Antarctic Treaty Area (or occurring there seasonally through natural migrations); and

Recognizing that other organizations have a competent interest in this matter,

Recommends that the ATCM takes early steps to seek the agreement of CCAMLR, CCAS and, where appropriate, other organizations, to establish cooperative working relationships (with those organizations) to seek a common approach for addressing proposals for designating Specially Protected Species in Antarctic marine environments.

Endorse the views of the CEP contained in its report.

Appendix 2

Resolution 1 (2002) Review of Conservation Status of Antarctic Species

The Representatives,

Noting that the provisions of Article 8 of the Annex II to the Environmental Protocol require that the Consultative Parties keep under continuing review measures for the conservation of Antarctic fauna and flora,

Recalling Resolution 2 (1999), which had charged SCAR with a review of the list of Specially Protected Species included in Appendix A to the Environmental Protocol,

Taking into account that the CEP has noted the need to assess the status of native species to justify designation as Antarctic Specially Protected Species, on the basis of IUCN criteria used to evaluate designation as (at least) "Vulnerable" in the IUCN Red List scheme,

Aware that SCAR, through its expert bodies has the necessary data and expertise to provide independent scientific advice to the ATCM in this field,

Recommend that:

SCAR be requested to:

- assist the ATCM in reviewing (in close cooperation with IUCN) of the current status of all species which occur in the Antarctic Treaty Area, included as "vulnerable", "endangered" or "critically endangered" in the IUCN Red List; taking into consideration regional differences in status;
- conduct a similar review for those species which occur in the Antarctic Treaty Area included in the IUCN Red List as "data deficient" or "near threatened";
- undertake, as a later step, a further assessment of all other indigenous species not included in such categories of the IUCN Red List, and
- report to the CEP on progress on these issues.

Appendix 3

Decision 1 (2002)

Naming and numbering system for Antarctic Specially Protected Areas

The Representatives,

Noting the entry into force of Annex V to the Environmental Protocol on 24 May 2002;

Noting also the provision of Article 3(3) of Annex V that all SPAs and SSSIs designated as such by past Antarctic Treaty Consultative Meetings are hereby designated as Antarctic Specially Protected Areas (ASPAs) on the entry into force of Annex V, and shall be renamed and renumbered accordingly;

Recognising the naming and numbering system for ASPAs adopted by means of Resolution V (1996) and the need to update this system to include new protected areas adopted by subsequent ATCMs;

Decide:

1. That the naming and numbering system for ASPAs annexed to this Decision be adopted;
2. That all ASPAs adopted by the present, and any subsequent ATCM, be added to the list in consecutive order of adoption and be numbered accordingly.

Annex to the Decision 1(2002):
Naming and numbering system for Antarctic Specially Protected Areas

No.	Antarctic Specially Protected Area name	Previous site number	Year adopted in Annex V format
101	Taylor Rookery, Mac. Robertson Land	SPA No. 1	1992
102	Rookery Islands, Holme Bay, Mac. Robertson Land	SPA No. 2	1992
103	Ardery Island and Odbert Island, Budd Coast	SPA No. 3	1992
104	Sabrina Island, Balleny Islands	SPA No. 4	
105	Beaufort Island, Ross Sea	SPA No. 5	1997
	Cape Crozier, Ross Island	SPA No. 6 [redesignated SSSI No. 4]	
106	Cape Hallett, Victoria Land	SPA No. 7	
107	Dion Islands, Marguerite Bay, Antarctic Peninsula	SPA No. 8	
108	Green Island, Berthelot Islands, Antarctic Peninsula	SPA No. 9	
	Byers Peninsula, Livingston Island, South Shetland Islands	SPA No. 10 [redesignated SSSI No. 6]	
	Cape Shirreff, Livingston Island, South Shetland Islands	SPA No. 11 [redesignated SSSI No. 32]	
	Fildes Peninsula, King George Island, South Shetland Islands	SPA No. 12 [redesignated SSSI No. 5]	
109	Moe Island, South Orkney Islands	SPA No. 13	1995
110	Lynch Island, South Orkney Islands	SPA No. 14	2000
111	Southern Powell Island and adjacent islands, South Orkney Islands	SPA No. 15	1995
112	Coppermine Peninsula, Robert Island, South Shetland Islands	SPA No. 16	
113	Litchfield Island, Arthur Harbour, Anvers Island, Palmer Archipelago	SPA No. 17	
114	Northern Coronation Island, South Orkney Islands	SPA No. 18	
115	Lagotellerie Island, Marguerite Bay, Antarctic Peninsula	SPA No. 19	1992 / 2000
116	New College Valley, Caughley Beach, Cape Bird, Ross Island	SPA No. 20	1992/ 2000
117	Avian Island, off Adelaide Island, Antarctic Peninsula	SPA No. 21 [formerly SSSI No. 30]	
118	'Cryptogam Ridge', Mount Melbourne, Victoria Land	SPA No. 22	
119	Forlidas Pond and Davis Valley ponds, Dufek Massif	SPA No. 23	
120	Pointe-Geologic Archipelago, Terre Adélie	SPA No. 24	1995
121	Cape Royds, Ross Island	SSSI No. 1	
122	Arrival Heights, Hut Point Peninsula, Ross Island	SSSI No. 2	
123	Barwick Valley, Victoria Land	SSSI No. 3	
124	Cape Crozier, Ross Island	SSSI No. 4 [formerly SPA No. 6]	

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No.	Antarctic Specially Protected Area name	Previous site number	Year adopted in Annex V format
125	Fildes Peninsula, King George Island, South Shetland Islands	SSSI No. 5 [formerly SPA No. 12]	
126	Byers Peninsula, Livingston Island, South Shetland Islands	SSSI No. 6 [formerly SPA No. 10]	
127	Haswell Island	SSSI No. 7	
128	Western shore of Admiralty Bay, King George Island	SSSI No. 8	2000
129	Rothera Point, Adelaide Island	SSSI No. 9	1996
	Caughley Beach, Cape Bird, Ross Island	SSSI No. 10 [incorporated into SPA No. 20]	
130	'Tramway Ridge', Mount Erebus, Ross Island	SSSI No. 11	1995
131	Canada Glacier, Lake Fryxell, Taylor Valley, Victoria Land	SSSI No. 12	1997
132	Potter Peninsula, King George Island, South Shetland Islands	SSSI No. 13	1997
133	Harmony Point, Nelson Island, South Shetland Islands	SSSI No. 14	1997
134	Cierva Point and offshore islands, Danco Coast, Antarctic Peninsula	SSSI No. 15	1997
135	North-eastern Bailey Peninsula, Budd Coast, Wilkes Land	SSSI No. 16	
136	Clark Peninsula, Budd Coast, Wilkes Land	SSSI No. 17	2000
137	North-west White Island, McMurdo Sound	SSSI No. 18	
138	Linnaeus Terrace, Asgaard Range, Victoria Land	SSSI No. 19	1996
139	Biscoe Point, Anvers Island	SSSI No. 20	
140	Parts of Deception Island, South Shetland Islands	SSSI No. 21	
141	'Yukidori Valley', Langhovde, Lützow-Holmbukta	SSSI No. 22	2000
142	Svarthamaren, Mühlig-Hofmannfjella, Dronning Maud Land	SSSI No. 23	1999
118	Summit of Mount Melbourne, Victoria Land	SSSI No. 24	
143	Marine Plain, Mule Peninsula, Vestfold Hills, Princess Elizabeth Land	SSSI No. 25	
144	Chile Bay (Discovery Bay), Greenwich Island, South Shetland Islands	SSSI No. 26	
145	Port Foster, Deception Island, South Shetland Islands	SSSI No. 27	
146	South Bay, Doumer Island, Palmer Archipelago	SSSI No. 28	
147	Ablation Point-Ganymede Heights, Alexander Island	SSSI No. 29	
	Avian Island, off Adelaide Island, Antarctic Peninsula	SSSI No. 30 [redesignated SPA No. 21]	
148	Mount Flora, Hope Bay, Antarctic Peninsula	SSSI No. 31	
149	Cape Shirreff, Livingston Island, South Shetland Islands	SSSI No. 32 [formerly SPA No. 11]	
150	Ardley Island, Maxwell Bay, King George Island	SSSI No. 33	
151	Lions Rump, King George Island, South Shetland Islands	SSSI No. 34	2000
152	Western Bransfield Strait off Low Island, South Shetland Islands	SSSI No. 35	

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No.	Antarctic Specially Protected Area name	Previous site number	Year adopted in Annex V format
153	Eastern Dallmann Bay off Brabant Island, Palmer Archipelago	SSSI No. 36	
154	Botany Bay, Cape Geology, Victoria Land	SSSI No. 37 [includes HSM No. 67]	1997
155	Cape Evans, Ross Island	SPA No. 25 [includes HSM Nos. 16 & 17]	1997
156	Lewis Bay, Mount Erebus, Ross Island	SPA No. 26 [designated a Tomb in 1981]	1997
157	Backdoor Bay, Cape Royds, Ross Island	SPA No. 27 [includes HSM No. 15]	1998
158	Hut Point, Ross Island	SPA No. 28 [includes HSM No. 18]	1998
159	Cape Adare, Borchgrevink Coast	SPA No. 29 [includes HSM No. 22]	1998

Appendix 4

Resolution 2 (2002)
Revision of Antarctic Specially Protected Area Management Plans

The Representatives,

Welcoming the entry into force of Annex V to the Environmental Protocol on 24 May 2002;

Recalling Resolution 1 (1998) on the allocation of responsibilities for revision of protected area management plans;

Noting that the management plans for many ASPAs have yet to be revised in the format required by Annex V;

Urge:

Those Parties that have yet to revise management plans in the format of Annex V take steps to do so at the earliest opportunity, with a view to their submission at CEP VII.

Appendix 5

Measure 1 (2002) Antarctic Protected Area System: Management Plans for Antarctic Specially Protected Areas

The Representatives,

Recalling Resolution 1 (1998) allocating responsibility among Consultative Parties for the revision of Management Plans for protected areas;

Noting that the draft Management Plans appended to this Measure have been endorsed by the Committee for Environmental Protection and the Scientific Committee on Antarctic Research (SCAR);

Recognizing that these Areas support outstanding natural features and biota of scientific interest;

Recommend to their Governments the following Measure for approval in accordance with paragraph 1 of Article 6 of Annex V to the Protocol on Environmental Protection to the Antarctic Treaty:

That the Management Plans for the following sites:

- Antarctic Specially Protected Area No 106, Cape Hallett, Northern Victoria Land, Ross Sea;
- Antarctic Specially Protected Area No 107, Emperor Island, Dion Islands;
- Antarctic Specially Protected Area No 108, Green Island, Bertholot Islands;
- Antarctic Specially Protected Area No 117, Avian Island, Marguerite Bay;
- Antarctic Specially Protected Area No 121, Cape Royds, Ross Island;
- Antarctic Specially Protected Area No 123, Barwick and Balham Valleys, South Victoria Land;
- Antarctic Specially Protected Area No 124, Cape Crozier, Ross Island;
- Antarctic Specially Protected Area No 126, Byers Peninsula, Livingston Island;
- Antarctic Specially Protected Area No 130, "Tramway Ridge", Mount Erebus, Ross Island;
- Antarctic Specially Protected Area No 137, Northwest White Island, McMurdo Sound;
- Antarctic Specially Protected Area No 147, Ablation Point - Ganymede Heights;
- Antarctic Specially Protected Area No 148, Mount Flora, Hope Bay;
- Antarctic Specially Protected Area No 157, Backdoor Bay, Cape Royds, Ross Island.

and which are annexed to this Measure, be adopted*.

That the management plan for Cape Royds, Ross Island (ASPA No 121) be approved by the ATCM subject to agreement by the Commission for the Conservation of Antarctic Marine Living Resources.

* see pages 34–131

Appendix 6

Procedures for Forwarding Draft Antarctic Specially Protected Area Management Plans to CCAMLR

With regards to whether a draft management plan should be forwarded to CCAMLR in accordance with Article 6(2) of Annex V,

Noting that the Parties agreed to Decision 4(1998) on Marine Protected Areas that draft management plans which require the approval of CCAMLR are those which include marine areas

in which there is actual or potential capability for harvesting of marine living resources which might be affected by site designation, or

for which there are provisions specified in a draft management plan which might prevent or restrict CCAMLR-related activities,

the CEP agreed to the following:

When a draft management plan for a new Protected Area with any marine component is submitted, the proponent should at the same time submit this to CCAMLR through its Executive Secretary.

The proponent may, in addition, make a judgment and propose whether the marine area component is such that it falls under the definition quoted above, but it is recognized that CCAMLR will make its own judgment on this issue. The CEP chair should also submit the plan to CCAMLR with any additional information on how the CEP process will be conducted.

The same procedure will be followed where there is a revision of the marine area in existing management plans,

and recommends that the ATCM endorse this procedure.

Appendix 7

Draft Annotated Agenda for CEP VI

Item 1: Opening of the Meeting

Item 2: Adoption of Agenda

Item 3: Operation of the CEP

Item 4: Compliance with the Protocol on Environmental Protection

4a) General Matters

4b) Consideration of Draft CEEs forwarded to the CEP in accordance with paragraph 4 of Article 3 of Annex I of the Protocol.

4c) Other Matters covered by Annex I (Environmental Impact Assessment)

4d) Matters covered by Annex II (Conservation of Antarctic Flora and Fauna)

4e) Matters covered by Annex III (Waste Disposal and waste management)

4f) Matters covered by Annex IV (Prevention of Marine Pollution)

4g) Matters covered by Annex V (Area protection and management)

Item 5: Environmental Monitoring

Item 6: State of the Antarctic Environment Report

Item 7: Biological Prospecting

Item 8: Emergency Response and Contingency Planning

Item 9: Data and Exchange of Information

Item 10: Co-operation with other organizations

Item 11: Election of Officers

Item 12: Preparation for CEP VI I

Item 13: Adoption of the Report

Item 14: Closing of the Meeting

Annex F
Reports under Recommendation XIII-2 (ATS 5A)

Report of the Depositary Government of the Antarctic Treaty and Its Protocol (USA) in Accordance with Recommendation XIII-2

This report covers events with respect to the Antarctic Treaty and to the Protocol on Environmental Protection.

There have been no new accessions to the Antarctic Treaty in the past year. There are forty-five Parties to the Treaty.

There have been no new accessions to the Protocol on Environmental Protection in the past year. There are twenty-nine Parties to the Protocol.

Since the last report, the remaining Consultative Parties - Poland and India - provided notification of their approval of Recommendation XVI-10 containing the text of Annex V to the Protocol. The Annex entered into force on May 24.

The following countries have provided notification that they had designated the persons so noted as Arbitrators in accordance with Article 2(1) of the Schedule to the Protocol on Environmental Protection:

Bulgaria	Dr. Aliosha Nedelchev	as of 21 Aug 1998
Germany	Prof. Dr. Wolfgang Graf Vitzthum	as of April 1998
India	Mr. H. P. Rajan	as of 21 April 1998
Japan	Professor Soji Yamamoto	as of April 1998
Korea, Rep. of	Professor Park Ki-Gab	as of 8 Dec 1998
United States	Professor Daniel Bodansky	as of 21 April 1998
	Mr. David Colson	as of 21 April 1998

Lists of Parties to the Treaty, to the Protocol, and of Recommendations and their approvals are attached.

Status of Antarctic Treaty

Signed at Washington December 1, 1959 by Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America

State	Date of deposit of ratification of instrument	Date of deposit of accession of instrument	Date of entry into force
Argentina	June 23, 1961		June 23, 1961
Australia	June 23, 1961		June 23, 1961
Austria		Aug. 25, 1987	Aug. 25, 1987
Belgium	July 26, 1960		June 23, 1961
Brazil		May 16, 1975	May 16, 1975
Bulgaria		Sept. 11, 1978	Sept. 11, 1978
Canada		May 4, 1988	May 4, 1988
Chile	June 23, 1961		June 23, 1961
China		June 8, 1983	June 8, 1983
Colombia		Jan. 31, 1989	Jan. 31, 1989
Cuba		Aug. 16, 1984	Aug. 16, 1984
Czech Republic ⁷		Jan. 1, 1993	Jan. 1, 1993
Denmark		May 20, 1965	May 20, 1965
Ecuador		Sept. 15, 1987	Sept. 15, 1987
Estonia		May 17, 2001	May 17, 2001
Finland		May 15, 1984	May 15, 1984
France	Sept. 16, 1960		June 23, 1961
Germany ¹		Feb. 5, 1979	Feb. 5, 1979
Greece		Jan. 8, 1987	Jan. 8, 1987
Guatemala		July 31, 1991	July 31, 1991
Hungary		Jan. 27, 1984	Jan. 27, 1984
India		Aug. 19, 1983	Aug. 19, 1983
Italy		Mar. 18, 1981	Mar. 18, 1981
Japan	Aug. 4, 1960		June 23, 1961
Korea, DPR of		Jan. 21, 1987	Jan. 21, 1987
Korea, Rep. of		Nov. 28, 1986	Nov. 28, 1986
Netherlands		Mar. 30, 1967 ²	Mar. 30, 1967
New Zealand	Nov. 1, 1960		June 23, 1961
Norway	Aug. 24, 1960		June 23, 1961
Papua New Guinea		Mar. 16, 1981 ⁵	Sept. 16, 1975 ⁶
Peru		Apr. 10, 1981	Apr. 10, 1981
Poland		June 8, 1961	June 23, 1961
Romania		Sept. 15, 1971 ³	Sept. 15, 1971
Russian Federation	Nov. 2, 1960		June 23, 1961
Slovak Republic ⁷		Jan. 1, 1993	Jan. 1, 1993

State	Date of deposit of ratification of instrument	Date of deposit of accession of instrument	Date of entry into force
South Africa	June 21, 1960		June 23, 1961
Spain		Mar. 31, 1982	Mar. 31, 1982
Sweden		Apr. 24, 1984	Apr. 24, 1984
Switzerland		Nov. 15, 1990	Nov. 15, 1990
Turkey		Jan. 24, 1996	Jan. 24, 1996
Ukraine		Oct. 28, 1992	Oct. 28, 1992
United Kingdom of Great Britain & Northern Ireland	May 31, 1960	June 23, 1961	
United States of America	Aug. 18, 1960		June 23, 1961
Uruguay		Jan. 11, 1980 ⁴	Jan. 11, 1980
Venezuela		Mar. 24, 1999	Mar. 24, 1999

1. On October 2, 1990, the Embassy of the Federal Republic of Germany informed the Department of State "that, through the accession of the German Democratic Republic to the Federal Republic of Germany with effect from October 3, 1990, the two German states will unite to form one sovereign state, which, as a contracting party to the Antarctic Treaty, will remain bound by the provisions of the Treaty and subject to those recommendations adopted at the 15 consultative meetings which the Federal Republic of Germany has approved. From the date of German unity, the Federal Republic of Germany will act under the designation of 'Germany' within the framework of the antarctic system....".

Prior to unification, the German Democratic Republic and the Federal Republic of Germany had acceded to the Treaty on November 19, 1974 and February 5, 1979, respectively.

2. The Netherlands accession is for the Kingdom in Europe, Suriname and the Netherlands Antilles. Aruba as a separate entity as of January 1, 1986.

3. The Romanian instrument of accession was accompanied by a note of the Ambassador of the Socialist Republic of Romania, dated September 15, 1971, containing the following statement of the Council of State of the Socialist Republic of Romania:

"The Council of State of the Socialist Republic of Romania states that the provisions of the first paragraph of the article XIII of the Antarctic Treaty are not in accordance with the principle according to which the multilateral treaties whose object and purposes are concerning the international community, as a whole, should be opened for universal participation."

4. The instrument of accession by Uruguay accompanied by a Declaration, a copy of which is attached, with translation.

5. Date of deposit of notification of succession.

6. Date of independence.

7. Effective date of succession. Czechoslovakia deposited an instrument of accession to the Treaty on June 14, 1962. On December 31, 1992, at midnight, Czechoslovakia ceased to exist and was succeeded by two separate and independent states, the Czech Republic and the Slovak Republic.

Department of State,
Washington, September 5, 2002

Protocol on Environmental Protection to the Antarctic Treaty Signed at Madrid on October 4, 1991*

Consultative Parties

State	Date of signature	Date deposit of Ratification Acceptance or Approval	Date deposit of Accession	Date of entry into force	Date Acceptance ANNEX V**	Date of entry into force of Annex V
Argentina	Oct. 4, 1991	Oct. 28, 1993 ³		Jan. 14, 1998	Sept. 8, 2000 (A) Aug. 4, 1995 (B)	May 24, 2002
Australia	Oct. 4, 1991	Apr. 6, 1994		Jan. 14, 1998	Apr. 6, 1994 (A) June 7, 1995 (B)	May 24, 2002
Belgium	Oct. 4, 1991	Apr. 26, 1996		Jan. 14, 1998	Apr. 26, 1996 (A) Oct. 23, 2000 (B)	May 24, 2002
Brazil	Oct. 4, 1991	Aug. 15, 1995		Jan. 14, 1998	May 20, 1998 (B)	May 24, 2002
Bulgaria			April 21, 1998	May 21, 1998	May 5, 1999 (AB)	May 24, 2002
Chile	Oct. 4, 1991	Jan. 11, 1995		Jan. 14, 1998	Mar. 25, 1998 (B)	May 24, 2002
China	Oct. 4, 1991	Aug. 2, 1994		Jan. 14, 1998	Jan. 26, 1995 (AB)	May 24, 2002
Ecuador	Oct. 4, 1991	Jan. 4, 1993		Jan. 14, 1998	May 11, 2001 (A) Nov. 15, 2001 (B)	May 24, 2002
Finland	Oct. 4, 1991	Nov. 1, 1996		Jan. 14, 1998	Nov. 1, 1996 (A) Apr. 2, 1997 (B)	May 24, 2002
France	Oct. 4, 1991	Feb. 5, 1993		Jan. 14, 1998	Apr. 26, 1995 (B) Nov. 18, 1998 (A)	May 24, 2002
Germany	Oct. 4, 1991	Nov. 25, 1994		Jan. 14, 1998	Nov. 25, 1994 (A) Sept. 1, 1998 (B)	May 24, 2002
India	July 2, 1992	Apr. 26, 1996		Jan. 14, 1998	May 24, 2002 (B)	May 24, 2002
Italy	Oct. 4, 1991	Mar. 31, 1995		Jan. 14, 1998	May 31, 1995 (A) Feb. 11, 1998 (B)	May 24, 2002
Japan	Sept. 29, 1992	Dec. 15, 1997		Jan. 14, 1998	Dec. 15, 1997 (AB)	May 24, 2002
Korea, Rep. of	July 2, 1992	Jan. 2, 1996		Jan. 14, 1998	June 5, 1996 (B)	May 24, 2002
Netherlands	Oct. 4, 1991	Apr. 14, 1994		Jan. 14, 1998	Mar. 18, 1998 (B)	May 24, 2002
New Zealand	Oct. 4, 1991	Dec. 22, 1994		Jan. 14, 1998	Oct. 21, 1992 (B)	May 24, 2002
Norway	Oct. 4, 1991	June 16, 1993		Jan. 14, 1998	Oct. 13, 1993 (B)	May 24, 2002
Peru	Oct. 4, 1991	Mar. 8, 1993		Jan. 14, 1998	Mar. 8, 1993 (A) Mar. 17, 1999 (B)	May 24, 2002
Poland	Oct. 4, 1991	Nov. 1, 1995		Jan. 14, 1998	Sept. 20, 1995 (B)	May 24, 2002
Russian Federation	Oct. 4, 1991	Aug. 6, 1997		Jan. 14, 1998	June 19, 2001 (B)	May 24, 2002
South Africa	Oct. 4, 1991	Aug. 3, 1995		Jan. 14, 1998	June 14, 1995 (B)	May 24, 2002
Spain	Oct. 4, 1991	July 1, 1992		Jan. 14, 1998	Dec. 8, 1993 (A) Feb. 18, 2000 (B)	May 24, 2002
Sweden	Oct. 4, 1991	Mar. 30, 1994		Jan. 14, 1998	Mar. 30, 1994 (A)	May 24, 2002

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					Apr. 7, 1994 (B)	
United Kingdom	Oct. 4, 1991	Apr. 25, 1995		Jan. 14, 1998	May 21, 1996 (B)	May 24, 2002
United States	Oct. 4, 1991	Apr. 17, 1997		Jan. 14, 1998	Apr. 17, 1997 (A)	May 24, 2002
					May 6, 1998 (B)	
Uruguay	Oct. 4, 1991	Jan. 11, 1995		Jan. 14, 1998	May 15, 1995 (B)	May 24, 2002

(A) Acceptance of Annex V (B) Approval of Recommendation XVI-10

Signed at Madrid on October 4, 1991; thereafter at Washington until October 3, 1992.

**Adopted at Bonn on October 17, 1991 at XVIth Antarctic Consultative Meeting.

Non-Consultative Parties

State	Date of signature	Ratification Acceptance or Approval	Date deposit of Accession	Date of entry into force	Date Acceptance ANNEX V	Date of entry into force of Annex V
Austria	Oct. 4, 1991					
Canada	Oct. 4, 1991					
Colombia	Oct. 4, 1991					
Cuba						
Czech Rep. ^{1,2}	Jan. 1, 1993					
Denmark	July 2, 1992					
Greece	Oct. 4, 1991	May 23, 1995		Jan. 14, 1998		
Guatemala						
Hungary	Oct. 4, 1991					
Korea, DPR of	Oct. 4, 1991					
Papua New Guinea						
Romania	Oct. 4, 1991					
Slovak Rep. ^{1,2}	Jan. 1, 1993					
Switzerland	Oct. 4, 1991					
Turkey						
Ukraine		May 25, 2001	June 24, 2001	May 25, 2001 A		

The Protocol will enter into force initially on the thirtieth day following the date of deposit of instruments of ratification, acceptance, approval or accession by all States which were Antarctic Treaty Consultative Parties at the date on which this Protocol was adopted. (Article 2)

1. Signed for Czech & Slovak Federal Republic on Oct. 2, 1992 - Czechoslovakia accepts the jurisdiction of the International Court of Justice and Arbitral Tribunal for the settlement of disputes according to Article 19, paragraph 1. On December 31, 1992, at midnight, Czechoslovakia ceased to exist and was succeeded by two separate and independent states, the Czech Republic and the Slovak Republic.
2. Effective date of succession in respect of signature by Czechoslovakia which is subject to ratification by the Czech Republic and the Slovak Republic.
3. Accompanied by declaration with informal translation, copy of which is attached at Tab A.

Department of State,
Washington, September 5, 2002.

**Approval, as notified to the Government of the United States of America,
of Measures Relating to the Furtherance of the Principles and Objectives
of the Antarctic Treaty**

	16 Recommendations adopted at First Meeting (Canberra 1961)	10 Recommendations adopted at Second Meeting (Buenos Aires 1962)	11 Recommendations adopted at Third Meeting (Brussels 1964)	28 Recommendations adopted at Fourth Meeting (Santiago 1966)	9 Recommendations adopted at Fifth Meeting (Paris 1968)	15 Recommendations adopted at Sixth Meeting (Tokyo 1970)
	Approved	Approved	Approved	Approved	Approved	Approved
Argentina	ALL	ALL	ALL	ALL	ALL	ALL
Australia	ALL	ALL	ALL	ALL	ALL	ALL
Belgium	ALL	ALL	ALL	ALL	ALL	ALL
Brazil (1983)+	ALL	ALL	ALL	ALL	ALL	ALL (except 10)
Bulgaria (1998)+						
Chile	ALL	ALL	ALL	ALL	ALL	ALL
China (1985)+	ALL	ALL	ALL	ALL	ALL	ALL (except 10)
Ecuador (1990)+						
Finland (1989)+						
France	ALL	ALL	ALL	ALL	ALL	ALL
Germany (1981)+	ALL	ALL	ALL (except 8)	ALL (except 1-11 & 13-19)	ALL (except 5* & 6)	ALL (except 9 & 10)
India (1983)+	ALL	ALL	ALL (except 8***)	ALL (except 18)	ALL	ALL (except 9 & 10)
Italy (1987)+	ALL	ALL	ALL	ALL	ALL	ALL
Japan	ALL	ALL	ALL	ALL	ALL	ALL
Korea, Rep. (1989)+	ALL	ALL	ALL	ALL	ALL	ALL
Netherlands (1990)+						
New Zealand	ALL	ALL	ALL	ALL	ALL	ALL
Norway	ALL	ALL	ALL	ALL	ALL	ALL
Peru (1989)+	ALL	ALL	ALL	ALL	ALL	ALL
Poland (1977)+	ALL	ALL	ALL	ALL	ALL	ALL
Russia	ALL	ALL	ALL	ALL	ALL	ALL

Opening Addresses and Reports from ATCM XXV

	16 Recommendations adopted at First Meeting (Canberra 1961)	10 Recommendations adopted at Second Meeting (Buenos Aires 1962)	11 Recommendations adopted at Third Meeting (Brussels 1964)	28 Recommendations adopted at Fourth Meeting (Santiago 1966)	9 Recommendations adopted at Fifth Meeting (Paris 1968)	15 Recommendations adopted at Sixth Meeting (Tokyo 1970)
South Africa	ALL	ALL	ALL	ALL	ALL	ALL
Spain (1988)+	ALL	ALL	ALL	ALL	ALL	ALL
Sweden (1988)+						
U.K.	ALL	ALL	ALL	ALL	ALL	ALL
Uruguay (1985)+	ALL	ALL	ALL	ALL	ALL	ALL
U.S.A.	ALL	ALL	ALL	ALL	ALL	ALL

* IV-6, IV-10, IV-12, and V-5 terminated by VIII-2

*** Accepted as interim guideline

+ Year attained Consultative Status. Acceptance by that State required to bring into force Recommendations or Measures of meetings from that year forward.

Report of CCAMLR to ATCM XXV

1. Introduction

1.1. In accordance with the regular overview of the Antarctic Treaty System (ATS) conducted under ATCM Recommendation XIII-2, CCAMLR is pleased to report on various developments since ATCM-XXIV.

1.2. The 7th April 2002 was the Twentieth Anniversary of the Convention on the Conservation of Antarctic Marine Living Resources' entry into force. This anniversary was celebrated at CCAMLR-XX held in Hobart between 22 October and 2 November 2001.

1.3. CCAMLR-XX adopted a statement to commemorate the Commission's twenty-year existence (Attachment I). This statement highlights a significant landmark in a process, originally initiated by the Antarctic Treaty Consultative Parties (ATCPs) which is aimed at the comprehensive and systematic protection of the Antarctic environment, as well as dependent and associated ecosystems, from harmful human interference. Through its conscientious and persistent efforts, CCAMLR has developed a practical and efficient regime. With its high standards of internal organization and significant achievements, it is an exemplary instrument of ecosystem protection in general, and of marine living resource conservation in particular.

1.4. In 2000/2001, CCAMLR addressed a wide range of issues, most notably :

- Illegal, unregulated and unreported (IUU) fishing in the Convention Area;
- Implementation of the Catch Documentation Scheme for *Dissostichus* spp.;
- Co-Operation with Non-Contracting Parties;
- Status of fisheries in 2000/01 and evaluation of fisheries for 2001/02;
- Further development of an integrated fisheries management framework;
- Initiatives concerning development of ecosystem management approaches;
- Further work on the elimination of seabird by-catch in longline fisheries;
- Co-Operation with the Antarctic Treaty System (ATS) and other bodies, and
- Monitoring of marine debris and their impact on Antarctic animals.

2. CCAMLR Membership

2.1. CCAMLR's membership currently stands at 24 countries with an additional seven States being party to the Convention, but not Members of the Commission.

2.2. Namibia became a full Member on 5 February 2001 and Vanuatu acceded to the Convention on 20 June 2001.

3. Fisheries in 2000/2001

3.1. Fisheries in the CCAMLR Convention Area during 2000/01 targeted Patagonian and Antarctic Toothfish (*Dissostichus eleginoides* and *D. mawsoni*), mackerel icefish (*Champscephalus gunnari*) and krill (*Euphausia superba*). There was only limited fishing for squid and no fishing of crabs.

3.2. The reported catch of finfish was 12 998 tonnes in 2000/01, compared to 19 283 tonnes in 1999/2000. *Dissostichus* spp. accounted for 10 619 tonnes of catch, compared to 14 441 tonnes in the previous season. It is believed that, in addition to the reported catches of Toothfish, about 7 600 tonnes were taken by illegal, unregulated and unreported (IUU) fishing.

3.3. The reported catch of krill was 98 414 tonnes in 2000/01, compared to 114 425 tonnes in the previous season. The annual krill catch has remained relatively stable since 1992/93, ranging from about 80 000 to 120 000 tonnes.

3.4. The Commission continues to receive notifications from Member States intending to conduct new and exploratory fisheries. In the 2000/01 season, it should be noted that only a very few notifications were activated. For the forthcoming season, some 11 out of a total of 28 new Conservation Measures adopted at CCAMLR-XIX deal directly with exploratory fisheries in 2001/02.

3.5. The Conservation Measures adopted at CCAMLR-XX address all fisheries to be conducted in the Convention Area during the 2001/02 season. They also include general measures for regulating fishing activities and reporting fisheries information from the Area.

3.6. CCAMLR-XX adopted four Measures and six Resolutions to promote compliance with CCAMLR Conservation Measures (by both Contracting and non-Contracting Parties) and to improve implementation of the Toothfish Catch Documentation Scheme (CDS).

3.7. The Conservation Measures and Resolutions for 2001/02 are published in the Schedule of Conservation Measures in Force, 2001/02.

3.8. Other fisheries for Patagonian Toothfish (*D. eleginoides*) took place within the Exclusive Economic Zones (EEZs) of France (CCAMLR Subarea 58.6 and Division 58.5.1) and of South Africa (Subareas 58.6 and 58.7).

4. Illegal, Unregulated and Unreported (IUU) Fishing in the Convention Area

4.1. The IUU fishery for Toothfish (especially Patagonian Toothfish) in the Convention Area, as well as in closely adjacent areas, has been a major discussion item for CCAMLR for the past five years (1997-2001). The Commission considers information submitted by Members to evaluate IUU fishing activities in the Convention Area. This includes reports on sightings and on apprehension of IUU fishing vessels, factual data on sightings of vessels by scientific observers, port inspections of vessels and instances of fraudulent use of Toothfish catch documents under the CDS.

4.2. The estimated IUU catch in the Convention Area in 2000/01 was 7 599 tonnes, compared with 6 546 tonnes in 1999/00 and 4 913 tonnes in 1998/99. Catches of Patagonian Toothfish have also been reported via the CDS from areas adjacent to, and to the north of, the Convention Area. The level of reported catches from just outside the Convention Area in FAO Statistical Area 51 (Indian Ocean) may not be credible. In the light of this uncertainty, CCAMLR is faced with determining what proportion of the catches reported from Area 51 actually originate from that area, or are a product of IUU fishing inside the Convention Area.

4.3. Although there has been a noticeable reduction in IUU fishing in the Convention Area, CCAMLR continues to afford the matter high priority since it profoundly compromises the Convention's primary objectives. In the light of information received in 2001, the Commission reinforced its integrated administrative and political measures aimed at eliminating IUU fishing in the Convention Area. In particular, it agreed:

- Revised reporting Members' requirements on fishing licenses issued and on VMS-derived information from vessels crossing Area/Subarea/Division boundaries within the Convention Area;
- A resolution on the use of VMS in the verification of catch locations reported under the CDS for areas to the north of the Convention Area, particularly Area 51;
- A scheme to promote compliance by non-Contracting Party vessels with CCAMLR Conservation Measures;

- Maintenance of a list of Flags of Convenience along with the development of a consistent process to identify such flags;
- Information exchange with the Lloyd's Vessel Register for vessels known to be engaged in IUU fishing activities; and
- Clarification of various CDS provisions and related documents.

4.4. In addition to ongoing implementation of the CDS (see Section 5 below), CCAMLR has adopted Conservation Measures aimed at improving enforcement of, and compliance with, the organization's management initiatives. These measures comprise a regime to establish co-operation between Parties to improve compliance, inspections by Contracting Parties of vessels licensed to fish in the Convention Area, inspections of non-Contracting Party fishing vessels in the ports of Contracting Parties, compulsory identification marking of vessels and fishing gear, further development of ties with non-Contracting Parties, and introduction of a vessel monitoring system for most Toothfish fisheries. Specifically, they include:

- The CCAMLR System of Inspection;
- Scheme to Promote Compliance by Non-Contracting Party Vessels with CCAMLR Conservation Measures (Conservation Measure 118/XX);
- Licensing and Inspection Obligations of Contracting Parties with regard to their Flag Vessels Operating in the Convention Area (Conservation Measure 119/XX);
- Marking of Fishing Vessels and Fishing Gear (Conservation Measure 146/XVII);
- Provisions to ensure Compliance with CCAMLR Conservation Measures by Vessels, including Cooperation between Contracting Parties (Conservation Measure 147/XIX);
- Automated Satellite-Linked Vessel Monitoring Systems (VMS) (Conservation Measure 148/XX);
- Prohibition of Directed Fishing for *Dissostichus* spp. except in accordance with specific Conservation Measures (Conservation Measure 146/XX);
- Harvesting of Stocks Occurring both Within and Outside the Convention Area (Resolution 10/XII);
- Flagging and Licensing of Non-Contracting Party Vessels (Resolution 13/XIX);
- Catch Documentation Scheme: Implementation by Acceding States and Non-Contracting Parties (Resolution 14/XIX);
- Catch Documentation Scheme: Implementation by Acceding States and Non-Contracting Parties (Resolution 14/XIX);
- Use of Ports not Implementing the Catch Documentation Scheme for *Dissostichus* spp. (Resolution 15/XIX), and
- Use of VMS and other Measures for the Verification of CDS Catch Data for Areas Outside the Convention Area, in particular, FAO Statistical Area 51 (Resolution 17/XX).

4.5. Pursuant to Articles 19 to 23 of the 1995 United Nations Implementing Agreement for Highly Migratory Stocks and Straddling Stocks (UNIA)(which entered into force in December 2001), the Commission maintains a vessel database to facilitate the exchange of information between CCAMLR Members on vessels known to have fished in contravention of CCAMLR Conservation Measures. It has also agreed to compile a list of Flags of Convenience and to develop a consistent procedure to identify such flags.

4.6. CCAMLR continues to encourage Members to ratify, and promote the entry into force of, such international instruments as UNIA, the 1993 FAO Compliance Agreement and the 1995 FAO Code

of Conduct for Responsible Fisheries. It has also noted the importance of the recent (February 2001) FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU). The IPOA-IUU should constitute a useful tool in efforts to address IUU fishing in the Convention Area. The Commission has encouraged all its Members to participate in the IPOA-IUU to ensure development of a comprehensive, integrated and global approach to combat IUU fishing.

5. CCAMLR Catch Documentation Scheme (CDS) for *Dissostichus* spp.

5.1. The adoption and implementation of the CDS is by far the most important step taken by CCAMLR on IUU fishing in the Convention Area. The Scheme is designed to track landings and trade flow of Toothfish caught in the Area and, where possible, adjacent waters. This will enable the Commission to identify the origin of Toothfish entering the markets of all Parties to the Scheme, and will help determine whether Toothfish taken in the Convention Area are caught in a manner consistent with CCAMLR's Conservation Measures.

5.2. The CDS (as contained in Conservation Measures 170/XVIII and, as amended, in Conservation Measure 170/XIX and 170/XX) became binding upon all CCAMLR Members on 7 May 2000.

5.3 The current CDS-related measures comprise:

- Explanatory Memorandum on the Introduction of the Catch Documentation Scheme for Toothfish (*Dissostichus* spp.);
- Policy to Enhance Cooperation between CCAMLR and Non-Contracting Parties;
- Resolution 14/XIX 'Catch Documentation Scheme: Implementation by Acceding States and Non-Contracting Parties';
- Resolution 15/XIX 'Use of Ports not implementing the Catch Documentation Scheme for *Dissostichus* spp.';
- Resolution 16/XIX 'Application of VMS in the Catch Documentation Scheme'; and
- Resolution 17/XX 'Use of VMS and other measures for the verification of CDS catch data for areas outside the Convention Area, in particular, in FAO Statistical Area 51'.

5.4. As of October 2001, the total number of catch, export and re-export documents received by the Secretariat under the CDS stood at 8 213. This figure can be broken down into 3 062 documents in respect of each landing/transshipment; 4 884 documents reporting individual exports and 267 re-export documents. Catch documents have been issued to a total of 433 vessels, excluding the Chilean artisanal fleet.

The Commission has noted the CDS's positive impact in reducing IUU fishing. It provides new/valuable data and information to CCAMLR. This information has helped identify fraudulent catch documents and has resulted in several seizures, and confiscations, of possible IUU products.

CCAMLR has formalized a procedure to administer the CDS Fund established last year. A number of projects to improve the CDS's operation have been identified.

5.7. Several CCAMLR Non-Contracting Parties engaged in Toothfish fishing and/or trading have been invited to cooperate with CCAMLR in implementation of the CDS. The Republic of Namibia has recently become a Member of the Commission. The Republic of Seychelles, the Republic of Singapore and the People's Republic of China have joined CCAMLR in implementation of the CDS. The Republic of Mauritius introduced certain elements of the CDS on 1 January 2001. The Commission continues to encourage Mauritius to fully implement the CDS and become a Party to the Convention.

5.8. The Commission has noted that Toothfish is being traded through Canada, a CCAMLR Contracting Party. Although Canada has not yet implemented CDS, the Commission has urged that it do so.

5.9. CCAMLR has ongoing contact with a number of Non-Contracting Parties still not cooperating with CCAMLR in CDS implementation. In particular, contact has recently been made with Kenya, Madagascar and Mozambique, whose ports have been used to offload Toothfish.

5.10. A special CDS working group, established in 2000, continues its work during 2001/02. This group has focused on developing a paperless, web-based, electronic CDS system. This should provide much-needed secure facilities for real-time verification of Catch Documents at all stages in the Toothfish trade cycle.

6. Fisheries Management

6.1. CCAMLR has made substantial progress in developing a unified framework to underpin management advice on all fisheries in the Convention Area, including the preparation of fishery plans for krill in Area 48 and icefish. An important aim of this framework is to streamline annual review of CCAMLR fisheries by the Scientific Committee and its working groups. Future development of the framework includes generalizing the notification process, research and fishery operation plans and data collection procedures.

6.2. It has been recognized that the Commission's work may be simplified by using standard texts for Conservation Measures during their drafting. Where possible, the Commission has agreed to standardize the format of conservation measures dealing with fisheries directly. A revised format for such measures has been adopted, recognizing that there is still a need for flexibility to include non-standard approaches and diverse opinions where agreement on the substance of measures is not possible.

7. CCAMLR Scheme of International Scientific Observation

7.1. In the 2000/01 season, 60 fishing voyages in the Convention Area were observed by CCAMLR-designated international scientific observers, or national observers, from Argentina, Australia, Brazil, Chile, France, Japan, New Zealand, South Africa, Spain, Ukraine, UK and Uruguay. Scientific observers provided 100% coverage of all CCAMLR fisheries targeting finfish and *M. hyadesi*, as well as partial coverage of the krill fishery.

8. Assessment and Avoidance of Seabird Incidental Mortality During Fishing

8.1. Over the past few years CCAMLR has played a leading role in international efforts to reduce seabird mortality in longline fisheries. Conservation Measure 29/XIX (first adopted in 1992 and then periodically revised) outlines procedures to be taken in mitigating such mortality. All of these procedures have been included in the FAO International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (IPOA-Seabirds).

8.2. CCAMLR's efforts have achieved much in addressing the problem within the regulated fisheries in the Convention Area. However, mortality of seabirds resulting from IUU fishing in the Convention Area remains undocumented and poses a serious concern. A concerted international effort is required to solve the problem.

8.3. The Commission has noted that overall compliance with Conservation Measure 29/XIX improved in 2000/2001 compared with the previous year. In 2001, CCAMLR-regulated longline fisheries in the Convention Area continued to exhibit a minimal incidence of seabird by-catch in Subarea 48.3 (0.0014 birds/thousand hooks), a significant improvement in the South African EEZ in Subareas 58.6 and 58.7 (a 61% reduction over 199/2000) and no incidental mortality in Subarea 88.1 for the fourth successive year.

8.4. Nevertheless, some vessels are still failing to comply with all elements of the Conservation Measures 29/XIX. Taking this into account, the Commission has stated that vessels equipped or configured so that they are unable to comply with the Measure should be prohibited from fishing in the Convention Area.

8.5. CCAMLR's efforts to reduce seabird by-catch in longline fisheries in the immediate future include:

- Continuing compulsory placement of international and national scientific observers on board all longline vessels fishing in the Convention Area;
- Ensuring full compliance with existing CCAMLR mitigation procedures under Conservation Measure 29/XIX;
- Conducting rigorous experiments on the effects of different elements of Conservation Measure 29/XIX for the Spanish longline system;
- Conducting further field trials in order to define a line-weighting regime for autoliners to be incorporated in Conservation Measure 29/XIX; and
- Continuing development of underwater longline setting gear and methods.

8.6. CCAMLR exchanges information with a number of international fisheries and conservation organizations striving to prevent incidental mortality of seabirds during fishing operations, on the state of Antarctic seabird populations affected by longline fisheries, incidental catches of seabirds in fisheries, and on CCAMLR's experience with mitigating techniques and with the consequent formulation of conservation measures.

8.7. CCAMLR Members participated actively in the development of a Regional Agreement for the Conservation of Albatrosses and Petrels under the Convention on the Conservation of Migratory Species of Wild Animals (CMS). This Agreement was open for signature on 19 June 2001. It is expected that the Agreement will come into force in 2002.

9. Ecosystem Monitoring and Management

9.1. Progress has been made in a number of areas. There is an increasing body of evidence to suggest that a substantial change may have occurred in the krill-based system's dynamics, most noticeably in terms of environmental conditions prevailing in Subareas 48.1 and 48.3.

9.2. Appropriate fishery-management frameworks are under development by CCAMLR to account for long-term changes in functional relationships between krill and its predators. Further work is being directed at:

- Defining small-scale management units, such as predator units;
- Reviewing the utility of the CCAMLR Ecosystem Monitoring Program (CEMP);
- Further developing prey-predator-fishery-environment models for use in the management of the krill fishery.
- A timeline for development of krill management procedure has been established.

10. Monitoring Marine Debris and its Impact on Marine Animals

10.1. CCAMLR annually reviews the marine debris issue. It has implemented a suite of measures to monitor and evaluate the impact of anthropogenic debris and waste on marine living resources in the Convention Area. At present, these include:

- Reporting by fishing vessels of lost or discarded fishing gear;
- Periodic surveys of marine debris on beaches and in seal and penguin colonies near coastal stations;

- Reporting accidental entanglement(s) in, or ingestion of, marine debris by birds, marine mammals, fish, and other animals; and
- Recording observations of marine mammals and seabirds soiled with hydrocarbons such as fuel oil.

11. Co-Operation with the Antarctic Treaty System & Other International Organizations

11.1. CCAMLR subscribes to the view that links between CCAMLR and the ATCM, particularly in respect of the Madrid Protocol, constitute a unique system of environmental protection for the Antarctic as a whole.

11.2. In accordance with Article 6(2) of Annex V of the Protocol, no marine area can be designated as an Antarctic Specially Protected Area (ASMA) or Specially Managed Area (ASMA) without CCAMLR's approval. Since Annex V is not yet in force, no proposals for marine areas have been formally submitted by the ATCM to CCAMLR for consideration. CCAMLR-XX confirmed that consideration of such proposals should be based on, but not limited exclusively by:

- Whether a site proposed for designation as a marine protected area affects actual or potential harvesting of marine resources in relation to Article II of the Convention, and
- Whether the draft management plan for the proposed site might prevent or restrict CCAMLR-related activities.
- It was recognized that the range of issues to be addressed by CCAMLR may vary, depending on the type of proposal(s) under consideration.

11.3. CCAMLR-XX also agreed on procedures to process proposals from the ATCM so that the necessary review can be undertaken within one calendar year of receipt. In this connection, it has agreed to:

- Strengthen cooperation with the ATCM and CEP, especially on issues such as monitoring and protection of the environment, preparation of the State of the Antarctic Environment Report (SAER), protected species and areas, environmental pollution and other common responsibilities;
- Maintain contact with the ATCM Secretariat, once established, and provide it with assistance as required;
- Co-ordinate activities relevant to the Protocol's implementation and, in particular, in respect of its Article 8. One of CCAMLR's key concerns relates to the issue of whether a Party to the Protocol has a right to require activities by another Party falling within CCAMLR's competence to be subject to an environmental impact assessment; and
- Maintain CCAMLR's distinct identity and responsibility in light of potential overlaps in competence between CCAMLR and the ATCM, especially taking into account that not all Members of CCAMLR are now parties to the Antarctic Treaty or Protocol.

11.4. Various tasks were identified for those Members representing CCAMLR at meetings of other international organizations in 2001/02 and a schedule of such attendance was drawn up.

12. Future Work

12.1. On the anniversary of its twentieth year, CCAMLR's reaffirmed that its future work will focus on:

- Enhancing the effectiveness of CCAMLR's multilateral nature and expanding, if appropriate, current co-operation with conservation initiatives in areas adjacent to the Convention Area;

- Continuing close cooperation with other ATS instruments, as well as other agreements applicable to the Convention Area;
- Developing a more extensive network of international contacts among fisheries and other relevant organizations; and
- Increasing efforts to preserve the Antarctic marine ecosystem, so as to contribute to ecological “health”, the sustainable use of marine living resources and, in particular, for the benefit of future generations.

Attachment I Statement by CCAMLR-XX on the Commemoration of 20 years of CCAMLR

The seventh of April 2002 will be the 20th Anniversary of the entry into force of the Convention for the Conservation of Antarctic Marine Living Resources, which was adopted in Canberra (Australia) in 1980. This anniversary is a landmark in the process, initiated by the Antarctic Treaty Consultative Parties, of comprehensive and systematic protection of the Antarctic environment and dependent and associated ecosystems from harmful human interference. With the entry into force of the Madrid Protocol and its Committee for Environmental Protection, and the decision to establish the Secretariat of the Antarctic Treaty in Buenos Aires, cooperation among all the components of the Antarctic Treaty System will be strengthened. With Namibia recently becoming a Member of the Commission and Vanuatu acceding, the Convention unites 31 Parties with interests in its area of application, all of whom celebrate with well-founded pride and optimism these first two decades of the organization's existence.

Indeed, through its conscientious and persistent efforts, CCAMLR has developed a practical and efficient regime for the protection and preservation of Antarctica's marine living resources. The aim of this international instrument is the conservation of Antarctic marine living resources, a concept which includes their rational use. The rigorous application of the CCAMLR Conservation Principles enshrined in Article II set the Convention apart from other marine resources regimes. In its broader context, this approach requires that the management of fisheries should take into account the effects of human activity on the living organisms of the Antarctic ecosystems and sub-ecosystems. It also requires that such management be consistent with the precautionary approach, which takes account of circumstances of biological uncertainty.

In accordance with this conservation-oriented and precautionary approach, the Convention provides for the mechanisms necessary to enforce its underlying principles, such as a Commission which adopts each year a series of measures and governs their enforcement; a Scientific Committee as a consultative body responsible for providing essential information, conducting scientific assessments and recommending appropriate measures; and a system of observation and inspection aimed at promoting the objective of the Convention and ensuring compliance with its provisions. CCAMLR, with its high standards of internal organization and its significant achievements, is an exemplary instrument of ecosystem protection. Over the past 20 years, it has established a comprehensive code of responsibility for its Member countries through the adoption and implementation of over 200 conservation measures.

The illegal, unregulated and unreported (IUU) fishing of *Dissostichus* spp., or toothfish, is one of the greatest challenges the Commission has had to face. In recent years, the catch rate of IUU fishing has been more than double that of the regulated fisheries, causing a significant decline of the toothfish populations in certain areas and depleting populations of seabirds, especially albatrosses and petrels which are caught incidentally in the longline fisheries. The firm commitment of the Members of the Commission to combat this problem has resulted in the adoption of a series of measures to enforce a stricter control. Of these, the most important has been the introduction of the Catch Documentation System for *Dissostichus* spp., which aims to ensure that the international trade of these species is consistent with CCAMLR's aims and conservation measures. This system represents a major step forward in the implementation of the objective of CCAMLR and shows the commitment of Contracting Parties towards the conservation and protection of the environment, consolidating the effectiveness of CCAMLR, its credibility as an organization within the international community and its leadership in the management of marine living resources.

Having noted the important achievements of this Convention, it is now appropriate to focus on its future work and other challenges arising worldwide. Among these, and giving due consideration to UNCLOS, is the need to develop a more extensive network of international contacts among fisheries organizations and, if appropriate, particularly those with competence over marine living resources in areas bordering that of the CCAMLR Convention. It is also necessary to continue to develop cooperation with other relevant organizations such as the Food and Agriculture Organization of the United Nations, the World Trade Organization etc., and to take duly into consideration the effects of the implementation of the other instruments of the Antarctic Treaty System, as well as other agreements applicable to the Convention Area. There is a need to ensure the effectiveness of the multilateral system of the CCAMLR and expand, if appropriate, the cooperation on conservation on areas adjacent to the Convention Area.

Finally, conscious of what needs to be done in the future and in appreciation of what has already been achieved, we, the Member countries gathered in Hobart in October 2001 to celebrate the Twentieth Meetings of the Commission and Scientific Committee of CCAMLR, commit ourselves to redouble our efforts to make certain that the marine ecosystems surrounding the Antarctic continent are preserved so as to contribute to the overall ecological equilibrium, to the sustainable use of marine living resources and, in particular, for the benefit of future generations.

Therefore, we commit ourselves to continue developing and perfecting the achievement of CCAMLR's objectives.

**Report by the Head of the Australian Delegation in his Capacity
as Representative of the Depository Government
for the Convention on the Conservation of Antarctic Marine
Living Resources to the Twenty-Fifth Antarctic Treaty
Consultative Meeting**

Australia, as depository Government to the Convention for the Conservation of Antarctic Marine Living Resources 1980 (the Convention) is pleased to report to the Twenty-Fifth Antarctic Treaty Consultative Meeting on the status of the Convention.

Australia advises the Antarctic Treaty Parties that, since the Twenty-Fourth Antarctic Treaty Consultative Meeting, no States have acceded to the Convention in accordance with Article XXVI of the Convention, nor have any States become members of the Commission for the Convention of Antarctic Marine Living Resources, in accordance with VII(2) of the Convention.

A copy of the status list for the Convention as at 10 September 2002 is attached to this report. This status list is available to States Parties to the Convention through Australian diplomatic missions, as well as via the internet on the Australian Treaties Database at the following internet address:

http://www.austlii.edu.au/au/other/dfat/treaty_list/deposit/camlr.html

**Convention on the Conservation
of Antarctic Marine Living Resources
(Canberra, 20 May 1980)**

Entry into force generally: 7 April 1982

Depositary: Australian Government

Printed text: ATS 1982 No. 9; Act 1981 No. 30; UKTS 1982 No. 48 (Cmnd. 8714); ILM 19 p. 841; TIAS 10240; CTS 1988 No. 37; NZTS 1981 No. 12.

Participant Signature Ratification

Participant	Signature	Ratification Accession (a) Acceptance (A) Succession (s)
Australia	11 Sep 1980	6 May 1981
Argentina ¹	11 Sep 1980	28 May 1982
Belgium	11 Sep 1980	22 Feb 1984
Brazil		28 Jan 1986 (A)
Bulgaria		1 Sep 1992 (a)
Canada ²		1 Jul 1988 (a)
Chile	11 Sep 1980	22 Jul 1981
European Community		21 Apr 1982 (a)
Finland		6 Sep 1989 (a)
France ^{2, 3C}	16 Sep 1980	16 Sep 1982
Germany ^{3A, C, D, 4}	11 Sep 1980	23 Apr 1982
Greece		12 Feb 1987 (a)
India		17 Jun 1985 (A)
Italy		29 Mar 1989 (a)
Japan	12 Sep 1980	26 May 1981 (A)
Korea, Republic of		29 Mar 1985 (a)
Namibia		29 Jun 2000 (a)
Netherlands		23 Feb 1990 (a)
New Zealand	11 Sep 1980	8 Mar 1982
Norway	11 Sep 1980	6 Dec 1983
Peru		23 Jun 1989 (a)
Poland	11 Sep 1980	28 Mar 1984
Russia*		15 Jan 1992 (s)
South Africa	11 Sep 1980	23 Jul 1981
Spain		9 Apr 1984 (a)
Sweden		6 Jun 1984 (a)
Ukraine ⁵		22 Apr 1994 (s)
United Kingdom	11 Sep 1980	31 Aug 1981
United States of America	11 Sep 1980	18 Feb 1982
Uruguay		22 Mar 1985 (a)
Vanuatu		20 Jun 2001 (a)

* Signed for the Union of the Soviet Socialist Republics (USSR) on 11 September 1980 and instrument of ratification deposited for the USSR on 26 May 1981. Russia is the continuation State of the USSR (Russian MFA no. 11/UGP of 13 January 1992). See also Note ^{3B}.

1. The instrument of ratification of the Argentine Republic contained the following:

“La República Argentina adhiere expresamente a la Declaración interpretativa efectuada por el señor Presidente de la Conferencia el 19 de mayo de 1980 e incluida en el Acta Final de la Conferencia y deja constancia que nada de lo establecido en esta Convención afecta o menoscaba sus derechos de soberanía y de jurisdicción marítima en las áreas bajo dicha soberanía dentro del área de aplicación definida por el artículo I.1. de esta Convención.”

of which an unofficial English translation reads as follows:

“The Argentine Republic adheres expressly to the interpretative Declaration made by the President of the Conference on 19 May 1980 and included in the Final Act of the Conference and records that nothing contained in this Convention affects or impairs its rights of sovereignty and maritime jurisdiction in the areas under its said sovereignty within the area of application defined in Article I(1) of this Convention.”

2. The instrument of ratification of the French Republic included the following:

“Declarons qu'elle est acceptée, ratifiée et confirmée et promettons qu'elle sera inviolablement observée sous les réserves et déclarations suivantes:

Le Gouvernement de la République Française confirme son intention de considérer l'application des dispositions de la Convention sur la Conservation de la Faune et de la Flore Marines de l'Antarctique aux eaux adjacentes a Kerguelen et Crozet a la lumiere des précisions fournies par la déclaration effectuée le 19 mai 1980 par le président de la Conférence, adoptée sans objection et annexée a l'Acte Final et déclare, qu'a ses yeux, les deux instruments ne peuvent etre interprétés indépendamment l'un de l'autre.”

of which an unofficial English translation reads as follows:

“We declare that the Convention is accepted, ratified and confirmed and we promise that it will be inviolably observed subject to the following reservations and statements:

The Government of the French Republic confirms its intention to consider the application of the provisions of the Convention on the Conservation of Antarctic Marine Living Resources to the waters adjacent to Kerguelen and Crozet in the light of the clarification given in the declaration made on 19 May 1980 by the Chairman of the Conference, which was adopted without objection and annexed to the Final Act and declares, that in the view of the French Government, the two instruments cannot be interpreted independently of each other.”

3A. In communications in German and English accompanying its instrument of ratification, the Government of the Federal Republic of Germany declared in the German language as follows:

“ich beehre mich, im Namen der Regierung der Bundesrepublik Deutschland im Zusammenhang mit der heutigen Hinterlegung der Ratifikationsurkunde zum Übereinkommen vom 20. Mai 1980 über die Erhaltung der lebenden Meeresschätze der Antarktis zu erklären, daß das Übereinkommen mit Wirkung von dem Tage, an dem es für die Bundesrepublik Deutschland in Kraft treten wird, auch für Berlin (West) gilt.”

and in English as follows:

“In connexion with the deposit today of the instrument of ratification to the Convention of the twentieth day of May 1980 concerning the Conservation of Antarctic Marine Living Resources, I have the honour to declare on behalf of the Government of the Federal Republic of Germany that the

said Convention shall apply to Berlin (West) with effect from the date on which it enters into force for the Federal Republic of Germany.”

3B. In a note dated 27 September 1982 received on 29 September 1982 the Embassy of the Union of Soviet Socialist Republics, conveyed the following:

“The declaration of the FRG concerning the application of the Convention to West Berlin is illegal. This Convention is linked to the Antarctic Treaty and contains direct references to it (Preamble, Articles III, IV, V, IX, XIII of the Convention). Meanwhile, the Antarctic Treaty directly involves the questions of security and status and is therefore one of the international treaties and agreements which the FRG, as it is clearly stated in the Quadripartite Treaty of 3 September 1971, has no right to apply to West Berlin. This point of view of the Soviet side was brought by the Government of the United States in its quality of Depository of the Treaty to attention of all its parties on 6 August 1979.

Besides, the Convention itself contains a number of Articles which also directly involve the questions of status (Articles VIII, XI, XXIV).

Taking all this into consideration the Soviet side regards the declaration of the FRG concerning the application of the Convention on the Conservation of Antarctic Marine Living Resources to West Berlin as contradictory to the Quadripartite Treaty of 3 September 1971 and therefore invalid.”

3C. In a note of 22 March 1983 the Embassy of the French Republic, Canberra, conveyed the following declaration on behalf of the Governments of the French Republic, the United Kingdom of Great Britain and Northern Ireland and the United States of America (in relation to the declaration made by the Soviet Union received on 29 September 1982):

“- Dans une communication au Gouvernement de l'URSS qui fait partie intégrante (annexe IV A) de l'accord quadripartite du 3 septembre 1971, les Gouvernements de France, du Royaume-Uni et des Etats-Unis ont confirmé que, a condition que les questions de sécurité et de statut ne soient pas affectées et que l'extension soit précisée dans chaque cas, les accords et arrangements internationaux auxquels la République Fédérale d'Allemagne devient partie, peuvent être étendus aux secteurs occidentaux de Berlin conformément aux procédures établies. Pour sa part le Gouvernement de l'URSS dans une communication aux trois Puissances qui fait également partie intégrante (annexe IV B) de l'accord quadripartite du 3 septembre 1971, a affirmé qu'il ne souleverait pas d'objection contre une telle extension.

- Les procédures établies auxquelles il est fait référence ci-dessus et qui ont été confirmées par l'accord quadripartite, sont destinées inter alia, a donner aux autorités des trois Puissances la possibilité de garantir que les accords et arrangements internationaux auxquels la République Fédérale d'Allemagne devient partie et qui doivent être étendus aux secteurs occidentaux de Berlin le sont de telle manière que les questions de sécurité et de statut ne soient pas affectées.

- En autorisant l'extension de la Convention mentionnée ci-dessus aux secteurs occidentaux de Berlin, les autorités des trois Puissances ont pris les dispositions nécessaires pour garantir que les questions de sécurité et de statut ne sont pas affectées. En conséquence, la validité de la déclaration de Berlin faite par la République Fédérale d'Allemagne conformément aux procédures établies n'est pas affectée et la Convention continue de s'appliquer pleinement aux secteurs occidentaux de Berlin et d'y produire tous ses effets.

- La note Soviétique se réfère également a l'extension aux secteurs occidentaux de Berlin du Traité de l'Antarctique. A cet égard, les trois Puissances souhaitent appeler a nouveau l'attention sur la note du Département d'Etat des Etats-Unis du 21 Aout 1980 diffusée par le Département d'Etat dans sa note du 12 janvier 1981.”

of which an unofficial English translation follows:

“- In a communication to the Government of the Union of Soviet Socialist Republics, which is an integral part (annex IV A) of the quadripartite agreement of 3 September 1971, the Governments of France, the United Kingdom and the United States confirmed that, provided that matters of security and status are not affected and provided that the extension is specified in each case, international agreements and arrangements entered into by the Federal Republic of Germany may be extended to the western sectors of Berlin in accordance with established procedures. For its part, the Government of the Union of Soviet Socialist Republics, in a communication to the Governments of the three powers which is similarly an integral part (annex IV B) of the quadripartite agreement of 3 September 1971, affirmed that it would raise no objection to such extension.

- The established procedures referred to above, which were endorsed in the quadripartite agreement, are designed *inter alia* to afford the authorities of the three powers the opportunity to ensure that international agreements and arrangements entered into by Federal Republic of Germany which are to be extended to the western sectors of Berlin are extended in such a way that matters of security and status are not affected.

- When authorizing the extension of the above-mentioned convention to the western sectors of Berlin, the authorities of the three powers took such steps as were necessary to ensure that matters of security and status were not affected. Accordingly, the validity of the Berlin declaration made by the Federal Republic of Germany in accordance with established procedures is unaffected and the application of the convention to the western sectors of Berlin continues in full force and effect.

- The Soviet note also refers to the extension of the Antarctic Treaty to the western sectors of Berlin. In this connection, the three powers wish to recall the United States Department of State's note of 21 August 1980, which was circulated by the Department of State with its note of 12 January 1981."

3D. In a note dated 30 March 1983 the Embassy of the Federal Republic of Germany, Canberra, conveyed the following on behalf of the Government of the Federal Republic of Germany in relation to the declaration made by the Soviet Union received on 29 September 1982 on the extension to the western sectors of Berlin of the Convention:

"With note No. 30 dated March 22, 1983, of the Embassy of France in Canberra the Government of France replied to the assertion made in the communication referred to above. The Government of the Federal Republic of Germany, on the basis of the legal situation set out in the note No. 30 of the Embassy of France in Canberra wishes to confirm that the application to Berlin (West) of the aforementioned convention extended by it under the established procedures continues in full force and effect.

The Government of the Federal Republic of Germany wishes to point out that the absence of a response to further communication of a similar nature should not be taken to imply any change of its position in this matter."

4. The Convention was signed for the German Democratic Republic (GDR) on 11 September 1980 and an instrument of approval was deposited on 30 March 1982. The GDR acceded to the Federal Republic of Germany on 3 October 1990.

5. In its instrument dated 23 February 1994 and deposited 22 April 1994, the Government of Ukraine informed that:

"... at the 4th February 1994 Verkhova Rada of Ukraine adopted the resolution provided to succeed Ukraine to the Convention for the Conservation of Antarctic Marine Living Resources as one of the states-members of former USSR."

A Note from the British High Commission, Canberra, dated 27 June 1994 and deposited 1 July 1994, stated, *inter alia*:

“The United Kingdom welcomes the adherence of Ukraine to the Convention, but in view of the nature of the Convention, and in particular the provisions of Article XXIX(1) and Article VII(2)(b) and (d), the United Kingdom regards the Ukrainian Note as an instrument of accession.”

A Note from the Embassy of the United States of America, Canberra, dated 5 July 1994 and deposited 6 July 1994, stated, *inter alia*:

“The Embassy wishes to inform ... that the Government of the United States of America welcomes the participation of Ukraine in CCAMLR. Based on Ukraine’s accession to the Convention ... ”

A Note from the Royal Norwegian Embassy, Canberra, dated 2 August 1994 and deposited 3 August 1994, stated, *inter alia*:

“The Norwegian Government welcomes the participation of Ukraine in the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) and considers the Ukrainian note of 22 April 1994 as a formal notification of accession in accordance with Article XXIX(1) of the said Convention.”

A Note from the Embassy of Sweden, Canberra, dated 23 September 1994 and deposited 26 September 1994, stated, *inter alia*:

“Sweden welcomes the participation of Ukraine in the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR). The Ukrainian note of 22 April, 1994 is regarded as a notification of accession in accordance with Article XXIX(1) of the Convention ... ”

A Note from the Embassy of Finland, Canberra, dated 28 October 1994 and deposited on the same date, referred, *inter alia*, to:

“ ... the adherence of Ukraine to the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR).”

Report
Submitted to the Antarctic Treaty Consultative Meeting XXV
by the Depositary Government for the Convention
for Conservation of Antarctic Seals (United Kingdom)
in Accordance with Recommendation XIII-2, Paragraph 2(d)

This report covers events regarding the Convention for the Conservation of Antarctic Seals (CCAS) for the reporting years 1 March 2000 to 28 February 2001 and 1 March 2001 to 29 February 2002. As the Antarctic Treaty Consultative Meeting XXV is being held after the close of the 2002 reporting period it has been possible to report for two consecutive years. Events prior to 1 March 2000 were reported to Antarctic Treaty Consultative Meetings XVIII, XIX, XX, XXI, XXII XXIII and XXIV (see respective Annexes in each report).

The annual reports required by Article 5 (Capture and Killing of Seals) of the Convention are reproduced as Annex A and Annex B to this report.

The United Kingdom would like to remind Contracting Parties that the reporting period for the Exchange of Information is from 1 March to end of February each year. The reporting period was changed to the above dates during the September 1988 Meeting to Review the Operation of the Convention. This is documented in Paragraph 19(a) of the Report of that Meeting.

The Exchange of Information, referred to in Paragraph 6(a) in the Annex to the Convention, should be submitted to other Contracting Parties and to SCAR by 30 June each year, including nil returns. Currently not all the information required in paragraph 6(a) is being provided. Neither is it being provided on time or with any regularity. The accuracy of the CCAS figures is therefore being compromised.

Since the Antarctic Treaty Consultative Meeting XXIII there have been no accessions to CCAS. A list of countries which were original signatories to the Convention, and countries which have subsequently acceded, is attached (Annex C) to this report.

Annex A

Convention for the Conservation of Antarctic Seals (CCAS)

Synopsis of reporting in accordance with Article 5 and the Annex of the Convention: Capture and killing of seals during the period 1 March 2000 to 28 February 2001.

Contracting Party	Captured	Killed
Argentina	Nil	Nil
Australia	Nil	Nil
Belgium	Nil	Nil
Brazil	Nil	Nil
Canada	Nil	Nil
Chile †	798	Nil
France	Nil	Nil
Germany	Nil	Nil
Italy	Nil	Nil
Japan ††	300	Nil
Norway †††	52	1
Poland	*	*
Russia	Nil	Nil
South Africa	Nil	Nil
UK	Nil	Nil
USA †	2097	Nil

* No report returned

† These were captured on Livingston Island and comprised 798 *Arctocephalus gazella* species.

†† These were captured for tagging on Syowa Station and comprised 300 *Leptonychotes weddelli* species.

††† These were captured on Rampen, Dronning Maud Land and comprised 9 *Lobodon carcinophagus*, 3 *Hydrurga leptonyx*, 20 *Leptonychotes weddelli*, 20 *Ommatopochu rossi* species. One *Hydrurga leptonyx* died during capture.

† These were captured for tagging at various locations and comprised 980 *Leptonychotes weddelli*, 12 *Lobodon carcinophagus*, 1105 *Arctocephalus gazella* species.

Annex B**Convention for the Conservation of Antarctic Seals (CCAS)**

Synopsis of reporting in accordance with Article 5 and the Annex of the Convention: Capture and killing of seals during the period 1 March 2001 to 29 February 2002.

Contracting Party	Captured	Killed
Argentina †	164	Nil
Australia	*	*
Belgium	*	*
Brazil	Nil	Nil
Canada	Nil	Nil
Chile	*	*
France	Nil	Nil
Germany	Nil	Nil
Italy	*	*
Japan ††	2	Nil
Norway	Nil	Nil
Poland	*	*
Russia	Nil	Nil
South Africa	Nil	Nil
UK	Nil	Nil
USA	*	*

* No report returned

† These were captured on King George Island and comprised 164 *Mirounga leonina* species.

†† These were captured for tagging on Syowa Station and comprised 2 *Leptonychotes weddelli* species.

Annex C**Convention for the Conservation of Antarctic Seals (CCAS)**

London, 1 June - 31 December 1972

(The Convention entered into force on 11 March 1978)

State	Date of Signature	Date of deposit Ratification or Acceptance
Argentina ¹	9 June 1972	7 March 1978
Belgium	9 June 1972	9 February 1978
New Zealand	9 June 1972	Not ratified
Norway	9 June 1972	10 December 1973
South Africa	9 June 1972	15 August 1972
Russia ^{1,2,4}	9 June 1972	8 February 1978
United Kingdom ²	9 June 1972	10 September 1974 ³
United States of America ²	28 June 1972	19 January 1977
Australia	5 October 1972	1 July 1987
France	19 December 1972	19 February 1975
Chile ^a	28 December 1972	7 February 1980
Japan	28 December 1972	28 August 1980

Accessions

State	Date of Deposit of Instrument of Accession
Poland	15 August 1980
Germany, Federal Republic of	30 September 1987
Canada	4 October 1990
Brazil	11 February 1991
Italy	2 April 1992

Declaration or Reservation

Objection

The instrument of ratification included the Channel Islands and the Isle of Man

Former USSR

Polar Regions Section

Overseas Territories Department

Foreign and Commonwealth Office

London SW1A 2AH, United Kingdom

**The International Council for Science
Scientific Committee on Antarctic Research**



SCAR Report to XXV ATCM

Warsaw, Poland 2002

**XXV Antarctic Treaty Consultative Meeting
Warsaw, Poland, 10-20 September 2002**

SCAR Report to XXV ATCM

Warsaw, Poland 10-20 September 2002

Report under Recommendation XIII-2

Executive Summary

The Twenty-seventh Meeting of the Scientific Committee on Antarctic Research (XXVII SCAR), held in Shanghai, China, 15-26 July 2002, was a landmark meeting at which the major work of re-structuring SCAR was achieved. The process of re-organization will continue during the next two years, as the new Scientific Standing Groups refine their *modi operandi*, and will be completed at XXVIII SCAR in 2004 with the new style of SCAR meeting.

The first week began with the meetings of the SCAR Working Groups, followed on Wednesday by a successful symposium on "The Antarctic sea ice zone: physical and biological processes and interactions". On Thursday and Friday three new Scientific Standing Groups on Geosciences, Life Sciences and Physical Sciences were formed. This new structure will enable SCAR to address inter-disciplinary science more efficiently and integrate more effectively with other international and global programmes. Each group elected three officers and established sub-groups to accommodate their various activities. During the week the Executive Committees of SCAR and COMNAP held a joint meeting. On Saturday morning there was a SCAR-COMNAP discussion forum with presentations on: Subglacial Lakes, Antarctic Neotectonics, the Cybercartographic Atlas, and the Southern Ocean.

At the SCAR Delegates Meeting, Delegates accepted Peru as a Full Member of SCAR and noted, with regret, the withdrawal of Estonia from Associate Membership. Two Delegate Committees were formed to discuss scientific and organizational matters and two new Standing Committees were established on the Antarctic Treaty System, and on SCAR Finance. The arrangements for the XXVIII SCAR meeting in Germany during 2004 were confirmed to provide a SCAR Science week in July followed by the Delegates meeting about 3 months later, thereby allowing more adequate consideration of the reports from the Scientific Standing Groups. A new President, Professor Dr Jörn Thiede (Germany), and two new Vice-Presidents were elected. Delegates also agreed that an Executive Director should be appointed to reinforce the staffing of the SCAR Secretariat.

The highlight of the year was the award to SCAR of the Prince of Asturias Prize for International Cooperation 2002 in recognition of SCAR's role in international cooperation in Antarctica. Delegates agreed that the Prize should be used to establish a SCAR Fellowship Programme to fund five young scientists to undertake Antarctic research in a country other than their own.

SCAR Report to XXV ATCM
Warsaw, Poland
10-20 September 2002

Report under Recommendation XIII-2

1. Introduction

Since XXIV ATCM in St Petersburg, Russia, July 2001, the principal event for SCAR has been the XXVII SCAR Meeting, held in Shanghai, China, during July 2002. The fourteenth annual meeting of the Council of Managers of National Antarctic Programmes (COMNAP XIV) was held in parallel during the first week of the SCAR meeting. The SCAR and COMNAP Executive Committees held a joint meeting during this time.

The highlight of the year was the award to SCAR of the Prince of Asturias Prize for International Cooperation 2002. This prestigious Spanish prize is awarded in recognition of SCAR's role in international cooperation in Antarctica.

2. XXVII SCAR Meeting

The Twenty-seventh Meeting of the Scientific Committee on Antarctic Research (XXVII SCAR) was held in Shanghai, China, 15-26 July 2002 at the Shanghai Exhibition Centre. This was a landmark meeting for SCAR as the re-structuring of SCAR, recommended by the ad hoc Group on SCAR Organization and Structure and adopted by the Delegates at XXVI SCAR in Tokyo, Japan, July 2000, was put into place.

The first week of the meeting began with the traditional meetings of all the SCAR Working Groups plus meetings of some Groups of Specialists. These groups completed the reports of their final meetings on Tuesday. Wednesday was devoted to a very successful symposium on "The Antarctic sea ice zone: physical and biological processes and interactions". On Thursday and Friday the members of the former Working Groups and Groups of Specialists reconvened in three new Scientific Standing Groups on Geosciences, Life Sciences and Physical Sciences. Each group elected a Chief Officer, Deputy Chief Officer and a Secretary, and established a number of sub-groups to accommodate their various activities.

On Saturday morning there was a SCAR-COMNAP discussion forum with presentations on four main themes: Subglacial Lakes, Antarctic neotectonics, Cybercartographic Atlas, and the Southern Ocean.

The SCAR Delegates Meeting took place during the second week. Delegates first agreed to accept Peru as a Full Member of SCAR, bringing the number of Full Members to twenty-seven. Delegates also noted with regret that Estonia had withdrawn from Associate Membership of SCAR. After receiving presentations by the Chief Officers, the Delegates divided into two Delegate Committees to discuss scientific and organizational matters. Two new Standing Committees were established on the Antarctic Treaty System, and on SCAR Finance but a third Standing Committee on Antarctic Data was not considered necessary. Delegates also agreed that the Prince of Asturias Prize for International Cooperation 2002 should be used to establish a SCAR Fellowship Programme to fund five young scientists to undertake relevant Antarctic research in a country other than their own. The planned arrangements for the XXVIII SCAR meeting in Germany during 2004 were confirmed.

Elections were held for a new President and two new Vice-Presidents. Delegates also agreed that an Executive Director should be appointed to reinforce the staffing of the SCAR Secretariat.

Thus the major work of re-structuring SCAR was achieved. The process of re-organization will continue during the next two years, as the new Scientific Standing Groups refine their *modi operandi*, and will be completed at XXVIII SCAR in 2004 with the new style of SCAR meeting.

The SCAR Executive Committee is scheduled to meet at Brest, France, July 2003, in conjunction with the COMNAP XV meeting. The XXVIII SCAR meeting will be held in two parts: a SCAR Science Week to be held in Bremen, Germany, 25-31 July 2004 when the Scientific Standing Groups will meet around a symposium on a relevant subject; and the Delegates Meeting to be held in Bremerhaven, Germany, 3-9 October 2004. The COMNAP XVI meeting is scheduled to be held in conjunction with the SCAR Science Week.

SCAR Executive Committee (2002-04)

President:	Professor Dr J Thiede (Germany)
Past President:	Dr R H Rutherford (United States)
Vice-Presidents:	Dr R Schlich (France)
	Professor C G Rapley (United Kingdom)
	Professor J López-Martínez (Spain)
	Dr C Howard-Williams (New Zealand)
	Professor A C Rocha-Campos (Brazil) was elected an Honorary Member of SCAR.

Scientific Standing Groups

The Standing Scientific Groups have established a number of sub-groups to accommodate the various activities in progress and being planned. Action Groups are short-term groups to address specific matters and will normally be expected to complete their activity in 2-4 years. Expert Groups will address matters on a longer time-scale. Scientific Programme Planning Groups may be established to develop plans for a research programme that will be presented to SCAR for adoption as a Scientific Research Programme. Such proposed programmes will normally be multi-disciplinary and will normally involve more than one Scientific Standing Group. There will normally be up to five Scientific Research Programmes representing priority research fields for SCAR. Each programme will be coordinated by a Scientific Programme Group.

At XXVII SCAR the Delegates approved the following sub-groups to take account of existing activities of the former Working Groups and Groups of Specialists and to prepare for activities planned for the future.

Geosciences

Chief Officer:	Dr P E O'Brien (Australia)
Deputy Chief Officer:	Professor A Capra (Italy)
Secretary:	Professor B C Storey (New Zealand)

Action Groups on:

- Age, Growth and Evolution of Antarctica (AGEANT)
- Permafrost (PAG)
- Communication and Outreach

Expert Group on:

Geospatial Information

Scientific Programme Planning Groups on:

Antarctic Climate Evolution (ACE)

Antarctic Neotectonics (ANTEC)

Scientific Programme Group on:

Subglacial Antarctic Lake Exploration (SALE)

Life Sciences

Chief Officer: Professor S L Chown (South Africa)

Deputy Chief Officer: Professor L A Palinkas (United States)

Secretary: Dr A H L Huiskes (The Netherlands)

Action Groups on:

Global International Waters Assessment (GIWA)

Best Practices for Conservation

Biological Monitoring

Expert Groups on:

Birds

Seals

Human Biology and Medicine

Scientific Programme Planning Group on:

Evolution and Biodiversity in Antarctica: the Response of Life to Change

Scientific Programme Groups on;

Ecology of the Antarctic Sea-Ice Zone (EASIZ)

Antarctic Pack Ice Seals (APIS)

Evolutionary Biology of Antarctic Organisms (EVOLANTA)

Physical Sciences

Chief Officer: Dr J Turner (United Kingdom)

Deputy Chief Officer: Dr M Candidi (Italy)

Secretary: Dr T H Jacka (Australia)

Action Groups on:

Plateau Astronomy Site Testing in Antarctica (PASTA)

Middle Atmosphere Dynamics and Relativistic Electron Precipitation (MADREP)

Antarctic Peninsula Tropospheric-Ionospheric Coupling (APTIC)

Oceanography

Reference Antarctic Data for Environmental Research (READER)

Antarctic Katabatic Winds

Antarctic Tropospheric Aerosols and their Role in Climate (ATAC)

Expert Groups on:

Solar-Terrestrial Processes and Space Weather (STEPS)
Antarctic Astronomy and Astrophysics (AAA)
Operational Meteorology in the Antarctic
Ice Sheet Mass Balance and Sea Level (ISMASS)
International Trans-Antarctic Scientific Expedition (ITASE)
Antarctic Sea-Ice Processes and Climate (ASPeCt)

Scientific Programme Planning Groups on:

Antarctica and the Global Climate System

Inter-hemispheric Conjugacy on Environmental, Solar-Terrestrial and Atmospheric Research (ICESTAR)

Standing Committees

Antarctic Treaty System

Chief Officer: Professor D W H Walton (United Kingdom)
Member: Professor M C Kennicutt II (United States)
Member: Professor D M Stoddart (Australia)

To provide SCAR with independent scientific advice on issues relating to the Antarctic Treaty System, particularly the Protocol on Environmental Protection to the Antarctic Treaty, and to other relevant organizations as appropriate.

Finance

Chief Officer: Dr R Schlich (France)
Member: Dr G Kleinschmidt (Germany)
Member: Dr S H Lee (Korea)

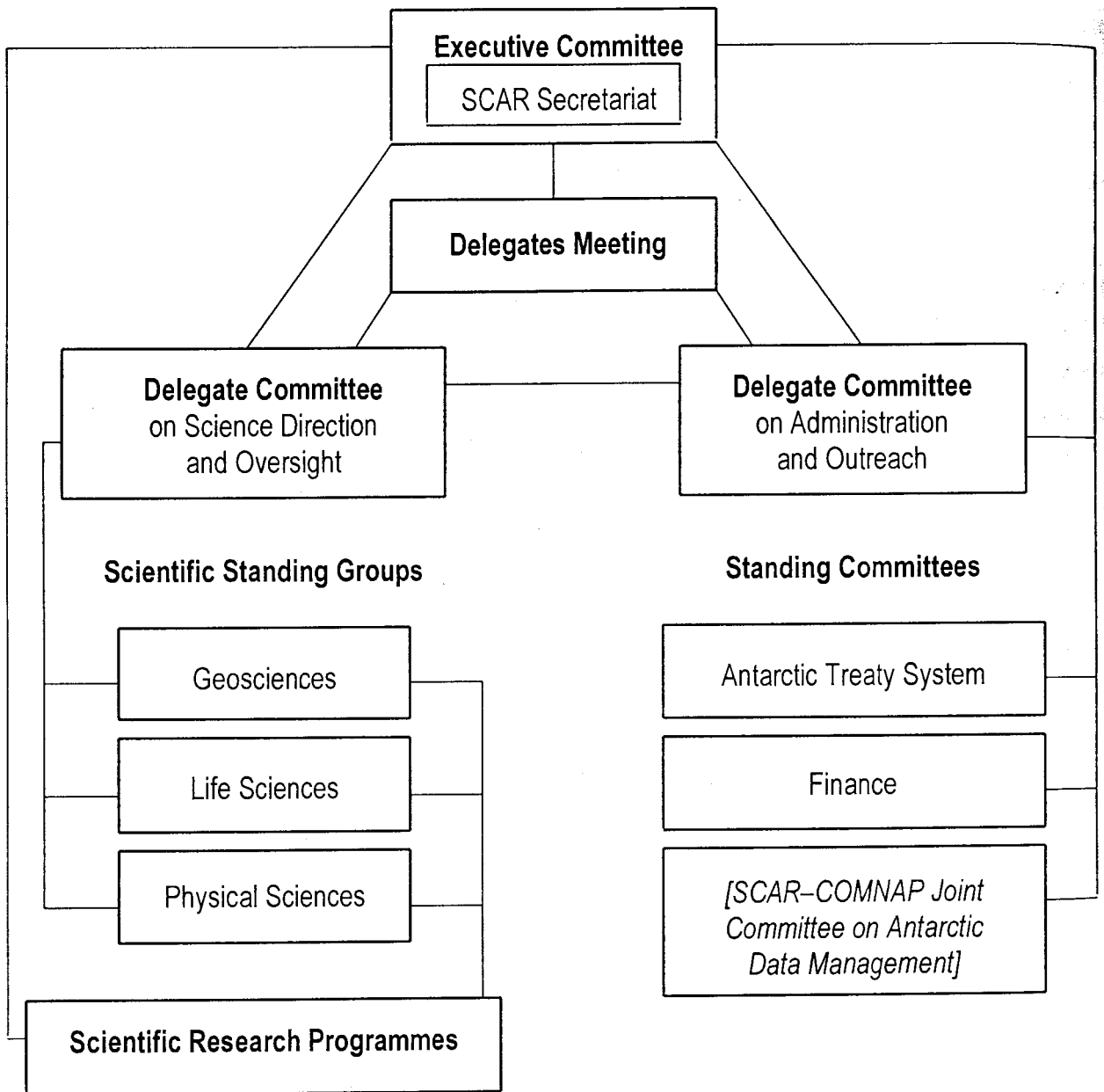
To advise SCAR on all financial matters, to prepare annual accounts and to propose balanced annual budgets.

[SCAR-COMNAP Joint Committee on Antarctic Data Management (JCADM)]

Chief Officer: Mr D Peterson (New Zealand)
Deputy Chief Officer: Dr L Belbin (Australia)
Secretary: Dr T de Bruin (The Netherlands)

To advise SCAR (and COMNAP) on all aspects of Antarctic data matters.

3. Outline Structure of SCAR



4. Prince of Asturias Awards

The Prince of Asturias Awards recognize the scientific, cultural and social work conducted internationally by individuals, groups and institutions whose achievements represent an example for mankind.

The Awards were established in 1980 by the Prince of Asturias Foundation, a non-profit institution that aims to promote the Sciences, Technology, Concord, Arts and Letters. HRH Crown Prince Felipe of Spain, the Prince of Asturias, presides over the Foundation and presents the awards annually at a symbolic ceremony in Asturias, Spain, before an invited audience from the worlds of society, politics and culture in Europe, Japan and the Americas. The ceremony attracts extensive international press, radio and television coverage and is considered one of the principal events in the European and Latin American cultural calendar.

Each Award comprises a diploma, a sculpture by the Spanish artist Joan Miró and a cash prize of 50,000 Euros.

There are eight different Prince of Asturias Awards: Communications and Humanities; Letters; the Arts; Technical and Scientific Research; International Co-operation; Concord; Social Sciences; and Sports.

Prince of Asturias Award for International Cooperation 2002

This Award will be bestowed upon the individual, work group or institution whose work has contributed in an exemplary and significant way to mutual understanding, progress and brotherhood among nations.

The jury for the Prince of Asturias Award for International Cooperation 2002 has agreed to bestow this Award on the Scientific Committee on Antarctic Research (SCAR) for international collaboration in Antarctica. The Jury expressed its satisfaction at being able to recognize such important cooperation for the benefit of the international scientific community.

SCAR is deeply honoured by this illustrious award that recognizes its contribution to international science and cooperation for almost half a century.

Appendix 1

Membership of SCAR

Full members:	Date of admission to Associate Membership	Date of admission to Full Membership
Argentina		3 February 1958
Australia		3 February 1958
Belgium		3 February 1958
Chile		3 February 1958
France		3 February 1958
Japan		3 February 1958
New Zealand		3 February 1958
Norway		3 February 1958
South Africa		3 February 1958
Russia (formerly Union of Soviet Socialist Republics)	3 February 1958	
United Kingdom		3 February 1958
United States of America		3 February 1958
Germany (including former German Democratic Republic)	22 May 1978	
Poland		22 May 1978
India		1 October 1984
Brazil		1 October 1984
China		23 June 1986
Sweden	(24 March 1987)	12 September 1988
Italy	(19 May 1987)	12 September 1988
Uruguay	(29 July 1987)	12 September 1988
Spain	(15 January 1987)	23 July 1990
Netherlands	(20 May 1987)	23 July 1990
Korea, Republic of	(18 December 1987)	23 July 1990
Finland	(1 July 1988)	23 July 1990
Ecuador	(12 September 1988)	15 June 1992
Canada	(5 September 1994)	27 July 1999
Peru	(14 April 1987)	22 July 2002

Associate Members:

Switzerland	16 June 1987
Pakistan	15 June 1992
Ukraine	5 September 1994
Bulgaria	5 March 1995

ICSU	Union Members
IGU	International Geographical Union
IUBS	International Union of Biological Sciences
IUGG	International Union of Geodesy and Geophysics
IUGS	International Union of Geological Sciences
IUPAC	International Union of Pure and Applied Chemistry
IUPS	International Union of Physiological Sciences
URSI	Union Radio Scientifique Internationale

Appendix 2

Scar Executive Committee

President

Professor Dr J Thiede

Alfred-Wegener-Institut für Polar- und Meeresforschung, Columbusstraße,
Postfach 120161, D-27568 Bremerhaven, Germany
Tel: +49 471 4831 1100 / 1101; Fax: +49 471 4831 1102;
E-mail: jthiede@awi-bremerhaven.de

Past President

Dr R H Rutherford

Geosciences Program, The University of Texas at Dallas, PO Box 830688,
MS: FO 21, Richardson, TX 75083-0688, United States of America.
Tel: +1 972 883 6470; Fax: +1 972 883 2482;
E-mail: rutherford@utdallas.edu

Vice-Presidents

Dr R Schlich

Ecole et Observatoire des Sciences de la Terre,
5 Rue René Descartes, 67084 Strasbourg, France.
Tel: +33 3 88 45 01 91; Fax: +33 3 88 60 38 87;
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Professor C G Rapley

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Professor J López-Martínez

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Dr C Howard-Williams

National Institute of Water and Atmospheric Research,
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E-mail: c.howard-williams@niwa.co.nz

Executive Secretary

Dr P D Clarkson

SCAR Secretariat, Scott Polar Research Institute,

Lensfield Road, Cambridge, CB2 1ER, United Kingdom.

Tel: +44 1223 362061; Fax: +44 1223 336550;

E-mail: execsec@scar.demon.co.uk

Web-site: <http://www.scar.org>

Appendix 3

SCAR Chief Officers

Standing Scientific Groups

Geosciences

Dr P. E. O'Brien, Australian Geological Survey Organization, PO Box 378, Canberra, ACT 2601, Australia

E-mail: Phil.OBrien@ga.gov.au

Life Sciences

Professor S. L. Chown, Department of Zoology, University of Stellenbosch, Private Bag X1, Matieland 7602, South Africa

E-mail: slchown@sun.ac.za

Physical Sciences

Dr J. Turner, British Antarctic Survey, High Cross, Madingley Road, Cambridge CB3 0ET, United Kingdom.

E-mail: j.turner@bas.ac.uk

Standing Committees

Antarctic Treaty System

Professor D. W. H. Walton, British Antarctic Survey, High Cross, Madingley Road, Cambridge CB3 0ET, United Kingdom.

E-mail: d.walton@bas.ac.uk

Finance

Dr R. Schlich, Ecole et Observatoire des Sciences de la Terre, 5 Rue René Descartes, 67084 Strasbourg, France.

E-mail: roland.schlich@eost.u-strasbg.fr

SCAR-COMNAP Joint Committee on Antarctic Data Management

Mr D. Peterson, Antarctica New Zealand, International Antarctic Centre, Orchard Road, Private Bag 4745, Christchurch, New Zealand.

E-mail: d.peterson@antarcticanz.govt.nz

Appendix 4

List of Acronyms and Abbreviations

AAA	Antarctic Astronomy and Astrophysics
ACE	Antarctic Climate Evolution
AGEANT	Age, Growth and Evolution of Antarctica
ANTEC	Antarctic Neotectonics
APIS	Antarctic Pack Ice Seals
APTIC	Antarctic Peninsula Tropospheric-Ionospheric Coupling
ASPeCt	Antarctic Sea-Ice Processes and Climate
ATAC	Antarctic Tropospheric Aerosols and their role in Climate
ATS	Antarctic Treaty System
COMNAP	Council of Managers of National Antarctic Programmes
EASIZ	Ecology of the Antarctic Sea-Ice Zone
EVOLANTA	Evolutionary Biology of Antarctic Organisms
GIWA	Global International Waters Assessment
ICESTAR	Inter-hemispheric Conjugacy on Environmental, Solar-Terrestrial and Atmospheric Research
ISMASS	Ice Sheet Mass Balance and Sea Level
ITASE	International Trans-Antarctic Scientific Expedition
JCADM	Joint SCAR-COMNAP Committee on Antarctic Data Management
MADREP	Middle Atmosphere Dynamics and Relativistic Electron Precipitation
PAG	Permafrost (Action Group)
PASTA	Plateau Astronomy Site Testing in Antarctica
READER	Reference Antarctic Data for Environmental Research
SALE	Subglacial Antarctic Lake Exploration
SCAR	Scientific Committee on Antarctic Research
STEPS	Solar-Terrestrial Processes and Space Weather

Appendix 5

Papers Scheduled to be presented to XXV ATCM

Working Papers

Marine Acoustic Technology and the Environment

Scoping the Data for a State of the Antarctic Environment Report

Revision of Annex II

Specially Protected Species

Information Papers

SCAR Report to XXV ATCM

Marine Acoustic Technology and the Environment: Workshop Report

Exploring Subglacial Antarctic Lakes: A SCAR Report on Progress

Some Highlights of SCAR Science

COMNAP Report to XXV ATCM

Annual COMNAP Meetings and Events

1. COMNAP has held two annual meetings since the St Petersburg ATCM XXIV in July 2001. The XIII COMNAP meeting was held in Amsterdam on 21-24 August 2001 at the headquarters of The Netherlands Academy of Science and the XIV COMNAP meeting was held in Shanghai on 15-19 July 2002 at the downtown Exhibition Centre. In accordance with established practice, COMNAP held its Shanghai meeting in conjunction with the XXVII SCAR meeting. The SCAR Executive continues to meet in conjunction with the COMNAP "odd year" meetings (2001 in Amsterdam) and this arrangement facilitates joint COMNAP/SCAR Executive meetings and helps consolidate ongoing cooperation between the Antarctic scientific and program management communities.

2. The Tenth SCALOP "Symposium on Antarctic Logistics and Operations" was held over two days during the Shanghai COMNAP meeting. In keeping with past practice, a Technical Exhibition was staged in parallel with the Symposium allowing the participation of suppliers of Antarctic-related goods and services. Some 14 papers and 27 poster presentations were given at the Symposium. The key topics focussed on:

Antarctic Medical Support and Standards;

Selection and Recruitment Procedures;

Proven Technologies and Equipment for Field Camps and Intra-continental Air Networks (including Waste Management);

Recent Advances in Solid and Liquid Waste Management;

Alternative / Sustainable Energy; and

Shipping in Antarctic Waters.

3. The XV COMNAP meeting will be held in Brest, France on 8-11 July 2003. Following the recent implementation of structural changes in SCAR, the SCAR working group meetings and delegates meeting will be held approximately three months apart in future rather than "back to back" over a two-week period. To ensure continuing liaison between COMNAP and SCAR, the "even year" COMNAP meetings will be held in parallel with the SCAR one-week working group meetings. Thus the XVI COMNAP meeting will be held with the XXVIII SCAR meeting in Bremen on 26-30 July 2004.

ATCM/CEP Related Tasks

"Worst Case" and "Less than Worst Case" Environmental Scenarios

4. The XXIV ATCM in St Petersburg requested "COMNAP, in consultation with SCAR, to provide the following information in respect of national program operations, for the purpose of establishing limits on financial liability, compensation, and insurability.

"Worst case scenarios" for land-based and sea-based environmental emergencies in the Antarctic Treaty Area including the probability of occurrence and estimated cost for responses action;

For the purposes of illustration, a range of scenarios less than worst case that might result in environmental impacts, including probability of occurrence and estimated cost of response actions;

Scenarios similar to those in (a) and (b) for which response action would not be possible."

5. COMNAP's response is provided in a Working Paper to XXV ATCM that postulates a sea-based environmental disaster as the "worst case" scenario. Fourteen "less than worst case" scenarios are provided from an earlier COMNAP Working Paper (XXIII ATCM/WP14) of which six are identified where primary response actions would not be possible. The paper notes the difficulty of estimating the probabilities and costs of incidents because of the relatively short history of Antarctic activities.

Furthermore risk assessment for actuarial purposes is not within COMNAP's area of competence. Nevertheless COMNAP will provide to the XXVI ATCM in Madrid with an additional paper of historical data on accidents that may assist in this process.

Assessment of Environmental Incidents Arising from Activities in Antarctica

6. In order to assist the ATCM in its deliberations on developing a Liability Annex to the Environmental Protocol, COMNAP was asked to prepare and present a paper to XXIII ATCM in Lima (June 1999) on an assessment of environmental incidents arising from activities in Antarctic. An update of this paper was subsequently presented at XII SATCM in The Hague (September 2000). At the XXIV ATCM in St Petersburg COMNAP was again requested to provide an updated paper to the XXV ATCM in Warsaw.

7. The earlier two COMNAP papers were collated manually from data on incidents that was collected from national operators. In the case of the latest Working Paper it was decided to develop and implement a web-based process (password protected) that would enable national programs to enter details of incidents in a prescribed format and the process of extracting statistical reports was automated. An extract from the web page on the new "Environmental Incident Reporting System" (EIRS) is given in Annex A to this report. The Working Paper provided to XXV ATCM includes copies of the latest statistical reports downloaded from the web site. The EIRS enables national operators to enter details of incidents soon after they have occurred updated statistical reports available within an hour of data input.

Best Practice to Avoid Wastewater Disposal onto Ice-Free Ground at Inland Stations

8. An Inspection Report tabled at CEP IV in St Petersburg noted that several inland stations were discharging wastewater onto ice-free ground, which contravenes the provisions of Annex III of the Environmental Protocol. The meeting asked COMNAP to "provide advice on how best practice might meet the requirements of the Waste Management Annex".

9. COMNAP has provided XXV ATCM with an Information Paper that summarises the results of a survey of national programs to determine current wastewater disposal practices. The survey indicated that national programs use a wide variety of wastewater treatment systems including technologies that can produce effluent of drinking water quality although such systems have not yet been applied to inland stations on ice-free ground. There are a number of technological developments that would have the potential to complement existing wastewater disposal practices.

An Analysis of Initial Environmental Evaluations (IEEs)

10. COMNAP presented a Working Paper at CEP IV (XXIV ATCM/WP20) on a proposed process to for analysing IEEs prepared for various Antarctic activities. The activities selected were scientific core ice-drilling, station living facilities and fuel storage facilities. The analysis was to be undertaken on behalf of COMNAP by its "Antarctic Environmental Officers Network" (AEON). COMNAP has submitted an Information Paper to CEP V summarising the outcomes of this work.

11. The IEEs for bulk storage facilities were rated as being the most complete by the review team, followed by scientific core ice-drilling and station living facilities. With respect to the sample of IEEs examined it was concluded that some aspects of the IEE process were being done very well while other aspects could be improved. It was noted that those IEEs prepared since 1999 all ranked at least an "acceptable" average total ranking. COMNAP intends (through AEON) to continue its work on the practical aspects of the EIA process with a view towards contributing to a future second edition of the ATCM "EIA Guidelines".

The Interaction Between National Operators, Tourists and Tourism Operators

12. In view of the proposed discussion on tourism matters at the XXV ATCM, COMNAP has submitted an Information Paper based on the results of a members survey on the “Interaction between National Operators, Tourists and Tourism Operators”. During the 2001/2002 season, some 9,300 tourists visited Antarctic stations. Three stations, all in the Peninsula region, had 20 or more visits by tourists whereas four stations were visited only once. A typical tourist visit to a station lasted three hours with an average of 67 persons per visit. It is noted that some national programs are using tourist operations to supplement their logistics operations, albeit usually on a small scale.

13. It is noted that contacts at a practical level, as demonstrated in the survey, between national operators and the portion of the tourist industry represented by IAATO, function in a very satisfactory way, largely because COMNAP and IAATO coordinate and exchange information with each other as they prepare and plan for the upcoming Antarctic season.

14. COMNAP notes two issues of concern to national operators. Firstly, adventure tourism usually involves a high safety risk but low environmental impact and cannot usually be regulated under the domestic legal environmental frameworks that Parties have enacted to implement the requirements of the Madrid Protocol. This can result in inadequate contingency planning or lack of insurance to reimburse national operators for emergency search and rescue costs. Secondly, with moves to increase inter-continental air access to Antarctica there is a risk that this may open up more opportunities for air-based tourist activities.

Proposed Antarctic Shipping Guidelines

15. A report on the “Antarctic Treaty Meeting of Experts on Guidelines for Antarctic Shipping and Related Activities” hosted in London in April 2000 was presented by the United Kingdom to XXIV ATCM in St Petersburg. The UK noted that the International Maritime Organisation (IMO) was still to complete its consideration of a draft “Arctic shipping Guidelines” but the ATCM had already agreed to develop guidelines for Antarctic shipping. The UK agreed to further progress consideration of the proposed “Antarctic Shipping Guidelines” by consulting on various issues with COMNAP, IAATO and other interested bodies.

16. COMNAP has submitted an Information Paper to XXV ATCM outlining its response to the various questions raised in correspondence by the UK. The basis for COMNAP’s response was with reference to the version of the IMO’s “Arctic Shipping Guidelines” that was available in January 2002. The COMNAP paper provides some background notes on the history of the proposed polar shipping guidelines and suggest possible amendments to the draft “Arctic shipping Guidelines” that could accommodate the needs of an “Antarctic shipping Guidelines”.

Other Activities and Developments

Sub-glacial Lakes Exploration

17. COMNAP is taking an active interest in the work currently being undertaken under the auspices of the SCAR Group of Specialists on Sub-glacial Lakes Exploration (SALE). A number of national programs are expressing keen interest in contributing specialist expertise on particular aspects of the work and others are evaluating the technologies that may be applicable to ensuring that penetration of the lakes is environmentally sound. COMNAP will continue to monitor progress and seek facilitate international partnerships for logistics and technical support, as appropriate.

Antarctic Master Directory

18. At the Tokyo meeting of the Joint COMNAP/SCAR Executives in July 2000, it was agreed that COMNAP and SCAR would contribute a total of US\$40,000 per year for two years to support the development of the Antarctic Master Directory (AMD) as a sub-directory of the NASA Global Change

Master Directory (GCMD). The COMNAP/SCAR Joint Committee on Antarctic Data Management (JCADM) undertook to progress this work in conjunction with the GCMD.

19. At the recent meeting of the Joint COMNAP/SCAR Executives in Shanghai (July 2002) JCADM briefed the committee on the progress achieved to date and confirmed that development of the system was essentially complete. JCADM requested that US\$20,000 per annum was needed to continue adding metadata entries to the site and maintaining the system. This request is currently being evaluated by SCAR and COMNAP.

Ship Position Reporting System (SPRS)

20. In 2001 COMNAP developed a web-based (password protected) system that permits vessels to advise their position, heading by email to a site address and this data is automatically logged on the web site. This "Ship Position Reporting System" (SPRS) was implemented just prior to the 2001/2002 season with six national programs participating in the system. The design of the SPRS is consistent with the International Maritime Organisation's guidelines for ship reporting systems. Access to the processed information generated on the site is restricted to COMNAP member agencies and national maritime safety authorities that have responsibility for Search and Rescue operations in Antarctic waters

21. At the Shanghai meeting, COMNAP agreed any vessel operating in Antarctic waters (including IAATO vessels) would be permitted to enter their position information on the site however such third party users would not be able to access the SPRS processed data on ship locations. This policy is consistent with other international ship reporting systems. Information on the SPRS (as appearing on the COMNAP web site) is given in Annex B. A sample SPRS report format is given at Annex C.

Antarctic Medical Standards

22. As a result of enhanced logistics capability there is an increasing degree movement of scientists and support personnel between national programs. Often this transfer of personnel occurs at relatively short notice when personnel are already deployed in Antarctica. In view of this increased mobility of personnel, there is a need to have a better understanding of the medical screening standards that are applied by each program.

23. During the last year a survey of medical standards was undertaken and the results are being circulated to COMNAP member agencies. An ad hoc working group of members has been formed to evaluate the results of the survey and determine what steps should be taken. It has been suggested that a network be formed of operators and Antarctic medical practitioners to progress further work in this area.

Comnap Information Systems

24. During the last five years COMNAP has moved to communication systems that are almost totally email or web site based. The only "hard copy" paperwork distributed to members are the annual amendments to the "Antarctic Flight Information Manual" (AFIM) which is produced in a standard format used by the aviation industry.

25. Email communications are in the form of either "Notices", "Messages" or "Newsletters". "Notices" are used where there is an ACTION required by members by a specific date. "Messages" provide information to members on COMNAP related activities but do not necessarily require an ACTION. "Newsletters" are typically issued one or two times per month and largely depend on the receipt of news items from members. The number of Notices, Messages and Newsletters issued during recent years are given in the table below.

	1997	1998	1999	2000	2001
Notices	15	16	17	8	6
Messages	6	23	36	31	28
Newsletters	-	18	22	22	21

26. The COMNAP web site has undergone considerable development during the last five years and now provides members with various inter-active systems and a vast amount of reference information. Approximately 1,700 documents, 190 views and 70 forms are contained on the site. The site's Publications page (Annex D) provides copies of various COMNAP and ATCM documents that are available to the general public for downloading.

27. A copy of the "Members" page of the web site is provided at Annex E and illustrates the range of facilities available that include:

28. The "Antarctic Telecommunications Operators Manual" (ATOM);

29. A concise version of ATOM known as MiniAtom;

30. Advance exchange of Operational Information;

31. Papers for Upcoming Meetings;

32. Papers from Past Meetings;

33. Notices, Messages and Newsletters;

34. The "Antarctic Environmental Officers Network" (AEON) page;

35. "Accidents, Incidents and Near Miss Reporting" (AINMR) System;

36. "Environmental Incident Reporting System" (EIRS); and

37. "Ship Position Reporting System" (SPRS).

38. During the next twelve months it is intended to develop a page for COMNAP's "Energy Management Network" (ENMANET) that will incorporate information on alternative energy systems used at various stations throughout Antarctica. The web site will undoubtedly continue to evolve to meet the needs of members and inform the general public about Antarctic and national program activities.

Annex A Information on the Web-Based "Environmental Incident Reporting System" (EIRS)



COUNCIL OF MANAGERS OF NATIONAL ANTARCTIC PROGRAMS



environmental incident reporting system



This Environmental Incident Reporting System has been developed to provide both the Antarctic Treaty Consultative Meetings (ATCMs) and its Committee on Environmental Protection (CEP) with up-to-date information on incidents that have occurred in Antarctica since 1989 that may have resulted in environmental harm. The principal aim of this data collection is to facilitate an assessment of the risks of environmental emergencies arising in Antarctica in connection with scientific and operational activities. The data also provides valuable input to assist discussions on developing the proposed Liability Annex of the Madrid Protocol.

Each Antarctic program is requested to advise the COMNAP Secretariat of the person who has been authorised to complete and submit Environmental Incident Reports. All reports should be submitted within two weeks of the incident occurring, so that the database and statistics are kept as up-to-date as possible.

[Member Countries](#)
[Stations and Bases](#)
[Operations](#) ▾
[Environment](#)
[About COMNAP](#) ▾
[Glossary and Links](#)
[Images](#)

Logged in as
AQ/View/COMNAP

Your COMNAP Liaison
Mr Jack Sayers
(sec@comnap.aq)

[How to submit an Environmental Incident Report](#)
[Updating or removing an Environmental Incident Report](#)

[Downloading the data summary reports](#)
[Further background](#)



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How to submit an Environmental Incident Report

Access to the Environmental Incident Reporting System is available using a COMNAP EIRS password. You can [request a password](#), which will be sent to your COMNAP liaison.

You can log in to the EIRS from the initial [COMNAP Members page](#). You must close and reopen your browser before logging in for the EIRS password to be used.

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Updating or removing an Environmental Incident Report

You can update an Environmental Incident Report after logging in using your EIRS password. Past reports you have submitted will be listed in date order. Click on an entry to view its details and add or update information.

To remove an Environmental Incident Report, you will need to contact the COMNAP Executive Secretary.

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Downloading the data summary reports

There are two views of data stored in the Environmental Incident Reporting System:

- **Download Table 1: EIRS Summary as a PDF**

Updated on 5 September 2002.

(this may take a few moments)

Detailed information on environmental incidents occurring since 1 November 1999 recorded in the COMNAP EIRS database (landscape format).

OR

- **Download Statistics on Environmental Incidents as a PDF Table 2: Cumulative since 1989 or Table 3: Annual since 1999**

Updated on 5 September 2002.

(this may take a few minutes)

Summary statistics on environmental incidents since January 1989 and incidents since 1 November 1999 recorded in the COMNAP EIRS database, presented in a format comparable with the COMNAP working papers submitted to the ATCMs/CEPs in 1999 and 2000.

It can be viewed using the free Adobe® Acrobat® Reader. If you do not have a copy of Acrobat Reader installed on your computer, you can **download a free copy** from the Adobe Web site.

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Further background

The first request for Environmental Incident data was made to COMNAP under Resolution 6 of the Tromso ATCM XXII in 1998. **COMNAP Notice 175** was subsequently issued to collect relevant data from national programs and the COMNAP's Working Group on Monitoring the Liability Annex (MOLIBA) prepared a working paper. This working paper, **XXIII ATCM/WP16**, was submitted to the Lima meetings of the ATCM and CEP in May 1999.

The Lima ATCM/CEP requested COMNAP to provide an updated paper to

the 2000 ATCM. **COMNAP Notice 201** sought updated information from national operators and a revised paper, **XII SATCM/WP5**, was submitted to The Hague ATCM/CEP in September 2000.

The **2001 ATCM XXIV/CEP** meetings in St Petersburg requested that the data again be updated and provided to the **2002 ATCM XXV/CEP** in Warsaw. In view of the ongoing need for up-to-date information by the Antarctic Treaty System, MOLIBA requested that a web page be developed that would enable national operators to enter data on environmental incidents as they occur. Thus the data would be automatically updated to provide summary reports to the ATCM/CEP upon request. In addition, the reports will provide national operators with information that can assist in developing operational strategies to enhance environmental protection and efficiency.

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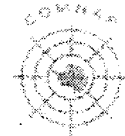
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27 October 2002 - <http://www.comnap.aq/>

Annex B Information on the Web-Based "Ship Position Reporting System" (SPRS)

COMNAP - Ship Position Reporting System



COUNCIL OF MANAGERS OF NATIONAL ANTARCTIC PROGRAMS



Information on vessel positions is available in the eight Geographic Reporting Zones (GRZs):

- GRZ 1** (0°E - 45°E)
- GRZ 2** (45°E - 90°E)
- GRZ 3** (90°E - 135°E)
- GRZ 4** (135°E - 180°)
- GRZ 5** (180° - 135°W)
- GRZ 6** (135°W - 90°W)
- GRZ 7** (90°W - 45°W)
- GRZ 8** (45°W - 0°)

Further details on the Ship Position Reporting System are discussed below:

How it works

How it works

Participating vessels are provided with an email address, data format and password for making updates.

When they wish to update their position (generally once a day), they send an email using a format which includes the MMSI of the vessel (as a unique identifier), a password (for authentication), and the current latitude and longitude of the vessel.

This email is received by a server which processes the information, and if it uses the

Member Countries

Stations and Bases

Operations ▾

Science

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Shipping

Marine Navigation

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Procedures

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Working Groups

Meetings

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Images



Logged In as

COMNAP - Ship Position Reporting System

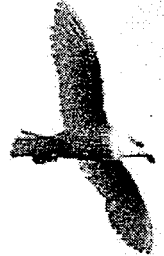
correct format and matches the password on file, updates the coordinates displayed on the public site. If the format is incorrect, a reply is sent to the sender with details of the correct format.

AQ/View/COMNAP

Your COMNAP liaison
Mr Jack Sayers
(jsayers@comnap.ag)

After the update is made, the COMNAP liaison for the vessel's operator is sent a confirmation email with details of the changes.

The vessels are then grouped by GRZ, and mapping software dynamically plots the position of the vessels on the appropriate map for display on the site. Maps include a timestamp to ensure that the most recent version is used.



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ANNEX C

Sample "Ship Position Reporting System" (SPRS) Report



COUNCIL OF MANAGERS OF NATIONAL ANTARCTIC PROGRAMS



< GRZ 6

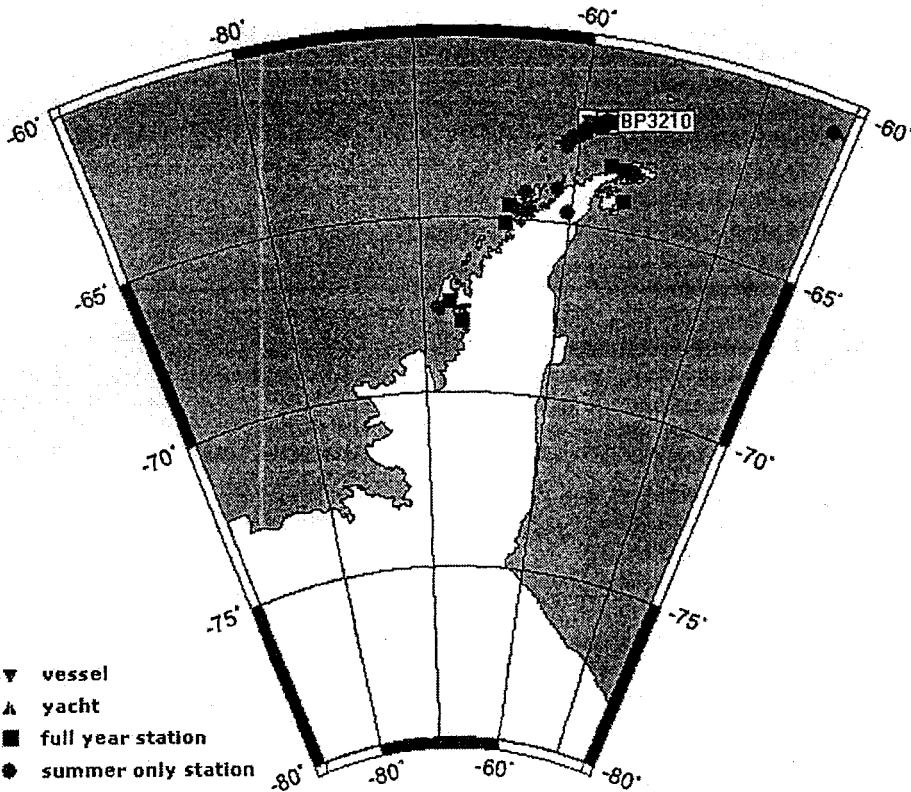
GRZ 7

GRZ 8 >

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Logged in as
AQ/View/COMNAP

Your COMNAP liaison
Mr Jack Sayers
(sec@comnap.aq)



- ▼ vessel
- ▲ yacht
- full year station
- summer only station



Ship Position Reporting System - <http://www.comnap.aq/sprs>
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20021025T071437Z

Information on vessels and stations currently operating in GRZ 7 is provided below (locations marked with a * are north of 60°S or south of 80°S).

Click on the name of a station or vessel to see further information, including communication details.
Please read the important notes on the [main SPRS page](#) which detail limitations in the data provided through the system.

Click on the name of a station or vessel to see further information, including communication details.
Please read the important notes on the [main SPRS page](#) which detail limitations in the data provided through the system.

Stations			
■	<u>Base Jubany</u>	* 62°14'S	58°40'W
●	<u>Teniente Luis Carvajal</u>	67°45'0"S	68°54'0"W
■ ZHF 45	<u>Rothera Research Station</u>	67°34'10"S	68°07'12"W
■ LTQ2	<u>Base San Martin</u>	68°07'47"S	67°06'12"W
■ EM1U	<u>Akademik Vernadsky Station</u>	65°14'43"S	64°15'24"W
■	<u>Palmer Station</u>	64°46'30"S	64°03'04"W
● CEF 219	<u>Sub Base Yelcho</u>	64°52'0"S	63°35'0"W
●	<u>Base Melchior</u>	64°20'0"S	62°59'0"W
●	<u>Base Brown</u>	64°54'0"S	62°52'0"W
●	<u>Presidente Gabriel Gonzalez Vidlez</u>	64°49'0"S	62°52'0"W
●	<u>Base Primavera</u>	64°09'0"S	60°57'50"W
●	<u>Base Decepción</u>	62°52'0"S	60°43'0"W
●	<u>Gabriel de Castilla Station</u>	62°58'51"S	60°40'30"W
● AMV21	<u>Juan Carlos I Station</u>	62°39'46"S	60°23'20"W
●	<u>St Kliment Ohridski Station</u>	62°38'29"S	60°21'53"W
●	<u>Maitzeno Antarctic Base</u>	64°50'0"S	60°07'0"W
●	<u>Cámara Base</u>	62°36'0"S	59°54'0"W
■ CCZ	<u>Naval Antarctica Arturo Prat</u>	62°30'0"S	59°41'0"W
● CEF 216	<u>Luis Risopatron</u>	62°22'0"S	59°40'0"W
■ CAN 6D	<u>Presidente Eduardo Frei Montalva</u>	62°12'0"S	58°57'51"W
■	<u>Professor Julio Escudero</u>	62°12'4"S	58°57'45"W
■	<u>Great Wall Station</u>	62°12'59"S	58°57'44"W
■ UGE 2	<u>Bellinghausen</u>	62°11'47"S	58°57'39"W
■	<u>Base Científica Antártica Artigas</u>	62°11'04"S	58°54'09"W
●	<u>Julio Ripamonti</u>	62°12'4"S	58°53'8"W
■ HL8KSJ	<u>King Sejong Station</u>	62°13'24"S	58°47'21"W
●	<u>Dallmann Laboratory</u>	62°14'0"S	58°40'0"W
●	<u>Machu Picchu Station</u>	62°05'29.6"S	58°28'16.4"W
■ PWZ-84	<u>Estación Antártica Comandante Ferraz</u>	62°05'0"S	58°23'28"W
●	<u>Vicente</u>	62°8'0"S	58°22'0"W
■	<u>General Bernardo O'Higgins</u>	63°19'15"S	57°54'01"W
■ LTQ	<u>Base Esperanza</u>	63°23'42"S	56°59'46"W
■	<u>Marambio Antarctic Station</u>	64°14'42"S	56°39'25"W
●	<u>Petrel Base</u>	63°28'0"S	56°17'0"W
●	<u>Signy Station</u>	60°43'0"S	45°36'0"W
Vessels			
▼ WCX7445	<u>Laurence M Gould</u>	* 52°30'54"S	069°36'06"W
		20011116T002629Z	

mhtml:file://C:\A%20Active\Comnap\ATCM%20Mtg\COMNAP%20-%20Ship%20Positio... 13/08/02

▼ WBP3210	<u>RV Nathaniel B Palmer</u>	62°08'00"S	059°40'00"W
		20011116T002628Z	NE
▼		62°09'34"S	58°28'15"W
▼ ZDLS1	<u>Royal Research Ship Ernest Shackleton</u>	* 52°35'00"S	50°29'00"W
		20020410T092456Z	290
▼ ZDLP	<u>Royal Research Ship James Clark Ross</u>	* 54°35'0"S	50°06'0"W
		20020422T094150Z	

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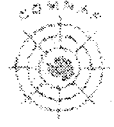
Annex D
COMNAP Web Site Publications Page

COMNAP - About COMNAP - Publications

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about comnap
Publications



Many of the documents available for download on this page are in Adobe Acrobat format (PDF). You can download a free copy of the Adobe Acrobat Reader from Adobe by clicking the icon below:

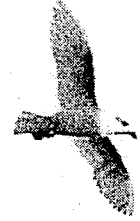


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- [Workshop Proceedings](#)
- [AEON Reports](#)
- [Reports to ATCM](#)
- [ATCM Reference Documents](#)
- [Other Related Publications](#)



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COMNAP Guidelines

Guidelines are developed by COMNAP's working groups with the aim of assisting national operators implementing common procedures and practices to enhance operational effectiveness and safety.



Guidelines for Oil Spill Contingency Planning (1992)
(PDF: 85 KB / 19 pages)



Recommended Procedures for Fuel Oil Transfer at Stations and Bases (1992)
(PDF: 52 KB / 4 pages)



Recommendations for Spill Prevention and Containment of Fuel at Stations and Bases (1992)
(PDF: 54 KB / 4 pages)



Guidelines for the Reporting of Oil Spill Incidents which Occur in Antarctica (1993)
(PDF: 59 KB / 5 pages)



Guidelines for Advance Exchange of Operational Information on Antarctic Activities (revised 1999)
(PDF: 32 KB / 8 pages)



Guidelines for Advance Exchange of Operational Information on Antarctic Activities (revised 1999)

(RTF: 638 KB / 9 pages)



Visitors' Guide to the Antarctic (1995)

(PDF: 55 KB / 7 pages)

[TOP](#)

Manuals and Handbooks

COMNAP publishes and maintains an Antarctic Flight Information Manual (AFIM) and an Antarctic Telecommunications Operators Manual (ATOM) that contain detailed operational information for the use of national operators and other authorised personnel. These documents are not available for download on the public site; members may download ATOM once logged in.

In addition COMNAP publish handbooks, from time to time, that provide national operators with guidance in specialist fields of activity. Some of these publications may be produced by, or in conjunction with other Antarctic organisations.



Antarctic Environmental Monitoring Handbook (June 2000)

(PDF: 1.2 MB / 218 pages)



International Antarctic Weather Forecasting Handbook (Version 1.1, August 2000)

(PDF: 58.8 MB / 691 pages / 12 parts)

- **Part One** - pages 1 to 29
(PDF: 4.02 MB / 47 pages)
- **Part Two** - pages 30 to 38
(PDF: 7.47 MB / 9 pages)
- **Part Three** - pages 39 to 50
(PDF: 6.19 MB / 12 pages)
- **Part Four** - pages 51 to 113
(PDF: 3.39 MB / 63 pages)
- **Part Five** - pages 114 to 123
(PDF: 4.53 MB / 10 pages)
- **Part Six** - pages 124 to 138
(PDF: 5.28 MB / 15 pages)
- **Part Seven** - pages 139 to 154
(PDF: 6.17 MB / 16 pages)
- **Part Eight** - pages 155 to 230
(PDF: 4.65 MB / 76 pages)
- **Part Nine** - pages 231 to 312
(PDF: 5.51 MB / 82 pages)
- **Part Ten** - pages 313 to 427
(PDF: 3.63 MB / 115 pages)
- **Part Eleven** - pages 428 to 512
(PDF: 4.40 MB / 85 pages)
- **Part Twelve** - pages 513 to 691
(PDF: 3.59 MB / 179 pages)

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Symposia Proceedings

COMNAP's Standing Committee on Antarctic Operations and Logistics (SCALOP) are now held every two years in conjunction with annual meetings of COMNAP. The proceedings have been prepared and published by the host members ever since the Fourth Symposium was held in Brazil during 1990. The general public cannot purchase copies of the proceeding but reference copies are usually held in the libraries of COMNAP member agencies. Proceedings have been published for the following Symposia:

- Fourth Symposium - Sao Paulo, Brazil, 1990
- Fifth Symposium - Bariloche, Argentina, 1992
- Sixth Symposium - Rome, Italy, 1994
- Seventh Symposium - Cambridge, UK, 1996
- Eighth Symposium - Concepcion, Chile, 1998
- Ninth Symposium - Tokyo, Japan, 2000

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Workshop Proceedings

Workshops are convened to consider specific topics of current interest and priority. The proceedings are usually prepared and published by the host national operating agency. Workshops held by COMNAP and SCALOP include:

- Environmental Impact Assessment Workshop (Bologna, Italy, 1991)
- Oversnow Traverse Workshop (Washington DC, USA, 1994)
- Air Transport Networks Workshop (Washington DC, USA, 1995)
- East Antarctic Air Network Workshop (Tokyo, Japan, 1998)

At ATCM XVIII, in April 1994, COMNAP and SCAR offered to convene workshops to address the environmental monitoring requirements specified in the Madrid Protocol. Two workshops were convened:

- Workshop on the Prioritisation of Impacts and the Development of Monitoring Options (Oslo, Norway, October 1995)
- Workshop on the Practical Design and Implementation of Environmental Monitoring Programs (College Station, Texas, USA, March 1996)

A report on the proceedings and outcomes of the workshops were published and are available for download.



Report on Monitoring of Environmental Impacts from Science and Operations in Antarctica (July 1996)
(PDF: 559 KB / 135 pages)

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AEON Reports

The **Antarctic Environmental Officers Network** (AEON) was established in 1996 and undertakes specific tasks on behalf of COMNAP. The following reports and proceedings have been produced by AEON:



AEON Workshop Report on Environmental Monitoring and Environmental Impact Assessment (September 1999)
(PDF: 1.89 MB / 65 pages)

The Summary of Environmental Monitoring Activities in Antarctica provides information on environmental monitoring (human impact, publications, baseline pollution) of member countries.

It is available in two versions:

- **Current version**

Updated on 20 March 2002.
(this may take a minute or two)

This version is automatically updated when the AEON representatives of member countries change their information on the site.

- **Archive version**

Published in May 1998.

This version was published (ISBN 0-478-10952-0) in May 1998.

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Reports to ATCM

COMNAP has presented annual reports to the Antarctic Treaty Consultative Meetings since its participation at XVI ATCM in 1991. In accordance with Recommendation XIII-2 an agenda item on "Operations of the Antarctic Treaty System: Reports" is regularly included in the ATCM agenda.

In addition, COMNAP prepares working and information papers in response to specific requests, decisions or resolutions of the ATCMs. National operators have collected vast databases of information on all aspects of Antarctic operations that may be used to assist policy formulation.

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ATCM Reference Documents



Protocol on Environment Protection to the Antarctic Treaty (Madrid Protocol)

(PDF: 87 KB / 23 pages)



Guidelines For Antarctic Protected Areas

(PDF: 70 KB / 19 pages)



Environmental Impact Assessment in Antarctica (English)

(PDF: 90 KB / 24 pages)



Environmental Impact Assessment in Antarctica (French)

(PDF: 110 KB / 28 pages)



Environmental Impact Assessment in Antarctica (Spanish)

(PDF: 97 KB / 29 pages)

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Other Related Publications

A N Fowler (2000). *COMNAP: The National Managers in Antarctica*. American Literary Press, Baltimore, Maryland, USA (165 pages).
ISBN 1561676195.

Purchase information can be obtained from amerlit@erols.com.

This book is also available at amazon.com and [Barnes and Noble](http://BarnesandNoble.com).


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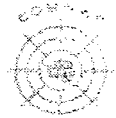
Annex E
COMNAP Members Web-Based Information Facilities

COMNAP - Members

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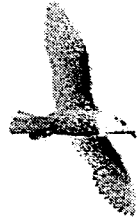
Members



The following sites are available to authorised individuals working for the Antarctic organisations of COMNAP member nations:

	View	Edit/Post
National program information	View	Edit
Station details	View	Edit
ATOM	View	Edit
MiniATOM	View	Edit
<hr/>		
Advance Exchange of Information	View	Post
Upcoming COMNAP meeting papers	View	Post
Upcoming ATCM meeting papers	View	-
Papers from past meetings	View	-
Notices, Messages and Newsletters	View	-
Download COMNAP logos	View	-
<hr/>		
AEON	View	Edit Discuss
<hr/>		
AINMR	AINMR	AINMR
EIRS	View	EIRS
SPRS	View	Edit

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A username and password are required to access these sites, which are only available to the Antarctic organisations of COMNAP member nations. You can [request a password](#), or [contact COMNAP](#) for assistance.

General information about COMNAP, including COMNAP representatives, rules and procedures, and upcoming meetings, is available under the [About COMNAP](#) section of the site.

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Annex F

COMNAP Committees, Working Groups & Networks

COMNAP Objectives

To review, on a regular basis, operational matters and to facilitate regular exchanges of information;

- to examine, discuss and seek possible solutions to common operational problems;
- to provide a forum for discussion in order to frame in a timely, efficient and harmonious manner;
- responses to common issues directed to Antarctic Operators, in particular requests from and Recommendations of the ATCM, and
- appropriate input to SCAR responses to questions involving science and operations/logistics; and
- to provide, in conjunction with the Scientific Committee on Antarctic Research (SCAR), the appropriate forum for discussions on international collaboration in operations and logistics.

COMNAP Executive Committee (EXCOM)

Dr Karl Erb (USA)	Chairman
Dr Gerard Jugie (FR)	Member
Dr Okitsugu Watanabe (JP)	Member
Mr Kim Pitt (AU)	SCALOP Chairman
Mr Jack Sayers	Executive Secretary

COMNAP Secretariat

Mr Jack Sayers

COMNAP Secretariat

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Tasmania 7000	Tasmania 7001
AUSTRALIA	AUSTRALIA

Tel: +61-3-6233 5498

Fax: +61-3-6233 5497

E-mail: jsayers@comnap.aq

Committees

Executive Committee	EXCOM
Standing Committee on Antarctic Logistics and Operations	SCALOP
Steering Committee on the Antarctic Master Directory	STADM

Environmental Coordinating Group	ECG
Coordinating Group on Education and Training	CEDAT

Working Groups

Air Operations WG	AIROPS
WG to Monitor the Liability Annex	MOLIBA
Ship Operations WG	SHIPOPS
Symposium WG	SYMP
Tourism and NGOs WG	TANGO

Networks

Antarctic Environmental Managers Network	AEON
Energy Management Network	ENMANET
Information Officers Network	INFONET
Training Officers Network	TRAINET

Note:

A list of COMNAP and SCALOP representatives and the membership and objectives of the various committees, working groups and networks may be found on the COMNAP Home Page at URL: <http://www.comnap.aq> under the link "ABOUT COMNAP".

Annex G
Reports in Relation to Article III (2) (ATS 5B)



**Report of the Antarctic and Southern Ocean Coalition (ASOC)
XXV Antarctic Treaty Consultative Meeting
10 - 20 September 2002, Warsaw, Poland**

Report pursuant to Article III (2), under Agenda Item 5 (b)

In the period since XXIV ATCM in St. Petersburg, ASOC and member groups have continued to work across the range of issues concerning protection of the Antarctic environment.

ASOC maintains a Secretariat in Washington DC - and a central website: <http://www.asoc.org>. ASOC member groups and individuals are present in all ATCP states.

ASOC Regional Offices are located in: Asia (Seoul, South Korea), Europe (Amsterdam, The Netherlands and Madrid, Spain), Latin America (Santiago, Chile), and Southern Africa (Cape Town, South Africa).

ASOC National Offices are located in: India (New Delhi), Russia (Moscow), and Ukraine (Kiev).

Key Issues at XXV ATCM

1. Protocol implementation

ASOC has tabled Information Paper 78, Reports under Article 17 and the Implementation of the Madrid Protocol.

This continues and develops themes presented in XII SATCM/IP22 (Evaluation of progress towards implementation of the Madrid Protocol) and XXIV ATCM/IP55 (Legal implementation of the five annexes of the Protocol)

The paper uses reports tabled under Art. 17 as a proxy indicator of compliance with Protocol requirements. ASOC notes that significant progress has been made towards implementation of the Protocol, but the data in this paper indicate many states are still lagging in implementation. Implementation by a majority of Parties continues to be inconsistent. ASOC notes that although Article 17 requires Parties to the Protocol to annually report on the steps they have taken to implement and comply with it, at CEP IV only 20 Parties did so. ASOC hopes that all Parties will report at this and future CEPs.

ASOC hopes that Canada will, consistent with its statements at XXIV ATCM, be able to report substantial progress on its ratification of the Protocol.

Annex I - Environmental Impact Assessment

ASOC has tabled **Information Paper 82**, Strategic Environmental Assessment in Antarctica: A "stepping stone" to Madrid Protocol objectives

This continues and develops themes presented in XII SATCM/IP10 (Antarctic Strategic Environmental Assessment: Application to the growing Antarctic tourism industry) and XXIV ATCM/IP54 (Strategic needs and decision-making in Antarctica)

ASOC's IP explores the potential application of SEA to some Protocol implementation issues - in particular to situations where there is inconsistent use of implementation criteria by different operators, and as a better way to meet the requirements of Art. 2 of the Protocol.

ASOC monitors and provides comments on national Environmental Impact Assessment (EIA) processes. Although EIA application (at least for IEEs) is broadening, compliance with Protocol obligations remains patchy. EIA is still frequently conducted at a lower level than would appear required by the Protocol. For example, IEEs have been completed for deep-ice drilling projects, rather than CEEs, which would have been reasonable to expect under standard practise and Recommendation XIV-3; two snow runways were developed with only IEEs (for one, the IEE appears to have been carried out after the airstrip was in operation); an inland summer base was constructed without any EIA; and generally there are no records of some Parties ever producing - or making public - EIAs.

ASOC participated in the contact group on cumulative impact, and looks forward to continuing to work within this group to develop advice on coordination and conduct of studies directed to detecting and monitoring cumulative impacts in Antarctica.

Annex II - Protection of flora and fauna

A review of Protocol annexes commences at this ATCM with a review of Annex II. Parties should resolve criteria for designating Specially Protected Species under its Appendix A.

ASOC has tabled **Information Paper 60**, *Antarctic wildlife in captivity and the Madrid Protocol*, which examines the increased interest in taking Antarctic wildlife for exhibition. The paper recommends that the review of Annex II should lead to appropriate management measures and an Antarctic Treaty System-wide standard and process regarding the taking of Antarctic wildlife for exhibition.

Annex III - Waste disposal and waste management

ASOC continues to be concerned about information on improper waste disposal contained in the official inspection reports submitted at XXIV ATCM in St. Petersburg. According to those reports, some Parties' stations are seriously lagging behind in properly implementing Annex III of the Madrid Protocol.

Annex V - Area protection and management

With the final ratification by India, Annex V has entered into force. Area Protection is an important tool for environmental protection and management, and ASOC hopes that Parties will now fully implement this Annex. This requires a substantial commitment to identifying and designating, within a systematic environmental-geographical framework, areas meeting the criteria mandated by Article 3.2 of the Annex.

Many existing management plans require revision to conform to Annex V standards. A number will be reviewed at this meeting. ASOC reviewed and provided comments on the draft management plan for the McMurdo Dry Valleys ASMA. This is a site with high scientific, environmental, wilderness

and aesthetic values. Here and elsewhere, managing human activities to minimize conflict is critical to avoiding impairment of these values.

ASOC continues to argue that Annex V should be applied across the major regime boundary within the ATS, i.e., to areas that transcend the largely terrestrial focus of the Protocol and Antarctic Treaty on the one hand, and the essentially marine focus of CCAMLR on the other.

Deception Island ASMA

ASOC participated in the international expedition to Deception Island in January-February 2002, organized by Argentina, to help develop a management plan for Deception Island under the Protocol. ASOC would like to thank Argentina for hosting the Expedition and transporting the ASOC team to Deception Island, and IAATO for arranging transportation from the Island.

To date the human impact on Deception Island appears to be comparatively minor, transitory, and concentrated at the most accessible parts of the island where most human activities take place. However, in these areas, human impact is relatively widespread, chronic, and cumulative.

In addition, there may be a conflict of interest between science and tourism activities at one site (Pendulum Cove) and between environmental protection goals and tourism activities at another site (the largest penguin rookery on the island, Baily Head). ASOC contends that visitation to the latter site should be closed to visitors other than those conducting research in order to comply with Annex II of the Protocol and Arts. 2 and 3 of the Protocol, at least until there is sufficient information that enables prior assessment of, and informed judgements about, the possible impact of tourism activities on this location.

Despite its long history and present high level of human activity, Deception Island is an intrinsic part of the Antarctic wilderness. ASOC argues that the existing human impact on the Island's environment should not be allowed to increase in intensity and area, but rather maintained at the existing levels or preferably minimized. ASOC hopes that Parties will take action in this regard.

Liability

ASOC was encouraged by discussion of Liability at XXIV ATCM. However, it is now 11 years since the adoption of the Protocol, and Parties have not yet met the commitment in Article 16 to develop liability rules and procedures. While the draft annex proposed by the Chair of WG I is a promising basis for the first stage in a liability regime, work remains to be done on key elements.

ASOC has tabled **Information Paper 77, Liability**, containing detailed comments on the Chair's text, an identification of key textual and process issues, and a proposal for conclusion of a first liability annex - on Liability arising from Environmental Emergencies - at XXVI ATCM in Madrid in 2003.

A second ASOC **Information Paper 81, On Worst Case Scenarios**, is a contribution to the work in progress by Parties, COMNAP and others on "Worst case" and "Less-than-worst case" scenarios for environmental emergencies.

ATS Issues

Lake Vostok - Subglacial lake exploration

ASOC has been monitoring developments regarding subglacial lake exploration and is satisfied that research in this pristine environment is thus far following a process that includes environmental parameters rather than exclusively scientific needs or technology development agendas. This is in accordance with the objectives and principles of the Madrid Protocol and is a significant improvement in relation to the early stages of the discussion on penetrating Lake Vostok.

The SALE GOS Workshop in 1999 in Cambridge agreed that subglacial lake exploration should be internationally coordinated, multi- and interdisciplinary, and that non-contaminating techniques and minimum disturbance should be fundamental considerations throughout the design and execution of the program. It would therefore be consistent with the overall approach of SALE GOS that all present and foreseeable future activities related to subglacial lake research be included within the overall subglacial research program and follow the principles as described above. This would apply particularly to research at Lake Vostok itself and to drilling activities, including the proposal to drill through an additional 50m of accreted ice in the existing Vostok borehole.

Of particular interest is the discussion outlined in the SALE GOS November 2001 report to adopt Strategic Environmental Assessment (SEA) as the program's environmental planning and assessment process. Subglacial lake research is an example where the existing EIA requirements of the Protocol should be complemented by a broader, more strategic type of impact procedure. ASOC is willing to contribute to a SEA process for subglacial lake research.

Secretariat

Now that the issue of where to house the Secretariat has been resolved, ASOC hopes that delegates will quickly agree to allow it to function, on an interim basis if needed, while resolving issues of functions, status, funding, etc. A functioning Secretariat will greatly enhance the implementation of the Protocol, and facilitate the operation of future ATCMs.

Inspections

ASOC notes that Australia has tabled WP34, which lists all inspections conducted to date. Concurrently, ASOC is collaborating with UNEP in presenting this information in a suitable format to illustrate the location of inspections and the areas in which inspections have been lacking. The result of this work will be tabled at XXVI ATCM.

Tourism

At XXIV ATCM, ASOC reopened the question of regulation of Antarctic tourism. As a major and growing industry it is necessary that this activity is regulated by the Antarctic Treaty System, and not left solely to supposed "self-regulation" by the industry itself.

Accordingly, ASOC has tabled a number of Information Papers relating to tourism at XXV ATCM.

Our **Information Paper 52**, *ATCM Papers, Discussions & Recommendations relating to Tourism and Non-governmental Activities*, attempts to identify the ATCMs papers, applicable Final Report text, Recommendations (subsequently Decisions or Measures), tourism industry participants and key focus of discussions of tourism and non-governmental activity, since the Protocol - with a briefer summary of Recommendations pre-Protocol. We hope this will be of practical use to Parties.

Information Paper 63, *Port State Jurisdiction: An Appropriate International Law Mechanism to Regulate Vessels engaged in Antarctic Tourism*, examines the capacity of this tool to improve regulation of vessels supporting Antarctic tourism. We submit that Port State Jurisdiction provides a potentially powerful tool for regulating in particular those vessels, and those expeditions organised and/or flagged in, non-Parties to the Protocol, or Contracting Parties that have not ratified the Protocol. This takes advantage of the fact that the key gateway ports for Antarctica are all located in Antarctic Treaty Consultative Parties. This paper includes a draft *Memorandum of Understanding on Port State Control*.

Information Paper 76, *Improving Awareness of Protocol Obligations Amongst Antarctic Yacht Operators*, suggests better use of the Antarctic navigation guides or pilots produced by national hydrographic agencies to provide clear, unambiguous advice on obligations under the Protocol. As

one of the few points of engagement between autonomous yacht operators, and State Parties to the Protocol, these guides have hitherto been under-utilised.

ASOC's **Information Paper ...**, *Regulating Antarctic Tourism*, aims to help inform the debate on how best to regulate tourism, building on our XXIV ATCM/IP 40, *Antarctic Tourism*. It reprises key issues from IP 40 and lists previous ASOC papers addressing specific aspects of Antarctic tourism. *Regulating Antarctic Tourism* counters arguments against taking action on tourism and outlines options open to Parties for its regulation. ASOC believes that the most appropriate options are regulation through one or more of: an additional annex under the Protocol, an Antarctic Treaty Measure, or a new Antarctic Treaty System instrument - a Convention for the Regulation of Antarctic Tourism.

ASOC participated in an informal workshop on Antarctic tourism, organized by the International Association of Antarctic Tour Operators, in Aspen, Colorado, 29-30 April 2002.

Meetings

ASOC participated at the III Conference on Contaminants in Freezing Ground in Hobart, Australia, April 2002. ASOC representatives delivered a keynote speech outlining the NGO perspective on contaminants in freezing ground, based on the operational experience of ASOC-member Greenpeace in Antarctica, and co-chaired some of the working groups that took place during the Conference. ASOC thanks the Organising Committee for facilitating their attendance at the Conference.

Other Issues

ASOC participated at the World Summit on Sustainable Development (WSSD) (Johannesburg, 26 August - 6 September), presenting a vision paper to the broader global community concerning key environmental issues facing the Antarctic region. ASOC argues that the sustainability of the Antarctic ecosystem can only be achieved through long-term conservation of the entire region.

Specifically, ASOC called on all government participants at the WSSD to (1) commit themselves to declare the marine area south of 60° South latitude a marine protected area, (2) agree to negotiate a regulatory regime for Antarctic tourism, (3) express support for a moratorium on Southern Ocean toothfish fisheries, and (4) agree to negotiate a legally binding High Seas convention under the auspices of UNCLOS to govern fishing vessel conduct on the High Seas, including the illegal pirate fishing now taking place in Antarctica's Southern Ocean.

Threats to the Antarctic Environment

Southern Ocean Fishing

The continuing high level of illegal, unregulated and unreported (IUU) fishing for toothfish, and associated seabird and other bycatch, continues at unsustainable levels. Recent events in the Southern Ocean highlight CCAMLR's inability to effectively combat IUU fishing. Everyone seems to acknowledge this, yet CCAMLR continues to approve legal fishing permits, and CCAMLR Parties continue to import IUU toothfish. Meanwhile, the Antarctic Treaty Consultative Parties continue to miss opportunities to stop pirate fishing by cooperatively using their collective satellite imagery, enforcement vessels, and various port-state enforcement options. However, ASOC congratulates those few Parties that are taking aggressive enforcement actions.

The Australian arrests of the pirate fishing vessels *Lena* and *Volga*, and the U.S. seizure of 33 tons of IUU toothfish at its border, were important achievements. However, unless such enforcement actions are greatly increased, they will unfortunately have little impact on IUU fishing for toothfish due to the sheer number of vessels illicitly fishing for toothfish. Moreover, the Government of Uruguay's decision to issue *Dissostichus* Catch Documents (DCD) for the *Dorita* and the *Arvisa I* - vessels photographed in an area where they are not authorized to fish - demonstrates that the Catch Document

Scheme (CDS) alone is incapable of halting IUU fishing. This action, by an active member of CCAMLR, undermines the credibility of the CDS, and confirms that the current structure of the CDS cannot prevent IUU fishing.

ASOC encourage all nations - whether members of CCAMLR or not - to take the steps urgently needed to halt this activity and to effectively implement the toothfish Catch Documentation Scheme (CDS). ASOC has developed several trade and management solutions that would assist in the elimination of IUU fishing and thereby assist in the conservation of Southern Ocean marine living resources. These are not radical solutions. They have, in fact, been adopted by other international organizations faced with similar problems. These include (1) centralized monitoring and compliance, (2) increased enforcement and inspection powers including the adoption of an enforcement protocol, and (3) strengthening the CDS, including actions to be taken when Port States are presented with toothfish without a verifiable DCD or from unregulated waters.

We also call on all Parties to support the proposal to list Patagonian and Antarctic toothfish (*Dissostichus eleginoides* and *D. mawsoni*) on Appendix II of CITES at the upcoming 12th Conference of the Parties (CoP 12) in November 2002. A CITES Appendix II listing is a necessary complement to the CCAMLR CDS that will reinforce and improve its effectiveness. The CDS suffers from CCAMLR's limited membership in that its scope is restricted to just 36 member nations and to the CCAMLR Convention Area. CITES, with a much broader membership than CCAMLR, and stronger enforcement mechanisms, would extend the reach of the CDS. CITES includes all the states involved in toothfish trade as well as emerging markets, like China and Thailand. CCAMLR has 36 members, while CITES has 159. If toothfish were listed under CITES Appendix II, trade controls similar to the CDS could be enforced in CITES states.

Many ASOC member groups believe that CCAMLR must enact a short-term moratorium on the toothfish fishery while it develops the long-term measures needed to ensure a sustainable fishery. A moratorium will reveal the pirate trade - any toothfish that then appears on the market is by definition illegal. The moratorium may be lifted as soon as: IUU fishing is stopped; effective management measures are in place, including an Appendix II listing of toothfish by CITES to extend the reach of CCAMLR's CDS to all countries participating in the toothfish trade; stock assessments and research on population structures, spawning grounds and recruitment verify that depleted toothfish populations are recovering; and seabird by-catch is essentially eliminated.

The CDS will only be able to track the trade in toothfish and assist states in closing markets to illegally caught toothfish if implemented by all states involved in the toothfish trade.

ASOC member Greenpeace conducted an anti-whaling expedition in the Southern Ocean during the 2001/2002 Austral summer.

Climate Change

ASOC looks forward to early entry into force of the Kyoto Protocol, which all honest observers acknowledge is only the first step toward doing what is in the long-term best interests of the planet. ASOC also calls upon those few states that so far have not indicated support for the Kyoto Protocol to reverse course and begin doing their share to fight global climate change. ASOC regrets the failure of the WSSD meeting last week in South Africa to make targeted commitment to invest in renewables, as well as the continuing refusal of key nations such as the U.S. and Australia to ratify the Kyoto Protocol. ASOC welcomes Russia's announcement that it will ratify the Protocol soon, thereby allowing it to enter into force and begin functioning.

Conclusion

ASOC looks forwards to working with delegates at this XXV ATCM and to the successful resolution of some of the most important issues mentioned above.

Report of the International Association of Antarctica Tour Operators (IAATO) 2001-2002

Under Article III (2) of the Antarctic Treaty

(Agenda item 5b)

The International Association Of Antarctica Tour Operators (IAATO) is pleased to present a report of its activities to ATCM XXV, Warsaw, Poland, 9-20 September 2002 in relation to Article III (2) of the Antarctic Treaty.

IAATO is dedicated to appropriate, safe and environmentally sound private-sector travel to the Antarctic. Over the last year IAATO has continued to focus its activities in several key areas:

- Improved exchange of information among its members and outreach to non members
- Improved vessel communication methods via the GMDSS and INM-C system
- Cumulative impact of tourist activities
- Improved methods of reporting and assessing impacts
- Potential spreading of Antarctic diseases and prevention methods
- Support of research project on disease transmission
- Formation of additional guidelines, i.e. camping guidelines, marine wildlife watching guidelines, helicopter guidelines, boot washing station guidelines
- Deception Island Expedition
- Contingency Planning
- Site Specific Guidelines
- Address specific issues of Antarctic tourism

Participation in international meetings and liaison with National Antarctic programmes and government agencies of the sub-Antarctic island groups, and scientific and environmental organizations, is an important objective of IAATO and its members.

1. Introduction

1.1. Founded by seven private tour operators in 1991, the International Association of Antarctica Tour Operators currently has 51 members from Argentina, Australia, Belgium, Canada, Chile, Germany, Japan, Netherlands, New Zealand, Norway, United Kingdom, and the United States. A current Membership Directory can be found on the IAATO website at www.iaato.org.

From November 2000 to March 2001, a total of 11,588 persons travelled to and landed in the Antarctic on privately organized expeditions, including 11,287 passengers aboard 19 commercially organized vessels, 142 persons on sailing vessels and or chartered yachts and 159 land-based visitors. 2029 Tourists travelled on one IAATO member large cruise vessel (2 departures) that did not land tourists and spent 72 hours each trip south of 60oS in Antarctica.

This decrease represents a downward trend in tourist numbers from the combined total during the 2001-2002 season of 13,617 (landing and cruise only) and of 14,762 tourists (landing and cruise only) in the 1999-2000 season and slight increase from 12,248 (landed and 0-cruise only) during the 2000-2001 season. The increase in total numbers is due to the 2 departures by one large cruise vessel. In interpreting this data with regard to "impacts" it is important to note that only 11,588 actually landed in Antarctica.

Land Based Tourism/Adventure Tourism increased during the 2001-2002 season by an additional 20 persons from 139 tourists in 2000-2001 to 159 tourists in 2001-2002. An overview of Antarctic tourism activity is presented as a separate information paper to ATCM XXV under agenda item 11.

IAATO held its 13th general meeting from July 1-4, 2002 at the Scott Polar Research Institute and the British Antarctic Survey in Cambridge, United Kingdom. Eighty-seven people in total attended all or some parts of the meeting.

Forty-nine people from 26 member companies of IAATO, and 1 non-member tour operator plus 38 governmental and private organizations attended the meeting.

1.2. IAATO Companies represented were Abercrombie and Kent/Explorer Shipping Corporation, Adventure Associates, Adventure Network International, Asteria, Aurora Expeditions, Cheesemans' Ecology Safaris, Crystal Cruises Inc., Expeditions Inc., Golden Fleece Expeditions, Hapag Lloyd Kreuzfahrten, Helicopters New Zealand, Heritage Expeditions, Holland America Line, Lindblad Expeditions, Mission Antarctica, New World Shipping Co./Clipper Cruise Line, Oceanwide Expeditions, Office of Antarctic Affairs, Ofotens og Vesteraalens Dampskibsselskab, Pelagic Expeditions, Peregrine Expeditions, Polar Star Expeditions, Quark Expeditions, Society Expeditions, Sullivan Shipping Services Ltd., Victor Emanuel Nature Tours, WildWings, and Zegrahm Expeditions, The complete agenda can be found on IAATO's website at www.iaato.org. Non-IAATO member, Orient Lines was also present.

1.3. Also attending were representatives from the Scott Polar Research Institute, United Kingdom Foreign and Commonwealth Office-Polar Regions Section, British Antarctic Survey, United States Antarctic Program/National Science Foundation, Raytheon Polar Service Company, Umwelt Bundesamt (Federal Environmental Agency-Germany), Scientific Committee for Antarctic Research (SCAR), Oceanites, Antarctic Non Governmental Activity News (ANAN), Sheffield University, Birdlife International, International Hydrographic Bureau, and Poles Apart. Several IAATO member expedition staff members, scientists, students and environmental research consultants also participated.

1.4. IAATO will hold its 14th General Meeting in Seattle, USA from June 2-5, 2003. (Note: this is subject to change pending the final dates of ATCM XXVI.) Interested parties that would like to participate should contact the IAATO Secretariat at iaato@iaato.org. IAATO is in discussion with SCAR Bird Biology Subcommittee to coordinate a SCAR workshop following IAATO's meeting on Interaction between Humans and Antarctic and Sub Antarctic Seabirds from June 6-8, 2003.

1.5. IAATO representatives and members attended some or part of all of the following international meetings during the 2001-2002 season in addition to ATCM XXIV.

World Tourism Convention (Hobart, Tasmania/Australia-October 2001)

CCAMLR (Hobart, Tasmania, October 2001)

40 Years On: The Antarctic Treaty System in the 21st Century (Wilton Park, United Kingdom, November, 2001)

Deception Island Expedition (January/February, 2002)

Aspen Tourism Meeting (Aspen, Colorado, USA, IAATO, April, 2002)

State of the Ross Sea Report Workshop (Wellington, New Zealand, May, 2002)

Yearly meetings with the German Department of the Environment (Umwelt Bundesamt) by IAATO's German tour operators

IHO, Hydrographic Committee on Antarctica (contributed to minutes of the meeting that took place in March 2001, minutes were produced, January 2002).

2. Membership

2.1. IAATO currently has 21 Full Members, 6 Provisional Members, and 24 Associate Members. Seven new companies applied for membership during the 2000-01 season or at the annual meeting. Full members include one land-based operator, ship operators, companies that charter and or organize their own groups to Antarctica. Provisional Members include one land/sea based operator, one large cruise vessel operator Associate Members are travel companies, government offices and ship agencies who reserve space on Full and Provisional Member vessels and or aircraft or offer support services to the tour operators.

2.2. Bylaw Changes

It was voted by 2/3ds majority at the 12th General Meeting in 2001 that IAATO would change its Bylaws in the membership category to include 7 new categories. Appendix A (IAATO Bylaws) includes our adopted membership categories and other provisions. The first year under the new categories proved successful. Including the large vessels was a positive step forwards for IAATO despite earlier concerns. To be able to work directly with nearly all tour operators has allowed IAATO to further its work on creating the highest possible standards. The categories that were approved in 2001 and prove reasonable are:

Organizers of expedition ships that carry less than 200 passengers or sailing vessels that carry less than 12 passengers. The limit of 100 passengers ashore at one site at one time remains in force. (22 companies)

Organizers of Vessels carrying 200-500 passengers who are making passenger landings. Stringent restrictions on landing activities of time and place apply. The limit of 100 passengers on shore at one site at one time also applies. (2 companies)

Organizers of Cruise Ships making no landings (cruise only). Cruise ships carrying more than 500 passengers are not permitted to make any landings. (2 companies)

Organizers of Land Based operations (1 company)

Organizers of Air Operations with Over Flights only

Organizers of Air/Cruise Operations (1 company)

Associate Members (24 companies)

*Note Full, Provisional, and Probational status still occurs within categories 1-6

**Note that one company operates a ship in category one and category two.

2.3. IAATO has embraced the changing nature of Antarctic tourism and would encourage all tour operators in Antarctica to join the organization. There are currently 2 vessels under one Dutch company, 1 United States company and several sailing vessel owners that are non-members of IAATO. IAATO is in discussion with several small sailing vessel owners to include them as new members.

Air/landbased operators flying from South Africa or Chile (excluding member: Adventure Network International) have not been in contact with IAATO.

2.4. As a matter of principle and in practice, all tour operators - whether or not associated with IAATO - are included when reasonable in vessel contact information, overall ship schedules, emergency contact information, exchange of information and other activities of the IAATO Secretariat (Appendix B).

3. Field Coordination

3.1. As part of its annual exchange of operational information, IAATO compiles and distributes Vessel Call Data (Appendix B). In addition, contact information for private camps (ANI), tour

vessels and yachts is included in the Antarctic Communications Directory (MINIATOM) compiled and distributed by the COMNAP Secretariat. COMNAP's MINIATOM proves very useful for tour operators when trying to contact a station. IAATO transports numerous scientists to Antarctica each year and it is essential that the station contact information is up to date for communication, planning and emergency purposes.

3.2. In addition, preliminary cruise itineraries are compiled by the IAATO Secretariat and distributed to Antarctic tour operators, national Antarctic programmes where appropriate and COMNAP.

3.3. Expedition leaders and ship's officers circulate advance itineraries and maintain regular contact throughout the season to coordinate site visits and exchange general information. A key factor in managing Antarctic tourism and mitigating potential environmental impact is to ensure that no two ships are in the same place at the same time. An example of the annual instructions to ships' captains, radio officers and expedition leaders is included here (Appendix C).

3.4. This ongoing and routine contact between vessels and with Adventure Network's Emergency and Medical Evacuation Response office in Punta Arenas (EMER) is also a key component of effective emergency response and self-sufficiency. Details on EMER have been presented at previous ATCMs.

4. Environmental Impact Assessment

According to information received by the IAATO Secretariat, all ship- and land-based tour operators and in particular IAATO Full and Provisional Members submitted an Environmental Impact Assessment of planned activities for the 2001-02 season to appropriate national authorities in accordance with national procedures. Australia, New Zealand, United Kingdom, United States, Germany, and The Netherlands all received Environmental Impact Assessments (EIA's) from IAATO members operating vessels or land-based programmes.

IAATO would like to encourage Contracting Parties to ensure that obligations of the Environmental Protocol are being met and Environmental Impact Assessments from non-members of IAATO are being submitted.

5. Procedures to Prevent the Introduction of Alien Organisms

Appendix G is the adopted standard operating procedure for Boot and Clothing Decontamination-Recommended Guidelines effective as of the 2000-01 season. These guidelines have worked successfully for two seasons.

For two seasons, IAATO has used a standard protocol to report any high mortality incidents and to avoid the introduction and translocation of alien diseases (Appendix D). To better understand the issues involved, operational strategies are currently being discussed and implemented to further this work.

IAATO provided some financial and logistical support for Dr. Chris Curry (Australia) to carry out a research study entitled "Could Tourists Transmit Infectious Agents in Antarctica?" This study took place during two field seasons, 2000-01 and 2001-02. The results are included in Appendix E and Appendix F and were presented at the IAATO 12th and 13th General Meetings in June 2001 and July 2002, respectively.

6. Reporting of Tourism and Non-Governmental Activities

6.1. Antarctic tour operators made use of a standard Post Visit Site Report form as updated and adopted by ATCM XXIV. Prior to moving ahead on the database we wanted to see how this form would work and if the data would be easily transferred into the proposed database.

6.2. IAATO continues to support the continued use of this single form, which reduces the burden of paperwork and facilitates studies of the scope, frequency and intensity of tourist activities. IAATO would like to encourage parties to send IAATO and the US National Science Foundation a copy of forms they receive from non-IAATO member operators. For the upcoming season we anticipate non-members -mostly sailing vessels from the following countries: (Netherlands-at least two large sailing vessels, France, Germany, Switzerland etc.)

6.3. Antarctic tourism trends as compiled by the U.S. National Science Foundation since 1989 are presented to this meeting as part of the Information Paper "IAATO Overview of Tourism Activities." This information is also posted online at www.iaato.org. In general, overall tourists' numbers that landed in Antarctica decreased during the 2001-02 season from 12,248 to 11,588. There was an increase in cruise-only tourists by 2029 tourists.

6.4. IAATO would like to encourage Parties with tourist activities conducted by non-IAATO members to report the activities to IAATO in order to be incorporated into annual reports or otherwise reported separately.

7. Implementation of Recommendation XVIII-1

7.1. In consultation with COMNAP, individual national Antarctic programmes and consultants, IAATO continues to research, develop and use industry-wide programmes and standards wherever necessary to ensure self-sufficiency and proper conduct in the Antarctic.

IAATO's standard operating procedures include, slide presentation on IAATO's "Guidance for Visitors to the Antarctic," "hand out or hard copy" of Recommendation XVIII-1 and a standardized table of contents for training materials and handbooks. This slide presentation can be viewed on line at www.iaato.org under "Guidance for Visitors" on the home page.

An IAATO pre-season checklist is appended to this report, indicating the kind of educational materials prepared and distributed by IAATO each Antarctic season (Appendix H).

Recommendation XVIII-1, "Guidance for Visitors to the Antarctic" is available from IAATO to tour operators in English, Chinese (Mandarin), French, German, Italian, Japanese, Russian and Spanish. Should any Antarctic Treaty Parties have translated this document into languages not listed above please submit copies to the IAATO Secretariat in order to better educate our traveling public.

Recommendation XVIII-1, "Guidance for Those Organising and Conducting Tourism and Non-Governmental Activities in the Antarctic" is provided to all IAATO tour operators to inform members of key obligations and procedures to be followed.

8. Emergency Response Actions and Contingency Planning

During the IAATO 12th General Meeting, the Marine Committee and other interested member companies agreed to work together on an industry-wide Emergency Response Action and Contingency Plan. The draft version will be available in 2002. IAATO would like to coordinate operational efforts with COMNAP once a draft document is produced.

IAATO has compiled data on tour vessels' specifications and other information that would contribute to risk assessment of Antarctic tourism activities. This list is currently being updated and will be in place for the 2002-03 season. An earlier version was tabled at the Antarctic Treaty Meeting of Experts, April 2000 and also at SATCM, IP32 (IAATO's Annual Report).

All IAATO member companies have Shipboard Oil Pollution Emergency Plans (SOPEP) in place that satisfies regulation 26 of Annex I of MARPOL. A "Special Antarctic Addendum" to the SOPEP was developed by IAATO and distributed to Antarctic tour operators for implementation and comment in 1998 (ATCM XXII IP104). While the addendum has no legal status, it includes notice to

contact Antarctic stations in the vicinity of any marine pollution incident along with appropriate national authorities.

The IAATO wide EMER (Emergency Medical Evacuation Response) plan has been in place for at least 4 years in order to reduce the need to impact scientific stations in the Antarctic Peninsula with tourist medical problems. A standard medical information checklist has been provided to new operators upon request in order to assure adequate medical supplies are on tourist vessels.

9. 2001-2002 Scientific and Environmental Research Initiatives

IAATO member companies continued to provide logistic and scientific support to national Antarctic programmes and Antarctic organizations and to the Sub Antarctic. Tour vessels provide a cost-effective resource for the scientific community. During the 2001-02 season more than 100 scientists and other personnel from various Antarctic Treaty Parties along with their equipment were supported, mainly in transport to and from stations and field areas. IAATO continued its support of the Oceanites Antarctic Site Inventory Project whose personnel were again provided with accommodations, transport and access to visitor sites. Antarctic Treaty Parties chartered at least one IAATO member vessel for station resupply during the 2001-2002 season. IAATO arranged for transportation of all members of the joint Deception Island Expedition, nearly all on IAATO-member vessels, with the exception of two individuals on a Treaty Party vessel for return to South America.

One IAATO member company—Hapag Lloyd—has an agreement with the Alfred Wegener Institute to transport scientists on a regular basis to and from Jubany Station. Scientists travel to and from that station regularly during the season.

Specific requests for logistic or other support should be made to individual members or the IAATO Secretariat. For a complete membership directory, please refer to the IAATO website at www.iaato.org.

IAATO members also provided transport for researchers, personnel and materiel in the Antarctic and Sub-Antarctic, including the Falkland Islands, South Georgia, Macquarie Island and the New Zealand Sub-Antarctic Islands.

Antarctic tour operators and passengers continued their tradition of direct financial contributions to many organizations active in Antarctica including the Scott Polar Research Institute, United Kingdom Antarctic Heritage Trust, New Zealand Antarctic Heritage Trust, the Humpback Whale Identification Project, and Whale and Dolphin Society, and Birdlife International (Save the Albatross Campaign). Over \$100,000 USD was raised on behalf of tour operators for various organizations.

10. Observers on board IAATO member vessels

IAATO requires that any Provisional or Probational Member companies are required to carry an observer before they are eligible for applying for Full Membership. IAATO prefers to use qualified personnel from the National Program that the company is registered in. For example, if the company is an Australian-based company, a representative from the permitting office is preferred. When no national program observer is appointed, IAATO will appoint an appropriate person with experience in Antarctic matters, shipboard and or ecotourism related fields. IAATO has a checklist for observers (Appendix I). In addition, the Resolution 5 (1995) Antarctic Treaty Inspection Checklist is also provided to the appointed observer. It is IAATO's understanding that any observers appointed by National Programmes would not be acting in an official capacity according to Article VII of the Antarctic Treaty but would simply be appointed as National Program representatives. IAATO requests that should this status change IAATO would like to be officially notified. IAATO vessels have been carrying observers since 1991.

11. Guidelines

IAATO began working on Site Specific Guidelines that will be presented to the ATCM when completed. In addition IAATO's new Marine Wildlife Watching Guidelines have been included as ATCM XXV IP72. These guidelines are being developed in order to avoid the possibility of negative cumulative impacts at typical tourist landing sites.

Appendices

- A. IAATO Bylaws, 2002
- B. IAATO Vessel Call Data 2001-02
- C. IAATO Annual Instructions
- D. IAATO Disease Protocol
- E. Research Proposal: "Could Tourists Transmit Infectious agents in Antarctica?"
- F. Infection Control in Antarctica
- G. Boot and Clothing Decontamination
- H. IAATO Pre-Season Checklist
- I. IAATO Observers' Reporting Form and Checklist

Appendix A
IAATO Bylaws

10 Aug 2002
version

International
Association of Antarctica Tour Operators

A member organization founded in 1991 to advocate, promote and practice safe and environmentally responsible private-sector travel to the Antarctic.

IAATO Bylaws

Article I:
Foundation, Name, Registration, Headquarters

Section A.

The Association was founded in 1991 by seven Antarctic tour operators: Adventure Network International, Mountain Travel Sobek, Paquet/Ocean Cruise Lines, Salén Lindblad Cruising, Society Expeditions, Travel Dynamics and Zegrahm Expeditions.

Section B.

The name of the Association is "International Association of Antarctica Tour Operators." Henceforth, the abbreviated name "IAATO" will be used.

Section C.

IAATO is registered in Olympia, Washington, USA.

Section D.

IAATO currently has its headquarters in Basalt, Colorado, United States. At present, IAATO does not have any affiliated chapters, foreign or domestic. Chapters may be established in the future.

Article II:
Objectives

Section A.

To represent Antarctic tour operators and others organizing and conducting travel to the Antarctic, to the Antarctic Treaty Parties, the international conservation community and the public at large.

Section B.

To advocate, promote and practice safe and environmentally responsible travel to the Antarctic.

Section C.

To circulate, promote and follow the Guidance for Visitors to the Antarctic and Guidance for Those Organising and Conducting Tourism and Non-governmental Activities in the Antarctic, as adopted by the Antarctic Treaty System (Recommendation XVIII-1).

Section D.

To operate within the parameters of the Antarctic Treaty System, including the Antarctic Treaty and the Protocol on Environmental Protection to the Antarctic Treaty, along with IMO Conventions and similar international and national laws and agreements.

Section E.

To foster continued cooperation among its members; to monitor IAATO programmes, including the pattern and frequency of visits to specific sites within the Antarctic; and to coordinate itineraries so that no more than 100 passengers are ashore at any one time in any one place.

Section F.

To provide a forum for the international, private-sector travel industry to share their expertise and opinions and to uphold the highest standards.

Section G.

To enhance public awareness and concern for the conservation of the Antarctic environment and its associated ecosystems and to better inform the media, governments and environmental organizations about private-sector travel to these regions.

Section H.

To create a corps of ambassadors for the continued protection of Antarctica by offering the opportunity to experience the continent first hand.

Section I.

To support science in Antarctica through cooperation with national Antarctic programmes, including logistical support and research; and to foster cooperation between private-sector travel and the international scientific community in the Antarctic.

Section J.

To ensure that the best qualified staff and field personnel are employed by IAATO members through continued training and education; and to encourage and develop international acceptance of evaluation, certification and accreditation programmes for Antarctic personnel.

Article III: Membership

Section A.

The membership is divided into seven categories:

1. Organizers of expedition ships that carry less than 200 passengers or small sailing vessels that carry less than 12 passengers. The limit of 100 passengers ashore at one site at one time remains in force.
2. Organizers of vessels carrying 200-500 passengers who are making passenger landings. Stringent restrictions on landing activities of time and place apply. The limit of 100 passengers on shore at one site at one time also applies.
3. Organizers of cruise ships making no landings (cruise only). Cruise ships carrying more than 500 passengers are not permitted to make any landings.
4. Organizers of land-based operations.
5. Organizers of air operators with overflights only.
6. Organizers of air/cruise operations.

7. Associate Members (remains unchanged).

The above seven categories, depending on organizer interests and type of activities, can be grouped into any of the following four major types of membership:

1. Full Members are experienced organizers who operate travel programmes to the Antarctic and who: a) pledge to abide by IAATO Bylaws; b) agree to the above-mentioned categories and to not have more than 100 passengers ashore at any one site at the same time; c) have been formally accepted by two-thirds of the standing members after review and fulfill any other requirement.
2. Provisional Members are organizers that operate travel programmes to the Antarctic that are requesting Full membership in IAATO. Provisional Members must: a) pledge to abide by IAATO Bylaws; b) agree to the above-mentioned categories and to not have more than 100 passengers ashore at any one site at the same time; c) be formally accepted by two-thirds of the standing members after review and fulfill any other requirements for membership; and d) agree to carry either an IAATO-approved or National Antarctic Program Observer aboard on a voyage as agreed to by IAATO and to forward a complete, unabridged Observer's report to the Secretariat following the conclusion of the voyage. The operator would provide reasonable compensation (such as air transportation and related expenses) for an IAATO-approved Observer.)
3. Probationary Members are current or past Full or Provisional Members who have not fully complied with IAATO Bylaws or who otherwise are not in good standing as decided by a two-thirds vote of the Full Members. Probationary Members must a) pledge to abide by IAATO Bylaws; b) agree to the above-mentioned categories and to not have more than 100 passengers ashore at any one site at the same time; and c) agree to carry either an IAATO-approved or National Antarctic Program Observer aboard for a voyage during the following season and to forward a complete, unabridged Observer's report to the Secretariat following the conclusion of the voyage. Reasonable compensation (such as air transportation and related expenses) would be provided for an IAATO-approved Observer by the operator.
4. Associate Members are other organizations and individuals interested in or promoting travel to the Antarctic that wish to support IAATO objectives and whose application has been formally accepted by two-thirds of the standing members.

Section B.

To be considered as Full Members, organizers must have demonstrated the willingness and ability to adhere to and actively support IAATO objectives. Criteria for membership include: the use of appropriate vessels, aircraft, and equipment; hiring a sufficient number of qualified and experienced staff; submitting advance notification and being actively involved in the organization and operation of Antarctic tourism; and other obligations of Guidance for Visitors to the Antarctic and Guidance for Those Organising and Conducting Tourism and Non-governmental Activities in the Antarctic, as adopted by the Antarctic Treaty System (Recommendation XVIII-1). Also, consideration will be given to the professional standing of prospective members in the travel industry and prior experience conducting responsible tourism.

Section C.

After a thorough review by the Membership Committee, Provisional and Probationary Members are eligible to apply as Full Members.

Section D.

Membership is non-transferable. In the event a member company is acquired by another entity or ceases operation, the company would have to reapply for membership.

Section E.

Members, who drop their affiliation with IAATO and later wish to rejoin, must pay the initiation fee in order to be reinstated.

Section F.

Members are subject to annual membership dues and fees as agreed from year-to-year by two-thirds of Full Members in good standing.

Section G.

Members in good standing are those who continue to act in compliance with the Bylaws and are current with IAATO dues.

Section H.

Members who do not comply with the Bylaws and/or do not pay applicable dues in a timely fashion will be subject to reprimand, change in status or expulsion after review by the membership or appointed committee.

Section I.

Associate Members are subject to the payment of annual dues as proposed and agreed by two-thirds of the Full Members in good standing.

Section J.

Membership will be reviewed at the annual IAATO meeting, including the status of Provisional and Probationary Members.

Section K.

Members are required to make sure that a charterer, wholesaler, sponsoring organization or other third party conforms to IAATO objectives and Bylaws, particularly that these companies distribute appropriate materials and properly inform their passengers of proper conduct ashore. Furthermore, Members are responsible for ensuring payment of any per passenger fees to IAATO for these departures.

Section L.

Use of the IAATO logo in brochures, advertisements or other promotional materials is reserved for Full and Associate Members in good standing. There are logos specific for each category of membership.

Section M.

New companies applying for Provisional Membership are required to seek sponsorship by an already existing Full Member in order to assure that information is shared and the potential Provisional Member is well versed in IAATO procedures and philosophies. If a company is unable to find a sponsor, the Membership Committee will assist with the application or suggest a referral.

Section N.

If a member company organizes programmes that fall within more than one category of membership, the company must organize, operate, manage and promote their programmes in accordance with the particular category of membership in which that program falls.

Article IV: Organizational Structure

Section A.

The Executive Director is a paid position. Terms of office, responsibilities, time requirements and remuneration will be defined according to proposed activities and budget and agreed upon by two-thirds of the Full Members.

Section B.

The Executive Director's responsibilities may include but are not limited to:

- Act as a resource for the membership and clearinghouse for information.
- Act as a liaison with the media, scientific and conservation communities.
- Compile and distribute IAATO information to interested parties, through an IAATO website, newsletters, occasional press releases and other publications.
- Act as treasurer, developing a yearly budget and submitting to IAATO members a status report of IAATO activities and finances.
- Make and carry out recommendations in regard to IAATO activities and finances.
- Act as IAATO representative where required.
- Develop the agenda and coordinate meetings.
- Work closely with all standing committees including the Executive Committee and Representatives.
- Maintain an accurate record of activities, including time and expenses related to authorized activities to be submitted to the Financial Committee or other designated individual or individuals for authorization for payment.
- Procure part-time, paid help including assistance of an attorney, as needed, with two-thirds of Full Members' consent, and provide compensation and benefits where appropriate as needed.

Section C.

Responsibilities of a designated IAATO representative may include but are not limited to:

- Represent IAATO at Antarctic Treaty Consultative Meetings and other important meetings related to the Antarctic Treaty System.
- Promote IAATO objectives in dialogue with delegates and others at such meetings, and to initiate and draft appropriate working papers and written reports distributed at meetings.
- Provide an aggressive and supportive stance in written and oral presentations at meetings.
- Participate in hearings and other venues where Antarctic tourism and protection is discussed as designated,
- Prepare documents related to the above, including submissions for publication in appropriate journals, reports and books.
- Communicate and coordinate activities to the Executive Committee and membership via the Executive Director where appropriate.
- Maintain an accurate record of activities, including time and expenses related to authorized activities to be submitted to the Executive Director for payment.

Section D.

Individuals with relevant qualifications and who are willing and able to provide guidance and advice to IAATO may be invited to sit on an advisory board and named as Associate Members without compensation as approved by two-thirds of the Full Members.

Article V: Elections and Voting

Section A.

Elections will be held at the annual meeting.

Section B.

Full Members in good standing are eligible to vote and eligible for committee positions and other offices.

Section C.

Each qualifying Full Member will have one vote.

Section D.

Full Members in good standing who are unable to attend the annual or any extraordinary meetings may nominate candidates for standing committees and cast written votes on resolutions and nominations, provided that ballots are returned to the Executive Director prior to the meeting.

Section E.

Full Members who are not in attendance at the annual or any extraordinary meetings forfeit their voting privileges on impromptu issues that may arise during the meetings. Full Members who are not in attendance may not nominate a person from another member company to vote on their behalf. The Executive Director will make a best effort to solicit resolutions, changes in Bylaws and other important matters before the meeting.

Section F.

Any issue voted on will pass with two-thirds vote in favor of the issue.

Section G.

A review of membership and any requested changes in Full, Provisional or Probationary membership categories will be voted on at the annual meeting. Associate Members can be voted in quarterly.

Article VI: Standing Committees

Section A.

A three-member Executive Committee will be elected at the annual meeting to assist the Executive Director. The committee shall make decisions on behalf of the full membership where appropriate and subject to ratification.

Section B.

Further standing committees, as required and including a Membership Committee and Finance Committee, shall be elected by a two-thirds majority of Full Members in good standing, generally at the annual meeting.

**Article VII:
Meetings**

Section A.

A general meeting will be held at least once a year. Extraordinary meetings may be scheduled as necessary.

Section B.

The Executive Director will coordinate the time and venue of the meeting and advise Full Members at least 60 days prior to the meeting.

Section C.

Attendance at the general meeting is reserved for Full, Provisional and Probational Members, however discussions requiring a vote may be limited to Full (voting) Members. Requests to attend by Associate, prospective members and non-members may be accepted by a two-thirds vote of the Full Members.

Section D

The Executive Director will appoint a person to record minutes during the annual meeting and the Executive Director will distribute them within four months after the meeting to the membership.

**Article VIII:
Finances**

Section A.

The Executive Director will solicit, collect and administer all dues and fees.

Section B.

The Executive Director will manage finances, make payments within budget constraints and make recommendations regarding annual budget, to be approved during the annual meeting.

Section C.

Dues and fees are non-transferable and non-refundable. Overpayments will be credited to the Member's account.

Section D.

A detailed balance sheet and profit and loss statement will be provided to Full Members within two months of the close of the financial year. Detailed decisions on budgets and financial matters will be undertaken by the Financial Committee.

Section E.

Purchases or expenses up to \$5,000 US dollars can be approved by the Financial Committee. Expenses over \$5,000 US dollars need to be approved by two-thirds of the Full Members in good standing.

**Article IX:
Amendments to IAATO Bylaws**

Section A.

These Bylaws may be amended by a resolution passed by two-thirds of the Full Members in good standing.

IAATO Membership Registration

- A. Contact Information.
- B. IAATO Member since.
- C. Number of years operating in the Antarctic.
- D. Name of ships used in previous seasons.
- E. Incidents in previous years that have resulted in significant damage to the vessel or environment.
- F. Advance notice of planned expeditions supplied to what appropriate authority?
- G. Name, registry and specifications of each vessel you plan to use, including the number of crew and carrying capacity of each ship/aircraft.
- H. Contact information for each vessel (call sign, INMARSAT).
- I. Number of voyages planned per vessel and planned itineraries.
- J. Do you plan any non ship-based tours and/or plan extended time off the vessel in the Antarctic Treaty Area? If yes, please describe.
- K. Total number of passengers you expect to carry.
- L. Statement of the status of compliance with environmental assessment requirements, including contingency and waste management plans.
- M. Methods of educating passengers, staff and crew of Recommendation XVIII-1 and other obligations.
- N. What are your staff positions and who is on your expedition staff? List name and Antarctic experience where possible.
- O. Signed statement that you have read the IAATO Bylaws and Membership Criteria as well as Recommendation XVIII-1 and agree to follow same.
- P. Payment of annual dues and 65% of the per passenger fee based on the estimated passenger load. Please wire transfers or checks in US dollars drawn on a US bank.

Appendix B

2001-2002 IAATO Vessel Call Data and Emergency Contact Information

Marco Polo (Non Member)	Orient Lines	C6JZ7	811307232 330869311	330869310	and mmsi 308693000	1307232	27638
Mikhcev	Oceanwide Expeditions	UCRE	None	None		427300789	273457920
Molchanov	Adventure Associates/Quark	UAKA	627300512	627315410 627 315411		427300513	273458500
Multanovskiy	Quark Expeditions	UCLA	762926716	762926715 762926717		427300480	273432910
Pelagic (yacht)	Pelagic Expeditions	ZJL5390				4378 00434	
Polar Pioneer	Aurora Expeditions	UBZN	761 321 411	761-321 399 Iridium 88165611 4295		427321897	273454860
Polar Star	Polar Star Expeditions	8PPK	76-288-8882	76-288-8880 76-2888881		431-412510 or 4312520	314125000
Ryndam	Holland America	PHFV	1302563	1302562		36540	36540
Shokalskiy	Heritage Expeditions	URNF				427320483 incoming	314125000
Sir Hubert Wilkins	Ocean Frontiers	YJRS2	872-657-699010	872-657-699010	(will not accept attachments)	457662610	Mmsi 57662000
Vista Mar	plantours & Partner	EBRO	762 822 923 762 822 989 135 24 46	762 822 922 762 822 988 135 24 46	mmsi no. 224585000	581/584: 422 45 85 10	
2041 (yacht)	Mission Antarctica	MMLF2	Mini-M 76 22 11 821	76 22 11 820			

Name	Operator	Call Sign	Fax	Voice	Email/ MMSI	Telex	Sel-Call
Bremen	Hapag-Lloyd	C6IC3	330842912 330842915 1103405	330842910 1103404	mmsi 308429000	430842910 1103404	61789
Clipper Adventurer	New World Shipping Co. Ltd/Clipper Cruise Line	C6PG6	330 999 716	330 999 710 330 999 711 712,713,714	clipper-adventurer@super-hub.com mmsi-309997000	330999718	61975 & 61977
Endeavour	Lindblad Expeditions	C6BE4	330 818 213	330818210 330818211 330818212	mmsi 308182000 Email:	330818214 430818210	61547
Explorer	Abercrombie & Kent / Explorer Shipping	ELJD8	363698466 (B) 463673520 (C)	363698464 (inmarsat B) 761962012 inmarsat M 33608932302	mmsi 636008495	463673520	636008495
Golden Fleece	Golden Fleece Expeditions	ZDLN1					
Hansatic	Hapag-Lloyd	C6KA9	330957712 330957715 1103727	330957710 330957711 1103730	Mmsi 309577000	430957710 1103727	61326
Ioffe	Peregrine Adventures	UAUN	140 0655 (V/F)	140 0655 (V/F)	mmsi 4273413400		
Kapitan Dranitsyn	Quark Expeditions	UCJP	1405657	1405660 or 427300148	kapitandranitsyn@compuservc.com mmsi:273138300	1405660	
Kapitan Khibnikov	Quark Expeditions	UTSU	872-140-2733 872- 327307514	872-140-0676 872-327307513	mmsi-273146110	327307516	54557

In. Fuc. Tur	Argentina/Ushuaia		54-2901-430694	54-2901-423340			
IAATO	USA		1-970-704-9660	1-970-704-1047	iaato@iaato.org		
EMER						N/A	N/A
Adventure Network International	ANI*			56 61 22 05 65	24 Hours Emergency Only Individual Mobile Phones numbers are noted on EMER Plan		
ANI	Punta Arenas, Chile		56 61 22 61 67	56 61 24 77 35			
ANI	Boca Raton, FL, USA-	EST time	USA 1 561 347 7523	1 561 237 2359			
ANI	Patriot Hills			874 683 141497			
ANI	Punta Arenas Radio Frequencies	HF	15026 kHz USB Primary	11228 kHz USB Secondary	17988 kHz USB Tertiary		

IAATO HF radio schedule (khz) 1930 hrs Ushuaia local time only) 4146 (1?), 6224 (2?) preferably, 8294 (3)

Ocean Codes 874,871,872, 873 will need to be used when contacting all vessels

Radio Officers are asked to send by GMDSS ship's position at 12noon each day to all vessels

Radio Officers are also asked to report ships position to COMNAP website. PIN numbers will be provided for each vessel

Use GMDSS as the primary form of communication between vessels.

72 hours confirmation for all station visits is required

Appendix C

IAATO Annual Instructions

August 2001

Expedition Leader And Ship's Officers Seasonal Instructions

TO All Antarctic Captains, Expedition Leaders and Radio Officers
FM IAATO
RE 2001-2002 Season

We developed the following notice at the IAATO annual meeting to help guide the exchange of information among vessels, co-ordination of itineraries and reporting for the season.

Exchange of Itineraries

IAATO members agree to exchange itineraries and coordinate schedules. This is a key factor in self-regulation, monitoring of activities and also in effective emergency response.

Consult the IAATO preliminary schedule (and updates circulated by In.Fue.Tur) to determine which vessels will be in your cruising area.

Circulate your proposed final itinerary via GMDSS, telex by broadcast mode or radio (preferred) or fax or e-mail. (Please note that few tour vessels have regular real-time exchange of e-mail.) Since all ships are supposed to be equipped with a GMDSS radio station, they should be able to scan a frequency in the 6310 KZ band (24 hrs). By using broadcast mode (one way) ships can send itineraries, ice information and other information as needed. These transmissions will be picked up by all vessels and should be able to printout the incoming message immediately.

Itineraries must be first communicated amongst vessels directly and secondarily circulated via In.Fue.Tur but this is a method of last resort. Not all ships call at Ushuaia and the responsibility to circulate information is between individual vessels.

Be sure to also exchange environmental information and management recommendations for individual landing sites or other notices with your colleagues as the season progresses.

Itinerary Changes

To avoid conflicts, notify vessels in the region of any changes in planned itinerary as soon as practical.

Notification should be by GMDSS first then fax, telex, VHF or HF (see below)

Notify any vessel of intention to cancel a landing. Due to itinerary changes, weather, ice etc another vessel would appreciate having an additional landing option.

Landing Priority

In general, priority is given to the first vessel that has made its intentions known.

In the event of conflict, expedition leaders should coordinate between themselves to determine priority, which is best accomplished through negotiation via HF or VHF.

Please resolve any conflicts equitably. It is assumed that vessels visiting a site with some regularity will give way to a vessel that is not but any number of factors may come into play.

Two vessels are not to land at the same place at the same time and, to avoid any potential environmental impacts, efforts should be made to spread out visits over time.

Station Visits

Tour operators have agreed to provide 72 hour-notice of any planned station visit.

Follow individual procedures determined by national programmes/station leaders.

Provide timely notice of cancellation, generally 48 hours in advance.

Please include any additional station contact information, standard procedures or incidents involving stations in your voyage report to the home office.

Remember no visits to Palmer Station are allowed on Sundays and preferably not on Saturdays. All Palmer visits have been prearranged. Any changes, please advise Palmer as soon as possible. There is an official Palmer Station schedule issued each season.

Channel 16

Channel 16 is used for hailing purposes only, NOT general communication.

After making contact, immediately switch to another channel to continue conversation.

Expedition Leaders should periodically review radio etiquette with staff. The airwaves during the height of the season in the Peninsula have been crowded, an issue with IAATO members and potentially with research stations. Take care to follow standard international procedures.

IAATO Radio Schedule

IAATO members have agreed to implement a once daily radio schedule at 0730.

All ships should report in with their position/destination at 1230 and 1930 daily using the GMDSS system (Ushuaia local time). Each radio officer should record this information.

Suggested HF hailing frequencies are: 4146 (1?), 6224 (2?)-SSB, 8294 (3?), to be finalized by radio officers during the season based on experience. Use 6224 whenever possible.

Expedition leaders should make use of this schedule whenever VHF communication is impossible for exchange information. This will reduce communication costs.

Please switch to another frequency for any extended conversation when talking on the above-mentioned HF (4146?, 6224?.)

Avoid long conversations over the radio if possible.

EMER (Emergency and Medical Evacuation Response)

Review the IAATO Emergency Contingency Plan included in your briefing package.

The reporting scheme indicated above is an integral part of emergency response. Please insure that it is followed and report any difficulties to your home office.

Post-Visit Reporting

Following Antarctic Treaty recommendations, complete Part 1 and Part 2 of the standard Post-Visit Site Report for every expedition. The 2001-02 version of the form should be the ONLY form completed for Antarctica. At the end of each voyage return the form and a computer disc to the home office. In order to input this information into the database, always submit a computer version of each form. Information gleaned from this form is tabulated and circulated internationally by the National Science Foundation, USA and by IAATO in the form of statistics. Copies of all completed forms

must be submitted to the National Science Foundation and other relevant national programmes and a copy sent to IAATO via the home office.

The form has changed and is now in EXCEL Format. After each trip both an Electronic Copy (on disc) and a hard copy needs to be filled out. Drop down menus have been created to make it easier for all concerned. Spend some time learning how to fill the form out on the computer. It does not need an original signature. EL's can type their name directly on the form.

Do not include South Georgia landing site information on this form. There is a separate form for Antarctica.

Please note guests of the company, guest lecturers, and other "non-revenue passengers" should be reported as passengers for the purposes of this report unless they have specific staff roles ashore. In general, those responsible for supervising passenger operations ashore that report to the expedition leader are considered staff. Your office will provide additional guidance. Hotel staff, catering, chefs and deckhands are included, as crew members not staff unless they are guiding tourists ashore and in zodiacs.

The standard list of "Antarctic Peninsula Region Landing Sites" for Part 2 have been incorporated into the drop down menus. If those sites are not included than please note them as new sites and we'll add them to the list next year. Please correct duplications or inconsistencies. In general, the most specific place name is used. Most all the landing sites are in the drop down menus. Any new sites, type in the name of the site, latitude and longitude at the bottom. It may mean that chronologically from a "date" standpoint your landing sites may not be in order.

If you are visiting new sites then they will need to appear at the bottom of the list and will not necessarily appear in chronological order by date.

Make additions to the list of landing sites as necessary — taking note of the standard procedures included in your briefing packet for assessing new or rarely visited sites.

EL's, please note that this information is used for statistics that are tabled worldwide. Please do not hastily fill this out. If you have questions, consult your home office.

If possible type the forms rather than hand write.

Have a safe and successful Antarctic season.

Appendix D

IAATO Disease Protocol

Introduction and Detection of Diseases in Antarctic Wildlife, IAATO Perspective

Preamble

Inherent in the mandate of IAATO member companies is a long term commitment to environmentally sensitive travel to Antarctica. For a number of years IAATO members, being mindful of Environmental Protocol Recommendation XVIII-1, have been using simple precautionary techniques to ensure that foreign material and/or potential pathogens are not introduced into Antarctica by tourists. In the last several years these procedures have been formalized and reviewed by national authorities via Environmental Impact Assessments.

Recognizing that tourists in Antarctica are a highly mobile population and that little is known about the introduction and translocation of alien organisms in the Antarctic, IAATO hopes to play a continuing active role in responding to new information.

Resulting from the Diseases of Antarctic Wildlife workshop hosted by the Australian Antarctic Division (Hobart, Oct 1998), this document is intended to address the concern about the potential translocation of diseases by tourists in Antarctica, and to suggest a cost-effective, practical solution. Given the current lack of scientific data on natural disease status and microbial populations of Antarctic wildlife, and of methods to prevent anthropogenic transmission, a sensible precautionary approach is proposed.

Antarctic tour operators and staff can be a resource for disease surveillance, reporting and containment. Vessels operated by IAATO members cover a wide variety of coastal terrain in a short space of time and can provide valuable data to the scientific community on the overall state of wildlife populations.

IAATO members have continued to make use of boot-washing stations before and after each landing along with a visual check of clothing and gear for any exotic organisms. Following the Diseases of Antarctic Wildlife workshop, IAATO researched a simple effective antiseptic, which could be used to limit possible translocation of diseases, such as in penguin feces, when passengers moved from one rookery to another for example.

We were surprised to find that experts in the field do not agree whether any further action is required beyond simply washing boots and soiled clothing in clean water. A number of researchers suggested that a weak solution of iodine might be a suitable antiseptic. Bearing in mind the variance in opinion amongst experts in the field, IAATO suggests the following:

1. Preventative Action

- Prior to their first landing in Antarctica, all passengers receive a comprehensive briefing on Antarctic conservation. An integral part of this briefing is explaining the importance of preventing the possible introduction of foreign materials to Antarctica, and the potential for translocation between Antarctic sites.
- Before each shore visit passengers and staff are asked to check their clothing for seeds and other extraneous material and scrub their boots in a foot bath on the ship's deck. Given that most voyages depart from Ushuaia and many passengers spend time in Tierra del Fuego before embarkation, the opportunity to transport material to the Antarctic is obvious and a thorough cleaning before the first landing is particularly important.

- Following each landing for the duration of the voyage, passengers scrub boots at the water's edge prior to boarding Zodiacs and again aboard the ship at the head of the gangway. The foot bath should contain a diluted iodine solution (ratio: three tablespoons of saturated solution to a ten gallon bucket).
- Disposal of the used iodine solution, which may possibly contain pathogens and is a poison, must be considered. Iodine occurs naturally in the ecosystem and is present in foot bath water in low enough concentrations that it is not considered a threat to the environment. We propose that dirty foot bath water should be disposed into the sea at the place of anchorage at each landing rather than flushed into the ship's tanks. In this way any contaminants acquired at that site will be returned to the waters from which they came, rather than being translocated.
- Zodiacs are kept clean between landings and care is taken to remove stones, kelp etc. from the floor of the Zodiac after each landing.
- Helicopter skids and passenger compartments are cleaned between landings using clean seawater.

2. Procedures upon the Discovery of a High Mortality Event

Antarctic tour vessels can potentially act as monitors of the health of wildlife populations, traveling along coastal areas throughout the Antarctic summer. We are not proposing that IAATO vessels take any formal responsibility of monitoring the health of wildlife populations but rather that IAATO instigates a code of practice for responding to a high mortality event.

While acknowledging that high mortality events are open to interpretation in size and cause, the critical issue is that any perceived, highly unusual event be noted and reported appropriately. In the event of discovering a mortality event, tour operators should:

- cease or may otherwise be ill-advised, the landing should be aborted.
- In the event of a landing Describe and report the event to the nearest scientific station and ships operating in the area. The national authority that the tour organizer provided advance notification should also be notified and an incident report should be prepared for IAATO.
- In such a scenario, the primary responsibility of the operator is to say that he/she has seen something unusual.
- Where the operator has reason to believe that landing passengers could lead to translocation of dibeing made and a mass mortality event not being recognized, then normal boot scrubbing procedures and adherence to approved landing procedures should be enough to minimize the risk of spreading disease.

Appendix E

Abstract

Could tourists transmit infectious agents in Antarctica?

C. Curry, J. McCarthy, H. Darragh, R. Wake, *R. Todhunter, *J. Terris. Dept of Emergency Medicine, University of Western Australia Dept of Medicine, Dept of Microbiology, Dept of Infectious Diseases, Fremantle Hospital; *Ship Doctor.

The increasing numbers of tourists visiting penguin rookeries in Antarctica has raised the question, could tourists translocate infectious agents on their boots and clothing from one rookery to another?

While there are as yet no documented cases of the introduction and spread of diseases amongst antarctic wildlife by human visitation, there is circumstantial evidence that micro-organisms that could cause disease have been introduced by humans. Iaato has promulgated decontamination procedures to minimise the risk of translocation of micro-organisms on boots and clothing. However, until now the effectiveness of these procedures had not been examined.

During the 2001/2002 season we undertook a pilot study and a limited definitive study to test these procedures aboard the quark expeditions icebreaker, Kapitan Khlebnikov. Samples were collected from boots before a landing, immediately on return to the ship, and after the decontamination procedure. Specimens were collected into routine transport media, and kept at 4 degrees Celsius until culture was undertaken. Samples were cultured using media selective for intestinal coliform bacteria at Fremantle hospital, Western Australia.

There was substantial growth of micro-organisms from all three samplings, including bacteria likely to have come from the intestines of penguins. The heaviest growth was from the returning unwashed boots, but the washing procedure did not eliminate contamination on the third samples, where intestinal bacteria could still be isolated.

We conclude that the IAATO decontamination procedure cannot afford operators any assurance that translocation of diseases will not occur.

We wish to propose the undertaking of a more extensive study next Antarctic season in which we compare a second water wash with the use of a disinfectant. Samples will be collected aboard the Kapitan Khlebnikov on three consecutive trips to rookeries in the Ross Sea. At each collection a control group of boots will have a second water rinse while a test group of boots will have a rinse in disinfectant. We plan to test the commercially available disinfectant Virkon (tm).

Appendix F

Infection control in Antarctica:

Could tourist boots act as vectors for transmission of infectious agents?

Dr. Chris Curry, Dr. James McCarthy, Dr. Helen Darragh, Dr. Rebecca Wake, Dr. Susan Churchill, Dr. Tony Robins, Dr. Jane Terris, Dr. Rick Todhunter,

Presented to IAATO, Monday, 1 July, 2002

Introduction

Over the last decade there has been a dramatic increase in ship tourist operations to Antarctica.

This has been facilitated by the availability of Russian ice-strengthened and ice-breaking vessels since the dissolution of the USSR. The numbers of visitors landing at wildlife sites was of the order of 10-14,000 in the 2000/2001 season.

With regard to Research into diseases of Antarctic wildlife:

Preliminary studies have only recently begun: There have been

Examinations of faeces of marine mammals and penguins for bacterial flora.

Serosurveys of a variety of species for viral, bacterial, fungal, and parasitic diseases.

These studies have led to the tentative identifications of a wide range of potential pathogens in Antarctic fauna.

These studies have raised a number of concerns.

Is it possible that pathogens may have been introduced by man?

Is it possible that man may transmit important pathogens between wildlife colonies?

Could pathogens of polar wildlife pose a threat to man or to domestic animals (eg. *Brucella* spp)?)

With regard to mass mortalities of Antarctic wildlife

A number of events have been documented.

The cause(s) have not been identified.

There is Increasing concern that man may have contributed to or precipitated such epizootics,

Or may in the future precipitate panzootics.

IAATO Guidelines

When visiting wildlife sites, tour operators adhere to guidelines developed by the International Association of Antarctic Tour Operators (IAATO). On leaving wildlife sites the guidelines dictate that they rinse their boots in seawater. On re-boarding the ship they are required to scrub any remaining material off their boots, again in running seawater. The boots are then allowed to dry out in the ship (about 20 C) before the next landing. In a crowded rookery like this there is plenty of material to pick up.

Aim of this study

To determine if tourists might be able to carry pathogens on their boots

And if they pose a potential threat to Antarctic wildlife (Or possibly to human populations).

Methods

A Russian icebreaker, the Kapitan Khlebnikov, made 6 tourist trips to the Ross Sea region of Antarctica in the summer seasons 2000-2001 and 2001-2002.

Season 2000-2001

On the first trip, a pilot study was conducted to define the optimal conditions for collection, storage and culture of bacteria collected from tourist boots.

On the second trip we attempted to define the potential for contaminated tourist boots to transmit pathogens.

Season 2001-2002

A disinfection step was evaluated.

Route. Map of route to Ross Sea.

Specimens collection

Prior to landing: (A Isolates) to determine baseline level of bacterial flora on the boots.

Immediately on return to the ship: (B Isolates) to quantify the level of contamination.

After seawater wash: (C Isolates) to determine the recovery of organisms after cleaning.

After disinfectant wash: (D isolates) in season 2001/2002 to determine the recovery of the organisms after disinfection.

Processing

Swabs were collected into Stuart's transport medium and stored at 4C until culture.

All swabs, water samples, and penguin faeces were inoculated into EC medium and incubated at 37C for 24 hrs to detect coliform bacteria.

Oxidase -ve organisms were further subcultured for identification using the API 20E identification system, and for antibiotic susceptibility testing.

Season 2000-2001: Representative Culture Plates

Results: Season 2000-2001

Swabs, from the EC broths showed:

Mixed growth of oxidase +ve gram -ve bacilli

Oxidase -ve mixed coliforms

20 different organisms resembling coliforms were isolated from 15 of the 60 swabs collected

2 from group A

4 from group B

14 from group C

Of these 20 organisms, 11 could be identified using the API 20E system.

The remaining 9 isolates all produced an identical profile number not present in the API. We don't know what they are.

Identity and sensitivity patterns of organisms. (black and white)

Virkon(tm)

A modern oxidant disinfectant:

Activity is based on a buffered synergised acid peroxygen system containing a high percentage of surfactant

Good bactericidal and virucidal properties

Low toxicity

Effective against members of all 17 virus families

Not approved for use on skin

Relatively safe to use

Comes in a powdered form suitable for dilution on site

Its manufacturer claims that it is readily biodegradable

Results Season 2001-2002

First trip: 23/30 swabs (85%) taken post Virkon showed no growth.

Antibacterial activity observed in another 2 cases.

Second trip

Nearly all the post Virkon wash swabs showed no growth.

Antibacterial activity observed in another 5 cases.

Table of cultures from First and Second trips. (colour)

Positive Swabs post Virkon

Light growth of mixed coag -ve Staph seen in 5 swabs on the second trip.

These organisms were not seen in the previous specimens.

Suggests post wash contamination.

5 swabs showed profuse growth of only one organism (ie pure). Suggests post wash contamination.

These organisms were not seen in the previous specimens. These persons stepped in a puddle en route to their cabin

Unanswered questions

The methodology used did not enable the ready isolation of potential bacterial pathogens.

We did not attempt to isolate potentially pathogenic viruses by culture or PCR.

It is of some concern that tourists provide their own boots.

Conclusions

The use of Virkon in this study reduced the presence of bacteria picked up from visits to penguin colonies by tourists.

Given these observations and the possible risk posed to the wildlife in this region by human visitors, the use of Virkon should be considered as a policy by IAATO.

Appendix G

Boot and clothing Decontamination IAATO Recommended Guidelines

Introduction

While there is at present no conclusive evidence that tourists have introduced or transmitted diseases within Antarctica, there is indirect and circumstantial evidence that raises concern. There is the potential for visitors to be vectors of disease, both into and within the Antarctic ecosystem.

To minimize this potential IAATO recommends decontamination practices similar to those of the quarantine authorities of most countries who protect themselves from the introduction of external diseases.

Recommendations

1. In pre-voyage information:

1.1 Passengers are advised that Antarctica is an isolated continent and as far as we know is free of introduced diseases. We must ensure it remains so.

1.2 Passengers are advised that all boots and clothing must be clean before joining the ship. Those who go trekking, tramping, backpacking, farm visiting prior to the voyage must clean their boots and clothing thoroughly to remove all material from them. Tripod feet can also collect mud and seeds and should be checked regularly.

2. Pre-landing briefing:

Passengers are reminded that they must have clean boots and clothing to go ashore. Facilities will be available on deck for those who need them (the boot washing station).

3. Landings:

As far as possible, avoid walking in concentrations of organic material such as guano, seal placenta, seal faeces, in order to avoid moving this material around the landing site.

A simple brush scrubber at the landing site helps to clean boots before entering the zodiac. The device at the landing site is simply a three-quarter-inch-thick plywood sheet about 2-3 feet square with a couple of stiff-bristle scrub brushes attached, placed so that boots can be placed between them and vigorous brushing cleans the sides of the boot, while a brush on the bottom cleans the sole. The scrubbers are then thoroughly rinsed at the end of the landing period, and put into the Zodiacs for return to the ship.

Before boarding the Zodiac or helicopter, wash as much material off boots and clothing as possible before boarding the Zodiac. Ensure that whatever touched the ground ashore (backpacks in particular), boot cuffs, exposed velcro be inspected, brushed off, etc., before leaving the beach. Seeds and other vegetation in the Sub-Antarctic islands could easily be transported if not cleaned thoroughly.

On returning to the ship, boots and clothing must be cleaned thoroughly at the boot washing station.

4. The boot washing station:

4.1 This is a facility on deck at the head of the gangway (or in close proximity to the point of return of passengers where zodiacs or helicopters are used). It requires

Running water and a hose.

Drainage of water off the ship.

Scrubbing brush and or coarse mat and shallow tray by which all debris can be scrubbed from boots and clothing.

A member of staff or crew to assist passengers to inspect their boots and clothing for complete decontamination.

5. Between landings

5.1 Every effort must be made to ensure that boots and clothing dry out completely between landings. (Desiccation is an important mode of controlling some micro-organisms).

6. At the next pre-landing briefing

6.1 Ask passengers to check that boots and clothing are clean before leaving the ship.

Appendix H
IAATO Pre-Season Checklist
2001-2002 Season

Memorandum to Antarctic Captains, Expedition Leaders and Radio Officers
Antarctic Communications Directory (COMNAP MINI-ATOM)
IAATO Call Data, 2001-2002
Preliminary Ship Schedules (normally available in late October/November 2001)
Approved 2001-2002 Palmer Station Cruise Ship Visits
Copy of Organizer's Environmental Impact Assessment (varies by organizer)
Expedition Leader's/Staff Resource Notebook
CCAMLR Marine Debris in Antarctic Waters (placard)
Help Stop Toothfish Poaching
Introduction and Detection of Diseases in Antarctic Wildlife
Boot and Clothing Decontamination: IAATO Recommended Guidelines
Draft Wildlife Watching Guidelines (available November 2001)

General

Post-Visit Report, Part 1 (Expedition Record) and Part 2 (Site Visit Record) (New 2001-2002 Reports)
Antarctic Peninsula Region Landing Sites (with Longitude and Latitude)
General Medical Information, Parts I, II and III
IAATO Emergency and Medical Response Contingency Plan
Recommendation XVIII-1 (English, Spanish, French, Russian, German, Japanese, Italian, Chinese)
IAATO Slide Presentation, Safety and Conservation Briefing
Antarctic Tourism statistics, graphs and charts compiled by NSF
IAATO Annual report to the ATCM and other relevant papers
Compendium of Antarctic Peninsula Visitor Sites (Can be obtained from Oceanites)
"Behold Antarctica" Video (produced by U.S. National Science Foundation)
Handbook off the Antarctic Treaty System (Currently out of Print-there is a CD rom in process)
List of Protected Areas
Environmental Impact Assessment
Appropriate and Relevant Legislation per company per country (for example, the US Antarctic Conservation Act 1978, public law 95-541) necessary for vessels carrying US citizens, German, Australian, New Zealand, United Kingdom Antarctic Act's etc).
Convention on the Conservation of Antarctic Marine Living Resources (1980)
Convention on the Conservation of Antarctic Seals
Protocol on Environmental Protection of the Antarctic Treaty (1991)

Copy of all relevant permits

Copy of all relevant management plans for individual landing sites

Copy of most recent South Georgia, Macquarie and New Zealand SubAntarctic Management plans and other Sub Antarctic information.

Albatross and LongLine Fisheries Lecture and Fund Raising information

Workshop on a Management Plan for Deception Island

Appendix I

Checklist for IAATO Observers on Provisional of Probational Member Vessels

To: Observers:

The following checklist is hopefully a useful guide to evaluate IAATO Provisional and Probational members. When answering the questions you can use yes, no, unsure and short explanations. If any long answers are required, then please use additional space. If this evaluation can be transmitted by email its preferable. Hopefully it is a useful tool or checklist to assure that all obligations set forth by IAATO and the Antarctic Treaty System are met.

Please submit by mail or preferably by email to:

IAATO

PO Box 2178

Basalt, CO 81621

Or by email to: iaato@iaato.org

Or by fax to: USA 970-704-9660

Please give at least one copy to a designated representative of the IAATO Member Company to whom you are evaluating and send the other copy to IAATO. This evaluation is simply intended to evaluate the operation based on the IAATO By-Laws and operating procedures, IAATO Pre-Season Checklists and Regulations set forth by the Antarctic Treaty, its Recommendations, and Agreed Measures and specifically by the Protocol on Environmental Protection.

Voyage Date (embarkation and disembarkation): _____

Your name: _____

Date: _____

Name of Vessel _____

Name of Company _____

Overall itinerary:

Overall impression of the voyage: Did the company support the basic mission of IAATO? To advocate, promote and practice safe and environmentally responsible private sector-travel to the Antarctic?

2) Staff to Passenger Ratio: Was there 1:20 experienced staff to passengers?

Was there 75% experienced Antarctic staff?

Names of staff members, specialty and years of Antarctic experience:

3) Was the Environmental Impact Assessment on board in an easy access location? Were other required documentation on board as well?

If the Expedition Leaders changed was there a handover procedure?

Is there a copy of Advance Notification on board? Did the expedition staff read the environmental impact assessment and did the expedition adhere to the Environmental Impact Assessment and to Advance Notification. (Observers please review the EIA and note any discrepancies).

4) Guidelines:

Was the Crew briefed prior to the start of the season?

Were the passengers briefed prior to arriving in Antarctica?

Were the IAATO slides used? If not, why not? Was there a substitute?

Was a copy of Recommendation XVIII-1 handed out to passengers with this briefing?

Were copies of non-English guidelines given out to non-English speaking passengers?

Were there periodic briefings/announcements given to remind passengers that they should not get closer than 15 feet/5 meters to wildlife?

5) Was there an Expedition Leader Reference Notebook on board? If so, please include a copy of the table of contents? Was it useful? If not, why not?

6) Was there a battery collection box or alternative procedures for battery collection easily available or communicated to passengers?

7) Was there a briefing done with the appropriate passengers, officers and crew to make sure that nothing including cigarette butts was thrown overboard and that it was not appropriate to feed birds off the decks of the ship.

8) Sewage, Waste Disposal etc: Did the vessel operations comply with Annex III and IV of the Protocol on Environmental Protection? Please describe procedures or include a copy of the waste management plan for the vessel.

9) Was there oil spill equipment on board? Was there a SOPEP on board?

10) On shore:

A). Did the Expedition staff on shore give the passengers an appropriate briefing once the passengers arrived, setting boundaries and reminding them of appropriate distances?

B). Were the staff ashore escorting passengers and or providing educational information?

Was there a particularly effective way to manage passengers ashore organized by the staff?

C) Were there any new sites visited and if so what criteria were used to evaluate the site?

D) Was there scuba diving or camping or any other non-traditional type of tourism being conducted? If so, was it noted in the IEE and or Advance Notification?

11) Zodiac Cruising: Were Zodiac drivers respectful of the whales, seals, penguins or other forms of wildlife?

12) Were there appropriate boot washing stations? Did passengers diligently clean their boots, backpacks etc to avoid the possible transportation of diseases from one site to another? Were passengers reminded periodically throughout the cruise?

13) Poultry Products: Were poultry products separated out from all other food garbage?

14) Additional Comments or Suggestions

Thank you for your time and effort. On behalf of all the IAATO member companies we appreciate your feedback and hope you had a great time.

Report of the World Conservation Union (IUCN)

Under Article III (2) of the Antarctic Treaty XXV Antarctic Treaty Consultative Meeting September 2002 Warsaw, Poland

General

IUCN congratulates the Parties to the Antarctic Treaty System on the recent coming into force of Annex V on Area Protection and Management to the Madrid Protocol on Environmental Protection. This provides a valuable opportunity to take a systematic approach to protecting the Antarctic environment through a network of protected areas, including marine areas. The Plan of Implementation agreed by governments last week at the World Summit on Sustainable Development reinforces the timeliness of an expansion to offshore waters. Paragraph 31 of the Plan of Implementation of Agenda 21 calls for governments to protect marine biodiversity both within and beyond national jurisdiction, and to consider a range of tools, including the development of representative networks of MPAs by 2012. IUCN and its network of experts would be pleased to offer their assistance, as requested, to develop such a network.

Background

IUCN, The World Conservation Union, is a unique partnership of States, government agencies and non-governmental organizations. Founded in 1948, it now has 880 members, including 173 States and government agency members, from 133 countries. In addition, over 8000 volunteer scientists and practitioners contribute to fulfilling IUCN's mission, through six global Commissions.

The Union's mission is:

„to influence, encourage and assist societies throughout the work to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.“

Activities

IUCN has been concerned with Antarctic conservation issues for over 40 years. Some of our most recent activities relevant to Antarctic conservation are listed below

High Seas

A High Seas Ecosystem Protection Project has been developed by the IUCN, IUCN's World Commission on Protected Areas, Marine (WCPA) and WWF. This is the beginning of a major initiative to conserve marine living resources of the high seas. A report entitled *The Status of Natural Resources on the High Seas (2001)* has been published, which concludes that urgent action is necessary to protect some of the most fragile high seas ecosystems and build upon the existing ocean governance structures to give greater importance to the conservation of the living resources and ecosystems of the high seas. A recent IUCN publication clarifies many of the elements of the existing legal regimes in this field: *International Oceans Governance: Using International Law and Organizations to Manage Marine Sources Sustainably*. Lee Kimball.2001. These two documents are available online at www.IUCN.ORG/themes/marine/pubs/html.

World Commission on Protected Areas

The IUCN/WCPA aims to increase the capacity of management institutions and practitioners while building a sustainable network of globally representative MPAs. WCPA-Marine is developing mechanisms and global standards for improving management effectiveness of protected areas.

Current programmes of high relevance to protected areas in the Antarctica include the demonstration of MPAs as a tool for sustainable fisheries management as well as for the protection and restoration of marine biodiversity.

IUCN has recently published revised editions of three important contributions to MPA establishment and management: *Guidelines for the establishment of Marine Protected Areas* (IUCN/WCPA, 1999) (Available online at wcpa.iucn.org/biome/marine/marine.html).

Marine and Coastal Protected Areas: a Guide for Planners and Managers (Clark and Salm, 2000), and *Net Gains: Linking Fisheries Management, International Trade and Sustainable Development* (Deere, 2000).

IUCN Antarctic Advisory Committee

IUCN activities specific to the Antarctic include efforts to promote the establishment and management of new forms of Antarctic protected areas, with special emphasis on marine sites; steps to insure that cumulative environmental impacts are understood and taken into account in decision-making within the Antarctic Treaty System; and efforts to stop illegal fishing in the ocean around Antarctica while improving CCAMLR's legal and enforcement systems. IUCN also participated in intercessional discussions on Annex II regarding protection of species of flora and fauna.

Recent IUCN Resolutions and Recommendations

At the World Conservation Congress in Amman Jordan, October 2000, IUCN members agreed Resolutions urging all Parties to the Madrid Protocol on Environmental Protection to take the necessary steps to ensure that its provisions are mandatory in the domestic legal context; bring Annex V on Protected Areas into force while developing a comprehensive network of protected areas.

IUCN is now organizing the Fifth World Parks Congress, in Durban, South Africa 8-17 September 2003, dedicated to demonstrating the importance and relevance of protected areas to the broader economic, social and environmental agendas of the world in the 21st century. A special focus of the conference is on building comprehensive protected areas systems, including in areas beyond national jurisdiction.

IUCN members and Commissions particularly those for Protected Areas, Species Survival and Environmental Law, stand ready to continue their associations with the Antarctic Treaty System. We would like to play an important role in providing a forum for the discussion of issues affecting Antarctica's environment by governmental and non-governmental bodies and in contributing to the work of the components of the Antarctic Treaty System.

Annex:

Resolution from the IUCN World Conservation Congress in Amman Jordan, October 2000

2.54. Antarctica and the Southern Ocean – www.iucn.org/amman/content/resolutions/

3.6. Vertical profiles of the atmosphere.

The WMO Executive Council noted with interest that the UK Met. Office and the British Antarctic Survey plan to carry out a more extensive radiosonde programme from station Rothera with a view to investigating the impact of these additional measurements on forecast accuracy. It further noted that the UK is attempting to secure European funding for an ozone sonde campaign from Rothera in 2003. The WMO EC also stressed the vital importance of maintaining and, where possible, strengthening ozone monitoring over the Antarctic, carried out by GAW stations co-located within the ABSN and other ozone measuring stations, and urged Members concerned to expand ozone related measurements to meet growing environmental requirements.

Understanding the process of stratospheric ozone depletion, and the long-term monitoring of ozone concentrations in the Antarctic, Southern Ocean and Australian regions is of international importance. There is a need for the national atmospheric sciences communities to examine ways in which the current programmes of ozone monitoring and research can be strengthened and enhanced. This work has been driven by the establishment of the close association between structures in Polar Stratospheric Clouds revealed by the middle atmosphere lidar, and parameters of inertia gravity wave packets extracted from balloon-borne radio sonde observations. It is well established that Polar Stratospheric Clouds provide surfaces for heterogenous reactions that lead to ozone destruction. Because non-orographic inertia gravity waves are ubiquitous to the Antarctic atmosphere (being generated by frontal activity and convection), the detailed investigation of the role played by these waves in the ozone cycle is required. However additional resources for in-situ sampling of atmospheric constituents (specifically NO_x and ClO and related species) and modelling studies are still required. Contact: Dr. Andrew Klekociuk, AAD, Andrew.Klekociuk@aad.gov.au

**Report
of the World Meteorological Organization (WMO)
to ATCM XXV in Relation to Article III (2)
of the Antarctic Treaty
Warsaw, September 10 - 20, 2002**

World Meteorological Organization (WMO) Report to ATCM XXV

1. Introduction

The highly successful International Geophysical Year of 1957/58 gave rise to the formulation of the Antarctic Treaty in 1959 and its ratification in 1961. The Treaty was given considerable impetus for the investigation of major scientific problems in Antarctica and encouraged cooperation between nations. The Antarctic Treaty is unique in the field of international relations in that it guarantees freedom of scientific research and exchange of data. The Treaty promotes the exchange of information on the scientific program plans, of scientific observations and results, and of scientific personnel; encourages collaboration and opens all installations to international inspection. It encourages co-operative working relations with those specialized agencies of the United Nations and other international organizations having a scientific or technical interest in Antarctica.

Article II of the present Antarctic Treaty promotes international co-operation in scientific investigation in Antarctica. Under Article III(2) Contracting Parties agree that, to the greatest extent feasible and practicable, every encouragement shall be given to the establishment of co-operative working relations with those Specialized Agencies of the United Nations and other international organizations having a scientific or technical interest in Antarctica.

2. The importance of Antarctic Meteorology

Meteorology has acquired an importance over the last two decades that was difficult to imagine before then. In the early 1980's few believed that climate change would become a major political issue within a decade. It is now a dominant issue. Climate trends are small and require continuous monitoring to separate long-term change from natural climate variability. Annual development of the ozone hole in the Antarctic stratosphere demonstrates the speed with which some damaging environmental changes can occur if the equilibrium is disturbed. Studies of the physics and chemistry of the atmosphere are vital to understanding the global climate system. New areas of research, many of substantial public importance, are opening up all the time.

Antarctic meteorology is, in part, concerned with improving the observational coverage over the Antarctic and Southern Ocean region for purposes of climate and climate change analysis, diagnosis and prognosis. Meteorologists are therefore interested in: (i) improving the analysis of these observations; and (ii) in the use of observations in models of atmospheric processes. However, the disparate nature of observational techniques, observational meta-data information, and the databanks themselves are of concern with respect to quality control and suitable accuracy for climate change research.

The Antarctic continent and its surrounding Southern Ocean, south of the Antarctic convergence, are probably the least known regions of the world. The effects of increases of radiatively active gases may eventually have profound effects on Antarctica and indeed the rest of the world. Substantial meteorological activity is required to support human operations in the Antarctica and the Southern Ocean.

3. The role of WMO in developing Antarctic meteorological networks

The surface weather observing and upper air sounding networks in Antarctica, organized by WMO, are examples of scientific work of practical and economic importance. The consequential historical data bank is fundamental to the understanding of physical processes of global relevance, such as ozone depletion, atmospheric pollution, climate change, ice sheet mass balance, and sea level rise. All require Antarctic data to ensure true global perspective. Representation of Antarctica in global numerical weather prediction models is improving. Also remote sensing of atmospheric variables and sea ice from polar orbiting satellites has become more sophisticated. The continued contribution of meteorological data into the Global Telecommunications System organized by the World Meteorological Organization, and of ozone data into the World Data Centre, are strong foci for national Antarctic Meteorology programmes.

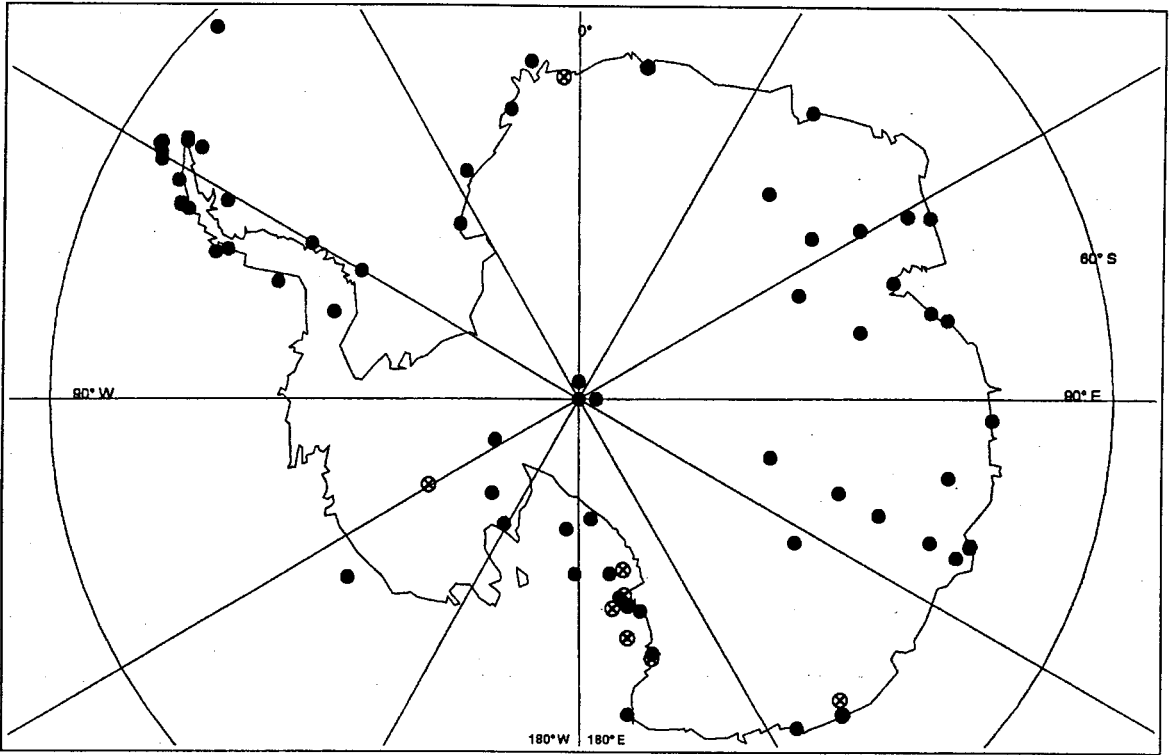
Despite the hostile conditions and the problem of logistics, the Antarctic Basic Synoptic Network (ABSN) is well implemented and the percentage of reports received at the main centres of WMO's telecommunication network is close to the global average. This combined with rapidly improving satellite data allows high quality scientific research to be carried out using the data bank as well as the outputs from improving numerical weather prediction models of the atmosphere. It is now possible for WMO to specify a new meteorological standard with respect to the provision of operational meteorological services within Antarctica to operators of National Antarctic Programmes.

3.1. Recovery and dissemination of meteorological data.

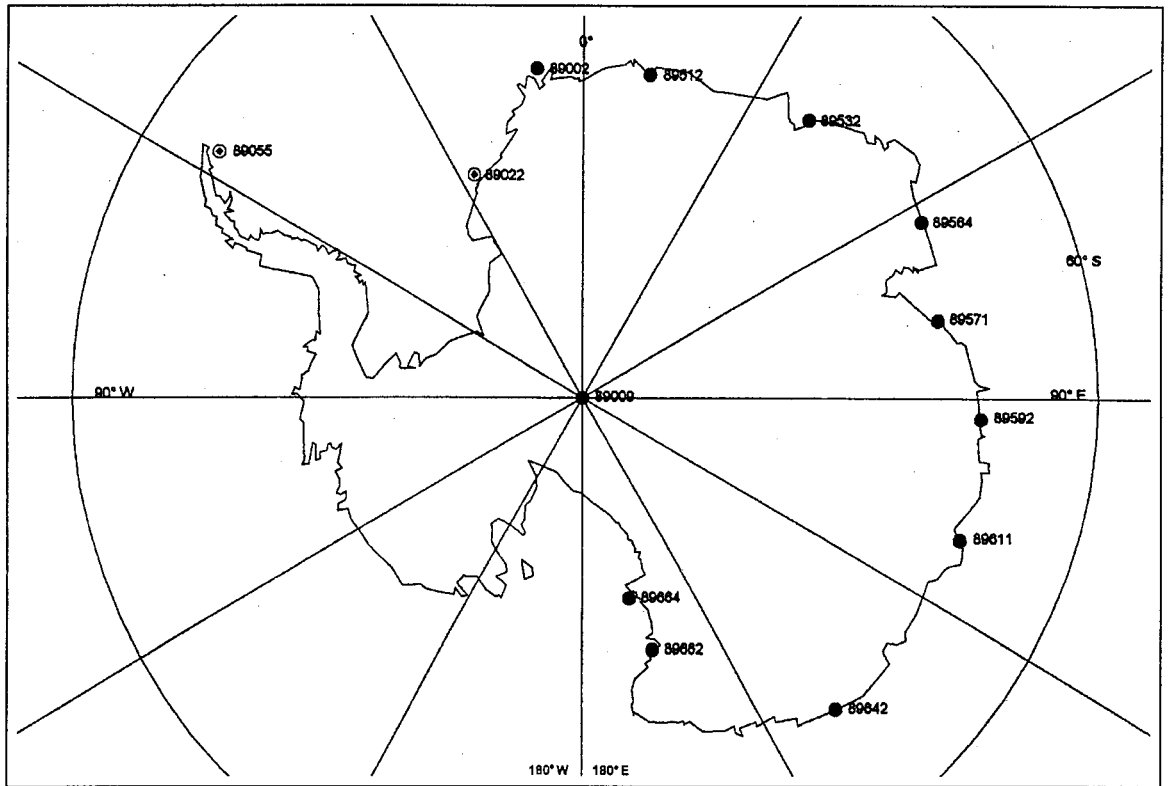
WMO monitoring of Antarctic data, received at the hubs of the Global Telecommunications System circuits, shows that reliable surface and upper-air stations are running appropriate observational programmes. There is coordinated and sustained operational performance of the national Antarctic meteorological observation and telecommunication networks. WMO monitoring statistics indicate that Antarctic data are received in time to be assimilated into global models before the cut-off times at each of the global weather forecasting centres.

The WMO Executive Council noted that the present arrangements for reception of data and products from Antarctic stations include various options. WMO EC Council also noted that about 80% of ABSN stations now use satellite systems to transmit observations to their collecting centres. While noting that the overall operation of the Antarctic data collection and distribution systems was satisfactory, the Council agreed with the recommendation of the Expert Meeting to pay specific attention to the possible discontinuation of HF broadcasts and consider alternate means of receiving data and products.

The availability of SYNOP and TEMP reports from ABSN stations at several Global Telecommunications System centres was about 62 per cent and 70 per cent respectively, during the specific monitoring of the exchange of Antarctic data in February 2001 (**Figure 1**). The comparison between the numbers of reports received in 2001 and during the previous years shows a decrease for the SYNOP reports (- 3 per cent in comparison with 2000) and an increase for TEMP reports (+5 per cent in comparison with 2000). In 2001 76% of ABSN stations used satellite systems to transmit observations to their collecting centres, continuing the trend to possible discontinuation of HF radio broadcasts for receiving data and products.



a



b

Figure 1:

Percentage of meteorological reports from the Antarctic for the period 1 to 15 February 2001.

(a) Antarctic Surface Synoptic Network (b) Radiosonde data.

WMO station numbers are shown.

Please note:

For both (a) and (b) the filled-in circles represent stations which reported between 50 and 100% of their observations for these times; the open circles with a central dot represent stations which reported between 1 and 50% of their observations for these times; and the open circles with an enclosed cross represent stations which did not report during the period.

3.2. Recommended improvements to observational networks

In considering the development of an observational network in the Antarctic, the 2001 WMO EC stressed the need to fully comply with growing requirements in provision of additional measurements, their timeliness and accuracy. It also felt that Member nations should further explore the possibility to increase the number of inland stations as well as coastal data coverage in the Antarctic. In this connection the Council stressed that efforts should be made by Members to deploy more Automatic Weather Stations on the continent and drifting buoys in the seasonal sea ice zone.

The recent SCAR meeting in July 2002 recommended to France and Italy that 6-hourly SYNOP and 12-hourly TEMP messages should be transmitted in real time to the Global Telecommunications System of WMO when the Dome C station is commissioned in 2003-04.

The proposed Australia-Antarctic air link is providing the impetus for a significant increase in the number of Automatic Weather Stations (AWS) being installed by the Australian Antarctic Division. Data are being made readily available on the WMO's Global Telecommunications System (GTS) via System Argos. The AWS installed during the 2001-2002 summer are: at the proposed airstrip site itself near Casey station (UPG); half way between the airstrip and Law Dome summit ("Half"); Law Dome summit itself (DSS); and Cape Poinsett. Extra AWS to go in around Casey are: Haupt Nunatks (Haupt); Snyder Rock; and one east of Law Dome (ELD). AWS for the intra flights (CASA 212) are: Davis area (inland of Platcha); and the Mawson area (near Gwaum, or even maybe Rumdoodle, yet to be confirmed).

3.3. SCAR Delegates recommendations to National Committees, July 2002.

The following SCAR recommendations pertain to Antarctic Meteorology:

3.3.1. Drifting buoys

Recognizing the importance of air pressure and temperature data from the sea ice zone to global weather prediction models and climate research. SCAR urges National Committees to support the International Program for Antarctic drifting buoys.

3.3.2. Meteorological reports from Dome C

Recognizing the importance of surface and upper air meteorological observations over the plateau of East Antarctica for numerical weather prediction. SCAR encourages the Italian and French operators to institute 6 hourly surface and 12 hourly upper air observing programmes. This is particularly important in the light of the loss of the data from Vostok and the fact that South Pole is the only source of upper air data from the interior.

3.3.3. Antarctic data monitoring

Noting that there is a need to maintain the quality of Antarctic weather data, archive it in a consolidated climate database, and make it readily accessible to researchers of all nations. SCAR

endorses the monitoring of Antarctic data received in real time at several hubs of the Global Telecommunications System organized by WMO, to ensure availability of the observations in real time.

3.3.4. Antarctic aerosols

Noting the importance of monitoring aerosols over Antarctica for climate change and radiation budget studies SCAR urges National Committees to undertake observing programmes of the vertical distribution of aerosols using LIDAR, which has been proven to be the best tool for aerosol vertical profiling.

3.4. International Program for Antarctic Buoys

The meteorological data from drifting buoys over an extended period of time can be used in climate research. Nations have an ongoing commitment (since 1994) to participate in the International Programme for Antarctic Buoys (IPAB) sponsored by World Climate Research Programme. The 13th World Meteorological Congress (Geneva, May 1999) particularly appreciated the value of the data being collected in the IPAB. The data not only support research in the region, but also provide valuable meteorological information in real time, and establish a basis for monitoring atmospheric and oceanic changes in the Antarctic sea-ice zone. The IPAB builds on pre-existing cooperation among agencies and institutions with Antarctic and Southern Ocean interests, to develop and maintain an optimum near-surface observational network. There have been 19 participating institutions from 10 countries, and the programme is intended to be a long-term activity. The Secretary General of WMO Professor Obasi invited National Meteorological Services having interests in Antarctica and the Southern Ocean to participate in IPAB by providing ice-resistant drifting buoys or by other appropriate means. The Chairman of the Executive Committee, WCRP International Programme for Antarctic Buoys is:

Dr. Enrico Zambianchi
Istituto di Meteorologia e Oceanografia
Istituto Universitario
Via Acton 38
I-80133 Napoli

After the initial phase, subsequent commitments to the Chairman of the IPAB Executive Committee were secured in June 2000 with Letters of Intent proposing further participation in the WCRP-International Program for Antarctic Buoys. However, the number of IPAB buoys is not yet sufficient to meet the requirements of the World Weather Watch (WWW) for the needs of medium-range weather forecasting. Recent research into the effect of drifting buoy data on analyses and forecasts in numerical prediction models has demonstrated strong impact on pressure and wind fields.

3.5. The importance of the meteorological program on a Peri-Antarctic Island (in this case Macquarie Island)

While Macquarie Island lies outside the Antarctic Treaty area, Parties to the Antarctic Treaty may be interested in the status of operations at a significant subantarctic site. The Australian Government established the ANARE research station. The length and value of the unbroken climate data set of 55 years of meteorological data from Macquarie Island (latitude 54° 30' S) is of the highest importance as it provides one of the most complete records of climate from a latitude band (45S-65S) that is very poorly represented. A more recently started weekly ozone sounding program has been met with great acclaim by the international meteorological community.

The data are used by a large international community of scientists, and their value is internationally recognised. Conventional meteorological upper air data are gathered by the manual release twice-daily of radio sondes and need to be collected every day of the year. The data rank very near the

top in terms of impacts on analyses within models of the southern hemisphere tropospheric circulation and hence on weather forecasting over Australia beyond a day or two. It is the only "ground-truth" station representing an enormous area of the Southern Ocean for the purpose of calibrating satellite data and verifying model output.

The continuous occupation of Macquarie Island has provided an effective means for Australia to fulfil an essential role in the international meteorological community. This important meteorological observatory is a vital part of the Global Climate Observing System, and also it has an impact on the accuracy of operational numerical weather prediction .

3.6. Vertical profiles of the atmosphere.

The WMO Executive Council noted with interest that the UK Met. Office and the British Antarctic Survey plan to carry out a more extensive radiosonde programme from station Rothera with a view to investigating the impact of these additional measurements on forecast accuracy. It further noted that the UK is attempting to secure European funding for an ozone sonde campaign from Rothera in 2003. The WMO EC also stressed the vital importance of maintaining and, where possible, strengthening ozone monitoring over the Antarctic, carried out by GAW stations co-located within the ABSN and other ozone measuring stations, and urged Members concerned to expand ozone related measurements to meet growing environmental requirements.

Understanding the process of stratospheric ozone depletion, and the long-term monitoring of ozone concentrations in the Antarctic, Southern Ocean and Australian regions is of international importance. There is a need for the national atmospheric sciences communities to examine ways in which the current programmes of ozone monitoring and research can be strengthened and enhanced. This work has been driven by the establishment of the close association between structures in Polar Stratospheric Clouds revealed by the middle atmosphere lidar, and parameters of inertia gravity wave packets extracted from balloon-borne radio sonde observations. It is well established that Polar Stratospheric Clouds provide surfaces for heterogenous reactions that lead to ozone destruction. Because non-orographic inertia gravity waves are ubiquitous to the Antarctic atmosphere (being generated by frontal activity and convection), the detailed investigation of the role played by these waves in the ozone cycle is required. However additional resources for in-situ sampling of atmospheric constituents (specifically NO_x and ClO and related species) and modelling studies are still required. Contact: Dr. Andrew Klekociuk, AAD, Andrew.Klekociuk@aad.gov.au

4. Current Antarctic Meteorology Projects

4.1. Reanalyses

Our understanding of the Southern Hemisphere atmosphere (its structure, variability, and change) is critically dependent on having global analyses of as high quality as is possible. As analysis techniques and data sets improve, it is prudent to re-analyse basic meteorological fields. The outcomes of the First Regional Observing Study of the (Antarctic) Troposphere (FROST) project indicated depth, strength and forward vision in this area. The role that 're-analyses' are playing in our perspectives of the atmosphere at high southern latitudes is now recognized. In particular, Antarctic and Southern Ocean data will continue to be provided to major centres e.g. the European Centre for Medium-range Weather Forecasts (ECMWF) and the US National Center for Environmental Prediction (NCEP) for their next round of re-analysis products. It is intended that these on-going ECMWF and NCEP re-analysis processes, will be re-performed every five years or so, as the techniques and data sources become of higher quality and more numerous.

4.2. Reference Antarctic Data for Environmental Research

The SCAR READER Project

There is great interest in how the climate of the Antarctic has changed over the last few decades, and whether these changes are a result of natural climate variability or human activity. The topic has been hampered because of the scarcity of meteorological observations and the lack of a central database of high quality Antarctic data. The SCAR READER project has the goal of assembling a definitive data set of surface and upper air Antarctic synoptic observations for use within studies of climate variability and change. The observations are being quality controlled.

John Turner, British Antarctic Survey jtu@bas.ac.uk has led the SCAR READER project to bring together and analyse as many as possible of the meteorological observations collected over 50 years from the WMO surface and upper air networks. The READER project innovatively aims to produce climate trends for upper levels of the atmosphere, in addition to those near the earth's surface, from data collected by Antarctic Treaty nations.

Phase 1 of the READER Project has now been completed. This involved the collation and interpretation of all the national data sets of routine meteorological reports, application of quality control and derivation of new monthly climate statistics. Metadata have also been added. Tables of the monthly means of surface temperature, pressure and wind speed have also been produced, and are available on a CD and from the READER World Wide Web site.

It is important to understand how temperatures across the Antarctic have changed in recent decades because of the huge amount of fresh water locked into the ice sheet and the impact that temperature changes may have on the ice volume. Doran et al. (Nature 2002) claim that there has been a net cooling of the entire continent between 1966 and 2000, particularly during summer and autumn. A paper was published in Nature 418, 291-292 in July 2002 "Recent temperature trends in the Antarctic" by Turner, King, Lachlan-Cope (BAS) and Jones (University of East Anglia). Turner et al argue that this result has arisen because of an inappropriate extrapolation of station data across large, data-sparse areas of the Antarctic.

The next phase of READER will involve producing the upper air data set. Ultimately, analyses of these data will permit the identification of climate trends and changes at upper levels and allow these to be related to change at the surface of the earth. Early in 2002 Thompson and Solomon published 'Interpretation of recent Southern Hemisphere climate change' in the international journal Science.

4.3. Climate and the Cryosphere (CliC) Project

The 21st meeting of the Joint Scientific Committee (JSC) for the World Climate Research Programme (Tokyo, March 2000) approved the establishment of the Climate and Cryosphere (CliC) Project within WCRP. The JSC endorsed the CliC Science and Coordination Plan that focuses international effort on the role of the cryosphere in climate research initiatives. The JSC is the committee responsible for the conduct of the WCRP. The 23rd meeting of the JSC was held in Hobart in March 2002. This was the first meeting of JSC in Australia. The key aim of the CliC project is to provide a globally integrated approach to the study of the role of the cryosphere (of which ~90% is in the Antarctic) in the climate system. This will include enhancing links between existing global and regional cryosphere studies conducted under other organizations such as SCAR. It will also be important to consider mechanisms for interaction with other WCRP projects such as the climate variability study CLIVAR. CliC will examine factors determining the extent and variability of the global cryosphere and its role in global climate variability by addressing two issues: (i) collection of cryospheric data and assemblage of appropriate data sets; and (ii) improvement of procedures for the collection of solid precipitation and hence measurements.

4.4. Catalogue of Antarctic Climate Data

Nations have been encouraged (since 1995) to produce for WMO an annual Catalogue of Antarctic Climate Data collected by that WMO Member. The catalogue may be distributed to other interested parties in both hard copy and through the web, for example....

http://www.bom.gov.au/climate/how/antarctic_catalogue.shtml

4.5. Antarctic Weather Forecasting Handbook

The WMO EC welcomed The International Antarctic Weather Forecasting Handbook and requested the Secretary-General of WMO to provide assistance in publishing this important reference material.

5. Antarctic and Southern Ocean Weather and Climate Modelling

Atmospheric Sciences provide a means of quantifying and understanding the fundamental processes that are involved in the climate system. Ongoing research by glaciologists, atmospheric scientists, oceanographers, biologists and geologists into the role of Antarctica and the Southern Ocean in the global climate system can lead to a knowledge of climate change. The overall field of atmospheric science provides an umbrella for a central activity of modern climate research - namely, the development of overall atmosphere/ocean/cryosphere numerical models designed to simulate the complete earth-atmosphere climate system and ultimately to predict future natural variability and long term changes in global climate.

5.1. Theoretical models and new observations to better represent the exchange between the Antarctic atmosphere and the ice and ocean.

There is an Australian, and arguably international, need for a routine analysis of sea ice extent and concentration in Antarctica. A broad scale analysis at 25-km resolution, based largely on microwave data, is particularly useful, when supplemented by fine scale (in space and time) analyses at specific locations to support ship operations as well as ecological studies. Components of such a system exist within the Australian Bureau of Meteorology and the current Antarctic CRC, University of Tasmania. It is expected that sea ice prediction should be feasible out to a few days (e.g. five days) based on a detailed physical model driven by winds from the Bureau's operational models. The sea ice model would be developed within the framework of the national climate system modelling initiative. Aspects of the real time sea ice prediction system may be useful in climate models for both seasonal and longer-term integrations.

5.2. The purposes of developing a system for Forecasting (or Nowcasting) Antarctic Sea-Ice Distributions

There are proposals to develop a near real-time analysis and forecasting/nowcasting system to assimilate Antarctic sea-ice observations mainly remotely sensed from space, but also from ships and derived from atmospheric and oceanographic forecasting systems. The purpose of this system is:

- to undertake research into the processes that control the formation, development and evolution of Antarctic sea ice,
- to provide improved sea-ice information for vessels navigating Antarctic waters and for scientists studying the impact of sea ice on ecological systems, and,
- to provide improved sea ice information for the initialization of atmospheric and oceanographic numerical models.

5.3. Scientific questions answered with a Forecasting/Nowcasting System

Currently, the answers to many scientific questions are limited by lack of information available from partial data sets at low resolution. High resolution analyses of remotely sensed sea ice, atmospheric and ocean forcing derived from realistic weather prediction models, will enable the scientific community to address and describe far more realistically:

- Sea-ice velocities and motion;
- Sea-ice formation areas;
- Exchanges of heat, and moisture;

- Role of Antarctic Circumpolar Wave/ENSO;
- Transport of biological matter;
- Transport of freshwater;
- Formation and distribution of Antarctic Bottom Water and shelf waters along the Antarctic coastline;
- Sea-ice variability (on all time scales); and
- Impacts of climate change (warm years versus cold years, trends etc.).

5.4. Output of operational products from a forecasting/nowcasting system

Australian plans envisage a range of products to be made available, including:

- Real-time forecasts of sea-ice motion;
- Real-time forecasts of sea-ice thickness, concentration, layer type (snow etc);
- Past analysis of sea-ice distributions from 1940-present; and
- Background distributions for comparison with observations.

5.5. Useful applications of these outputs

Sea ice is of interest to a wide community involved in research and operations in Antarctica. Quantitative fields of the ice motion, thickness, and concentration at high resolution will allow predictive and informed analysis with significant benefits for:

- Ship routing;
- Tourism activities.
- Biological studies;
- Climate variability studies; and
- Weather forecasting.

6. WMO Cooperation with SCAR/COMNAP and ATCM

Advancement of Antarctic Meteorology requires cooperation at two levels:

NATIONAL - WMO Permanent Representative and Antarctic Agency.

INTERNATIONAL - Between WMO and other international agencies, such as:

ATCM - International cooperation and political/legal/environmental aspects.

SCAR - Scientific research.

COMNAP - Practical management, communications and services.

IOC - Scientific cooperation with WMO re the capture of oceanographic and meteorological data and planning research programmes on air/sea interaction.

The WMO EC is pleased to note that WMO has continued to maintain close collaboration with other international organizations involved in the Antarctic activities, in particular with Antarctic Treaty Consultative Meeting (ATCM), Scientific Committee on Antarctic Research (SCAR) and the Council of Managers of National Antarctic Programmes (COMNAP). The EC requested its Working Group on Antarctic Meteorology, in consultation with other WMO programmes, to strengthen cooperation on Antarctic matters including the organization of workshops on a more regular basis. It also recommended facilitating and promoting the CLIC project for the Antarctic.

This cooperation will help to ensure a coordinated and cost effective implementation of the scientific and technical programmes. For example WMO EC supports The International Antarctic Weather

Forecasting Handbook and The Secretary-General of WMO has provided substantial financial assistance to have this important reference material published by Cambridge University Press. Co-sponsors are SCAR and COMNAP.

The Intergovernmental Oceanographic Commission (IOC) did extend the World Ocean Circulation Experiment (WOCE) in recent years to include atmosphere-ice-ocean interactions in high southern latitudes. WMO Executive Council welcomed the invitation of IOC to establish closer links between WMO and IOC in the development of the coordinated plans for research and monitoring in the Southern Ocean. WMO and IOC are jointly defining the way ahead with respect to the sea ice zone of the Arctic and Antarctic.

6. Future work plan

WMO is involved in setting the direction of international scientific programmes and forums relating to Antarctic issues, and contributing to their outcomes. The WMO Executive Council requested its Working Group on Antarctic Meteorology, in consultation with other WMO programmes, to strengthen cooperation on Antarctic matters including the organization of workshops on a more regular basis. The 8th Session of the WMO EC Working Group on Antarctic Meteorology will be held at WMO headquarters in Geneva, 25-27 November 2002, when it will determine on what its future work will focus.

Some suggestions at this stage are:

- Print and distribute copies of The International Antarctic Weather Forecasting Handbook, edited by John Turner (British Antarctic Survey) and Steve Pendlebury (Australian Bureau of Meteorology).
- Implement operational short-term (i.e. weather) forecasting high-resolution Numerical Weather Prediction models to cover. One of the improvements will be better definition of the orography of the Antarctic continent. A horizontal resolution of 5-25 km is possible depending on the model being used. These new models give better predictions, particularly of the wind field over coastal escarpments.
- Develop operational sea-ice analysis and forecasting/nowcasting systems. Assimilate Antarctic sea-ice observations mainly remotely sensed by passive microwave imagery from space.
- Deploy sufficient drifting buoys in the seasonal sea ice zone so as to optimise the impact of meteorological data from them, on atmospheric models.
- Upgrade NOAA Ground Stations to receive the X-band data rates, now freely available from the new generation of operational environmental satellites.

PART IV

ADDITIONAL DOCUMENTS FROM XXV ATCM

ANNEX H
MESSAGE FROM THE XXV CONSULTATIVE MEETING
TO STATIONS IN THE ANTARCTIC

Message from the XXV Consultative Meeting To Stations in the Antarctic

The twenty fifth Antarctic Treaty Consultative Meeting (ATCM XXV) was hosted by the Polish government in the city of Warsaw between 10 and 20 September. A focus of the Treaty meeting continues to be consideration of measures to protect the unique Antarctic environment, and to preserve the continent as a place of peaceful cooperation. This year's ATCM XXV addressed a large and varied agenda to this end. Highlights included:

Two parties to the Antarctic Treaty (Romania and Czech Republic) announced they would soon finalise their legal processes for ratification of the Madrid Protocol.

Extensive discussions were held on the establishment of the Antarctic Treaty Secretariat in Buenos Aires in Argentina; and on liability issues under Article 16 of the Madrid Protocol. Preliminary discussions were held on issues arising from biological prospecting in Antarctica. The ATCM agreed to continue discussion of these important issues at its next meeting in Madrid in June 2003.

CEP V is the first CEP meeting to be held since Annex V of the Madrid Protocol came into force. The committee considered 16 new and ten revised management plans for Antarctic Specially Protected Areas. The committee also commended a review of Annex II on the Conservation of Antarctic Fauna and Flora, including work on Antarctic Specially Protected Species.

The CEP examined proposed draft guidelines for the operation of aircraft near concentrations of birds in Antarctica. It was noted that these general guidelines would be useful to aircraft operating in areas where site specific plans or guidelines do not apply. A number of parties provided information on their efforts to remove waste from Antarctic sites. The ATCM welcomed these efforts and noted that the varying approaches provided valuable case studies for all treaty parties. Of interest to many parties, Lake Vostok, the largest sub glacial yet identified in Antarctica was the subject of significant discussions on ice drilling technology and the need to avoid contaminating the lake. Comprehensive Environmental Evaluation will be completed before any attempt to penetrate the lake is undertaken.

The work of the ATCM and the CEP is increasingly facilitated by intersessional contact groups (ICGs) working by e-mail between normal meetings on a range of issues. The work of the ICGs has enabled the most efficient use of meeting time, and the ability of the CEP to manage its expanding work. The CEP warmly thanked Dr Olav Orheim of Norway, outgoing chair of the CEP, for his adept and productive leadership of the Committee. Dr Tony Press of Australia was elected as chair of the next CEP.

The ATCM passed a resolution to provide support for the Commission for the Conservation of Antarctic Living Resources (CCAMLR) and its action to combat Illegal, Unreported and Unregulated Fishing for *Dissostichus* spp (toothfish).

To all those in Antarctica for the 2002 winter, the delegations participating in the XXV Consultative Meeting, send their warmest greetings and wish you every success in your important scientific endeavours during the coming months. Your work on the ice, sometimes in difficult and lonely conditions is much admired by the Treaty parties, who deeply appreciate your efforts to implement the Treaty's principles in this remarkable continent.

ANNEX I
LIST OF DOCUMENTS FROM ATCM XXV

List of documents from ATCM XXV

Working Papers

no.	Submitted by	Title	Item no.	Orig. lang.	Transl.
1	France	Contribution à l'élaboration d'un projet d'annexe sur la responsabilité pour fait de pollution dans le cadre du Protocole sur la protection de l'environnement en Antarctique.	8	French	ERS
2	France	L'utilité d'une Annexe VII du Protocole de Madrid relative à la réglementation des activités touristiques et non gouvernementales dans la zone du Traité sur l'Antarctique	8	French	ERS
3	United Kingdom	Antarctic Protected Areas System. Draft Management Plan for ASPA 114: North Coronation Island		English	SFR
4	United Kingdom	Review of the list of Historic Sites and Monuments		English	SFR
5	United Kingdom	Emblem of the Antarctic Treaty	4a	English	SFR
6	Argentina	El Sitio Web de Intercambio de Información del Tratado Antártico	16	Spanish	ERF
7	Argentina	Annex II: reasons for a review	CEP 4d	Spanish	ERF
8	Argentina	Informe final del grupo de contacto intersesional sobre especies especialmente protegidas en la antartida	Cep 4d	Spanish	ERF
9	United Kingdom	Implications of the entry into force of Annex V to the Environmental Protocol	Cep 4 g	English	SFR
10	United Kingdom	Review of draft Protected Area Management Plans. Report of the UK-led Intersessional Contact Group	Cep 4g	English	SFR
11	Germany	on the results of the intersessional contact group on the review of the structure and working practices of the ATCM	1 b	English	SFR
12	New Zealand	Ross Sea Region 2001: A State of the Environment Report for the Ross Sea Region of Antarctica	CEP 6	English	SFR
13	New Zealand	Report back on a Systematic Environmental-Geographic Framework (SEGF) for Protected Areas under Annex V of the	Cep 4g	English	SFR
14	New Zealand	Chairman's Draft	8	English	SFR
15	Russia	первоначальная оценка окружающей среды	Cep 4 c	Russian	SEF
16	New Zealand	Revision of Antarctic Specially Protected Areas ...	Cep 4 g	English	SFR
17	New Zealand	Five year review of Antarctic Specially Protected Area (ASPA) No. 130	Cep 4 g	English	SFR
18	United States	Antarctic Protected Area System: Revised Management Plans	Cep 4g	English	SFR
19	Russia	Непосредственное проникновение в ...	Cep 4 c	Russian	SEF

no.	Submitted by	Title	Item no.	Orig. lang.	Transl.
20	United Kingdom	Approval of measures under Article IX of the Antarctic Treaty: A Proposal to improve the system.	4 a	English	SFR
21	United States	Antarctic Protected Area System: Revised Management Plans	Cep 4 g	English	SFR
22	United Kingdom	Antarctic Protected Areas System: A Proposed Information Archive	Cep 4 g	English	SFR
23	SCAR	Marine acoustic technology and the environment	Cep 4 c	English	SFR
25	COMNAP	„Worst Case” & „Less than worst Case „ scenarios	8 Cep 7	English	SFR
26	United Kingdom	Proposed Guidelines for the operation of aircraft near concentrations of birds	Cep 4 d	English	SFR
27	COMNAP	An Assessment of environmental Incidents arising from activity in the Antarctic	CEP 7	English	SFR
28	Argentina	Contribución argentina para la definición de la estructura de personal de la secretaría del tratado antártico.	4	Spanish	EFR
29	Australia	Antarctic Protected Areas System: Revised Management Plans for: North-east Bailey Peninsula, Budd Coast, Wilkes Land Antarctic Specially Protected Area No. 135 and Marine Plain, Mule Peninsula, Vestfold Hills, Princess Elizabeth Land, Antarctic Specially Protected Area No. 143	4 g	English	SFR
30	Australia Netherlands	Review of Recommendations Passed by Antarctic Treaty Consultative Meetings I to XVIII.	4a	English	SFR
31	SCAR	Scoping the data for a state of the antarctic environment report	Cep 6	English	SFR
32	Chile	El procedimiento de consulta del Artículo 18.	Cep 4	Spanish	EFR
33	Australia	Antarctic Protected Areas System: proposed Management Plan for Frazier Islands, Wilkes Land, east Antarctica, Antarctic Specially protected Area No...	Cep 4 g	English	SFR
34	Australia	Antarctic Treaty Inspections.	12	English	SFR
35	Australia	Draft Staff Regulations for the Antarctic Treaty Secretariat	4 b	English	SFR
36	Italy	Antarctic Protected Areas System: Proposal for a new Antarctic Specially Protected Area, Terra Nova Bay, Ross Sea	Cep 4	English	SFR
37	SCAR	Comments on the revision of Anex II	Cep 4 d	English	SFR
38	SCAR	Specially Protected Species	CEP 4d	English	SFR
39	New Zealand	Proposed Boundary Change to Specially Protected Area (SPA No. 27) Backdoor Bay, Cape Royds, Ross Island	CEP 4 g	English	SFR
40	Australia	Amended Rules of Procedure of Antarctic Treaty Consultative Meetings – Establishment of the Secretariat	4 b	English	SFR
41	United Kingdom	Antarctic Shipping Guidelines	9	English	SFR

no.	Submitted by	Title	Item no.	Orig. lang.	Transl.
42	Australia	Draft Selection Criteria and a Proposed Procedure for the Appointment of the Executive Secretary of the Antarctic Treaty Secretariat	4 b	English	SFR
43	United Kingdom	Biological Prospecting in Antarctica	4 d	English	SFR
44	Italy	Chairman's Report on the Informal Meeting of the Consultative Parties to the Antarctic Treaty on the Establishment of the Antarctic Treaty Secretariat, Buenos Aires, June 24-27, 2002.	4 b	English	SFR
45	Norway, Peru, Argentina	ATCM XXV - Working Paper: Revision of "Guideline. Pre-sessional Document Circulation and Document Handling".		English	SFR
46	Argentina, Australia,	Budget Projections for the Antarctic Treaty Secretariat	4 b	English	SFR
47	India	Draft management Plan for proposed SS	4 g	English	SFR
48	Australia	Draft financial regulations for the Antarctic Treaty Secretariat	4 b	English	SFR
49	Australia	Standing Committee on the Antarctic Treaty Secretariat	4 b	English	SFR
50	New Zealand	Liability: informal contact group work on "operator", scope, and actions for compensation		English	SFR

INFORMATION PAPERS FROM ATCM XXV

Doc No.	Submitted by	Title	Item No.	Org. lang.	Transl.
1	Poland	The Long-term monitoring of avifauna in Admiralty Bay in light of the changes in the sea-ice zone ecosystem (South Shetland Islands, Antarctica)	CEP 5	E	
2	Poland	Deglaciation at Admiralty Bay, King George Island (South Shetland Islands, West Antarctica)	CEP 5	E	
3	Poland	Forty years of Antarctic Treaty	16	E	
4	Finland	Relevance of developments in the Arctic and the Antarctic	10	E	
5	Uruguay	Intercambio de Información según la Resolución XXIV-6 (2001), en conformidad con los Arts. III (1) y VII (5) del Tratado Antártico	16	S	
6	Uruguay	Informe anual de Acuerdo al Artículo 17 del Protocolo al Tratado Antártico sobre la Protección del Medio Ambiente	CEP 4	S	
7	New Zealand	Ross Sea Region 2001: A State of the Environment Report for the Ross Sea Region of Antarctica	CEP 6	E	
8	France	Rapport annuel presente par la France conformement a l'article 17 du Protocole au Traite sur l'Antarctique relatif a la protection de lenvironnement	16	F	
9	France	Taxes en Antarctique	11	F	

Doc No.	Submitted by	Title	Item No.	Org. lang.	Transl .
10	CCAMLR	Report of CCAMLR to ATCM XXV	5a	E	
11	CCMLAR	Antarctic Treaty Secretariat	4b	E	
12	Estonia	Planned Antarctic Activities of Estonia	14	E	
13	Germany	Research Report "Survey and Management Plans for two Tourist Sites in the Antarctic – Scientific Basis and Indicators for the Development of Management Plans for Frequently Used Visitor Sites in the Antarctic"	CEP 4g	E	
14	Russia	Russian scientific geological research in Antarctica in context of Article 7 of the Madrid Protocol	13	E R	
15	Russia	Glaciological studies at the Russian Station <i>Vostok</i>	13	E	
16	Russia	Results of the waste disposal project at Bellingshausen Station	CEP 4e	E R	
17	Ukraine	Ukrainian Antarctic Research Program for 2002 - 2010	13	R	E
18	Ukraine	On Ukraine interest to achieve Consultative Party status of the Antarctic Treaty	4a	R	E
19	Ukraine	Annual Report pursuant to Article 17 of the Protocol on Environmental Protection to the Antarctic Treaty	4a	R	E
20	United Kingdom	Antarctic meteorites and UK law	CEP 4a	E	
21	United Kingdom	UK policy regarding visits by tourists to British stations and historic sites in Antarctica	11	E	
22	United Kingdom	The clean-up and removal of abandoned British stations in Antarctica	CEP 4e	E	
23	United Kingdom	Report on the Implementation of the Protocol on Environmental Protection to the Antarctic Treaty as required by Article 17 of the Protocol	CEP 4	E	
24	SCAR	Marine Acoustic Technology and the Environment	CEP 4c	E	
25	UK/US	Antarctic Site Inventory: 1994-2002	CEP 8	E	
26	COMNAP	An Analysis of Initial Environmental Evaluations (IEEs)		E	
27	COMNAP	The Interaction Between National Operators, Tourists and Tourism Operators	11	E	
28	United Kingdom	An International Expedition to Deception Island	CEP4g	E	
29	United Kingdom	Report Submitted To The Antarctic Treaty Consultative Meeting XXV By The Depository Government For The Convention For Conservation Of Antarctic Seals (United Kingdom) In Accordance With Recommendation Xiii-2, Paragraph 2(D)	5 a	E	
30	IAATO	Chairman's Report from the Aspen Meeting on Antarctic Tourism	11	E	
31	New Zealand	Annual Report of New Zealand Pursuant to Article 17 of the Protocol on Environmental Protection to the Antarctic Treaty	CEP 4a	E	
32	New Zealand	A New Waste Water Treatment System for New Zealand's Scott Base- Rationale, Selection Process and Outcome	CEP 4 e	E	
33	New Zealand	ANDRILL - The McMurdo Sound Portfolio Environmental Impact Assessment Process	CEP 4c	E	

Doc No.	Submitted by	Title	Item No.	Org. lang.	Transl.
34	New Zealand	Environmental Impact Assessment of Fishing Vessels	CEP 4c	E	
35	Romania	Statement of the Delegation of Romania	5 b	E	
36	Romania	Romanian Scientific Antarctic Activities	13	E	
37	Romania	Report of Romania on the ratification of the Protocol of Madrid	CEP 4	E	
38	US/NZ	Antarctic Protected Area System: Proposed Antarctic Specially Managed Area in the McMurdo Dry Valleys, Ross Sea Region	CEP 4g	E	
39	IAATO	An Assessment of Environmental Emergencies arising from Activities in Antarctica	CEP 7	E	
40	COMNAP	The Proposed Antarctic Shipping Guidelines	14	E	
41	China	Chinese Antarctic Scientific Database	CEP 8	E	
42	China	Antarctic Meteorites Study and Management in China	CEP 8	E	
43	China	2001/2002 Chinese Antarctic Environmental Report	CEP 8	E	
45	Brazil	Report of the activities developed by Brazil in Antarctica during the 2001/2002 season	CEP 4g	E	
46	Brazil	Co-ordination of the Antarctic Specially Managed Area (ASMA) of Admiralty Bay, King George Island, South Shetland Islands	16 CEP 4g	E	
47	Brazil	Exchange Information Activity Plan for the 2002/2003 season	CEP 4g	E	
48	United States	Progress Report from the Intersessional Contact Group on Cumulative Impacts	CEP 4c	E	
49	Australia	Report of the CEP Observer SC-CCAMLR XX, 22 October to 2 November 2001	CEP 3	E	
50	Australia	Report on Co-operation Among Parties with Respect to Article 6 of the Madrid Protocol - Australian Participation in the SWEDARP Expedition to Dronning Maud Land 2001-2002	7	E	
51	COMNAP	Best Practice To Avoid Waste Water Disposal Onto Ice-free Ground at Inland Stations	CEP 4e	E	
52	ASOC	ATCM Papers, Discussions, & Recommendations relating to Tourism and non-governmental activities	11	E	
53	COMNAP	COMNAP Report to XXV ATCM		E	
54	Australia	Antarctic State of the Environment Reporting	CEP 6	E	
55	SCAR	Exploring Subglacial Antarctic Lakes: A SCAR Report on Progress	13, CEP 4	E	
56	Australia	The Australian Antarctic Division's Environmental Management System	CEP 4a	E	
57	Australia	Clean up of a Former Subantarctic Research Station at Heard Island	CEP 4g	E	
58	New Zealand	Antarctic Historic Resources	CEP 4g	E	

Doc No.	Submitted by	Title	Item No.	Org. lang.	Transl.
59	Spain	Informe Anual de Acuerdo con El Artículo 17 del Protocolo al Tratado Antártico sobre Protección Del Medio Ambiente	CEP	S	
60	ASOC	Antarctic wildlife in captivity and the Madrid Protocol	CEP 4d	E	
61	Australia	3 rd International Conference on Contaminants in Freezing Ground – Collaboration between the Arctic and Antarctic Research Communities	10	E	
62	Australia	Draft Response Plan in the Event that Unusual Animal Deaths are Discovered	CEP 4d	E	
63	ASOC	Port State Jurisdiction: An Appropriate International Law Mechanism To Regulate Vessels Engaged In Antarctic Tourism	7	E	
64	Italy	Annual Report pursuant to the Protocol on Environmental Protection to the Antarctic Treaty	CEP 4	E	
65	South Africa	Annual Report pursuant to the Protocol on Environmental Protection to the Antarctic Treaty	CEP 4a	E	
66	Japan	Annual Report under the Protocol on Environmental Protection to the Antarctic Treaty	CEP 4a	E	
67	Uruguay	Assents referidos a los Planes de Gestión para zonas Antárticas Especialmente Protegidas y zonas Antárticas Especialmente Administradas que incluyen Zonas Marinas.	CEP 4g	S	
68	Italy	Environmental Monitoring in the Italian Antarctic Terra Nova Bay Station after the entry into force of the Madrid Protocol in 1998.	CEP 5	E	
69	Chile	Documento sobre efectos de Operaciones de Rescate	CEP 11	S	
70	Czech Republic	Drafting of Czech Act on the Antarctic	CEP 4a	E	
71	IAATO	Bibliography of publications by staff naturalists/Lecturers involved In Tour Activities in Antarctica, 1991 – 2001	15	E	
72	IAATO	Guidelines for tourist operations in Antarctica	11	E	
73	IAATO	Overview of Antarctic tourism	11	E	
74	IAATO	Report Of The International Association of Antarctica Tour Operators (IAATO) 2001-2002	5 b	E	
75	IAATO	IAATO-Wide-Emergency Contingency and Search and Rescue Plan	CEP 7	E	
76	ASOC	Improving awareness of Protocol obligations Amongst Antarctic Yacht Operators.	9, 11,14	E	
77	ASOC	Liability	8	E	
78	ASOC	Reports under Article 17 and the Implementation of the Madrid Protocol	CEP 4a	E	
79	Chile	Installation of a structure and appropriate signalling at the ruins of President Pedro Aguirre Cerda Base, Pendulum Cove, Deception Island.	CEP 4g	E	
80	Netherlands	Annual Report under the Protocol on Environmental Protection to the Antarctic Treaty	CEP 4a	E	
81	ASOC	On Worst Case Scenarios	8	E	
82	ASOC	Strategic Environmental Assessment in Antarctica:	CEP 4c	E	

Doc No.	Submitted by	Title	Item No.	Org. lang.	Transl .
		A “stepping stone” to Madrid Protocol objectives			
83	ASOC	Regulating Antarctic Tourism	11	E	
84	ASOC	Report of the Antarctic and Southern Ocean Coalition	5b	E	
85	IAATO	Regulatory mechanisms that address Antarctic tourism	11	E	
86	Japan	Deep ice core drilling project II at Dome Fuji, Antarctica	13	E	
87	Japan	Polar Patrol Balloon Experiment from Antarctic Syowa Station	13	E	
88	Japan	Establishment of a High Definition Broadcast Centre in the Antarctic	15	E	
89	Japan	JARE Marine Science Program Chartering a Research Vessel	13	E	
90	Argentina	Report on Antarctic Tourism numbers through the Port of Ushuaia	11	E S	
91	Chile	Introduction to the issue of insurance in Annex VI to the Protocol on Environmental Protection (Liability/Response Measures)	8	E	
92	Argentina	Introduction to the issue of insurance in Annex VI to the Protocol on Environmental Protection (Liability/Response Measures)		S	E
93	Czech Rep.	Report on Project of the Czech Research Station in Antarctica	4c	E	
94	SCAR	SCAR Report to XXV ATCM	5a	E	
95	United States	Report of the Depository Government of the Antarctic Treaty and its Protocol (USA) in accordance with Recommendation xiii-2	4	E	
96	Peru	Key activities undertaken by Peru in Antarctic matters during the 2001-2002 period	CEP 6	S	E
97	Secretariat	Annual list of Initial Environmental Evaluations (IEE) and Comprehensive Environmental Evaluations (CEE) 2001/2002	CEP 4c	E	
98	Bulgaria	Permanent Secretariat to the Antarctic Treaty	4b	E	
99	New Zealand	Cape Roberts Project (only printed version)	CEP4c	E	
100	Korea R	A new Arctic facility in Ny-Alesund for comparative studies with the Antarctic region	10	E	
101	ASOC	Antarctica needs Marine Protected Areas (only printed version)	CEP 4g	E	
102	Chile	Workshop on Management Plan for Deception Island (only printed version)	CEP4g	E	
103	IUCN	Report of the World Conservation Union	5b	E	
104	India	Annual Report of India (printed version only)	CEP 4a	E	
105	WMO	Report of the World Meteorological Organisation	5b	E	
106	UNEP	Report of UNEP to XXV ATCM	5b	E	
107	Bulgaria	Science and technology policy of Eastern European polar nations	13	E	

Doc No.	Submitted by	Title	Item No.	Org. lang.	Transl .
108	Australia	Management of Antarctic Non-Government Activities – Australian comments	11	E	
109	Italy	Working Group on the Secretariat Chairman's Report	4b	E	
110	China	Position of Chinese Delegation on cost-sharing mechanism of the Secretariat	4b	E	
111	Australia	Report by the Head of the Australian Delegation in his capacity as Representative of the Depository Government for the Convention on the Conservation of Antarctic Marine Living Resources to the Twenty-fifth Antarctic Treaty Consultative Meeting	5a	E	

ANNEX J

LIST OF PARTICIPANTS

ANNEX J

LIST OF PARTICIPANTS

Consultative Parties

Argentina

Representative	Mr Ruben Nestor Patto Head of the Antarctic Department Ministry of Foreign Affairs
Delegate	Mr Carlos Alberto Passalacqua Ambassador of Argentina in Poland
Delegate	Mr Ariel Mansi Antarctic Department Ministry of Foreign Affairs
Delegate	Mr Bernardo Juan Ochoa Embassy of Argentina in Poland
Delegate	Mr Holger Martinsen Legal Department Ministry of Foreign Affairs
Delegate	Mr Gabriel Servetto Antarctic Department Ministry of Foreign Affairs
CEP Representative	Mr José Maria Acero Head of Environmental Management Program Argentine Antarctic Program
CEP Alternate	Mr Rodolfo Sanchez Member of the Environmental Management Program Argentine Antarctic Program

Australia

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ANNEX K
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ANNEX K

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ANNEX L
PRELIMINARY AGENDA FOR ATCM XXVI

Preliminary agenda for ATCM XXVI:

1. Opening of the Meeting;
2. Election of Officers.;
3. Adoption of the Agenda;
4. Operation of the Antarctic Treaty System;
 - a) General Matters;
 - b) Antarctic Treaty Secretariat;
5. Operation of the Antarctic System: Reports by Observers and Experts;
6. Report of the Committee for Environmental Protection.;
7. The Question of Liability as referred to in Article 16 of the Protocol;
8. Safety of Operations in Antarctica;
9. Relevance of Developments in the Arctic and the Antarctic;
10. Tourism and Non-Governmental Activities in the Antarctic Treaty Area;
11. Inspections under the Antarctic Treaty;
12. Science issues, particularly Scientific Co-operation and Facilitation
13. Operational Issues;
14. Education Issues;
15. Exchange of Information;
16. Preparation of the XXVII Meeting;
17. Other Business;
18. Adoption of the Final Report;
19. Closing of the Meeting