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The Parliament of the Commonwealth of Australia

# Antarctica: Australia's Pristine Frontier

**Report on the adequacy of funding for Australia's Antarctic  
Program**

Joint Standing Committee on the National Capital and External Territories

June 2005  
Canberra

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## Foreword

On behalf of the Committee, I am pleased to present this unanimous report on the adequacy of funding for Australia's Antarctic Program.

Prior to conducting a review of Australia's Antarctic Territory as part of a general monitoring of the nation's external territories, the Committee sought a briefing from the Australian Antarctic Division as the lead agency for Australia's Antarctic Program.

The ensuing briefing provided a fascinating insight into the positive nature and scale of the work being carried out by Australian researchers in Antarctica. However, during the briefing, it also became clear that the critical issue confronting Australia's Antarctic Program was the question of whether the Antarctic Division was receiving adequate funding to achieve the Government's stated goals for the frozen continent.

The issue of the adequacy of funding for Australia's Antarctic Program therefore became the focal point of the Committee's inquiry.

The inquiry lapsed with the dissolution of the 40<sup>th</sup> Parliament, but, was recommenced by the new committee in the 41<sup>st</sup> Parliament.

The Government's goals for Antarctica reflect Australia's status as a major player in Antarctic affairs. The goals promote participation in the Antarctic Treaty System and enhanced influence within that System, protection of the Antarctic environment, an understanding of the role of Antarctica in the global climate system and, the undertaking of scientific work of practical, economic and national significance.

Meeting these goals and consolidating Australia's leading reputation in Antarctica requires substantial financial support. Operating in such an unpredictable, hostile environment is an expensive exercise, but one which is critical if Australia is to preserve its sovereignty over its Australian Antarctic Territory.

During the inquiry, the Committee heard of the fundamental need to establish an inter-continental air link between Tasmania and the Australian Antarctic Territory. It was suggested that an air link would attract a wider spectrum of researchers to the continent. Currently, researchers are reliant predominately, on the research and resupply vessel *Aurora Australis* which necessarily requires that a significant amount of its time be spent at sea.


Obviously, the Committee was pleased to learn of a commitment in the 2005-06 Budget to fund an inter-continental air link from Hobart to Antarctica. However, in the Committee's view, the introduction of the air link does not diminish the need for additional funding to be invested in Australia's Antarctic Program. The Australian Antarctic Division has continued to develop new initiatives in spite of a generally static budget through the implementation of innovative cost-saving measures. Yet the evidence the Committee received suggested the Division now has exhausted all avenues for creating meaningful savings.

Australia's contribution to Antarctic science is considered world-leading by scientific peers and the efforts of our researchers should receive greater domestic recognition, particularly given that much of the science being undertaken has implications for the region as well as global relevance.

The Committee is grateful to those who participated in the inquiry. As always, I also very much appreciate the cooperative way that the Committee invariably works on inquiries and the subsequent report.

Senator Ross Lightfoot  
Chairman





# Membership of the Committee

## 41<sup>st</sup> Parliament

Chair            Senator Ross Lightfoot

Deputy Chair   Senator Trish Crossin

Members        The Hon Ian Causley MP

Ms Annette Ellis MP

Mr Paul Neville MP

Ms Sophie Panopoulos MP

Mr Patrick Secker MP

The Hon Warren Snowdon MP

Senator John Hogg

Senator Kerry O'Brien

Senator Nigel Scullion

Senator Natasha Stott Despoja

## 40<sup>th</sup> Parliament

Chair            Senator Ross Lightfoot

Deputy Chair   Senator Trish Crossin

Members        The Hon Ian Causley MP

Ms Annette Ellis MP

Mr Michael Johnson MP  
*(to 19 February 2004)*

Mr Paul Neville MP

The Hon Warren Snowdon MP

Mr Cameron Thompson MP

Dr Mal Washer MP  
*(from 19 February 2004)*

Senator John Hogg

Senator Kate Lundy

Senator Nigel Scullion

Senator Natasha Stott Despoja

# Committee secretariat

## **41<sup>st</sup> Parliament**

Committee Secretary Ms Beverley Forbes  
Inquiry Secretary Mr Justin Baker  
Principal  
Parliamentary Officer Dr Sonia Palmieri  
Administrative Officers Mr Andrew McGowan  
Mr Robert Nicol

## **40<sup>th</sup> Parliament**

Committee Secretary Mrs Margaret Swieringa  
Inquiry Secretary Mr Quinton Clements  
Research Officers Ms Bronwen Jagers  
Mr Justin Baker  
Administrative Officer Mr Daniel Miletic



## Terms of reference

*Resolved 10 September 2003:*

That, on the basis of the annual report of the Department of the Environment and Heritage for 2001-02, which has responsibility for the Australian Antarctic Division and the Antarctic Program, in relation to the Australian Antarctic Territory and the Territory of Heard Island and McDonald Islands, and which stands referred to the Committee by the House of Representatives for any inquiry it may wish to make, the Committee conduct an inquiry and report on the adequacy of funding for the Australian Antarctic Division to meet the four goals set for advancing Australia's Antarctic interests:

- Enhancing Australia's influence in the Antarctic Treaty system;
- Protecting the Antarctic environment;
- Understanding Antarctica's role in the global climate system; and
- Conducting scientific research of practical, economic or national significance.

*Resolved 26 November 2003:*

That the basis of the inquiry into the adequacy of funding for the Australian Antarctic Program be extended to include the Annual Report of the Department of the Environment and Heritage for 2002-03, which was presented in the House of Representatives on 4 November 2003 and stands referred to the Committee for any inquiry it wishes to make.

*Resolved 8 December 2004:*

That the basis of the inquiry into the adequacy of funding for the Australian Antarctic Program be extended to include the Annual Report of the Department of the Environment and Heritage for 2003-04, which was presented in the House of Representatives on 17 November 2004 and stands referred to the Committee for any inquiry it wishes to make.





## List of abbreviations

AAD or the Division	Australian Antarctic Division
AAP	Australian Associated Press
AAT	Australian Antarctic Territory
AFFA	Department of Agriculture, Fisheries and Forestry
AFMA	Australian Fisheries Management Authority
AGSO	Australian Geological Survey Organisation
ANARE	Australian National Antarctic Research Expeditions
ASAC	Antarctic Science Advisory Committee
ATCM	Antarctic Treaty Consultative Meeting
BoM	Commonwealth Bureau of Meteorology
CASA	Construcciones Aeronáuticas S.A. (Spain)
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCAS	Convention on the Conservation of Antarctic Seals
COMNAP	Council of Managers of National Antarctic Programs
CRC	Cooperative Research Centre

CSIRO	Commonwealth Scientific and Industrial Research Organisation
EEZ	Exclusive Economic Zone
EMS	environmental management system
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
FAO	Food and Agriculture Organisation
GSDC	Great Southern Development Commission
HIMI	Heard Island and McDonald Islands
IASOS	Institute of Antarctic and Southern Ocean Studies
ICSU	International Council for Science
IGY	International Geophysical Year
IPY	International Polar Year
IUU	Illegal, unregulated and unreported (fishing)
IWC	International Whaling Commission
JACARA	Joint Australian Centre for Astrophysical Research in Antarctica
JSCNCET	Joint Standing Committee on the National Capital and External Territories
NCAR	National Committee on Antarctic Research
SCALOP	Scientific Committee on Antarctic Logistics and Operations
UAV	Unmanned Aerial Vehicle
UNSW	University of New South Wales



# List of recommendations

## 3 Operations and logistical support

### Recommendation 1

The Committee recommends that the Australian Government makes funding available in the 2005-06 financial year to enable a scoping study to be conducted to determine the need for a new dedicated marine research vessel to advance marine science in general and, the Australian Government's goals for Australia's Antarctic program in particular. (para 3.53)

## 4 Australia's obligations under the Antarctic Treaty System

### Recommendation 2

The Committee recommends that the Australian Government makes an appreciable investment commensurate with Australia's significant involvement in polar activities to support Australian programs planned for the International Polar Year 2007-2008 and ensures that Australia plays a leading role in International Polar Year activities. In addition, the Committee notes the need for additional funds to be made available immediately for this purpose. (para 4.25)

## 5 Conservation and protection of the Antarctic environment

### Recommendation 3

The Committee recommends that the Australian Government allocate an additional \$50 million to the budget of the Department of the Environment and Heritage over a ten-year period, to be administered

under Australia's Antarctic Program, specifically for the remediation of past work sites in the Australian Antarctic Territory. (para 5.50)

#### Recommendation 4

The Committee recommends that additional funding be provided to enable the Australian Antarctic Division to comply with its responsibilities under the *Environment Protection and Biodiversity Conservation Act (1999)* for its work with the cultural heritage management of Mawson's Huts. The Committee also encourages the continuation of partnership links with community sponsors to continue the restoration work of Mawson's Huts. (para 5.73)

## 6 Australia's Antarctic science program

#### Recommendation 5

The Committee recommends that the current appropriation for the Australian Antarctic Science grants scheme administered by the Australian Antarctic Division be doubled from the current level of approximately \$700,000 per annum for the remainder of the Science Strategy 2004/05-2008/09 and be reassessed after that period. (para 6.24)



*There are few places in the world where there has never been war, where the environment is fully protected, and where scientific research has priority. But there is a whole continent like this - it is the land the Antarctic Treaty parties call '... a natural reserve, devoted to peace and science'.<sup>1</sup>*

## Introduction

- 1.1 Antarctica is often regarded as one of the last frontiers for human exploration and adventure. The remote and hostile environment is arguably also the most pristine region on the planet.
- 1.2 Antarctica today provides a unique platform for undertaking groundbreaking science of increasing global importance. Australian scientists are at the forefront of Antarctic research and their ongoing investigations continue to reveal important data about climate change, future greenhouse gas levels and sea-level rise which are of national and international significance.
- 1.3 Historically, the exploratory efforts of Sir Douglas Mawson are particularly significant for Australians, as he was part of the first team to climb to the top of Mount Erebus, Antarctica's active volcano, and part of

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1 Introduction to the Antarctic Treaty, adopted at the Antarctic Treaty Consultative Meeting in Peru, May/June 1999. Australian Antarctic Division 2004, *Introducing the Antarctic Treaty*, Australian Antarctic Division, Kingston, Tasmania, viewed 28 June 2004, <<http://www.aad.gov.au/default.asp?casid=78>>.

the first team to reach the magnetic South Pole in 1908.<sup>2</sup> Between 1911 and 1931, Mawson headed three exploratory teams to the Antarctic, expanding the world's knowledge of its geography and geology.<sup>3</sup> Moreover, these expeditions laid the foundation for Australia's presence in the Antarctic region.

## Australia's presence in the Antarctic region

### The Australian Antarctic Territory

- 1.4 Australia's significant presence in the region is evident in the size of its claim of sovereignty over Antarctica. The Australian Antarctic Territory (AAT) constitutes 42 per cent of the Antarctic continent and as such, represents the largest territorial claim in Antarctica.<sup>4</sup> Sovereignty over the AAT was transferred from Britain to Australia under the *Australian Antarctic Territory Acceptance Act 1933*, which came into effect on 24 August 1936.<sup>5</sup>
- 1.5 Australia has maintained a continuous presence in the Antarctic region since the end of the Second World War. On Mawson's advice, the Commonwealth Government recognised the need for further Antarctic exploration and established the Australian National Antarctic Research Expeditions (ANARE) in 1947.<sup>6</sup> At that time, ANARE's objective was to investigate potential sites for permanent scientific stations, including on the Antarctic continent. In the first season of the ANARE, stations were established at Heard and Macquarie Islands. Despite the difficulties encountered in setting up a continental station, the establishment of the two island stations ensured the success of the expedition.<sup>7</sup>

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2 Australian Antarctic Division, 2003, *Douglas Mawson starts his Antarctic career*, Australian Antarctic Division, Kingston, Tasmania, viewed 24 June 2004, <<http://www.aad.gov.au/default.asp?casid=1309>>.

3 Australian Antarctic Division, 2003, *Douglas Mawson starts his Antarctic career*, Australian Antarctic Division, Kingston, Tasmania, viewed 24 June 2004, <<http://www.aad.gov.au/default.asp?casid=1309>>.

4 Department of the Environment and Heritage, Submission no. 24, p 5. Seven States party to the Antarctic Treaty have territorial claims, these are Argentina, Australia, Chile, France, New Zealand, Norway and the United Kingdom.

5 See Section 2, *Australian Antarctic Territory Acceptance Act 1933*.

6 Australian Antarctic Division, 2003, *ANARE is Created*, Australian Antarctic Division, Kingston, viewed 29 June 2004, <<http://www.aad.gov.au/default.asp?casid=1312>>.

7 Australian Antarctic Division, 2003, *ANARE is Created*, Australian Antarctic Division, Kingston, Tasmania, viewed 29 June 2004, <<http://www.aad.gov.au/default.asp?casid=1312>>.

## The Australian Antarctic Division

- 1.6 In May 1948, the Commonwealth Government set up the Australian Antarctic Division (AAD) in Melbourne as an agency of the Department of External Affairs with the role of administering and coordinating ANARE. Since that time, the AAD has conducted and supported science programs in the Antarctic, represented Australia at international meetings on Antarctic affairs (such as Antarctic Treaty meetings), and administered Australian territories in the region. Today, the AAD is an agency of the Department of the Environment and Heritage and since 1981 it has been based in Kingston, near Hobart, Tasmania.

## Australia's Antarctic stations

- 1.7 Australia currently maintains four permanent ANARE stations in the region, all of which are occupied year-round by scientists and support staff:
- **Macquarie Station** (established 1948) The sub-Antarctic Macquarie Island is in the Southern Ocean, and lies about 1500 km south east of Tasmania and 1300 km north of the Antarctic continent. The island and its surrounding waters to 12 nautical miles were World Heritage listed in 1997, and, as a dependency of Tasmania, the island is now managed by the Tasmanian Parks and Wildlife Service.<sup>8</sup>
  - **Mawson Station** (established 1954) Australia's first continental station, named after Sir Douglas Mawson, is situated on a rock outcrop surrounding a natural deep-water harbour, offering access to the continent's interior.<sup>9</sup>
  - **Davis Station** (established 1957) Australia's second continental station was built in an extensive ice free area in the Vestfold Hills, promising unique scientific opportunities. The station is named in honour of Antarctic navigator Captain John King Davis.<sup>10</sup>
  - **Casey Station** (established 1969) In 1959, Australia took over operation of the United States-built station, Wilkes. When it became clear that the

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8 Australian Antarctic Division, 2004, *Macquarie Island*, Australian Antarctic Division, Kingston, Tasmania, viewed 14 February 2005, <<http://www.aad.gov.au/default.asp?casid=7151>>.

9 Australian Antarctic Division, 2001, *Mawson*, Australian Antarctic Division, Kingston, Tasmania, viewed 14 February 2005, <<http://www-new.aad.gov.au/default.asp?casid=2429>>.

10 Australian Antarctic Division, 2004, *Captain John King Davis*, Australian Antarctic Division, Kingston, Tasmania, viewed 14 February 2005, <<http://www.aad.gov.au/default.asp?casid=1730>>.

Wilkes site would eventually be buried in snow, a new site was built and named in honour of the then Governor-General, Lord Richard Gavin Gardiner Casey, a keen supporter of the Antarctic program.<sup>11</sup>

- 1.8 In addition, an ANARE station originally established at Heard Island closed in 1955. Today, the sub-Antarctic Territory of Heard Island and McDonald Islands (HIMI) is still administered by the AAD, and short term science expeditions are still organised to Heard Island during the summer season. For example, during the 2003-04 season, a party of 28 expeditioners spent approximately two months on the island undertaking a range of programs including animal, bird and terrestrial biology and glaciology.<sup>12</sup>

## Australia's Antarctic Program

- 1.9 The goals for Australia's Antarctic Program are set by the Australian Government. At present, the goals for the program are:
- to maintain the Antarctic Treaty System and enhance Australia's influence within the System;
  - to protect the Antarctic environment;
  - to understand the role of Antarctica in the global climate system; and
  - to undertake scientific work of practical, economic and national significance.<sup>13</sup>
- 1.10 The AAD pursues the Commonwealth Government's interests in the region through the management and conduct of research expeditions and provides:
- planning, coordination and support for the whole Australian Antarctic Program;
  - infrastructure which is consistent with priorities determined on the basis of strategic science plans;

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11 Australian Antarctic Division, 2004, *Casey Station – A Brief History*, Australian Antarctic Division, Kingston, Tasmania, viewed 14 February 2005, <<http://www.aad.gov.au/default.asp?casid=1705>>.

12 For more information on the Heard Island 2003-04 Expedition, see: Australian Antarctic Division 2003, *Heard Island 2003-04*, Australian Antarctic Division, Kingston, Tasmania, viewed 28 January 2005, <<http://www.aad.gov.au/default.asp?casid=12718>>.

13 Australian Antarctic Division, *Science Strategy 2004/05–2008/09*, p 2.

- support for specific science programs, with priorities being decided following advice from planning and advisory bodies and program areas;
  - support to achieve environmental, legislative and Treaty objectives; and
  - the administration of the Australian Antarctic Territory and the Territory of Heard and McDonald Islands.<sup>14</sup>
- 1.11 In cooperation with other agencies, the AAD advises the Commonwealth Government on Australia's national and international policy positions and obligations, from environmental protection issues to policy and legal questions concerning the administration of the Antarctic territories.<sup>15</sup> The AAD also plays a lead role in supporting Australia's participation in a wide range of international fora, such as Antarctic Treaty Consultative Meetings (ATCMs), the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and the International Whaling Commission (IWC).
- 1.12 While Australia's Antarctic Program is managed by the AAD, there are a range of other stakeholders with an interest in Antarctic policy, operations and management, including:
- government agencies such as the Commonwealth Bureau of Meteorology, Geoscience Australia, the Australian Geological Survey Organisation, the Ionospheric Prediction Service, the Australian Survey and Land Information Group, and some divisions of the Commonwealth Scientific and Industrial Research Organisation (CSIRO); and
  - non-government bodies and individuals, including universities around Australia - notably the Cooperative Research Centre for Antarctic and Southern Ocean Ecosystems based at the University of Tasmania - and foreign scientists.<sup>16</sup>

## Scrutiny of Australia's Antarctic Program

- 1.13 Australia's Antarctic Program is scrutinised by parliament through the work of parliamentary committees and through the Senate Budget Estimates process. The program, and in particular its science component, is also scrutinised by the Antarctic Science Advisory Committee (ASAC). This ministerially appointed committee conducts ongoing reviews, usually

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14 Department of the Environment and Heritage, Submission no. 24, p 11.

15 Department of the Environment and Heritage, Submission no. 24, p 11.

16 Department of the Environment and Heritage, Submission no. 24, p 11.

involving a process whereby public comment is sought, and reports to Government.

- 1.14 Recent parliamentary committee reports with an Antarctic focus include:
- *Australian Law in Antarctica* (1992), House of Representatives Standing Committee on Legal and Constitutional Affairs;
  - *Tourism in Antarctica* (1989), House of Representatives Standing Committee on the Environment, Recreation and the Arts;
  - *Report No. 297 – Management of the Antarctic Division* (1989), Joint Committee of Public Accounts;
  - *The Natural Resources of the Australian Antarctic Territory* (1985), Senate Standing Committee on Natural Resources; and
  - *Report Relating to the Redevelopment of Australian Antarctic Bases (Fifth Report of 1981)*, Joint Standing Committee on Public Works.
- 1.15 ASAC is responsible for advising Government, through the Minister for the Environment and Heritage, on:
- the broad direction of Australia's Antarctic program, including scientific, operational and logistical support activities;
  - priority areas for scientific research, having regard to the Government goals for Australia's Antarctic Program; and
  - measures to ensure an effective Australian participation in international scientific and operational programs involving the Antarctic.<sup>17</sup>
- 1.16 In 1997, ASAC produced a report to set the AAD's strategic direction for the future, and in 2003 ASAC engaged a steering committee to undertake an evaluation of Australia's Antarctic science program (see chapter six). A brief summary of the findings from ASAC's 1997 report and the Government's response to that report are set out below.

### ***Australia's Antarctic Program Beyond 2000: The 'Foresight Report'***

- 1.17 In 1996, the then Parliamentary Secretary with responsibility for Antarctic matters, Senator the Hon Ian Campbell, asked ASAC to advise the Government on:

...whether the Government's stated goals for the Antarctic Program are appropriate for the year 2000 and beyond, and

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17 For ASAC's full Terms of Reference, see Antarctic Science Advisory Committee, Submission no. 13, p 17.

whether they adequately reflect Australia's current and proposed Antarctic interests.<sup>18</sup>

- 1.18 In October 1997, ASAC presented its report, *Australia's Antarctic Program Beyond 2000: A Framework for the Future*. In its report – which has come to be known as the 'Foresight Report' – ASAC concluded that the primary goal of the Australian Antarctic Program should be to undertake scientific work of practical, economic, and national significance.<sup>19</sup> The general theme of ASAC's report was that there was a need to develop a more flexible approach to achieving the Government's goals for Australia's Antarctic Program.<sup>20</sup>
- 1.19 Many of ASAC's recommendations are significant in the context of the Joint Standing Committee on the National Capital and External Territories' (JSCNCET) inquiry. ASAC's recommendations supported the introduction of an inter- and intra-continental air transport system, a dedicated marine science vessel, and a move to automated monitoring programs at Australia's continental stations. ASAC also recommended that Australia retain a permanent presence in Antarctica by continuing to operate at least one of the existing stations on the Antarctic continent.<sup>21</sup>
- 1.20 More recently in evidence to the JSCNCET, ASAC acknowledged that while there has been some progress toward implementing the recommendations of the Foresight Report, many have not been implemented but most remain relevant today.<sup>22</sup>
- 1.21 ASAC's report received some criticism because it provided a series of broad recommendations rather than costed proposals.<sup>23</sup> However, ASAC stated that its intended approach was to set in place a conceptual framework which dealt with any uncertainties Australia's Antarctic Program may face in the years 2000 to 2030, and that the report:

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18 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, p vii.

19 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, p xiii

20 Antarctic Science Advisory Committee, Submission no. 13, p 2.

21 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, pp xv-xvii.

22 Antarctic Science Advisory Committee, Submission no. 13, p 2.

23 See, for example, Pockley, P. 'Antarctic Science: all at sea or up in the air'. *Australasian Science*, v 19 no 2, 1998, pp 38-40.

...leaves to Program Managers, Program Advisory Committees and Program Leaders the details of precisely what should be done, where, when, how and by whom.<sup>24</sup>

## The Government's response to the Foresight Report

- 1.22 Upon receipt of ASAC's Foresight Report, the Government invited public comment before presenting its response in May 1998. The Government's response, entitled *Our Antarctic Future: Australia's Antarctic Program Beyond 2000*, forms the basis for the AAD's strategic direction for the first two to three decades of the 21<sup>st</sup> century.<sup>25</sup>
- 1.23 In its response, the Government accepted the majority of ASAC's recommendations in principle and, in particular, called for more flexibility in logistics and infrastructure so that Australia's Antarctic Program would be able to respond more readily to changing priorities in the future.<sup>26</sup> The Government did not support ASAC's advice that Australia relinquish control of one or more of its permanent stations as a cost-cutting measure, at least in the medium term, and stated that the feasibility of a shift to automated monitoring programs would be investigated as an alternative.<sup>27</sup>
- 1.24 The Government acknowledged that an air link and a dedicated marine science vessel would be desirable additions to Australia's Antarctic science program.<sup>28</sup>

## Background and conduct of the Committee's inquiry

- 1.25 Under their resolutions of appointment, parliamentary committees are empowered to review the annual reports of agencies and departments within the committee's area of portfolio responsibilities. On 21 March 2002,

24 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, pp 7-8.

25 Department of the Environment and Heritage, Submission no. 24, p 21.

26 Commonwealth Government, 1998, *Our Antarctic Future: Australia's Antarctic Program Beyond 2000: The Howard Government response to Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Federal Government by the Antarctic Science Advisory Committee*, p 2.

27 Commonwealth Government, 1998, *Our Antarctic Future: Australia's Antarctic Program Beyond 2000: The Howard Government response to Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Federal Government by the Antarctic Science Advisory Committee*, p 4.

28 Commonwealth Government, 1998, *Our Antarctic Future: Australia's Antarctic Program Beyond 2000: The Howard Government response to Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Federal Government by the Antarctic Science Advisory Committee*, pp 5-7.



the JSCNCET resolved that a general review of each of Australia's external territories be conducted as part of an annual monitoring of the territories by the Committee.

- 1.26 Having already commenced reviews in June 2002 with regard to Norfolk Island and the Indian Ocean Territories, in 2003 the Committee turned its attention to the Australian Antarctic Territory using the annual report of the Department of the Environment and Heritage as the procedural basis for the inquiry.
- 1.27 In August 2003 the Committee sought a briefing from the AAD. During this briefing, it became evident to the Committee that the critical issue confronting Australia's Antarctic Program was whether the AAD was receiving adequate funding to continue to achieve the Government's goals for the program. Accordingly, on 10 September 2003, the Committee resolved to make that issue the focus of its inquiry.
- 1.28 As previously outlined there are a range of organisations and sources of funding for Australia's Antarctic Program. However, using its annual report powers for this inquiry, the Committee focused on the funding of the AAD within the context of the wider management and funding framework of Australia's Antarctic Program.
- 1.29 Due to other work of the Committee the inquiry has been spread over two years and is therefore based on the 2001-02, 2002-03 and 2003-04 annual reports of the Department of the Environment and Heritage.
- 1.30 The inquiry lapsed with the dissolution of the 40<sup>th</sup> Parliament but was recommenced by the new committee in the 41<sup>st</sup> Parliament.
- 1.31 The inquiry was advertised in *The Australian*, *The Mercury* (Tasmania) and *The Albany Advertiser* on 15 October 2003 and the community and media were informed about the inquiry prior to each of the Committee's public hearings.
- 1.32 The inquiry received 40 submissions and two exhibits and these are listed at Appendix A and Appendix B respectively. Twenty-seven witnesses gave evidence during three public hearings conducted in Hobart, Albany and Canberra between March and June 2004. A list of the witnesses and organisations represented at those hearings is at Appendix C. In the current parliament, to finalise the inquiry the Committee undertook a final briefing and inspection in Kingston on 1 February 2005.

## Structure of the report

- 1.33 Five chapters follow this introduction. Chapter two provides a broad overview of current funding arrangements for the AAD as the lead agency for Australia's Antarctic Program. Given the critical underpinning role of logistics and operational support, chapter three looks at those issues. The next three chapters address funding-related issues in relation to the Government's goals for Australia's Antarctic Program. More specifically, chapter four looks at Australia's obligations within the Antarctic Treaty System and Australia's opportunities for enhanced international collaboration; chapter five addresses issues relating to the protection and conservation of the Antarctic environment; and chapter six examines Australia's Antarctic science program.

## Funding for Australia's Antarctic Program

### An overview

- 2.1 The main source of funding for Australia's Antarctic Program is through the AAD as the lead agency for the program. The AAD's appropriation for 2004-05 was \$88.04 million with expenditure divided between the Australian Government's four stated goals for Australia's Antarctic Program. Each of the Government's goals constitutes an output for the AAD's budget as detailed in Table 2.1.
- 2.2 The Government's goals for the Antarctic program are achieved primarily through Australia's policy positions in international fora within the Antarctic Treaty System, and through the conduct of science directly targeted at the Government's goals.<sup>1</sup> With respect to the fourth goal (that is, 'to undertake scientific work of practical, economic and national significance') the Government stated that:
- ...the Government accepts ASAC's cautionary advice about the potential for large-scale and high-cost international research to jeopardise the long-term viability of other research activity if funds are diverted from these areas. Accordingly, the Government agrees that such high-cost research, including research of national significance, should

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1 Department of the Environment and Heritage, Portfolio Budget Statements 2003-04, Budget Related Paper no. 1.7, viewed 2 February 2005, <<http://www.deh.gov.au/about/budget/2003/pbs/partc-deh-s2-outcome2.html>>.

generally secure funding from sources beyond the Antarctic Program before it can be supported as part of the Antarctic Program. In doing so, the Government notes that its direct funding support for the Antarctic Program is only a relatively small component of the total support available for Australian scientific research.<sup>2</sup>

Table 2.1 Summary of resources for the Australian Antarctic Division, 2003-04 and 2004-05

	<b>Budget 2003-04</b>	<b>Revised 2003-04</b>	<b>Actual expenses 2003-04</b>	<b>Variation (Actual minus revised)</b>	<b>Budget 2004-05</b>
	<b>\$'000</b>	<b>\$'000</b>	<b>\$'000</b>	<b>\$'000</b>	<b>\$'000</b>
<i>Outputs</i>					
Influence in Antarctic Treaty System	13 332	14 424	14 287	-137	13 842
Protecting the Antarctic Environment	33 411	36 794	37 238	444	34 689
Understanding the global climate system	20 747	22 031	21 832	-199	21 540
Undertake scientific work of practical, economic or national significance <sup>3</sup>	17 311	17 901	17 733	-168	17 973
<b>Total</b>	<b>84 801</b>	<b>91 150</b>	<b>91 090</b>	<b>(60)</b>	<b>88 044</b>

Source Department of the Environment and Heritage Annual Report 2003-04, p 194.

2.3 Table 2.2 provides a breakdown of the AAD's budget by function. The high level of expenditure on shipping and aircraft, and station infrastructure and management, is indicative of an environment which, by its nature, is difficult to operate in and requires a substantial level of logistics and operational support.

2 Commonwealth Government, 1998, *Our Antarctic Future: Australia's Antarctic Program Beyond 2000: The Howard Government response to Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Federal Government by the Antarctic Science Advisory Committee*, p 4.

3 As of 2005-06, AAD expenditure is divided between the two outputs 'Antarctic policy' and 'Antarctic science'.

Table 2.2 Australian Antarctic Division Budget % by Function

	%
Antarctic Logistics (Shipping & Aircraft)	29
Depreciation	20
Scientific Research	14
Antarctic Station Infrastructure	12
Corporate Costs	10
Insurance	7
Antarctic Station Management	5
Medical Services	2
Policy development and Territory Administration	1
<b>Total</b>	<b>100%</b>

Source: Australian Antarctic Division, Submission no. 24, p 19.

2.4 An analysis of the AAD revenue since the introduction of accrual financial management in 1999 (see Table 2.3 below) reveals that prior to the announcement of the 2005-06 Budget, the AAD's appropriation had been maintained at a generally static level. In informal discussions with the Committee, the Division reported that there had been no new money invested in the AAD for many years.<sup>4</sup> As a result, there has been little or no money available to fund infrastructure for new science initiatives or new logistical projects. In particular, the AAD had been unable to proceed with its plans to introduce an inter-continental air link between the Australian mainland and the AAT.

Table 2.3 Australian Antarctic Division revenue since 1999-2000

Financial year	Appropriation (\$'000)	Capital Use Charge	Net Appropriation* (\$ '000)	Percentage change (%)
1999-00	96,419	17,712	76,214	
2000-01	98,752	19,716	81,529	6.97%
2001-02	98,279	18,158	80,121	-1.73%
2002-03	109,893	27,987	82,186	2.58%
2003-04	85,484	n/a	85,484	4.01%
2004-05	86,472	n/a	86,472	1.16%
2005-06	94,563	n/a	94,563	9.36%

\* This appropriation is adjusted to reflect the amount available to the AAD after the Government's Capital Use Charge (which ceased in 2003-04) was applied to original funding figure.

Source: Australian Antarctic Division, 2005.

4 See also Australian Antarctic Division (Allen R), *Transcript*, 23 June 2004, p 9.

## 2005-06 Federal Budget

- 2.5 On 10 May 2005, Treasurer the Hon Peter Costello MP, unveiled the 2005-06 Federal Budget whereby agency resourcing for the Department of the Environment and Heritage included a commitment of \$46.3 million over four years (including \$7 million capital funding) to establish an inter-continental air link between Australia and Antarctica. The issues regarding the air link are discussed in further detail in chapter three.
- 2.6 The AAD's total appropriation for 2005-06 is \$99.4 million<sup>5</sup> with expenditure divided between the two outputs, '*Antarctic policy*' and '*Antarctic science*'. Aspects of Antarctic scientific research were previously attributed to the four outputs in line with the Government's stated goals for Australia's Antarctic Program (see Table 2.1), but are now aggregated into the *Antarctic science* output. The total resources for the Department of the Environment and Heritage's Antarctic outcome are shown in Table 2.4.

## Antarctic Climate & Ecosystems Cooperative Research Centre

- 2.7 A significant component of Australia's Antarctic science program is the work carried out through the Antarctic Climate and Ecosystems Cooperative Research Centre (CRC). The Centre was established in Hobart in July 2003, replacing the CRC for Antarctica and Southern Oceans which ceased to exist on 30 June 2003. The new CRC consists of approximately 100 scientists and support staff. The Centre will receive Commonwealth funding of \$23.5 million over seven years, supplemented by the cash and in-kind contributions of the CRC's partner organisations, of which the Australian Antarctic Division is the largest (with a 60 per cent stake).
- 2.8 The Centre's work involves five main research programs focused on Antarctic marine ecosystems, climate variability and change, ocean control of carbon dioxide, sea level rise, and Antarctic and Southern Ocean policy.<sup>6</sup> The research programs support each of the Government's goals for Australia's Antarctic Program, in particular

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5 This figure includes a Departmental Capital Equity Injection of \$4.805 million for the establishment of an air link between Australia and Antarctica.

6 Australian Government, Budget 2004-05, *Ministerial Statements, Environment and Heritage*, Department of the Treasury, Canberra, viewed 18 August 2004, <<http://www.budget.gov.au/2004-05/ministerial/html/environment-05f.htm>>.

the goal of understanding the role of Antarctica in the global climate system, and are closely aligned with AAD research and policy activities.<sup>7</sup>

Table 2.4 Total resources for Outcome 2: Antarctic

	<b>Estimated Actuals 2004- 05 (\$'000)</b>	<b>Budget Estimates 2005-06 (\$'000)</b>
<b>ADMINISTERED APPROPRIATION</b>	-	-
<b>ADMINISTERED SPECIAL ACCOUNTS</b>	-	-
<b>DEPARTMENTAL APPROPRIATIONS</b>		
Output 2.1 – Antarctic Policy	28,968	31,679
Output 2.2 – Antarctic Science	57,504	62,884
<b>TOTAL REVENUE FROM GOVERNMENT (Appropriation)</b>	<b>86,472</b>	<b>94,563</b>
<i>Contributing to Price of Departmental Output</i>	<i>98.9%</i>	<i>99.0%</i>
<b>REVENUE FROM OTHER SOURCES</b>		
Output 2.1 – Antarctic Policy	308	308
Output 2.2 – Antarctic Science	611	611
<b>TOTAL REVENUE FROM OTHER SOURCES</b>	<b>919</b>	<b>919</b>
<b>TOTAL PRICE OF DEPARTMENTAL OUTPUTS</b>	<b>87,391</b>	<b>95,482</b>
<b>DEPARTMENTAL SPECIAL ACCOUNTS</b>	-	-
<b>TOTAL ESTIMATED RESOURCING FOR OUTCOME 2</b>	<b>87,391</b>	<b>95,482</b>

Source Department of the Environment and Heritage, *Portfolio Budget Statements 2005-2006*, p 71.

## Tasmanian Government contribution

- 2.9 During a public hearing in Hobart, the State Government of Tasmania expressed concern about the AAD scaling back its activities on Macquarie Island. As discussed in chapter one, Macquarie Island is a World Heritage listed Nature Reserve managed by the Tasmanian Parks and Wildlife Service.

7 Australian Antarctic Division, 'The Antarctic Climate and Ecosystems CRC: A truly collaborative partnership', *Australian Antarctic Magazine*, no. 6, Autumn, 2004, p 12.

2.10 The Tasmanian Government stated that 'any downsizing of the (Commonwealth Government's) present financial commitment to Macquarie Island will have a devastating effect on Tasmania's ability to continue its current management on the island'.<sup>8</sup> Table 2.5 provides a snapshot of the financial and in-kind contributions that the Tasmanian Government has made over a five year period in supporting scientific programs and undertaking management activities on Macquarie Island.

Table 2.5 Tasmanian Government Expenditure for Management of Scientific Programs on Macquarie Island

Expenditure Description	Amount	Comments
Macquarie Island Management	\$180,000 p.a.	Executive Officer Fulltime Ranger Operational Budget
	\$50,000 p.a.	Tourism Ranger (4 months p.a.) & shipping costs
	\$20,000 p.a.	District Manager – South East District (0.25 FTE)
<b>Macquarie Island Science Program</b>		
Macquarie Island Research Advisory Group (MIRAG)	\$43,000 p.a.	Undertakes assessment of all Macquarie Island scientific research proposals and advises on conservation management. Expenditure comprises of salaries for Department of Primary Industries, Water and Environment (DPIWE) specialists and a Nature Conservation Manager that is allocated to the MIRAG.
Albatross Program	\$7,000 p.a.	Component of salary allocated to Macquarie Island Albatross Project supervision (0.1 FTE)
Sub-Antarctic Plant House at the Royal Tasmanian Botanical Gardens (RTBG)	In-kind contribution	RTBG provides plant research facilities to the scientists for studying sub-Antarctic plants of Macquarie Island and Heard Island.
Heritage Management	\$10,000 p.a.	Heritage Officer, Department of Tourism and Parks, Heritage and Arts (0.1 FTE)
Feral Cat Eradication Program	\$1,000,000 project funding	Total Tasmanian Government contribution over 5 years. Average of 6-8 program staff and 2 tracker dogs deployed on Macquarie Island. Funds were provided as matching funds for National Heritage Trust (NHT) funding.
Macquarie Island Management Plan	\$120,000 project funding	Project Officer (2 years - 2003/2004) Project funds expended over 2 years.

Source State Government of Tasmania, Submission no. 36, p 2.

8 State Government of Tasmania (Giddings L), *Transcript*, 16 March 2004, p 3.



## Concerns over the adequacy of AAD funding

2.11 In 2001, an Output Pricing Review was conducted jointly by the AAD and the Department of Finance and Administration as part of the broad government financial management and market testing framework. The review included benchmarking against commercial organisations, government agencies and other national Antarctic programs to identify better practices in the delivery of government services.<sup>9</sup> The AAD stated that:

...The primary conclusion of the review is that the price of outputs for the Antarctic outcome was reasonable.<sup>10</sup>

2.12 Despite the findings of the 2001 review, the evidence the Committee has received from stakeholders in Australia's Antarctic Program has raised serious concerns about the AAD's capacity to respond to the unique and changing nature of its operations in the Antarctic region and the possible implications this could have for the future of the program. These concerns, which are summarised below and are addressed in greater detail throughout the rest of the report, extend across a broad range of areas of the program, including:

- new initiatives such as the inter-continental air link;
- grants to support Antarctic research;
- logistical support, in particular for the marine science program, and infrastructure to support 'new' science projects;
- strengthening Australia's involvement in the Antarctic Treaty system, including participation in the International Polar Year 2007-08;
- environmental protection of Antarctica, including protection of fish stocks, waste remediation, and cultural preservation; and
- maintaining Australia's four stations in the Antarctic and sub-Antarctic.

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9 Department of the Environment and Heritage, Submission no. 24, p 20.

10 Department of the Environment and Heritage, Submission no. 24, p 20.

- 2.13 The perception that the AAD has exhausted all avenues to produce further savings was evident from a number of submissions to the Committee's inquiry.<sup>11</sup> ASAC, for example, stated:

...It is quite clear to ASAC that the AAD has approached its maximum capacity with the resources it has available and that it may not be able to meet all the goals set for the program.<sup>12</sup>

- 2.14 ASAC Chairman, Professor Kurt Lambeck, acknowledged that the issue of funding for the Antarctic program is problematic. Professor Lambeck told the Committee:

...Throughout our evaluation of the program, we have recognised that funding is not open-ended and that, in wanting to go in new directions, some areas may have to cease. That is, in a sense, one of the challenges that ASAC have: what areas we go into and at what cost to existing programs.<sup>13</sup>

- 2.15 The Bureau of Meteorology relies on the AAD to provide logistical support in order to undertake its weather and climate observation and research at Australia's Antarctic stations. The Bureau stated:

...We sense that the AAD, like the Bureau, has reached a point where the resources available to it are not sufficient to support the scientific activities that need to be undertaken in the Antarctic region.<sup>14</sup>

- 2.16 The AAD has continued to advance Australia's Antarctic interests in spite of the funding problems it has encountered through operational efficiencies and cost-shifting measures. For example, the Division recently introduced cost-effective renewable energy sources with the installation of wind turbines at Mawson Station. The first two turbines were installed at the station in March 2003 and fuel costs were reduced by approximately 27 per cent over the first year of operation. The AAD reported that this constituted a saving of
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11 Australian Marine Sciences Association, Submission no. 6, p 3; Runcie, John, Submission no. 7, p 1; University of NSW Antarctic Astronomy Group, Submission no. 11, pp 4-5; Antarctic Climate and Ecosystems Cooperative Research Centre, Submission no. 12, p 7; Antarctic Science Advisory Committee, Submission no. 13, p 9; Commonwealth Scientific Industrial and Research Organisation, Submission no. 14, pp 3-4; and Commonwealth Bureau of Meteorology, Submission no. 16, p 3.

12 Antarctic Science Advisory Committee, Submission no. 13, p 9.

13 Antarctic Science Advisory Committee (Lambeck K), *Transcript*, 23 June 2004, p 18.

14 Commonwealth Bureau of Meteorology, Submission no. 16, p 3.

approximately 159 000 litres of fuel with a purchase price of just under \$100 000.<sup>15</sup> While this is a significant saving, there is a limit to which the AAD can continue to do this. Therefore, there is a need to increase the recurrent funding notwithstanding the \$46.3 million allocated under the current budget for the inter-continental air link.

- 2.17 A transferral of responsibilities within the Department of the Environment and Heritage has seen the AAD assume responsibility for Australia's Southern Ocean whale research program, including leading Australia's input at meetings of the IWC.<sup>16</sup> The Australian Marine Sciences Association warned that such additional activities 'can only be effectively undertaken with additional funding unless other strategic activities are curtailed or terminated'.<sup>17</sup>
- 2.18 The AAD advised that new innovations such as the recent introduction of two aircraft for intra-continental flights between Australia's Antarctic stations (\$5.9 million) have had to be absorbed within the AAD's budget, largely through a re-arrangement of the logistics budget.<sup>18</sup> Staffing and operational increases and capital purchases have also had to be absorbed within a generally static budget.

## Committee comment

- 2.19 The Committee is gravely concerned that there is a considerable danger that Australia's leading work in Antarctic policy and research may erode over time, unless the Commonwealth Government is prepared to make a significant commitment to increase its support for Australia's Antarctic program. While the Committee acknowledges that funding for the air link has been allocated under the 2005-06 Budget, it has sought to identify specific areas of the program where additional funding is required, and in some areas urgently required, and to address these areas in the following chapters of this report.
- 2.20 The Committee is conscious that the recommendations throughout this report call on the Government to significantly increase the level of funding attributed to Australia's Antarctic Program. These

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15 Australian Government, Budget 2004-05, *Ministerial Statements, Environment and Heritage*, Department of the Treasury, Canberra, viewed 18 August 2004, <<http://www.budget.gov.au/2004-05/ministerial/html/environment-05f.htm>>.

16 Department of the Environment and Heritage, Submission no. 24, p 26.

17 Australian Marine Sciences Association, Submission no. 6, p 2.

18 See Australian Antarctic Division (Allen R), *Transcript*, 23 June 2004, p 9.

recommendations arise from the Committee's concern that the Government's goals for the Antarctic program are at risk of being forfeited due to funding constraints which are restricting the AAD's ability to respond to the variable nature of its operations. The overwhelming message from the evidence to the Committee's inquiry is that if Australia is to maintain its high reputation as a leader in Antarctic affairs, the Government must provide additional funding.

- 2.21 Such a commitment should be to an extent which not only reflects Australia's standing as the nation with the largest territorial claim in Antarctica, but also allows Australia to retain a competitive edge in the conduct of Antarctic science.
- 2.22 Specific areas of Australia's Antarctic Program which the Committee has identified as requiring additional funding and are discussed later in this report include:
- supporting Australia's role in the International Polar Year 2007-2008;
  - the remediation of past work sites in the Australian Antarctic Territory; and
  - increasing funding available under the Australian Antarctic Science grants scheme.

## Operations and logistical support

- 3.1 The physical isolation of the Antarctic continent from other continents, its extreme climate, and the harsh conditions of the Southern Ocean, make Antarctica a difficult environment to access. Transporting personnel and cargo to the continent constitutes a major activity and also a highly expensive one. Once on the continent, providing infrastructure for expeditioners and transporting scientists to where the science needs to be done is also an expensive and often difficult practice.
- 3.2 Table 2.2 which provides a breakdown of the AAD's budget by function revealed that almost half of the budget is allocated to providing logistics in support of Antarctic research. Logistic support of ships and aircraft accounts for 29 per cent of the AAD's budget while station and infrastructure and management accounts for a further 17 per cent.
- 3.3 The Operations Branch of the AAD encompasses many elements which include: the provision of transport for expeditioners to and from their Antarctic destinations; station infrastructure including accommodation, communications and land transport vehicles; provision of field equipment and support; and coordinating and conducting a training program for expeditioners.<sup>1</sup>
- 3.4 The transport of personnel, equipment and supplies to and from Antarctica is currently undertaken by ship, and the AAD has a long-term lease on the *RSV Aurora Australis*, which was purpose-built for

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<sup>1</sup> Australian Antarctic Division, 2004, *About Us*, Australian Antarctic Division, Kingston, Tasmania, viewed 13 July 2004, <<http://www.aad.gov.au/default.asp?casid=18>>.

the Division in 1989. The AAD also leases other vessels according to each season's needs. For example, the 2004-05 shipping schedule included four voyages by the *Aurora Australis* and one voyage by the *Vasiliy Golovnin*, a Russian transport ship hired specifically for a two-month resupply journey. In the past, scientists have also utilised tourist cruises which operate from New Zealand to access Macquarie Island.<sup>2</sup> The Operations Branch is also responsible for the transportation of personnel within the AAT – whether it be between Australian bases or to field experiment locations.

- 3.5 It is anticipated that the ongoing challenge of meeting the diverse needs of the Antarctic science community will be alleviated in part by the introduction of an inter-continental air transport system. However, the air transport system will not resolve all the challenges facing an increasingly dynamic Antarctic program. This chapter addresses those areas concerning logistics which have been identified as requiring additional funding and highlights their importance for achieving the Australian Government's goals for the Antarctic.

## The Air Transport project

### Background

- 3.6 One of the key recommendations of ASAC's 1997 Foresight Report was the development of an intra-continental air transport system to be served by an inter-continental air link from Australia.<sup>3</sup> ASAC argued that the introduction of such a service 'would provide the transportation flexibility which an innovative and responsive future Antarctic Program requires'.<sup>4</sup> In 1998 the Government accepted ASAC's recommendation, acknowledging that:

...if Australia is to continue to be a leading Antarctic nation in the future, options for a transport system that is more flexible

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2 Australian Antarctic Division 2004, *Shipping schedule 2004-05*, Australian Antarctic Division, Kingston, Tasmania, viewed 25 August 2004, <<http://www.aad.gov.au/default.asp?casid=16230>>.

3 See Recommendation 4, Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, p 46.

4 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, p xv.

and efficient than the present one ship system, must be actively examined.<sup>5</sup>

3.7 The Government requested that the AAD undertake a scoping study of inter-continental air transport options. The resultant report short-listed 12 options as feasible and efficient, and after an assessment of the operational, environmental and financial implications of each option, was further reduced to four.<sup>6</sup> The study recommended that these four options be subject to further investigations and market testing through a competitive tender process.<sup>7</sup> Field investigations were undertaken in the 1999-2000 summer season which determined that the air transport system should include the following core components:

- Construction and use of a compressed snow runway at Casey as the primary long-term destination for wheeled intercontinental aircraft flights from Hobart;
- Initial use of the blue-ice runway site at the Bunger Hills<sup>8</sup> to gain experience of intercontinental flights from Australia;
- Following construction of the Casey runway, continued operation of the Bunger Hills blue-ice runway as a secondary intercontinental runway and as the required transit and refuelling location for intracontinental flights to Davis and Mawson;
- Use of ski/wheel-equipped aircraft to provide the intracontinental link from Casey via the Bunger Hills to Davis and Mawson; and
- Operation of sea-ice skiways/runways at Davis and Mawson for early to midseason intracontinental flights, followed by use of local blue-ice runways when the sea-ice deteriorates later in the season.<sup>9</sup>

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5 Commonwealth Government, 1998, *Our Antarctic Future: Australia's Antarctic Program Beyond 2000: The Howard Government response to Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, p 6.

6 Shevlin, J. & Johnson, J., 1999, *Antarctic Air Transport Scoping Study*, Antarctic Air Transport Taskforce, Australian Antarctic Division, Kingston, Tasmania, p 46, <<http://www.aad.gov.au/default.asp?casid=3026>>, viewed 24 January 2005.

7 Hill, R (Minister for the Environment and Heritage) 1 Sept 1999, *Antarctic Air Link a step closer*, media release, Parliament House, Canberra.

8 The Bunger Hills is an area of several hundred square kilometres of ice-free rock located on the east coast of Antarctica, 440km west of Casey station.

9 Shevlin, J., 2000, *Antarctic Air Transport: 1999/2000 Field Investigations*, Antarctic Air Transport Taskforce, Australian Antarctic Division, Kingston, Tasmania, p 40, <<http://www.aad.gov.au/default.asp?casid=3026>>, viewed 24 January 2005.

- 3.8 In late 2000 the procurement process for a suitable aircraft commenced and in February 2002 the Australian Government announced that its preferred option for air transport between Australia and Antarctica was a proposal by the Sydney-based company Skytraders Pty Ltd. Skytraders' proposal involved a 16-passenger Falcon 900 jet, with the capacity to fly non-stop from Hobart to Casey Station and return without the need for re-fuelling. The aim of the project was to provide 25 return flights to Casey Station each summer season, with personnel bound for other Australian Antarctic stations transferring to ski-equipped CASA-212<sup>10</sup> aircraft for intra-continental flights. However, the Government's 2002 announcement included the caveat that 'further work [by the AAD] will now be undertaken to see how the service can best be provided and funded'.<sup>11</sup>
- 3.9 While Skytraders' original proposal involved the use of a Falcon 900, in May 2004 the AAD told a Senate Estimates hearing that it was subsequently considering larger aircraft that 'might meet the Antarctic Division's needs and also some broader needs - in other words, of government.'<sup>12</sup>
- 3.10 On 30 December 2004, two CASA-212 aircraft completed their inaugural landing at the ski-way at Casey Station, accomplishing a significant milestone for Australian Antarctic science. The CASA-212s provide an air link between Australia's three stations on the Antarctic continent, as well as some stations operated by other Antarctic nations. For example, in January 2005, one of the CASA-212s completed a mission to the French station, Concordia, 3233 metres above sea level, with operating temperatures as low as -35° C.<sup>13</sup>
- 3.11 The \$5.9 million cost associated with the introduction of the CASA-212s was to be absorbed within the AAD's budget by an internal

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10 Construcciones Aeronáuticas S.A. (Spain). A subsidiary of the European Aeronautic and Defence and Space Company, makers of Airbus, Ariane and Eurocopter.

11 Stone, S (Parliamentary Secretary for the Environment and Heritage) 2002, *Sydney Company Chosen to Progress Antarctic Air Link*, media release, Parliament House, Canberra, 21 February.

12 Australia. Parliament. Senate. Environment, Communications, Information Technology and the Arts Legislation Committee, Budget Estimates Hearings, *Transcript*, 27 May 2004, pp 50-53.

13 Australian Antarctic Division, 2005, *Air Transport Project*, Australian Antarctic Division, Kingston, Tasmania, viewed 14 February 2005, <<http://www.aad.gov.au/default.asp?casid=2189>>.



reallocation of funds and priorities, largely within the logistics program. In June 2004, the AAD stated:

...Our shipping budget will come down somewhat, as will helicopters, to make way for the two CASAs. There will be some other efficiencies, but it is mostly by rearrangement of our logistics.<sup>14</sup>

- 3.12 However, the AAD informed the Committee that it was not in a position to fund the inter-continental component of the air link from within its current resources.<sup>15</sup> The inter-continental component requires the construction of an ice-cap runway at Casey Station to facilitate the safe landing of the aircraft. The AAD provided a Senate Estimates Committee with approximate details of funding required for the inter-continental air link. The AAD stated that:

The indicative cost for the runway work would be \$4 million over two years, or \$8 million, and for the service probably between \$9 and \$11 million per annum.<sup>16</sup>

- 3.13 The AAD also informed the Estimates Committee that it had sought money for the inter-continental air link in the 2003-04 and 2004-05 budget rounds but was ultimately unsuccessful.<sup>17</sup> If funding for the inter-continental flights were secured, the AAD stated that it would take three summer seasons of work to complete the Casey Station runway to meet Civil Aviation Safety Authority standards and undertake test flights.<sup>18</sup>

## Antarctic science community's views on the air link

### Potential benefits of the air link

- 3.14 Throughout the development of the air link proposal there has been widespread support from stakeholders in Australia's Antarctic program. According to the Antarctic science community, one of the

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14 Australian Antarctic Division (Allen R), *Transcript*, 23 June 2004, p 9.

15 Australian Antarctic Division (Press A), *Transcript*, 23 June 2004, p 10.

16 Australia. Parliament. Senate. Environment, Communications, Information Technology and the Arts Legislation Committee, Budget Estimates Hearings, *Transcript*, 27 May 2004, p 77.

17 Australia. Parliament. Senate. Environment, Communications, Information Technology and the Arts Legislation Committee, Budget Estimates Hearings, *Transcript*, 27 May 2004, pp 76-77.

18 Australian Antarctic Division (Pitt K), *Transcript*, 23 June 2004, p 13.

key advantages of an air link is that it will attract a wider spectrum of researchers to the continent. ASAC, in its 2003 evaluation of Australia's Antarctic science program, stated that the development of the air link would represent 'the most significant change to achieve greater participation in the Australian Antarctic science program'.<sup>19</sup> This includes participation by senior scientists whose responsibilities at their home institutions have previously deterred them from participating in the current long ship-based journey.

- 3.15 The overhead associated with the amount of unproductive time scientists spend on board re-supply vessels or waiting at stations in the AAT will be greatly reduced by the advent of air transport. For example, in discussions with expeditioners the Committee learnt of a recent situation where a biologist spent winter at one of the stations on the continent, simply because there was no ship scheduled to bring her in early enough in the summer to start her science program. The Committee acknowledges that this kind of situation would be unlikely to occur once an inter-continental air transport system is operational. Professor Bruce Mapstone stated that the provision of an air link would:

...cut away a lot of the lost time that is currently associated with having people sitting on vessels not doing the things that they are on their way to do. That arises simply because at the moment we have a program which necessarily has to compromise science, resupply and transporting personnel to and from Antarctica all on the one trip.<sup>20</sup>

### Economic benefits for Hobart

- 3.16 The Tasmanian Government was highly supportive of the proposed air link route between Hobart and Casey Station due to the obvious economic benefits it would bring to the state. The State Government also believed that the air link would encourage other nations' Antarctic programs to base their operations in Hobart and help to recover some of the costs associated with the air link:

...The most exciting aspect of this project is its capacity to draw members of other nations' Antarctic institutions to

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19 Antarctic Science Advisory Committee, 2003, *Evaluation of Australia's Antarctic science program*, Kingston, Tasmania, p 14.

20 Antarctic Climate and Ecosystems Cooperative Research Centre (Mapstone B), *Transcript*, 16 March 2004, p 24. See also National Committee on Antarctic Research (Allison I), *Transcript*, 16 March 2004, p 51.

Hobart and its ability to expose these members to all that Australia and Tasmania have to offer to the Antarctic community. The Tasmanian government believes that the air link can provide a powerful incentive for other national Antarctic programs to consider using Hobart as the preferred gateway to the east Antarctic region. It will also deliver tangible political, economic and social benefits.

For example, the French Antarctic program, which is comparatively small scale, currently spends in excess of \$2 million annually on goods and services sourced from Tasmania. Russia, China, Italy, Japan and Estonia could reasonably be expected to contribute in the order of \$8 million to the Tasmanian economy if they were to take advantage of the air link.<sup>21</sup>

- 3.17 However, the Tasmanian Government acknowledged that such arrangements are unlikely to develop in the short term, and usually take place 'over many years of negotiations between nations'.<sup>22</sup> Therefore, the Tasmanian Government urged that the Australian Government needed to invest in the air link now with a view to recouping costs down the track.

### Cultural Change

- 3.18 The Committee held informal discussions with winter expeditioners at Davis and Mawson Stations in March 2004, and discussed the impact that the advent of an air link would have on the work and culture of staff at the stations. While expeditioners at Mawson station were highly supportive of the air link proposal, they noted that it would herald a major cultural change at stations as personnel would be coming and going far more frequently than is currently the case. It was further acknowledged that the handover of systems and welcoming and farewelling rituals would need to change to accommodate the increase in staff turnover.

### Concerns over the air link

- 3.19 While the Antarctic science community appears to be genuinely excited about the potential benefits an air transport system will bring to the science program, some concern has been expressed that there

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21 State Government of Tasmania (Giddings L), *Transcript*, 16 March 2004, p 4.

22 State Government of Tasmania (Giddings L), *Transcript*, 16 March 2004, p 6.

may be cuts to the science program in order to supplement the air link. Scientists from the Australian Academy of Science, CSIRO, the Australian Marine Sciences Association and NCAR all argued that without additional funding for the air link, the science program would be at great risk of failing to deliver the Government's goals for Antarctica.<sup>23</sup>

- 3.20 In particular, concerns were expressed over the impact of air transport on the marine science program. CSIRO, for example, urged that the introduction of air transport 'must complement the present scientific effort and not draw from it'.<sup>24</sup>
- 3.21 Dr John Runcie, a researcher with an interest in Antarctic science, noted that the likelihood of there being more scientists in Antarctica as a result of the air link would increase the demand on logistics and support services. He expressed concern that unless there was increased funding specifically for logistics, the air link could result in a decline in safety and research quality.<sup>25</sup>

### Albany proposal

- 3.22 While most of the work on the air link project to date was undertaken on the assumption that any air link to the Antarctic continent would operate out of Hobart, the Committee received submissions supporting the establishment of a link from Albany in Western Australia, possibly connecting with Mawson or Davis Stations. While the Government has already confirmed its support of the Hobart/Casey option, the City of Albany and the Great Southern Development Commission (GSDC) asked that consideration be given to using Albany as a supplementary base of operations for inter-continental flights.<sup>26</sup> Albany is 410 kilometres south of Perth – four hours by road and less than one hour flying time. The Committee held inspections and a public hearing in Albany on 29-30 April 2004.
- 3.23 The primary argument used to support Albany as the base of Australia's Antarctic air transport operations is its significantly closer

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23 See Commonwealth Scientific and Industrial Research Organisation, National Committee on Antarctic Research, Australian Marine Sciences Association, Submissions.

24 Commonwealth Scientific and Industrial Research Organisation, Submission no. 14, p 4.

25 Runcie, John., Submission no. 7, p 1.

26 The City of Albany and the Great Southern Development Commission, Submission no. 3, p 2.

proximity to two of Australia's bases on the continent – Davis and Mawson – than Hobart.<sup>27</sup>

- 3.24 The proponents of Albany identified the following range of infrastructure as suitable for Antarctic operations:
- a large regional aerodrome including facilities for Boeing 737 aircraft and a new Instrument Landing System allowing all-weather landing;
  - a major regional port including a new \$21 million berth – although the port does not include an overhead gantry system for loading containers onto ships;
  - quarantine inspection facilities;
  - port support industries including engineers who currently support Austral Fisheries' operations in the sub-Antarctic;
  - closer proximity to Heard and McDonald Islands and surrounding fisheries, making Albany a strategic base for surveillance operations; and
  - medical facilities at Albany Regional Hospital.<sup>28</sup>
- 3.25 There was also evidence from the City of Albany which suggested that Albany would have the capacity to undertake management of waste returned to Australia as a result of efforts to clean up former sites.<sup>29</sup> However, this would be contingent on community consultation and the type and magnitude of the waste.<sup>30</sup> Any undertaking along these lines would also be subject to scrutiny by the Australian Quarantine Inspection Service (AQIS).
- 3.26 The City of Albany also questioned the choice of Casey Station as the landing point for inter-continental flights, noting that Davis Station houses the largest number of Antarctic personnel and is mid-way between Casey, Mawson, and other field sites in Antarctica. The location of Davis may also make it an attractive landing site for other nations' expedition teams – particularly the Japanese and South

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27 Australian Antarctic Data Centre, 2000, *Great circle distances to and within East Antarctica*, Australian Antarctic Division, Kingston, Tasmania, viewed 25 January 2005, <[http://aadc-maps.aad.gov.au/database/mapcat/antarctica/circle\\_distances.pdf](http://aadc-maps.aad.gov.au/database/mapcat/antarctica/circle_distances.pdf)>.

28 See The City of Albany and the Great Southern Development Commission, Submission no. 3, and Wallace Engineering Pty Ltd, Submission no. 27.

29 City of Albany (Hammond A), *Transcript*, 30 April 2004, p 3.

30 City of Albany (Hammond A), *Transcript*, 30 April 2004, p 3.

African bases. The City of Albany argued that it may be possible to establish international hubbing arrangements for flights based out of Albany for these other nations with a stake in Antarctica.<sup>31</sup>

- 3.27 The Committee subsequently questioned representatives of the AAD about the feasibility of inter-continental flights being routed to Davis rather than Casey station. The AAD pointed to 1997 report evaluating the merits of construction of a Davis runway which found that it would involve a cost of around \$40 million.<sup>32</sup> The AAD told the Committee:

...there is an acceptance that on occasion it may be efficient to fly out of Albany. But that does not consider infrastructure costs or any of the difficulties or costs of moving people across the Australian landmass if we were to operate out of Albany.<sup>33</sup>

- 3.28 The Committee also questioned the AAD about the practicalities of the Casey airstrip being located some 60kms from the station itself. The AAD assured the Committee that people and equipment would easily be transported via modified four-wheel-drive vehicles which have already been tested and proven in the terrain.<sup>34</sup>

- 3.29 During a hearing in Hobart, representatives of the Tasmanian Government and the University of Tasmania argued that the reasons which led the Australian Government to confirm Hobart as the most suitable departure point in 1998 still applied. Professor Andrew Glenn stated that:

...there is a very substantial critical mass of people who are working in Antarctic and marine science who are based in Hobart and I think there are some very substantial benefits that we will derive from that proximity.<sup>35</sup>

- 3.30 The scoping study which addressed environmental and practical considerations of the inter-continental air transport system confirmed Hobart as the preferred location as the gateway to Antarctica, but did not rule out the possibility of Western Australia playing some role:

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31 City of Albany (Hammond A), *Transcript*, 30 April 2004, p 7.

32 Australian Antarctic Division (Press A), *Transcript*, 23 June 2004, p 4.

33 Australian Antarctic Division (Pitt K), *Transcript*, 23 June 2004, p 12.

34 Australian Antarctic Division (Pitt K), *Transcript*, 23 June 2004, p 4.

35 University of Tasmania (Glenn A), *Transcript*, 16 March 2004, p 14.

Hobart, as the logistical and scientific centre of Australia's Antarctic program, is the preferred departure point for inter-continental aircraft operations from Australia to Antarctica - however, depending on the destination (and the inter-continental distances involved), there may be safety advantages in routing some flights from Hobart via Western Australia to 'top up' with fuel.<sup>36</sup>

- 3.31 The Committee also questioned the AAD on the viability of any possible alternatives to the proposed air link, such as the possibility of using existing intra-continental flights, such as those operated by the US Government to McMurdo Station. Under such a proposal, Australia could seek to establish an alliance with the US to charter its flights from New Zealand to the US McMurdo Station. The new Australian intra-continental aircraft (CASA-212s) could then be used for transport between McMurdo and the Australian stations.
- 3.32 The AAD advised the Committee that this option was not feasible, because the distance between McMurdo and Casey stations (1174 nautical miles) meant that the CASA 212 aircraft would be unable to make such a long flight without refuelling and ground support en route. This refuelling and ground support would need to be provided at the international Concordia Dome C base, or the French base Dumont D'Urville, resulting in a round trip from McMurdo to Casey of five to seven days. This and other factors such as weather delays would make the link with other nations' intercontinental flights impractical.<sup>37</sup>

## Federal Budget 2005-06: Air link commitment

- 3.33 On 10 May 2005, Senator the Hon. Ian Campbell, Minister for the Environment and Heritage, announced that the Commonwealth Government had committed funding of \$46.3 million over four years in the 2005-06 Budget to develop an inter-continental air link between Australia and Antarctica.<sup>38</sup>

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36 Shevlin, J. & Johnson, J., 1999, *Antarctic Air Transport Scoping Study*, Antarctic Air Transport Taskforce, Australian Antarctic Division, Kingston, Tasmania, p 7, <<http://www.aad.gov.au/default.asp?casid=3026>>, viewed 24 January 2005.

37 Department of the Environment and Heritage, Submission no. 37, p 1.

38 Campbell, I (Minister for the Environment and Heritage) 10 May 2005, *Air link helps Antarctic research take flight*, Parliament House, Canberra.

- 3.34 Funding allocated to the Department of Environment and Heritage will meet capital costs associated with construction of an ice runway, the costs of related infrastructure and the costs of leasing a suitable aircraft.<sup>39</sup> The breakdown of the funding commitment is shown in Table 3.1 below.

Table 3.1 Australia-Antarctica Air Link

Measure	Appropriations Budget 2005-06 (\$'000)	Appropriations Forward estimate 2006-07 (\$'000)	Appropriations Forward estimate 2007-08 (\$'000)	Appropriations Forward estimate 2008-09 (\$'000)
Australia-Antarctica Air link*	6,820	10,669	10,858	10,989
Australia-Antarctica Air link – equity injection	4,805	2,195	-	-

\* Excludes funding for depreciation (\$0.581m for 2005-06, \$0.774m for 2006-07, \$0.764m for 2007-08 and \$0.711m for 2008-09) that will be met through departmental output appropriation.

Source Department of the Environment and Heritage, Portfolio Budget Statements 2005-06.

### Committee comment: Hobart-Casey Air Link

- 3.35 The Committee acknowledges and applauds the news that the Australian Government is committing funding to construct a new glacial blue-ice runway near Casey Station and to fund an inter-continental air link which will operate out of Hobart.
- 3.36 If Australia is to maintain its high standing among Antarctic nations and continue to build on its reputation as a leader in Antarctic affairs, it is imperative that an inter-continental air transport link be established.
- 3.37 A comparison with other key players in the Antarctic reveals that Australia is one of very few nations with Antarctic bases that are virtually totally dependent on ship-based transport.<sup>40</sup> The Committee was concerned that the continued absence of an air link placed the program at great risk of losing credibility.

39 Australian Government, *Budget Measures 2005-06, Budget Paper No. 2*, Department of the Treasury, Canberra, p 151.

40 Council of Managers of National Antarctic Programs, 2005, *Member countries*, Council Of Managers of National Antarctic Programs Secretariat, viewed 28 January 2005, <<http://www.comnap.aq/comnap/comnap.nsf/P/Country/>>.



- 3.38 The potential benefits of the air link to Australia's Antarctic program have been well documented. On the basis of evidence the Committee has received, there is every indication that the air link will attract a range of quality scientists to the continent who, at present, are deterred by the length of trip due to other work commitments. The air link is also likely to attract international scientists allowing Australia to enhance its partnerships and improve prospects for logistical sharing arrangements. In addition, the air link will allow science to be conducted in remote areas which have previously been inaccessible.
- 3.39 The Committee maintains that the ongoing costs associated with the operation of the air link must not be achieved by reducing expenditure in the science program.

### **Committee comment: Albany Proposal**

- 3.40 The Committee took the opportunity to visit Albany to view the opportunities available there as outlined in submissions from the State Government of Western Australia and other stakeholders. The Committee acknowledges the high standard of the presentations by the City of Albany and the GSDC. In terms of the air link, the Committee believes that, ultimately, the critical mass of Antarctic-related organisations and scientists already working out of Hobart indicates that the greatest efficiency will be achieved by operating any air link out of Hobart. The Committee notes that Albany has suitable facilities to accept the type of aircraft being considered for inter-continental flights between Australia and Antarctica. Should the need arise, such as in the event of an emergency, Albany offers a suitable alternative for the arrival or departure of inter-continental flights.

### **Logistical support for Australia's Antarctic marine research program**

- 3.41 Marine research in support of Australian science is primarily conducted on the research vessels *Southern Surveyor* and *Aurora Australis*. While the *Southern Surveyor* (which is owned and operated by CSIRO) commenced operations as Australia's new Marine National Facility in 2003, the vessel does not possess any ice-breaking

capacity and 'is more intended as a cost-effective platform for work around the Australian mainland'.<sup>41</sup>

- 3.42 As a result, marine research in support of Australian Antarctic science is largely dependent on the *Aurora Australis*, a research and resupply vessel which is chartered by the AAD from P&O Polar Australia. Therefore, much of the marine research program in the Antarctic and Southern Ocean is scheduled to coincide with the provisioning of Australia's Antarctic bases. Hence voyages are usually multi-purpose, with the *Aurora* acting as cargo ship, people-mover and marine science vessel. According to the Antarctic Climate and Ecosystems CRC, this versatility generates difficulties:

...Such multi-functionality might appear at first glance to be a good efficiency measure but, on reflection, historically this has rarely been the case.<sup>42</sup>

- 3.43 ASAC Chairman, Professor Kurt Lambeck stated:

...If ships get stuck in the ice while they are doing marine work, it plays havoc with the entire program for the rest of the season.<sup>43</sup>

- 3.44 According to the Antarctic Climate and Ecosystems CRC, the multi-purpose nature of Australia's Antarctic research voyages makes them 'amongst the longest regularly scheduled research voyages by ships from any institute in the world'.<sup>44</sup>

- 3.45 Both the Antarctic Climate and Ecosystems CRC and CSIRO called for a separation of resupply and transport operations from marine science activities, to the maximum extent possible.<sup>45</sup>

- 3.46 ASAC's 1997 Foresight Report envisaged that marine science research will play a pivotal role in addressing the Government's four goals for Australia's Antarctic Program over the next five years.<sup>46</sup> In the report, ASAC stated:

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41 Geoscience Australia, Submission no. 15, p 3.

42 Antarctic Climate and Ecosystems Cooperative Research Centre, Submission no. 12, p. 4.

43 Antarctic Science Advisory Committee (Lambeck K), *Transcript*, 23 June 2004, p 22.

44 Antarctic Climate and Ecosystems Cooperative Research Centre, Submission no. 13, p 51.

45 See Commonwealth Scientific and Industrial Research Organisation, Submission no. 14, p 3 and Antarctic Climate and Ecosystems Cooperative Research Centre, Submission no. 13, p 51.

46 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic, Department of the Environment*, Canberra, p 47.

For Australia to maintain a significant presence in the Southern Ocean there is likely to be a need for a dedicated ship for surveys and for the support of biological, oceanographic, glaciological and geological research.<sup>47</sup>

- 3.47 ASAC recognised that there is a strong desire for more ship time for conducting marine research and that the reliance on the *Aurora* is inhibiting Australia's Antarctic science effort.<sup>48</sup>
- 3.48 CSIRO Marine Research has warned that while Australia currently has the skill base required to conduct marine research, 'this skill base will deteriorate if access to the appropriate research infrastructure is not available'.<sup>49</sup>

### Committee comment

- 3.49 The Committee notes that in discussions, the AAD suggested that the nature of marine science today means that the list of equipment which could potentially be installed on a marine science vessel is so vast that it would be impossible for one vessel to satisfy the needs of the entire marine science community. However, the Committee acknowledges that the current logistical arrangements in support of marine science are far from ideal.
- 3.50 The Committee also notes that, as raised in evidence, an inter-continental air link may improve the efficiency of conducting marine science by enabling scientists to board the vessel in Antarctica, carry out marine surveys, and then fly back to the mainland.<sup>50</sup> While the Committee understands that regardless of the introduction of an air link, the *Aurora Australis* will continue to be needed for resupplying Australia's bases in the Antarctic and sub-Antarctic, the air link may facilitate the capacity for the *Aurora* to spend more time at sea conducting marine research.
- 3.51 This notwithstanding, on the basis of evidence considered, the Committee encourages the Australian Government to examine the

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47 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, p xiv.

48 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, p xv.

49 CSIRO Marine Research, *Submission to 2003 DEST Infrastructure Review*, p 2.

50 Australian Marine Sciences Association, Submission no. 6, p 2.

possibilities for an additional dedicated marine science vessel that would best meet the requirements of a diverse research community.

- 3.52 In the interim, the Committee believes that the AAD must seek to best accommodate marine research within its existing shipping program, and continue to seek partnerships which will enhance the marine research component of the science program.

### Recommendation 1

- 3.53 **The Committee recommends that the Australian Government makes funding available in the 2005-06 financial year to enable a scoping study to be conducted to determine the need for a new dedicated marine research vessel to advance marine science in general and, the Australian Government's goals for Australia's Antarctic program in particular.**

## Potential for consolidating Australia's Antarctic stations

- 3.54 In the Foresight Report, another of ASAC's recommendations concerning logistical arrangements was that Australia should maintain at least one continental station in operation year-round, and that the use of automated data collection systems should be encouraged.<sup>51</sup> Automated monitoring systems allow for many more readings to be taken than is physically possible by scientists on the ground, and certain science programs in Antarctica can be monitored by researchers at laboratories on the Australian mainland. In evidence to the Committee, ASAC stated:

A lot of the observational systems can be automated ... these can include seismic stations that measure the activity of the region, nuclear monitoring systems and anything dealing with upper atmosphere and meteorological observations. I believe all of these can be automated in the fullness of time.<sup>52</sup>

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51 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, p 47.

52 Antarctic Science Advisory Committee (Lambeck K), *Transcript*, 23 June 2004, p 20.

- 3.55 As discussed in Chapter One, the AAD operates four permanent stations: Mawson, Davis and Casey stations on the Antarctic continent, and Macquarie Island station in the subantarctic region. Field operations are also conducted in Antarctica at Prince Charles Mountains, the Amery Ice Shelf, Law Dome South, Larsemann Hills, Bunge Hills, and at Heard Island.<sup>53</sup> At present, approximately 300 expeditioners travel south as part of Australia's Antarctic program with the AAD each summer with about 70 expeditioners remaining over the winter.<sup>54</sup>
- 3.56 During the winter season, the Antarctic stations are primarily supported by expeditioners of various trades and disciplines as well as Bureau of Meteorology staff who perform ongoing meteorological observations. According to ASAC:
- ...The current station arrangements impose significant restrictions on where science can be carried out, and do not encourage the flexibility which needs to be at the heart of the future of the Australian Antarctic Program.<sup>55</sup>
- 3.57 While inspecting the AAD's facilities in Kingston, the Committee held informal discussions with expeditioners at Mawson and Davis stations via a phone hook-up. During these discussions, the issue of whether increased automation may potentially enable one or more of Australia's Antarctic stations to operate without a full-time human presence was considered. The view from the expeditioners was that there would be no real benefit, in monetary or time terms, in 'winterising' the stations. Expeditioners pointed out that, while there are a number of automated experiments occurring over the winter period, they require people on the ground to maintain the power generation and to provide support when glitches in the system occur. It was also suggested that shutting down the stations over winter would require the summer expeditioners to arrive much earlier and leave much later than happens at present, in order to go through all the necessary procedures to power up/shut down the station. As Dr Allison from the National Committee on Antarctic Research stated:

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53 Department of the Environment and Heritage, Submission no. 24, pp 11-12.

54 Stone, S (Parliamentary Secretary for the Environment and Heritage) 2004, *Antarctic station leaders announced for 2005*, media release, Parliament House, Canberra, viewed 2 February 2005, <<http://www.deh.gov.au/minister/ps/2004/psmr12jul04.html>>.

55 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, pp 39-40.

...if you are going to put a lot of researchers in and focus this on having them in the summer, some preparation is required of facilities for them to use when they get there.<sup>56</sup>

- 3.58 AAD Director, Dr Tony Press, stated that the Division liked to keep its options open for the way it operated in Antarctica, while acknowledging that a shift to automation would make it easier for the Division to reduce the number of people residing at the stations.<sup>57</sup> Dr Press did not rule out the possibility that one or more of Australia's Antarctic stations may eventually be fully automated:

...if we were able to operate from a particular area without having to support the infrastructure costs of maintaining a station, then we would certainly take that on as an option.<sup>58</sup>

### AAD operations at Macquarie Island

- 3.59 The Tasmanian Government raised concerns that the AAD is considering downscaling its operations at Macquarie Island. The Tasmanian Government has one to two full-time park rangers on Macquarie Island (depending on the season). The Tasmanian Government also funds specific scientific and environmental protection programs, such as eradication of pests. However, its overall funding for Island programs is small (\$180 000 per year) and the Tasmanian Government relies on the AAD for logistical support (such as housing for its rangers, transport to and from the Island, etc).<sup>59</sup> Ms Lara Giddings, then Parliamentary Secretary to the Tasmanian Deputy Premier, told the Committee:

...We understand...that the AAD is considering winding back its operations on Macquarie Island in favour of funding research program priorities on the Antarctic continent and on Heard and McDonald Islands. Any attendant loss of logistical support work would have major implications for the ongoing management and protection of Macquarie Island. The Australian government must be aware that any downsizing of its present financial commitment to Macquarie Island will

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56 National Committee on Antarctic Research (Allison I), *Transcript*, 16 March 2004, p 55.

57 Australian Antarctic Division (Press A), *Transcript*, 23 June 2004, p 16.

58 Australian Antarctic Division (Press A), *Transcript*, 23 June 2004, p 16.

59 State Government of Tasmania, Submission no. 20, p 6.

have a devastating effect on Tasmania's ability to continue its current management on the island.<sup>60</sup>

- 3.60 Dr Press assured the Committee that there were no immediate plans to cease the AAD's activities at Macquarie Island, although he did acknowledge that the Division was looking to increase its program in the HIMI region.<sup>61</sup>

### Committee comment

- 3.61 On the basis of evidence presented to the Committee, there appears to be little merit in closing down any of Australia's Antarctic stations at this time, either permanently or over the winter season. With the emergence of new technologies, the Committee appreciates that this may present a viable cost-saving measure in the future.
- 3.62 The Committee also notes that other Antarctic states have, at times, lent their redundant facilities to the new emerging Antarctic programs of developing nations.
- 3.63 The Committee believes that this issue should be revisited once both the intra- and inter-continental air transport systems are fully functional, and a more flexible approach to the logistical operations of Australia's Antarctic program is in place.

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60 State Government of Tasmania (Giddings L), *Transcript*, 23 June 2004, p 2.

61 Australian Antarctic Division (Press A), *Transcript*, 23 June 2004, p 3.





## Australia's obligations under the Antarctic Treaty System

### The Antarctic Treaty System

- 4.1 The Antarctic Treaty System is 'the whole complex of arrangements made for the purpose of coordinating relations among states with respect to Antarctica'.<sup>1</sup> The Treaty System comprises the Antarctic Treaty itself, the suite of recommendations adopted at meetings by the Antarctic Treaty Parties, and the following international agreements developed to complement the Treaty:
- **Protocol on Environmental Protection to the Antarctic Treaty** (the Madrid Protocol, adopted October 1991, entered into force January 1998);
  - **Convention on the Conservation of Antarctic Seals** (CCAS, adopted December 1972 and entered into force March 1978); and
  - **Convention on the Conservation of Antarctic Marine Living Resources** (CCAMLR, adopted May 1980 and entered into force April 1982).<sup>2</sup>

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1 United States. Department of State, 2002, *Handbook of the Antarctic Treaty System*, 9<sup>th</sup> ed., p 1, <<http://www.state.gov/g/oes/rls/rpts/ant/>>, viewed 26 February 2005.

2 The Convention for the Regulation of Antarctic Mineral Resource Activities (adopted in June 1988) is unlikely to enter into force as it was superseded by the Madrid Protocol.

## The Antarctic Treaty

- 4.2 Australia was one of the original signatories to the Antarctic Treaty, which was signed in Washington on 1 December 1959, and entered into force on 23 June 1961. The original parties to the Treaty were the 12 nations active in the Antarctic during the International Geophysical Year (IGY) of 1957-58.<sup>3</sup> As of January 2005, a further 16 nations attained consultative status and acceded to the Treaty.<sup>4</sup> There are 17 additional nations which are non-consultative parties to the Treaty, bringing the total number of Antarctic Treaty nations to 45.<sup>5</sup>
- 4.3 The Treaty provides a framework and governing philosophy for the work of nations in the Antarctic and stipulates, among other things, that:
- the Antarctic shall be used exclusively for peaceful purposes;
  - there shall be complete freedom to undertake scientific investigations;
  - scientific data shall be shared among Treaty nations and made readily available; and
  - all territorial claims shall be put aside for the duration of the Treaty.<sup>6</sup>

## Australia's role in the Antarctic Treaty System

- 4.4 Australia's claim to 42 per cent of the Antarctic Territory, by definition, makes it a major international player in Antarctic affairs. In acceding to the Antarctic Treaty, Australia agreed to administer the AAT and, more generally, the activities of Australians elsewhere in the Antarctic, in accordance with the political and regulatory

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3 The 12 original signatories to the Antarctic Treaty are Argentina, Australia, Belgium, Chile, the French Republic, Japan, New Zealand, Norway, the Union of South Africa, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America.

4 The 16 additional consultative nations are Brazil, Bulgaria, China, Ecuador, Finland, Germany, India, Italy, Netherlands, Poland, Peru, Republic of Korea, Sweden, Spain, Ukraine and Uruguay.

5 The 17 non-consultative parties to the Antarctic Treaty are Austria, Canada, Colombia, Cuba, Czech Republic, Democratic People's Republic of Korea, Denmark, Estonia, Greece, Guatemala, Hungary, Papua New Guinea, Romania, Slovak Republic, Switzerland, Turkey and Venezuela.

6 The full text of the Antarctic Treaty is available from: Australian Antarctic Division, 2002, *The Antarctic Treaty 1961*, Australian Antarctic Division, Kingston, Tasmania, viewed 11 July 2004, <<http://www.aad.gov.au/default.asp?casid=1212>>.

framework established by that Treaty.<sup>7</sup> Australia's contribution to exploration, science, and international management of the entire Antarctic continent has further consolidated its role as a leader in Antarctic affairs.

4.5 The Department of the Environment and Heritage reported that in order to further Australia's interest in the Antarctic Treaty System, it has maintained a strong presence at a number of Antarctic Treaty meetings and forums, including:

- **Antarctic Treaty Consultative Meetings** (where representatives of the nations of the Antarctic Treaty System gather at intervals to discuss matters relating to the management of the Antarctic Treaty area and to further develop the Antarctic Treaty system);
- the **Committee for Environmental Protection**<sup>8</sup> (which advises the Antarctic Treaty nations about environmental protection under the Protocol on Environmental Protection to the Antarctic Treaty and normally meets once a year in conjunction with the Antarctic Treaty Consultative Meeting);
- the **Commission for the Conservation of Antarctic Marine Living Resources** (which manages Antarctic marine living resources, other than whales and seals, under the similarly named international convention);
- the **Council of Managers of National Antarctic Programmes** (which meets annually to discuss cooperative logistics and scientific programmes, develop standard operational procedures and, if requested, formulate advice for the Antarctic Treaty Consultative Meeting and Committee on Environmental Protection); and
- the **Scientific Committee on Antarctic Research** and its sub-groups (the Committee, which meets every two years, is an inter-disciplinary committee of the International Council for Science charged with the initiation, promotion and coordination of scientific research in Antarctica).<sup>9</sup>

4.6 The Australian Academy of Science stressed the importance of Australia continuing its strong involvement in the Antarctic Treaty System:

As one of the 12 founding members of the historic Antarctic Treaty, an unprecedented demonstration that science can

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7 Department of the Environment and Heritage, Submission no. 24, p 5.

8 The Committee for Environmental Protection is currently chaired by AAD Director, Dr Tony Press.

9 Department of the Environment and Heritage, *Annual Report 2003-04*, p 141.

bind nations while also enlarging minds, Australia has much at stake in ensuring that the Treaty continues to support the primacy of science and cooperative endeavour in the Antarctic. Concomitant to this is the need to ensure maximum leverage and coverage this unique situation affords.<sup>10</sup>

- 4.7 The AAD stated that Australia's role as a leading nation in the Antarctic Treaty System adds to the pressure on the Division's resources, given its responsibilities as the lead agency for Australia's Antarctic program, which include:
- the requirement to participate in a range of international forums in order to manage the AAT;
  - the need to respond to developments within the Australian Treaty System – for example a recent call for funding to establish an Antarctic Treaty Secretariat; and
  - the need to promote new activities within the Treaty System aimed at managing the AAT – for example, to monitor and regulate tourism activities.<sup>11</sup>

## International collaboration

*...The sum of the results of the individual parts of international collaboration is always much greater than the individual parts themselves.<sup>12</sup>*

- 4.8 Australia has typically embraced the spirit of international collaboration promoted by the Antarctic Treaty. Many Antarctic science research projects are undertaken as joint ventures, with scientists and logistical support personnel from several nations working together. The Antarctic Climate and Ecosystems CRC research program, for example, involves collaborations and partnerships with individuals and institutions in 13 countries, including Belgium, France, Germany, Italy, Japan, New Zealand, Norway, United Kingdom, China and the United States.<sup>13</sup>

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10 Australian Academy of Science, Submission no. 22, p 1.

11 See Department of the Environment and Heritage, Submission no. 24, pp 23-24.

12 National Committee on Antarctic Research (Allison I), *Transcript*, 16 June 2004, p 49.

13 Australian Antarctic Division, 'The Antarctic Climate and Ecosystems CRC: A truly collaborative partnership', *Australian Antarctic Magazine*, no. 6, Autumn, 2004, p 12.

4.9 Under the Antarctic Treaty, a Council of Managers of National Antarctic Programs (COMNAP) meets annually to discuss cooperative logistics and scientific programs, develop standard operational procedures, and formulate technical advice to Antarctic Treaty meetings when requested.<sup>14</sup> The Australian Academy of Science stated that there is an international goodwill and cooperation displayed in Antarctica that is rarely seen in other areas:

...At present Australia is involved in collaborative research and monitoring efforts with some 16 nations from institutions based in over 100 cities around the world. It is doubtful that many other environmentally based scientific endeavours could boast such a record.<sup>15</sup>

4.10 Australia, for example, regularly provides and receives support at a logistical level, owing to the cooperative environment facilitated through COMNAP. This was highlighted during the 2003-04 summer season where many operational tasks were achieved through a shared approach.<sup>16</sup> Some examples included:

- the AAD provided transport and personnel to assist US scientists with the retrieval of a National Aeronautics and Space Administration stratospheric balloon experiment which had made a forced landing near Mawson Station;
- Australia sought assistance for support with flights between Davis and Casey Stations and received an immediate and positive response from the Russian Antarctic Program; and
- the US Antarctic Program provided advice and assistance to the AAD with its runway project near Casey Station.<sup>17</sup>

4.11 One of the concerns which arose during the inquiry was the need to ensure that, through its research efforts, Australia is able to continue to make a valuable contribution to the international community.<sup>18</sup> As

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14 See Council of Managers of National Antarctic Programs website <<http://www.comnap.aq/>>, viewed 21 July 2004.

15 Australian Academy of Science, Submission no. 22, p 1.

16 Australian Antarctic Division, 'You scratch my back and I'll scratch yours', *Australian Antarctic Magazine*, no. 6, Autumn, 2004, pp 51-52.

17 See Australian Antarctic Division, 'Managing Antarctic Tourism', *Australian Antarctic Magazine*, no. 5, Autumn, 2004, pp 51-52.

18 See Antarctic Climate and Ecosystems Cooperative Research Centre, Submission no. 12, p 6; Antarctic Science Advisory Committee, 2003, *Evaluation of Australia's Antarctic Science Program*, pp 12-13; Commonwealth Scientific and Industrial Research

the University of Tasmania's submission stated, 'to play on the international scene we need to bring benefits with us'.<sup>19</sup> CSIRO, for example, pointed out that Australian scientists utilise international satellite systems in which Australia invests very little, in return for data obtained from its Southern Ocean investigations:

...We get basically free satellite data from other countries and the informal quid pro quo for that is that we give our Southern Ocean data to the international community, and that has been a very successful model of international cooperation.<sup>20</sup>

4.12 When queried on whether CSIRO's information sharing and its relationship with Australia's international partners was an equitable one, Chief of Marine Research, Professor Tony Haymet, reported that the organisation gained much more from the relationship with international partners than it contributed.<sup>21</sup>

4.13 Dr John Church from the Antarctic Climate and Ecosystems CRC added that for some research, a global approach is required and international collaboration is essential for acquiring the necessary data:

...In (the) area of sea level rise, or in the areas of global and Australian climate, or the oceans' role in taking up carbon dioxide, you can only address these things through taking a global perspective, through international collaboration. That international linkage is essential for ensuring not only that there is minimal overlap between groups but also that there are no gaps.<sup>22</sup>

4.14 The Committee questioned what mechanisms were in place for ensuring that research carried out around Antarctica is not being duplicated by other institutions and other countries. The Institute of Antarctic and Southern Ocean Studies (IASOS) advised that duplication of research is minimised by Australia's strong

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Organisation (Haymet T), *Transcript*, 16 March 2004, p 39; and Institute of Antarctic and Southern Ocean Studies (Bindoff N), *Transcript*, 16 March 2004, p 19.

19 University of Tasmania, Submission no. 23, p 2.

20 Commonwealth Scientific and Industrial Research Organisation (Haymet T), *Transcript*, 16 March 2004, p 39.

21 Commonwealth Scientific and Industrial Research Organisation (Haymet T), *Transcript*, 16 March 2004, p 39.

22 *Transcript*, 16 March 2004, p 26.

participation in a range of international committees.<sup>23</sup> These include the Scientific Committee on Antarctic Research, the CCAMLR Commission, COMNAP and the Scientific Committee on Antarctic Logistics and Operations (SCALOP). On the national front, IASOS drew attention to further committees within the AAD which assess proposals and ensure that there is synergy rather than duplication.<sup>24</sup>

## Opportunities for further collaboration

4.15 In evidence received during the inquiry, it was suggested that Australia's Antarctic Program could benefit further from its relationships with other nation's Antarctic programs. In particular, it was suggested that Australia's program could be enhanced by collaborating with other nations on large-scale projects requiring high-level infrastructure. Such opportunities were recognised by the ASAC, which, in its Foresight Report, stated that:

The globalisation of research suggests that there will be increasing demands and needs for international cooperation on research projects. Such cooperation could lead to more sharing and trade-offs in the use of transport and communications infrastructure among nations in Antarctica. In this way, large-scale projects can be mounted efficiently.<sup>25</sup>

4.16 The Antarctic Climate and Ecosystems CRC noted that Antarctic nations are considering their investments in Antarctic and Southern Ocean research over the next decade.<sup>26</sup> The CRC recommended that the Australian Government capitalise on this opportunity to build more collaborative partnerships with these nations as they review their strategic directions and 'become more of a leader than we have been in the past'.<sup>27</sup> In its submission, the CRC stated:

...There would be considerable merit in Australia engaging with New Zealand in forward planning Southern Ocean activities and building a stronger research partnership

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23 Institute of Antarctic and Southern Ocean Studies (Bindoff N), *Transcript*, 16 March 2004, p 19.

24 Institute of Antarctic and Southern Ocean Studies (Bindoff N), *Transcript*, 16 March 2004, p 19.

25 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future, A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, p 40.

26 Antarctic Climate and Ecosystems Cooperative Research Centre, Submission no. 12, p 6.

27 Professor Bruce Mapstone, *Transcript*, 16 March 2004, p 24.

focused on the Antarctic regions under Australia's and New Zealand's stewardship...A strengthened Australian Antarctic Program with significantly improved infrastructure and capacity for international collaboration, particularly in the marine sphere, has the potential to attract that investment on an Australian home-port and unequivocally establish Australia as the primary base for Antarctic and Southern Ocean research.<sup>28</sup>

## Antarctica as a platform for conducting Astronomy

- 4.17 The Antarctic Astronomy Group from the University of NSW explained how the Joint Australian Centre for Astrophysical Research in Antarctica (JACARA) had received logistical support by forming partnerships with US and French bases.<sup>29</sup> JACARA's programs are based at the US Amundsen-Scott South Pole Station and the French-Italian Concordia Station and Dome C in the AAT. There is currently no mechanism within the AAD's budget through which JACARA's program can secure funding, and it is reliant on support from the Australian Research Council and university grants. Through collaboration with US, French and Italian scientists, however, JACARA has received logistical support by way of accommodation, transport to, from and within Antarctica, and equipment for conducting science.<sup>30</sup>
- 4.18 In its submission, the Antarctic Astronomy Group called for the Australian Government to become a partner in the new Concordia Station at Dome C on Antarctica's high plateau. The group argued that existing Australian research funding is not sufficient to cover the infrastructure needs required to undertake astronomy research in Antarctica, which needs to be conducted on the high Antarctic plateau (away from current Australian bases). According to the Antarctic Astronomy Group, an Australian investment in the international Concordia Station would allow Australian-funded astronomical research to be conducted at the Antarctic plateau:

...Australia does not have any formal presence there...It clearly seems to be in Australia's interest to have a formal part of this new station [Concordia] which is being built at Dome C. This would provide a base for Australian

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28 Antarctic Climate and Ecosystems Cooperative Research Centre, Submission no. 12, p 6.

29 University of New South Wales Antarctic Astronomy Group, Submission no. 11, p 2.

30 University of New South Wales Antarctic Astronomy Group, Submission no. 11, pp 3-4.



astronomical and other scientific research to occur at that station.<sup>31</sup>

## International Polar Year 2007-2008

- 4.19 The National Committee on Antarctic Research (NCAR) and the Antarctic Climate and Ecosystems CRC highlighted the occasion of the forthcoming International Polar Year (2007-2008) as providing a unique opportunity for Australia to strengthen its international relationships.<sup>32</sup>
- 4.20 The International Council for Science (ICSU) has formally agreed to establish an International Polar Year in 2007-2008, for the 50<sup>th</sup> Anniversary of the International Geophysical Year (IGY). The IGY of 1957-58 was the last major international science initiative in Polar Regions and involved 80,000 scientists from 67 countries.<sup>33</sup> The IGY was modelled on the previous International Polar Years (IPYs) of 1882-1883 and 1932-1933. Antarctica and its adjacent oceans are expected to figure prominently in IPY 2007-2008 activities.<sup>34</sup> Participants in Australia's Antarctic program have therefore called for sufficient funding to ensure that Australia plays a prominent role in international research and other events.
- 4.21 The Antarctic Climate and Ecosystems CRC emphasised the importance of Australia playing an active role in IPY 2007-2008:
- ...Activities developed as a result of the IPY will have long-lasting consequences, precipitating ongoing collaborative research and monitoring ventures around Antarctica and the Southern Ocean. Australia should be seen as a lead agent in those activities if it is to retain its international standing in Antarctic affairs.<sup>35</sup>

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31 University of New South Wales Antarctic Astronomy Group (Walsh W), *Transcript*, 23 June 2004, p 32.

32 Antarctic Climate and Ecosystem Cooperative Research Centre (Mapstone B), *Transcript*, 16 June 2004, p 24; and National Committee on Antarctic Science (Allison I), *Transcript*, 16 June 2004, p 49.

33 See International Polar Year website <[http://www.ipy.org/what\\_is\\_IPY.html](http://www.ipy.org/what_is_IPY.html)>, viewed 4 August 2004.

34 Antarctic Climate and Ecosystems Cooperative Research Centre, Submission no. 12, p 6.

35 Antarctic Climate and Ecosystems Cooperative Research Centre, Submission no. 12, p 6.

## Committee comment

- 4.22 Australia's Antarctic program has profited from the spirit of international collaboration fostered by the Antarctic Treaty. However, it is clear from the weight of evidence that Australia could – and should – be doing more to capitalise on its relationships with other Antarctic nations.
- 4.23 The Committee considers that IPY 2007-2008 represents an ideal opportunity, not only for Australia to build on its collaborative partnerships with other Antarctic nations, but also to significantly enhance the public profile of Australia's Antarctic science program.
- 4.24 In addition, as previously discussed, to ensure that Australia plays a pivotal role in the internationally collaborative projects, the Australian Government must ensure that relevant Australian projects receive adequate funding and logistical support.

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## Recommendation 2

- 4.25 **The Committee recommends that the Australian Government makes an appreciable investment commensurate with Australia's significant involvement in polar activities to support Australian programs planned for the International Polar Year 2007-2008 and ensures that Australia plays a leading role in International Polar Year activities. In addition, the Committee notes the need for additional funds to be made available immediately for this purpose.**

## Conservation and protection of the Antarctic environment

### **Australia's international obligations**

5.1 Recognised as one of the last great wildernesses, Antarctica and its environs – including the Southern Ocean and the sub-Antarctic – are protected by a number of international agreements, most notably the Protocol on Environmental Protection to the Antarctic Treaty. Also known as the Madrid Protocol, this agreement was adopted in 1991 and entered into force in 1998.<sup>1</sup> The Protocol:

- designates Antarctica as a 'natural reserve, devoted to peace and science';
- establishes environmental principles for the conduct of all activities;
- prohibits mining;
- subjects all activities to prior assessment of their environmental impacts;
- provides for the establishment of a Committee for Environmental Protection, to advise the Antarctic Treaty Consultative Meeting (ATCM);

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<sup>1</sup> The full text of the Protocol on Environmental Protection to the Antarctic Treaty is available from COMNAP's website, viewed 8 February 2005, <<http://www.comnap.aq/comnap/comnap.nsf/P/Pages/Environment/#5>>.

- requires the development of contingency plans to respond to environmental emergencies; and
  - provides for the elaboration of rules relating to liability for environmental damage.<sup>2</sup>
- 5.2 For Australia, environmental protection of the Antarctic region is guided by an intricate framework of legislative and administrative requirements. In general, these are incorporated in regional protected area management plans, station management plans and plans for World Heritage properties.<sup>3</sup>
- 5.3 This chapter examines Australia's role in the conservation and protection of the Antarctic environment in accordance with its international obligations. In particular, this chapter addresses the AAD's work towards preserving marine life in the Southern Ocean; minimising human impacts in Antarctica, including undertaking remediation of past work sites; and the cultural preservation of historical sites.

## Preserving marine life in the Southern Ocean

- 5.4 The long term conservation of Antarctic marine living resources is guided by CCAMLR which entered into force in 1982 and is part of the Antarctic Treaty System.<sup>4</sup> Twenty-four nations, including Australia, are members of the Convention, and a further seven nations have acceded but are not members. CCAMLR's secretariat is located in Hobart, Tasmania.
- 5.5 The Convention provides that a Commission and a Scientific Committee shall collaborate to research and monitor marine populations.<sup>5</sup> The CCAMLR Commission determines catch levels for harvested species based on research undertaken by member nations (such as that undertaken by the Antarctic Marine Living Resources component of the AAD's Science Branch).<sup>6</sup> The Commission also adopts measures aimed at minimising

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2 Australian Antarctic Division 2002, *Introducing the Madrid Protocol*, Australian Antarctic Division, Kingston, Tasmania, viewed 7 July 2004, <<http://www.aad.gov.au/default.asp?casid=825>>.

3 Australian Antarctic Division, *The Law on Ice*, Australian Antarctic Division, Kingston, Tasmania, viewed 22 February 2005, <<http://www.aad.gov.au/default.asp?casid=3212>>.

4 For further information on the Antarctic Treaty System see Chapter Four.

5 See Articles XIV and XV, Convention for the Conservation of Antarctic Marine Living Resources, viewed 7 March 2005, <<http://www.ccamlr.org/>>.

6 Australian Antarctic Division 2002, *Fisheries for the Future*, Australian Antarctic Division, Kingston, Tasmania, viewed 3 August 2004, <<http://www.aad.gov.au/default.asp?casid=967>>.

harmful impacts that fishing may have on other species (for example, where endangered albatrosses are caught on long-lines used by fishermen). Enforcement of catch levels and other measures determined by the CCAMLR Commission are the responsibility of individual member nations.

- 5.6 The AAD is the lead agency representing Australia in the deliberations of the CCAMLR Commission. However, Australian positions are developed within a wider framework of agencies which include the Department of Agriculture, Fisheries and Forestry (AFFA), the Australian Fisheries Management Authority (AFMA), the Department of Foreign Affairs and Trade and the Attorney-General's Department. The AAD also contributes to the protection of marine life in the Southern Ocean through its participation in the International Whaling Commission and the Agreement on the Conservation of Albatrosses and Petrels.<sup>7</sup> The issue of whaling has received significant attention in the media in recent weeks due to a Japanese proposal to increase its whaling in Antarctic waters.

### The Heard Island and McDonald Islands Marine Reserve

- 5.7 The Heard Island and McDonald Islands (HIMI) Marine Reserve was established in October 2002 to protect the environmental values of the region and provide a conservation framework to manage the region in an integrated and ecologically sustainable manner. The Reserve is a Commonwealth reserve, declared under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act).
- 5.8 The Reserve, which covers an area of 6.5 million hectares, is the world's second largest fully protected marine reserve, surpassed only by the Great Barrier Reef Marine Park. The EPBC Act requires that a management plan be prepared for the Reserve.
- 5.9 The AAD is responsible for administering the Reserve under delegation from the Director of National Parks. The AAD is also responsible for preparing and implementing the management plan.
- 5.10 The AAD recently released a draft management plan for the Reserve for public comment which ended on 4 May 2005. The AAD will now prepare a final Plan, taking into consideration all comments received, for the consideration of the Minister for the Environment and Heritage.

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7 Australian Marine Sciences Association, Submission no. 6, p 2.

## Illegal, unregulated and unreported fishing

- 5.11 Illegal, unregulated and unreported (IUU) fishing is that which does not comply with national or international fishing conservation and management obligations.<sup>8</sup> A global decline in fish stocks over recent years, resulting in tighter regulation of fishing at national and international levels, has seen an increase in IUU fishing. As well as depleting fish stocks, IUU fishing can inflict further damage on the environment through high levels of seabird and by-catch mortality and pollution through the disposal of rubbish and fishing gear at sea. In trying to conceal their illegal activities, IUU fishing vessels have been known to operate in a manner which compromises the safety of their crew.<sup>9</sup>
- 5.12 In recent times, the growing incidence of IUU fishing in the Southern Ocean has been the biggest issue on CCAMLR's agenda, despite a concerted effort by Australia to encourage an international approach to combating the problem. Australia's prominent role in the fight against IUU fishing was highlighted by the October 2003 apprehension of the Uruguyan vessel *Viarsa 1* after the much publicised pursuit by Australian authorities which lasted a record 21 days.<sup>10</sup> The pursuit of the *Viarsa* not only highlighted the guile of illegal fishers operating in the Southern Ocean, but also demonstrated that combating IUU fishing is an expensive exercise and can be highly dangerous.
- 5.13 The Committee understands that at present, one of the greatest barriers to deterring IUU fishing is a consequence of international law which, at present, does not allow for sufficient action to be taken against fishing vessels flagged to non-CCAMLR nations.<sup>11</sup> While nations which are members of CCAMLR have acted responsibly and ceased fishing in areas where the total allowable catch has been reached, non-CCAMLR nations continue to fish with a complete disregard for rules set in place by the CCAMLR Commission.

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8 Department of Agriculture, Fisheries and Forestry, *Overview of IUU Fishing*, Department of Agriculture Fisheries and Forestry, Canberra, viewed 4 August 2004, <<http://www.affa.gov.au>>.

9 Department of Agriculture, Fisheries and Forestry, *Overview of IUU Fishing*, Department of Agriculture Fisheries and Forestry, Canberra, viewed 4 August 2004, <<http://www.affa.gov.au>>.

10 After a chase which spanned 3,900 nautical miles, the vessel was eventually apprehended with assistance from the South African and United Kingdom authorities.

11 See Ellison, C & Macdonald, I (Ministers for Justice and Customs and Fisheries, Forestry and Conservation) 4 March 2005, *'Flag of convenience' vessels flaunt international rules*, joint statement, Parliament House, Canberra, <<http://www.mffc.gov.au/releases/2005/05028mj.html>>, viewed 14 March 2005.

## The Heard Island and McDonald Islands Fishery

- 5.14 IUU fishing has become a serious problem in Australia's HIMI fishery, where Patagonian toothfish, in particular, are targeted. The HIMI fishery lies within the Australian Fishing Zone which Australia also declared as its Exclusive Economic Zone (EEZ) in 1994. The Australian Fishing Zone extends 200 nautical miles from the coastline of Australia and its offshore territories. The HIMI fishery also falls within the area covered by CCAMLR.
- 5.15 The magnitude of the illegal fishing problem in the HIMI region is illustrated by Table 5.1 which reveals that in some years, the estimated IUU catch at HIMI has exceeded the legal catch limits set by CCAMLR.

Table 5.1 IUU catch estimates and total allowable catch from HIMI, 1999 - 2003

Year	IUU catch estimate at HIMI, in whole weight tonnes	Legal total allowable catch at HIMI
1999/00	1154	3585
2000/01	2004	2995
2001/02	3489	2815
2002/03	1512	2879

Source: *Department of the Environment and Heritage, Submission no. 32, p 4.*

- 5.16 While the annual quota of allowable fishing in the HIMI zone is set each year by CCAMLR, it appears that there may be some confusion about the effect of IUU fishing on the setting of the quota. The GSDC stated that:

...It is estimated that some 3,000 tonnes of the [Patagonian toothfish] are stolen from Australian waters each year. The practice drives down the annual quota of fish that can be caught legally from the fishery.<sup>12</sup>

- 5.17 The AAD sought to correct this view by stating that when setting future allowable catch limits, CCAMLR does not include a reduction to account for IUU fishing:

...What happens is that the models that are used to set the total allowable catches do take into account all of the fishing that has been undertaken previous to the assessment being made, and that will include estimates of illegal fishing. But in setting the future catches it assumes that illegal fishing will be zero...<sup>13</sup>

12 City of Albany and the Great Southern Development Commission, Submission no. 3, p 4.

13 Australian Antarctic Division (Press A), *Transcript*, 23 June 2004, p 3.

- 5.18 During informal discussions with the Committee, the AAD pointed out that IUU fishing is a major problem for Australia, not only because it is a major impediment to the sustainable management of the Southern Ocean, but also because it impinges on Australia's sovereign rights, and severely affects the commercial interests of licensed Australian fishers.
- 5.19 The Government's commitment to protecting Australian fish stocks in its territorial waters in the HIMI region was confirmed by a recent announcement as part of the 2005-06 Budget. On 10 May 2005, the Ministers for Justice and Customs and Fisheries, Forestry and Conservation, announced that funding of \$217.2 million will be made available between 2005-06 and 2009-10 to support armed patrols of remote Australian waters in the Southern Ocean. The enhanced funding for the armed patrol program includes funding for Fisheries officers to participate in French patrols in the Southern Ocean.<sup>14</sup>

### The AAD's role

- 5.20 The AAD seeks to partly meet the government's goal to protect the Antarctic environment by 'undertaking research to ensure that environmental and fisheries management is based on sound scientific principles'.<sup>15</sup> This includes carrying out fieldwork such as tagging Patagonian toothfish to track their movements, and developing mathematical models to accurately assess fish stocks. As discussed previously, the AAD presents this information to the CCAMLR Commission for which it is the lead agency representing Australia.
- 5.21 As administrator of the HIMI Exclusive Economic Zone (EEZ), the AAD closely monitors IUU fishing in conjunction with other Australian authorities, namely:
- AFFA - which is responsible for fishery industry development schemes;
  - AFMA - which is a statutory authority responsible for the Commonwealth Government's management of Australian fisheries, including the development of management plans and management of fisheries licences;
  - Customs Australia - which is responsible for surveillance and enforcement in the Southern Ocean, particularly around Heard and

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14 Ellison, C (Minister for Justice and Customs) and Macdonald, I (Minister for Fisheries, Forestry and Conservation) 10 May 2005, *Long-term commitment to Southern Ocean armed patrols*, <<http://www.mffc.gov.au/releases/2005/05078mj.html>>, viewed 16 May 2005.

15 Department of the Environment and Heritage, *Annual Report 2002-03*, p 125.



Macdonald Islands (HIMI). Customs is responsible for the operation of the *Oceanic Viking* armed patrol vessel; and

- the National Oceans Office – a branch of the Marine Division within the Department of the Environment and Heritage responsible for development of overall oceans policy, including development of a Regional Marine Plan for the Antarctic region.

5.22 The Royal Australian Navy also becomes involved in compliance from time to time, for example in August 2003 it assisted Customs in escorting the *Viarsa* back to Fremantle, Perth.<sup>16</sup>

5.23 For each voyage of the armed Southern Ocean patrol vessel *Oceanic Viking*, the AAD provides medical equipment and a doctor with Antarctic experience.<sup>17</sup>

### Calls for more coordination amongst agencies

5.24 The Western Australian Government raised the question of coordination of fisheries management in Australia given that the Western Australian fishing industry is the major fisher of the Southern Ocean.<sup>18</sup> The Western Australian Government has an International Fisheries Operations Unit, which provides fisheries compliance patrols for AFMA.<sup>19</sup> The Western Australian Government questioned whether there was sufficient coordination between the above organisations:

From a WA perspective the Southern Ocean fisheries compliance program appears to operate on an ad hoc basis in response to reported illegal fishing activity. It would be timely to conduct a strategic assessment of Australia's future compliance needs to protect and manage our Antarctic marine resource.<sup>20</sup>

### Call for increased fisheries patrols

5.25 The GSDC called for the Australian Government to increase patrols around the HIMI fishery to deter illegal fishing, while the City of Albany

16 Hill, R, (Minister for Defence) 3 Oct 2003, *Mission Accomplished: Viarsa I back in Australia*, media release, Parliament House, Canberra.

17 Ellison, C, Macdonald, I, & Stone, S (Ministers for Justice and Customs; Fisheries, Forestry and Conservation; and Parliamentary Secretary for the Environment and Heritage) 29 June 2004, *Armed Southern Ocean patrol trials launched from Hobart*, joint statement, Parliament House, Canberra.

18 Department of Fisheries, State Government of Western Australia, Submission no. 18, pp 1-2.

19 Department of Fisheries, State Government of Western Australia, Submission no. 18, p 1.

20 Department of Fisheries, State Government of Western Australia, Submission no. 18, p 2.

argued that its relatively close proximity to the HIMI fishery made it a potential strategic base for surveillance operations.<sup>21</sup>

- 5.26 Austral Fisheries is the main Australian company fishing the HIMI zone, taking 70 per cent of Australia's annual quota of Patagonian toothfish.<sup>22</sup> The City of Albany and the GSDC reported that Austral Fisheries is considering the use of a DC6 aircraft to undertake its own patrols of the HIMI fishing zone in the hope of identifying illegal fishing.<sup>23</sup> A joint submission from the two suggested that the Australian Government could undertake a joint venture with Austral Fisheries in supplementing funding for these flights, and associated infrastructure.<sup>24</sup>
- 5.27 A submission from I3 Aerospace Technologies suggested the potential for utilising Unmanned Aerial Vehicles (UAVs) to undertake surveillance of the HIMI fishery.<sup>25</sup> Of the type of UAVs currently available, I3 Aerospace Technologies pointed out that these fall into two categories: military vehicles or small vehicles used for research applications. I3 Aerospace Technologies argued that the smaller UAVs are unsuited to the challenge of monitoring Antarctic fisheries, while the costs associated with the larger military UAVs make them an unattractive proposition. The company is proposing to develop and deploy long range, long endurance UAVs for monitoring and surveillance activities, initially to satisfy Coastwatch mission requirements, but indicated that such products 'may be technically feasible and cost-effective for Antarctic fisheries monitoring'.<sup>26</sup>
- 5.28 During the inquiry, the Tasmanian Government also raised the possibility of utilising the proposed inter-continental air link to undertake long-range surveillance of any illegal fishing activities in the Southern Ocean.<sup>27</sup>

### What is Australia doing?

- 5.29 The Committee acknowledges that since it commenced its inquiry, the Australian Government has been increasingly active at both a national and international level in its efforts to combat IUU fishing. In December 2003 the Government announced a two-year \$89.2 million armed patrol

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21 See Great Southern Development Commission and the City of Albany, Submission no. 3, p 5.

22 Wallace Engineering (Axe J), *Transcript*, 30 April 2004, p 28.

23 City of Albany and the Great Southern Development Commission, Submission no. 3, p 4.

24 City of Albany and the Great Southern Development Commission, Submission no. 3, p 5.

25 I3 Aerospace Technologies, Submission no. 13, p 1.

26 I3 Aerospace Technologies (Moreno F), *Transcript*, 30 April 2004, pp 31-32.

27 State Government of Tasmania, Submission no. 20, p 5.

program for the Southern Ocean.<sup>28</sup> In August 2004 it was announced that P&O Maritime Services had been selected as the preferred tenderer to provide the 105-metre *Oceanic Viking* for all future patrols, which commenced in November 2004.<sup>29</sup>

- 5.30 The Government has also imposed stronger sanctions against illegal fishing including an increase in fines for perpetrators under Commonwealth legislation.<sup>30</sup>
- 5.31 In August 2004 Australia signed the Food and Agriculture Organisation (FAO) Compliance Agreement, which requires flag states to have responsibility for authorisation of fishing vessels, and for ensuring vessels carry a recording system to track their movements.<sup>31</sup>
- 5.32 On 12 March 2005, at a Ministerial meeting of the FAO, Australia presented its National Plan of Action to Prevent, Deter and Eliminate IUU Fishing.<sup>32</sup> The plan, described by AFFA as 'intentionally ambitious', outlines the domestic and international measures Australia has taken, or intends to take, to combat IUU fishing.<sup>33</sup> Australia's national plan aligns with the International Plan of Action to Prevent, Deter and Eliminate IUU Fishing which was adopted by FAO members in 2001.<sup>34</sup>
- 5.33 As discussed previously, the Government has also announced a commitment of \$217.2 million in funding between 2005-06 and 2009-10 to support armed patrols of remote Australian waters in the Southern Ocean.

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- 28 Macdonald, I (Minister for Fisheries, Forestry and Conservation) 29 June 2004, *Armed Southern Ocean patrol trials launched from Hobart*, media release, Parliament House, Canberra, <<http://www.mffc.gov.au/releases/2004/04132mj.html>>, viewed 24 August 2004.
- 29 Macdonald, I (Minister for Fisheries, Forestry and Conservation) 29 June 2004, *Armed Southern Ocean patrol trials launched from Hobart*, media release, Parliament House, Canberra, <<http://www.mffc.gov.au/releases/2004/04132mj.html>>, viewed 24 August 2004.
- 30 Penalties for fishing offences by foreign vessels greater than 25 metres in length were increased from \$440,000 to \$825,000. See Macdonald, I (Minister for Fisheries, Forestry and Conservation) 26 Nov 2003, *Tough new penalties for illegal fishing*, media release, Parliament House, Canberra, <<http://www.mffc.gov.au/releases/2003/03258m.html>>, viewed 4 August 2004.
- 31 Macdonald, I (Minister for Fisheries, Forestry and Conservation) 24 Aug 2004, *Treaty tackles illegal fishing*, media release, Parliament House, Canberra, <<http://www.mffc.gov.au/releases/2004/04180m.html>>, viewed 24 August 2004.
- 32 Department of Agriculture, Fisheries and Forestry, *National Plan of Action for Illegal, Unreported and Unregulated Fishing*, <<http://www.affa.gov.au>>, viewed 17 March 2005.
- 33 Department of Agriculture, Fisheries and Forestry, *National Plan of Action for Illegal, Unreported and Unregulated Fishing*, <<http://www.affa.gov.au>>, viewed 17 March 2005.
- 34 The International Plan of Action for IUU Fishing is available online from the publications section of AFFA's website <<http://www.affa.gov.au>>, viewed 17 March 2005.

### Committee comment

- 5.34 Despite legitimate concerns over the incidence of IUU fishing in the Southern Ocean, the Committee acknowledges the steps the Government has taken to increase the pressure against illegal fishing, including the significant extension of funding for the armed patrol program in the Southern Ocean.
- 5.35 The Committee also acknowledges the pivotal role the AAD plays in its representations to the CCAMLR Commission and applauds the resolute effort being made to encourage a uniform approach to enforcement and compliance measures across CCAMLR member nations.

### Human impacts in Antarctica

- 5.36 Achieving its vision of 'Antarctica valued, protected and understood' requires that the AAD's work on the continent leave as little impact on the environment as possible. While many more tourists now visit Antarctica each year than those working on the continent, in terms of days spent on the ground, the people living and working at Antarctica in national programs have a far greater impact on the environment than tourists.
- 5.37 One of the four priority research programs comprising the *Science Strategy for Australia's Antarctic Program 2004/05 – 2008/09* (discussed in chapter six) is Impacts of Human Activities in Antarctica.
- 5.38 Human Impacts research addresses the Australian Government's goals for Antarctic research, in particular its goal 'to protect the Antarctic environment' and also 'to undertake scientific work of practical, economic and national significance'.<sup>35</sup>
- 5.39 Under the priority program concerning Human Impacts, key questions to be addressed are:
- How do the characteristics of high latitude ecosystem processes influence how we best protect the Antarctic environment?
  - Are Antarctic ecosystems more vulnerable to human activities than those of other regions?

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35 Australian Antarctic Division, *Australia's Antarctic Science Program: Science Strategy 2004/05 – 2008/09*, Kingston, Tasmania, p 2.

- How can science and technology mitigate the impacts of human activities in Antarctica?<sup>36</sup>
- 5.40 At the logistical level, the AAD includes an Environmental Management and Audit Unit and an Operations Environment Officer to ensure that the AAD's activities in Antarctica meet both international and Australian standards for environmental management.
- 5.41 Some of the recent measures introduced by the AAD to minimise environmental impacts include:
- implementation of an environmental management system (EMS) which meets Australian/New Zealand Standard AS/NZS ISO 14001;
  - trials of alternative energy sources – a wind turbine farm at Mawson station has resulted in a 26 per cent fuel reduction; and
  - conduct of an environmental impact assessment on all activities in Antarctica (as required under the Antarctic Treaty System).
- 5.42 The AAD acknowledges that its presence in Antarctica will leave behind a human 'footprint'. The AAD has stated:
- Some environmental disturbance is an inevitable consequence of activities in Antarctica. These include emissions to the atmosphere such as exhaust; disturbance to the physical environment such as tracks from walking and vehicles; and disturbance to wildlife by visitors and vehicles.<sup>37</sup>

## Remediation of waste sites

- 5.43 Australia has taken a leading role in fulfilling its obligations as a signatory to the Madrid Protocol which requires the application of responsible waste management practices. In the past, management of waste on the Antarctic continent and in the sub-Antarctic has not been carried out to the high standards imposed today. While Australia closed its rubbish dumps in Antarctica in 1985, there remains a large amount of waste at existing stations and at the abandoned Wilkes Station, which requires remediation. AAD Director Dr Tony Press reflected upon the situation when appearing before the Committee:

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36 Australian Antarctic Division, *Australia's Antarctic Science Program: Science Strategy 2004/05 – 2008/09*, Kingston, Tasmania, p 6.

37 Australian Antarctic Division, 'Human Impacts in Antarctica: What are we doing?', *Australian Antarctic Magazine*, no. 1, Autumn, 2001, p 46.

...what we are dealing with here is something like a very small country town rubbish tip situation that may have occurred, say, in the fifties and sixties where material was just put conveniently in a shallow gully or something near the station. That is the way things used to operate.<sup>38</sup>

- 5.44 Over the 2003-04 summer season, the AAD trialled and subsequently implemented an operation which involved the removal of over 1000 tonnes of waste from the old Thala Valley tip site at Casey Station.<sup>39</sup> The AAD reported that the operation was highly successful from an environmental management perspective.<sup>40</sup> The Division utilised innovative remediation technologies to ensure the removal and transportation of the waste did not inflict further environmental damage.<sup>41</sup>
- 5.45 The Committee is aware however that the shipment of this waste was delayed in this instance due to setbacks in the processing of the required AQIS import permits.<sup>42</sup> This was despite past shipments of waste and the issue of quarantine permits on previous occasions authorising entry to and treatment on arrival in Tasmania, of Antarctic wastes returned to Australia in accordance with the Treaty. The Committee expects that the relevant agencies will have taken the appropriate steps to avoid any repeat of delays to future shipments required to meet Australia's treaty obligations to remove waste from Australia's Territories in the Antarctic.
- 5.46 Previously, the AAD has reported that the tip in Thala Valley is intended to be used as a stepping stone in the lead up to tackling more severe waste problems at Wilkes and other sites.<sup>43</sup> The question of how best to manage waste sites occupies a major research focus within the AAD's environmental program, looking at aspects such as techniques for handling waste on a station and the environmental effects of contaminated site remediation.<sup>44</sup>

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38 Australian Antarctic Division (Press A), *Transcript*, 23 June 2004, pp 13-14.

39 Australian Government, *Budget 2004-05, Ministerial Statements, Environment and Heritage*, Department of the Treasury, Canberra, viewed 18 August 2004, <<http://www.budget.gov.au/2004-05/ministerial/html/environment-05f.htm>>.

40 Australian Antarctic Division (Press A), *Transcript*, 23 June 2004, p 14.

41 Australian Government, *Budget 2004-05, Ministerial Statements, Environment and Heritage*, Department of the Treasury, Canberra, viewed 18 August 2004, <<http://www.budget.gov.au/2004-05/ministerial/html/environment-05f.htm>>.

42 See Barbeliuk, A, 2004, [Permit call on ice ship waste](#), *The Mercury*, 2 February 2004, p 11.

43 Australian Antarctic Division, 'Research into the clean-up of tips at Casey and Wilkes', *Australian Antarctic Magazine*, no. 2, Spring 2001, p 3.

44 Department of the Environment and Heritage, *Annual Report 2003-04*, p 180.

5.47 The AAD estimates that the total cost to remediate Antarctic waste sites is approximately \$52 million, which at present is unfunded.<sup>45</sup> Despite the work undertaken by the AAD within its current resources, the Division has stated that it 'cannot continue this work while maintaining its ongoing program at the same level'.<sup>46</sup> The AAD acknowledged that it has an unfunded liability of \$40 million as a recognised requirement for remediation of waste in the AAT.<sup>47</sup>

### Committee comment

5.48 The Committee applauds the active role the AAD has played in remediating waste on the Antarctic continent. This extends to the important research work being carried out under the Antarctic science program to determine the most efficient and environmentally responsible methods of removing the waste. The Committee appreciates the scale of the problem confronting the Division, and notes that it is not an issue which can be resolved either quickly or without considerable difficulty. However, the Committee acknowledges that Australia has obligations under the Treaty and by taking such an active role, it is hoped that other Antarctic nations will be encouraged to step up their efforts in conserving the Antarctic environment.

5.49 The AAD has acknowledged that there is little more it can do with regard to remediation of waste without enforcing cutbacks to other areas of the program. To reinforce Australia's commitment to environmental management and to fulfil its obligations under the Madrid Protocol, the Committee believes that the Government must provide funding for the Division to proceed with its waste remediation project. The Committee acknowledges that a significant investment of approximately \$50 million is required, and believes that this should be invested over say a ten-year period.

### Recommendation 3

5.50 **The Committee recommends that the Australian Government allocate an additional \$50 million to the budget of the Department of the Environment and Heritage over a ten-year period, to be administered under Australia's Antarctic Program, specifically for the remediation of past work sites in the Australian Antarctic Territory.**

45 Department of the Environment and Heritage, Submission no. 24, p 24.

46 Department of the Environment and Heritage, Submission no. 24, p 25.

47 Australian Antarctic Division (Allen R), *Transcript*, 23 June 2004, p 13.

## Tourism in Antarctica

- 5.51 Tourism in Antarctica is a rapidly growing industry, with over 27,000 visitors to the continent in 2003-04.<sup>48</sup> The Antarctic Treaty includes a set of guidelines for tourism operators in Antarctica.<sup>49</sup>
- 5.52 The AAD is not directly involved in tourist activities, although it has from time to time utilised tourist vessels to transport its personnel to and from Antarctic bases. However, the management of the potential impacts of tourism is certainly of concern to the AAD as the lead agency for Australia's Antarctic program.
- 5.53 The AAD has been leading the Australian Government's push for the establishment of an Antarctic tourism industry accreditation scheme.<sup>50</sup> ASAC has stated that its preference is for tourism to remain ship-based, with aircraft overflight activities from Australia.<sup>51</sup> ASAC further stated that any future on-shore tourism would best be undertaken away from research sites and would require the availability of at least a summer base.<sup>52</sup>
- 5.54 The Tasmanian Government is also an important stakeholder in Antarctic tourism as Hobart offers a logical launching site for such activities. Tasmania's then Parliamentary Secretary responsible for Antarctic matters, Ms Lara Giddings, commented:

In terms of tourism in Antarctica itself, the Australian Antarctic Division is a scientific and a logistics organisation; it is not a tourism organisation. Its members want to be able to get on with their job, so I can understand that they do not want to get too involved in that side of it and they are certainly very protective of

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48 This figure is the total number of seaborne, airborne and land-based tourists making landings on Antarctica, 2003-04. See International Association of Antarctic Tourism Operators, *Tourism Statistics*, viewed 20 July 2004, <[http://www.iaato.org/tourism\\_stats.html](http://www.iaato.org/tourism_stats.html)>.

49 Australian Antarctic Division, *Antarctic Treaty Guidelines for Visitors*, Australian Antarctic Division, Kingston, Tasmania, viewed 26 July 2004, <<http://www.aad.gov.au/default.asp?casid=1990>>.

50 Australian Antarctic Division, 2004, *Managing Antarctic Tourism*, Australian Antarctic Division, Kingston, Tasmania, viewed 28 February 2005: <<http://www.aad.gov.au/default.asp?casid=14626>>.

51 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, p 42.

52 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, p 42.



their air link. It is an air link to support scientific work; it is not an air link for tourism.

We do need to protect Antarctica's values. It is a unique, virtually untouched environment. We do not want to see what is happening around the Antarctic Peninsula, where ships are virtually hiding behind icebergs in order to give their own tourists a wilderness experience when in fact there are a couple of other ships with other tourists just a short distance away. We also have to accept that east Antarctica is not the Antarctic Peninsula either. Just the fact that it is so far away from New Zealand, from Tasmania and mainland Australia means that it will not have the appeal that the Antarctic Peninsula has for tourism. So its natural distance will keep tourism numbers down, to some degree anyway.<sup>53</sup>

- 5.55 The Committee notes that the Tasmanian Government has flagged the proposed inter-continental air link as a potential means of expanding tourism to Antarctica. The Tasmanian Government's Antarctic policy document states:

Dependent on the progress and nature of the Antarctic air link, there may be the potential to develop an Antarctic air-tourism market departing from Tasmania. The Government acknowledges that the sole purpose for the construction of the Australia/ Antarctic air link is to enhance AAD scientific endeavours. This action will proceed only if considered appropriate by AAD.<sup>54</sup>

- 5.56 In its 'Foresight Report', ASAC acknowledged that the air link may 'increase the pressure for inter-continental tourist transport to and from Antarctica'.<sup>55</sup> However, during informal discussions with the Committee, the AAD suggested that there would be unlikely to be any avenues for commercial use of what is likely to be a very limited operational airstrip on the Antarctic continent.

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53 State Government of Tasmania (Giddings L), *Transcript*, 16 March 2004, p 7.

54 Tasmania. Department of Economic Development, 2004, *Tasmania's Antarctic, Sub-Antarctic and Southern Ocean Policy Framework*, Department of Economic Development, Hobart, viewed 25 January 2005, <<http://www.development.tas.gov.au/antarctic/policy.html>>.

55 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, p 42.

## Cultural heritage management: Mawson's Huts

- 5.57 Mawson's Huts represent the remnants of a collection of buildings which were established as Australia's main base during the Australasian Antarctic Expedition of 1911-1914, led by Sir Douglas Mawson.<sup>56</sup> The Huts were built in January 1912 at Cape Denison, Commonwealth Bay, in the AAT. Mawson and his party remained at the Huts for two years, returning to Australia in December 1913.<sup>57</sup>
- 5.58 Mawson's Huts occupy a unique place in Antarctic history as one of only six surviving sites of the 'Heroic Era' of Antarctic exploration, and the only such surviving structure in the AAT.<sup>58</sup> As such, there are significant national and international heritage values attached to the site, which is entered in the Register of National Estate.
- 5.59 During the 1970s ANARE carried out reconnaissance missions to the Huts to observe their status and investigate restoration/preservation options.<sup>59</sup>
- 5.60 In the mid 1980s a private organisation, Project Blizzard, was established to increase public awareness of the Mawson's Huts and to raise money to fund restoration projects. Project Blizzard undertook two expeditions to the site, focusing on carrying out surveying work and stabilising of some of the structure.<sup>60</sup>
- 5.61 By the late 1980s, ANARE had become involved in the planning for conservation of Mawson's Huts, and in 1993 commissioned a Conservation Plan. In 1996 the Australian Associated Press (AAP) established the AAP Mawson's Huts Foundation to undertake conservation works and prepare

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56 Australian Antarctic Division, 2004, *Mawson's Huts Commonwealth Bay*, Australian Antarctic Division, Kingston, Tasmania, viewed 14 March 2005, <<http://www.aad.gov.au/default.asp?casid=12151>>.

57 Godden Mackay Logan, 2001, *Conservation Management Plan: Mawson's Huts Historic Site, Cape Denison, Commonwealth Bay, Australian Antarctic Territory*, AAP Mawson's Huts Foundation; Godden Mackay Logan, Hobart, p x.

58 Godden Mackay Logan, Submission no. 8, p 1. Note: The period dating from Adrien de Gerlache's *Belgian Antarctic Expedition* aboard *Belgica* in 1897, extending to Richard Byrd's First Byrd Antarctic Expedition in 1928, is generally referred to as the 'Heroic Era' of Antarctic exploration.

59 Godden Mackay Logan, 2001, *Conservation Management Plan: Mawson's Huts Historic Site, Cape Denison, Commonwealth Bay, Australian Antarctic Territory*, AAP Mawson's Huts Foundation; Godden Mackay Logan, Hobart, p 1.

60 Godden Mackay Logan, 2001, *Conservation Management Plan: Mawson's Huts Historic Site, Cape Denison, Commonwealth Bay, Australian Antarctic Territory*, AAP Mawson's Huts Foundation; Godden Mackay Logan, Hobart, p 1.

a maintenance strategy.<sup>61</sup> The Foundation raised public moneys to undertake these projects, and has worked with the Australian Heritage Commission and the AAD to fund two expeditions to Cape Denison.

5.62 In 2001 the AAP Mawson's Huts Foundation commissioned conservation consultants Godden Mackay Logan to prepare a Conservation Management Plan, which was published in 2001. In the summer of 2002-03 the AAD assigned an expedition team to undertake conservation work at Mawson's Huts in accordance with the Conservation Management Plan.<sup>62</sup>

5.63 While investigations were carried out by ANARE to determine whether Mawson's Hut could be relocated to the mainland, this action is not supported by Godden Mackay Logan, who stated in its management plan:

The repatriation of the Main Hut to Australia is not supportable on either heritage or practical grounds (and would contravene the Antarctic Treaty)...<sup>63</sup>

## Concerns over AAD funding for cultural heritage management

5.64 Heritage consultants Godden Mackay Logan called for increased funding to the AAD to enable it to ensure that the Mawson's Huts conservation program can continue.<sup>64</sup> The 2001 Conservation Management Plan prepared by the firm stated:

The planning reports and physical conservation works on-site have gone a long way in assisting an understanding the significance and condition of Mawson's Huts. What remains to be established is a clear vision for how Mawson's Huts Historic Site, in particular the Main Hut, should be conserved, presented and interpreted in future.<sup>65</sup>

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61 Godden Mackay Logan, 2001, *Conservation Management Plan: Mawson's Huts Historic Site, Cape Denison, Commonwealth Bay, Australian Antarctic Territory*, AAP Mawson's Huts Foundation; Godden Mackay Logan, Hobart, pp 1-2.

62 Australian Antarctic Division 2002, *Restoration of Mawson's Huts*, Australian Antarctic Division, Kingston, Tasmania, viewed 14 March 2005, <<http://www.aad.gov.au/default.asp?casid=12153>>.

63 Godden Mackay Logan, 2001, *Conservation Management Plan: Mawson's Huts Historic Site, Cape Denison, Commonwealth Bay, Australian Antarctic Territory*, AAP Mawson's Huts Foundation; Godden Mackay Logan, Hobart, p xi.

64 Godden Mackay Logan, Submission no. 8, pp 1-2.

65 Godden Mackay Logan, 2001, *Conservation Management Plan: Mawson's Huts Historic Site, Cape Denison, Commonwealth Bay, Australian Antarctic Territory*, AAP Mawson's Huts Foundation; Godden Mackay Logan, Hobart, p 86.

- 5.65 Godden Mackay Logan stated that while the AAD has provided 'strong support and cooperation' in undertaking conservation of the Mawson's Huts site, it has been constrained by a lack of resources to undertake further work. The firm also argued that the Australian Government must allocate adequate funding for conservation works in order to meet its Antarctic Treaty obligations and Australia's own heritage requirements.<sup>66</sup>
- 5.66 The Mawson's Huts site is listed as a heritage place in the Antarctic Treaty, and also under Australia's new heritage protection system. In July 2004 the Mawson's Huts Historic Site was listed as a Commonwealth Heritage Place under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). In January 2005, the Minister for the Environment and Heritage announced that Mawson's Huts and Mawson's Huts Historic Site had been included on the National Heritage List.<sup>67</sup>
- 5.67 Under the EPBC Act, as manager of the Mawson's Huts site the Commonwealth Government is required to prepare a management plan to protect and manage the heritage values of the site. Godden Mackay Logan argued that the AAD will need additional funding in order to write and implement the management plan. In its submission to the Committee, the firm stated:
- Allocation of resources to facilitate regular inspection, monitoring and maintenance will promote effective asset management and reduce total physical conservation costs. The allocation of resources to the Australian Antarctic Division for cultural heritage management purposes would result in the conservation of an extraordinary example of Australia's cultural heritage. Furthermore, it would help the AAD to meet the following specific goals...enhancing Australia's influence in the Antarctic Treaty system, and protecting the Antarctic environment.<sup>68</sup>
- 5.68 A heritage consultant, Mr Duncan Marshall, made a similar argument for increased funding to the AAD for conservation work. Mr Marshall argued that the AAD must be the lead agency for conservation of the Mawson's

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66 Godden Mackay Logan, Submission no. 8, p 1.

67 Campbell, I (Minister for the Environment and Heritage) 26 Jan 2005, *New listings recognise Australia's achievements*, media release, Parliament House, Canberra, <<http://www.deh.gov.au/minister/env/2005/mr26jan05.html>>, viewed 16 February 2005. Further information on the new Heritage laws is available from the Department of the Environment and Heritage website at <<http://www.deh.gov.au/heritage/publications/factsheets/fact1.html>>, viewed 2 August 2004.

68 Godden Mackay Logan, Submission no. 8, pp 1-2.

Huts site, rather than relying on 'charitable funds and voluntary enthusiasm':

The AAD sees itself supporting the efforts of others in conserving these cultural heritage places. This view must be reversed. The AAD must lead such efforts and be prepared to fully fund them from its own resources. If support is available from other sources then this may be welcomed but it should not become a pre-condition.<sup>69</sup>

5.69 The AAD acknowledged the concerns of the heritage community about the lack of resources attributed to cultural heritage management, stating that:

...of course any government agency would like to have additional funds to carry out its responsibilities. Let me say that we have, over the last few years, invested a great deal of time, and also effort and money, into the conservation of Cape Denison and Mawson's Huts themselves.<sup>70</sup>

5.70 The Division pointed out that expeditions to undertake restoration work can cost in the order of \$500,000. The AAD stated that it is continually looking at opportunities to build partnerships in order to finance such expeditions.<sup>71</sup> The AAD also foreshadowed that the introduction of the air transport system will help to alleviate some of the costs associated with ship voyages to Cape Denison.<sup>72</sup>

### Committee comment

5.71 The Committee is satisfied from the response it received from the AAD that it takes its responsibilities with respect to the conservation of Mawson's Huts seriously. The Committee also notes the Division's views on the regularity with which the AAD believes conservation work on the Huts needs to be undertaken, suggesting that while the heritage concerns over the Huts are certainly not without foundation, the AAD appears confident that the necessary maintenance can be carried out within its current program.

5.72 The Committee also believes this is another aspect of the work of the Division which will be greatly enhanced by the operation of both the intra- and inter-continental air links. In the meantime, the Committee encourages

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69 Marshall, Submission no. 5, pp 2-3.

70 Australian Antarctic Division (Press A), *Transcript*, 23 June 2004, p 4.

71 Australian Antarctic Division (Press A), *Transcript*, 23 June 2004, p 7.

72 Australian Antarctic Division (Press A), *Transcript*, 23 June 2004, p 7.

the AAD to continue to seek partnerships in order to finance future expeditions to undertake restoration work on the huts.

#### **Recommendation 4**

- 5.73 **The Committee recommends that additional funding be provided to enable the Australian Antarctic Division to comply with its responsibilities under the *Environment Protection and Biodiversity Conservation Act (1999)* for its work with the cultural heritage management of Mawson's Huts. The Committee also encourages the continuation of partnership links with community sponsors to continue the restoration work of Mawson's Huts.**

*Australia has an outstanding record of research provided by a diversity of institutions...I do not think we can afford to rest on our laurels.<sup>1</sup>*

*Antarctic science could have, and deserves, a higher profile. I believe it will get it with the realisation that you establish your right to have a say in the region by doing science. Anything else lacks credibility.<sup>2</sup>*

## Australia's Antarctic science program

### An overview

- 6.1 Since its beginnings in the 1940s, the priorities which have guided Australia's Antarctic Program have experienced a significant shift. While occupation to uphold territorial claims has always been a leading priority, Australia's Antarctic Program today is guided by the increasing importance of undertaking scientific work, not only in Antarctica, but also in the sub-Antarctic and the Southern Ocean. The nature of much of the research being conducted in the region is now understood to have significant implications for global processes.

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1 Antarctic Climate and Ecosystems Cooperative Research Centre (Mapstone B), *Transcript*, 16 March 2004, p 24.

2 Dr Neville Fletcher, former ASAC Chairman, In: Murphy, K. 'Australia in Antarctica: What Price a Presence', *Bulletin with Newsweek*, v.112 no 5726, 10 July 1990, p 46.

- 6.2 As discussed in chapter one, the research objectives of Australia's Antarctic science program are determined by the Government on the advice of ASAC. Its members and the Chair are appointed by, and report to, the Minister with responsibility for Antarctic matters.<sup>3</sup> Members are drawn from a wide range of Government and university research institutions whose interests broadly embrace the main facets of the science program.<sup>4</sup>
- 6.3 In collaboration with the wider Antarctic science community, ASAC has developed strategic plans for Australia's Antarctic science program since 1990.<sup>5</sup> On average, the Antarctic science program supports 130 projects across the following 10 major scientific disciplines: Antarctic marine living resources, astronomy, biology, geosciences, glaciology, human biology and medicine, human impacts, meteorology, oceanography and space and atmospheric sciences.
- 6.4 Approximately 200 scientists participate in Australia's Antarctic science program each year,<sup>6</sup> and the program comprises scientific research conducted by:
- the Antarctic Climate and Ecosystems CRC – whose core partners include the AAD, CSIRO, the University of Tasmania and the Bureau of Meteorology;
  - a significant number of scientists from Australian universities and other tertiary education institutions who are supported through the Australian Antarctic science grants scheme;
  - scientific staff employed by the AAD; and
  - a small number of scientists based overseas.<sup>7</sup>
- 6.5 Australia's approach to Antarctic science is therefore considered to be a hybrid between the centralised and devolved models adopted by other national Antarctic programs.<sup>8</sup> The centralised model involves a single central agency assuming responsibility for coordinating all
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3 Currently the Minister for the Environment and Heritage.

4 Department of the Environment and Heritage, Submission no. 24, p 13.

5 Department of the Environment and Heritage, Submission no. 24, p 13. See also Australian Antarctic Division, 2003, *Implementation Plan for National Science Priorities*, <<http://www.dest.gov.au/priorities/plans/AAD.pdf>>, viewed 2 August 2004.

6 Department of the Environment and Heritage, Submission no. 24, p 13.

7 Australian Antarctic Division, *Australia's Antarctic Science Program: Science Strategy 2004/05 – 2008/09*, Australian Antarctic Division, Kingston, Tasmania, p 2.

8 Department of the Environment and Heritage, Submission no. 24, p 16.



aspects of the program, while in the devolved model, all responsibility for the science program is devolved to non-government research bodies and government agencies.<sup>9</sup> Table 6.1 further details these three models for management of Antarctic science programs.

6.6 In its Foresight Report of 1997, ASAC identified four advantages of the hybrid model adopted by Australia's program:

- the range of scientific skills available to the Australian Antarctic Program is very much greater than would be the case if the AAD depended upon its own scientific workforce;
- this range of skills gives it a responsiveness which will suit it well in a world of inevitable uncertainties;
- scientists who owe their intellectual allegiance to science, and science alone, are able to join the Program and conduct research which, while it must conform to the strategic plan for science, could be regarded as 'blue sky' research. As the history of science has repeatedly shown, it is from projects of this kind that the major future advances are made. The opportunity for such research to be introduced into the Antarctic Program must be encouraged and protected; and
- multi-year baseline monitoring work, which lies at the basis of much environmental change research, is able to be built into the Program and included within the scientific projects led by employed staff of the AAD and other government agencies such as the Australian Geological Survey Organisation (AGSO) and the Bureau of Meteorology (BoM). University and other research personnel cannot give long-term assurances of their continued involvement in the Program.<sup>10</sup>

6.7 The Government accepted ASAC's recommendation that the hybrid approach be maintained, while acknowledging that this would be dependent on universities continuing to support Antarctic scientific research.<sup>11</sup>

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9 Department of the Environment and Heritage, Submission no. 24, pp 16-17.

10 Antarctic Science Advisory Committee, 1997, *Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Parliamentary Secretary for the Antarctic*, Department of the Environment, Canberra, pp 51-52.

11 Commonwealth Government, 1998, *Our Antarctic Future: Australia's Antarctic Program Beyond 2000: The Howard Government response to Australia's Antarctic Program Beyond 2000: A Framework for the Future: A Report to the Federal Government by the Antarctic Science Advisory Committee*, p 8.

Table 6.1 Three models for Antarctic research adopted by National Antarctic programs

<b>Three models for Antarctic research adopted by National Antarctic programs</b>
<p><b>a) The Devolved Model</b></p> <p><i>Examples:</i> United States, New Zealand, France, Italy</p> <p><i>Characteristics:</i></p> <ul style="list-style-type: none"> <li>▪ Responsibility for all aspects of Antarctic research is delegated to non-Government research institutions, universities and various Government agencies.</li> <li>▪ Government directives and indirect funding mechanisms then require agencies to devote an appropriate percentage of their effort (and budget) to Antarctic programs.</li> <li>▪ Research institutions and universities' participation is funded through an extended grants program.</li> <li>▪ Government retains responsibility for policy.</li> </ul>
<p><b>b) The Centralised Model</b></p> <p><i>Examples:</i> None – formerly the UK and Germany ran centralised Antarctic programs but have recently moved to a Hybrid model.</p> <p><i>Characteristics:</i></p> <ul style="list-style-type: none"> <li>▪ A single central agency is responsible for undertaking, coordinating and supporting all Antarctic science and advising Government on such matters.</li> </ul>
<p><b>c) The Hybrid Model</b></p> <p><i>Examples:</i> Australia, UK and Germany</p> <p><i>Characteristics:</i></p> <ul style="list-style-type: none"> <li>▪ A cross between the centralised and devolved model: the scientific expertise of researchers working in academic and research establishments and in other government agencies is utilised in addition to scientists employed by a central agency.</li> <li>▪ Policy responsibility, program coordination and oversight, undertaking Antarctic research and providing logistical and operational support is maintained in the Government agency.</li> <li>▪ External participation is undertaken through a grants scheme managed by the central agency, with the agency also providing logistical and other support to venture partners and funded grant applicants.</li> </ul>

*Source Australian Antarctic Division, Submission no. 24, pp 16-17.*

## Evaluation of Australia's Antarctic Science Program

6.8 Under its Terms of Reference, one of ASAC's roles is to report to Government on whether Australia's Antarctic science program is meeting Australia's scientific objectives.<sup>12</sup> In 2002, ASAC complied with this requirement by engaging an independent Steering Committee to conduct an evaluation of the science program. The Steering Committee comprised a number of internationally

12 For ASAC's full Terms of Reference, see Antarctic Science Advisory Committee, Submission no. 13, pp 14-15.

recognised scientists from Australia and overseas, who do not participate in Australia's Antarctic science program.<sup>13</sup> The report which the Steering Committee's prepared for ASAC was based on the findings of four scientific discipline-based subcommittees.<sup>14</sup>

6.9 While the Steering Committee was highly complimentary in its evaluation, stating that 'there is not a scintilla of doubt that Australia is well served by its Antarctic science program', the Committee also pointed out that 'there are at the same time elements of organisation, program and structure which require attention'.<sup>15</sup> The issues raised by the Steering Committee included generic issues relating to the Antarctic science program as well as specific program-based issues.<sup>16</sup>

6.10 After considering the views of the Steering Committee, ASAC submitted its evaluation in May 2003. The evaluation included 14 generic recommendations and 10 recommendations relating to existing programs. A number of the generic issues raised by ASAC were considered in detail as part of the preparation for a new strategic plan for the Antarctic science program. These issues included:

- Increasing the collaboration between existing programs and between Australian organisations and overseas institutions
- Increasing the visibility of scientific output in journals
- Increasing participation in the scientific program
- Enhancing funding required to carry out scientific research back in Australian laboratories that underpins much of Antarctic research.
- Raising awareness of the program
- Improving the transparency of the program by developing further the existing performance indicators
- Distinguishing between scientific research and monitoring programs
- Expanding scope of the Antarctic Data Centre, and
- Major equipment requirements.<sup>17</sup>

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13 For Steering Committee Membership, see Antarctic Science Advisory Committee, Submission no. 13, pp 33-35.

14 Antarctic Science Advisory Committee, 2003, *Report on Australia's Antarctic Science Program*, p 6.

15 Antarctic Science Advisory Committee, 2003, *Report on Australia's Antarctic Science Program*, p 11.

16 Antarctic Science Advisory Committee, 2003, *Report on Australia's Antarctic Science Program*, p 8.

17 Antarctic Science Advisory Committee, Submission no. 13, p 7.

## Science Strategy 2004/05-2008/09

6.11 Following ASAC's evaluation of the science program, and widespread consultation with the science community, the *Science Strategy for Australia's Antarctic Program 2004/05-2008/09* was launched in May 2004 by Dr Sharman Stone, then Parliamentary Secretary with responsibility for Antarctic matters. The science strategy was developed by ASAC, and provides that Australia's Antarctic science program will focus on four priority programs for the forthcoming five-year planning period:

- **Ice, Ocean, Atmosphere and Climate**  
The goal of this program is to better understand and quantify the role of Antarctica and the high-latitude Southern Ocean and atmosphere in the global climate system.
- **Southern Ocean Ecosystems**  
The Southern Ocean represents a vast international resource and national resource to Australia. Elevated productivity in part of the region such as in the sea-ice zone, supports a high biomass of certain species, and considerable biodiversity. Research here focuses on the species that are targets, or potential targets, for commercial fisheries and on the dependent and related species in the ecosystem.
- **Adaptation to Environment Change**  
Antarctica offers an unparalleled natural laboratory for investigating the impacts of environmental changes on the structure and function of biological communities and species.
- **Impact of human activities in Antarctica**  
Antarctica is no longer a pristine environment. At some locations, particularly around long-standing research stations, there is evidence of past human activity and, as Antarctic tourism increases, the pressures on the environment grow. Scientific research is required to provide advice in support of environmental management and remediation to minimise the impacts of human activities in Antarctica.<sup>18</sup>

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<sup>18</sup> Stone, S (Parliamentary Secretary for the Environment and Heritage), 7 May 2004, *New Antarctic science focus on climate change and environmental protection*, media release, Parliament House, Canberra.

6.12 ASAC determined that these themes were consistent with the Government's national research priorities.<sup>19</sup> The AAD pointed out that while the priority programs embrace a wide range of scientific disciplines, the interests of scientists in other fields is also acknowledged:

Within the discipline areas priority is given to scientific studies of the Antarctic but also supports the continued use of Antarctica as a "platform" to conduct externally supported research of high scientific value. Platform research includes areas of astronomy, space and atmospheric sciences, geosciences, and human biology and medicine that do not directly relate to the four priority program areas.<sup>20</sup>

## The Australian Antarctic science grants scheme

6.13 The Australian Government provides around \$700,000 per annum from within the AAD's budget to researchers from Australian universities and other institutions through the Antarctic science grants scheme.<sup>21</sup> In the grant allocations for 2004-05 the maximum level of funding for an individual grant increased from \$30,000 with a small number of larger grants up to \$60,000 now available to support multidisciplinary projects.<sup>22</sup> To be eligible for a grant, projects must contribute to the science strategy. Grants are allocated for a project's special requirements and in addition to the basic facilities provided by the researcher's own organisation. AAD guidelines state that this may include 'financial support for auxiliary staff, equipment, running

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19 In late 2002, the Prime Minister announced four 'whole-of-government' themes of long-term importance to Australia:

- An Environmentally Sustainable Australia
- Promoting and Maintaining Good Health
- Frontier Technologies for Building and Transforming Australian Industries
- Safeguarding Australia

For further information see <<http://www.dest.gov.au/priorities/>>, viewed 7 July 2004.

20 Australian Antarctic Division, *Guidelines for Antarctic Research Applications*, Australian Antarctic Division, Kingston, Tasmania, viewed 2 February 2005, <<http://www.aad.gov.au/default.asp?casid=3648>>.

21 In 2004-05, \$760,000 in grants was distributed amongst 54 projects that predominantly fall into the four priority science categories outlined in the Science Strategy 2004/5 - 2008/9.

22 See Australian Antarctic Division, *Overview for Scientific Research in 2005/06*, Australian Antarctic Division, Kingston, Tasmania, viewed 4 June 2004, <<http://www.aad.gov.au/default.asp?casid=70>>.

expenses, consumables and travel'.<sup>23</sup> All research proposals are subject to a 'rigorous screening and assessment process' including an international peer-review and scrutiny by an Antarctic Research Assessment Committee.<sup>24</sup> According to the AAD:

...all scientists in Australia are eligible to apply for grants and the criteria are open and transparent and available to anybody who wishes to apply.<sup>25</sup>

- 6.14 The general consensus from the Antarctic science community is that grants allocated by the AAD, while welcome, are not nearly sufficient enough to support research programs by themselves. According to the University of New South Wales (UNSW) Antarctic Astronomy Group, the Antarctic research grants typically cover the cost of medicals and transportation to Hobart, and that as a result:

...there is no means through the Antarctic research grants scheme that an externally generated research proposal can establish a new line of investigation outside of the existing infrastructure, or seek the funds necessary to develop the requisite new infrastructure over a period of time.<sup>26</sup>

- 6.15 NCAR – a committee of the Australian Academy of Science – is also concerned about the adequacy of funding available to university researchers. NCAR estimates that a shortfall of approximately \$400,000 exists for requested projects which are considered to be highly appropriate for funding.<sup>27</sup> ASAC recommended that the pool of grants be increased to \$1.5 million over the course of the Science Strategy.<sup>28</sup>

- 6.16 The Output Pricing Review (discussed in chapter two) conducted by the Department of Finance and Administration in conjunction with the AAD found that when analysed on a 'costs per paper' basis, the Australian science program is more effective than its counterparts in the UK, France, Italy, Japan and New Zealand.<sup>29</sup> In addition, according to NCAR, 'the benefits and international recognition gained

23 Australian Antarctic Division, *Guidelines for Antarctic Research Applications*, Australian Antarctic Division, Kingston, Tasmania, viewed 2 February 2005, <<http://www.aad.gov.au/default.asp?casid=3697>>.

24 Department of the Environment and Heritage, Submission no. 24, p 13.

25 Australian Antarctic Division (Press A), *Transcript*, 23 June 2004, p 4.

26 University of New South Wales Antarctic Astronomy Group, Submission no. 11, pp 3-4.

27 National Committee on Antarctic Research, Submission no. 4, p 1.

28 Antarctic Science Advisory Committee, Submission no. 13, p 11.

29 Department of the Environment and Heritage, Submission no. 24, p 20.

from the inclusion of university-based scientists into the program is very high indeed'.<sup>30</sup>

- 6.17 While in the past some universities have been willing to supplement Antarctic science grants with their own funding, NCAR is concerned that this has decreased substantially over recent years.<sup>31</sup> ASAC also expressed concern about the capacity of universities to continue to support Antarctic research:

...requests to the Antarctic science grants scheme have increased over the years and will increase further as the Antarctic Science goals are pursued. The currently available funding supports only a fraction of what is required. It is the capacity of contributing agencies to continue to participate within the Antarctic Science program, particularly the Universities, that concerns ASAC.<sup>32</sup>

### Budget limitations restricting opportunities for 'new' science

- 6.18 Australia's Antarctic science budget is included within the overall budget of the AAD. At present, less than 15% of the AAD's total budget is devoted to scientific research (see Table 2.2). The UNSW Antarctic Astronomy Group stated that:

...While there is no doubt that Australia conducts excellent science in Antarctica, it is only a subset of what we could be doing.<sup>33</sup>

- 6.19 In comparison, the US Antarctic Program keeps its science budget separate from its operations and logistics budget. Any funding decisions for the US Antarctic Program are made in consultation between the science and logistics sections, and the Director adjudicates any differences.<sup>34</sup>
- 6.20 The UNSW Antarctic Astronomy Group argued that this variance affords the US Antarctic Program opportunities to consider proposals for completely new projects, whereas the funding available through

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30 National Committee on Antarctic Research, Submission no. 4, p 2.

31 National Committee on Antarctic Research, Submission no. 4, p 1.

32 Antarctic Science Advisory Committee, Submission no. 13, p 11.

33 University of New South Wales Antarctic Astronomy Group, Submission no. 11, p 5.

34 National Science Foundation (U.S.), Submission no. 26, p 1.

the Australian Antarctic Science grants scheme, while welcome, is 'not sufficient to promote new initiatives'.<sup>35</sup>

- 6.21 Director of the US Office of Polar Programs, Dr Karl Erb, stated that part of the US Antarctic Program's policy was to reserve two thirds of its annual science budget for projects that would result from newly submitted proposals.<sup>36</sup> According to Dr Wilfred Walsh, the problem facing astronomers wishing to utilise the Antarctic for observations under Australia's Antarctic program, is that they cannot seek funding for infrastructure to support new projects:

...The problem is that there is no mechanism by which we can apply for funding to build new infrastructure. That infrastructure will be required for ongoing astronomical research on the plateau. For example, the American system is to have a certain amount of funding allocated for their logistics and then another part of their funding is available for the scientific community to apply for. Whichever research is considered to be the best by an independent review mechanism gets funding.

Most other countries have something similar where they typically would allocate 20 per cent of their research funding to peer reviewed, competitively applied for funding. The astronomy community does not have a clear target to aim for when it comes to applying for Antarctic funding, and particularly in the case of applying for funding to create new infrastructure.<sup>37</sup>

## Committee comment

- 6.22 The Committee recognises that the AAD has gradually increased allocations through the Australian Antarctic Science grants scheme, but as ASAC pointed out, the Division's generally static budget prevents it from providing substantial increases in grants.<sup>38</sup> The Committee also acknowledges that, of course, there is always likely to be a demand for grants which exceeds the funding available. However, the Committee believes that an increase in funding available through the grants scheme will enhance the level of support
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35 University of New South Wales Antarctic Astronomy Group, Submission no. 11, p 5.

36 National Science Foundation (U.S.), Submission no. 26, p 1.

37 University of New South Wales Antarctic Astronomy Group (Walsh W), *Transcript*, 23 June 2004, p 33.

38 Antarctic Science Advisory Committee, Submission no. 13, p 11.



for each approved project, as well as attracting more scientists to participate in Australia's Antarctic Program.

- 6.23 The AAD cannot be expected to produce further savings through cutbacks in other areas, given that it has already made considerable savings to fund new initiatives such as the introduction of the intra-continental air transport system. In considering the advice put forward in evidence by ASAC and NCAR as to what extent the pool of grant funding should be increased, the Committee believes that doubling the current level of approximately \$700,000 would significantly enhance the support available through the grants scheme.

### **Recommendation 5**

- 6.24 **The Committee recommends that the current appropriation for the Australian Antarctic Science grants scheme administered by the Australian Antarctic Division be doubled from the current level of approximately \$700,000 per annum for the remainder of the Science Strategy 2004/05-2008/09 and be reassessed after that period.**

## **Raising the public profile of Antarctic science**

- 6.25 The Australian Academy of Science commented that Australian Antarctic science 'has the highest reputation internationally' and that much of Australia's Antarctic science is considered world leading.<sup>39</sup> This view was supported by the international steering committee which contributed to ASAC's evaluation of the Australian Antarctic science program in 2003.<sup>40</sup> However, one area the international steering committee suggested could be improved is public outreach:

...in order to satisfy the general public's interest in the Antarctic and an enhanced profile of science and technology in the general media, there are opportunities to invest some personnel time and other resources in the broader dissemination of Antarctic science.

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39 Australian Academy of Science, Submission no. 22, p 1.

40 Antarctic Science Advisory Committee, Submission no. 13, p 7.

- 6.26 The steering committee gave examples of further outlets that the AAD should be targeting including CSIRO's Double Helix Science Club and the various science centres in the states and territories.<sup>41</sup>
- 6.27 In its submission, the AAD stated that it 'plays an important role in highlighting the national and international value of the Australian Antarctic program and responding to the considerable public interest in the Antarctic experience'.<sup>42</sup> The dissemination of information to the public is largely achieved through the AAD's website, through its publications, and through the public display centre located at the AAD's headquarters in Kingston, Tasmania.
- 6.28 A breakdown of usage statistics for the AAD's website (<http://www.aad.gov.au>) is provided in Table 6.2 and illustrates the high level of interest in Australia's Antarctic Program. Table 6.3 reveals that the most popular section of the website is the live webcams which depict the weather conditions and activities at each of Australia's stations on the Antarctic continent, and on Macquarie Island in the sub-Antarctic. The data in Table 6.3 also demonstrates the value of the educational resources provided by the AAD and the level of interest of those wishing to work for Australia's Antarctic Program.
- 6.29 The AAD also publishes the *Australian Antarctic Magazine* twice-yearly, which seeks to inform the Australian and international community about the work of Australia's Antarctic program. The magazine includes contributions from AAD officers and from external organisations and individuals.
- 6.30 In 2002, *Classroom Antarctica*, a comprehensive web-based Antarctic educational resource developed by the Australian Antarctic Division was launched by the then Parliamentary Secretary with responsibility for Antarctic matters.<sup>43</sup> The package is aimed at upper primary and lower secondary levels. According to the AAD:

...Classroom Antarctica is designed to help both teachers and students gain a greater awareness of the global importance of

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41 Antarctic Science Advisory Committee, 2003, *Report on Australia's Antarctic Science Program*, Antarctic Science Advisory Committee, Kingston, Tasmania, p 15.

42 Department of the Environment and Heritage, Submission no. 24, pp 26-27.

43 Stone, S (Parliamentary Secretary for the Environment and Heritage) 18 Feb 2002, *Bringing Antarctica into the Classroom*, media release, Parliament House, Canberra.

Antarctica, of Australia's role in Antarctica, past and present, and our commitment to its future.<sup>44</sup>

Table 6.2 Usage Statistics for Australian Antarctic Division website

Monthly Usage Statistics for <a href="http://www.aad.gov.au">www.aad.gov.au</a> – March 2005		
Total Hits		3,250,043
Total Files		2,432,985
Total Pages		689,288
Total Visits		148,083
Total MBytes		22,082
Total Unique Sites		71,539
Total Unique URLs		40,515
Total Unique Referrers		47,551
Total Unique User Agents		596
	<b>Avg</b>	<b>Max</b>
Hits per Hour	7,127	17,105
Hits per Day	171,054	201,213
Files per Day	128,051	150,283
Pages per Day	36,278	48,301
Visits per Day	7,793	10,978
MBytes per Day	1,162	1,856

Source Australian Antarctic Division, 2005.

Table 6.3 Most popular web pages within Australian Antarctic Division website

Top 10 of 40515 Total URLs			
#	Hits		
1	40,760	1.25%	AAD Homepage
2	25,007	0.77%	Mawson Station webcam
3	20,143	0.62%	Davis Station webcam
4	17,981	0.55%	Casey Station webcam
5	15,053	0.46%	Macquarie Station webcam
6	6,529	0.20%	Station webcams and weather
7	5,529	0.17%	Experience Antarctica
8	4,610	0.14%	Mawson Station
9	4,464	0.14%	Jobs supporting Australia's Antarctic Program
10	3,888	0.12%	Australia's Antarctic Program Recruiting 2006

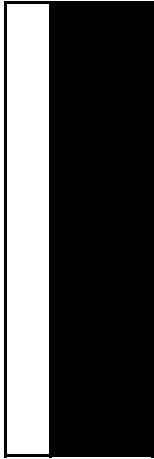
Source Australian Antarctic Division, 2005.

44 Australian Antarctic Division, *Classroom Antarctica – Introduction*, Australian Antarctic Division, Kingston, Tasmania, viewed 4 March 2005, <[http://classroomantarctica.aad.gov.au/textversion/Introduction\\_txt.html](http://classroomantarctica.aad.gov.au/textversion/Introduction_txt.html)>.

## Committee comment

- 6.31 Australia's excellent international standing among Antarctic claimant nations is premised on the conduct of world-class science. Australia's reputation for its scientific efforts in the Antarctic region should not be undervalued or taken for granted.
- 6.32 The Committee acknowledges the high standard of public outreach achieved through the AAD's website, its educational packages and high quality publications like the *Australian Antarctic Magazine*.
- 6.33 However, the Committee believes that Australia's Antarctic Program needs a higher profile both within government and the wider community. The physical location of the AAD's headquarters and the isolation of the Antarctic continent and Southern Ocean means that for many Australians, the work of Australia's Antarctic program is 'out of sight, out of mind'.
- 6.34 The Committee believes that the public's perception of Australia's role in Antarctica would be enhanced if there was a deeper appreciation for the importance and global relevance of the scientific research being undertaken.
- 6.35 The Committee concurs with ASAC which acknowledged the importance of maintaining the public profile of Australia's Antarctic science program and recommended that the effort towards achieving this be increased. While the Committee acknowledges that the various science bodies and schools are obvious target markets, the Committee believes that the AAD should not limit its public outreach to the science community and should continue to raise awareness of the Antarctic program within the wider Australia community, particularly those elements of the science program which could have significant implications for Australia and the region.

Senator Ross Lightfoot  
Chairman



## Additional Comments—Senator Stott Despoja

While I unanimously support the main report and recommendations of the Committee, I would like to make some brief additional comments, which relate to the conservation and protection of the Antarctic environment.

### **Australia's international obligations**

I note that in addition to Australia's international obligations reported in para 5.1, Australia has international obligations to protect migratory species, including whales and seabirds, and to promote the recovery of any species listed as threatened, both domestically and internationally.

### **Preserving marine life in the Southern Ocean**

I note that in addition to the agencies listed at para 5.6, the National Oceans Office also has a role in managing the Southern Ocean, given its responsibility for development of overall oceans policy, including development of a Regional Marine Plan for the Antarctic region.

I also note that the issue of whaling has received significant attention in the media recently, as reported in para 5.6, as a result of allegations that Japanese whalers have taken whales in waters claimed as Australian Antarctic Territory, and in light of plans to increase numbers of whales killed for research and other purposes.

### **The Heard Island and McDonald Islands (HIMI) Marine Reserve**

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) requires a management plan to be prepared for the HIMI Reserve. I note that the EPBC Act also requires that marine mammals, migratory species and threatened species occurring in the marine reserve are protected and, in the case of threatened species, recovery plans are prepared and areas of critical habitat are recognised on the EPBC Register of Critical Habitat.

## **The Heard Island and McDonald Islands Fishery**

The main report identifies a number of agencies and authorities at para 5.20 which the AAD works in conjunction with to monitor illegal, unregulated and unreported (IUU) fishing. I note that given the presence of threatened seabirds and vulnerable Australian sealions, the AAD should also be working with the Department of the Environment and Heritage – as the department responsible for the protection of marine mammals and threatened species – to assess and monitor their status and recovery.

**Senator Natasha Stott Despoja**  
**Australian Democrats**



## Appendix A – List of submissions

1. A.N.A.R.E Club
2. IPS Radio and Space Services
3. Great Southern Development Commission / City of Albany  
(joint submission)
4. National Committee on Antarctic Research
5. Mr Duncan Marshall
6. Australian Marine Sciences Association
7. Dr John Runcie
8. Godden Mackay Logan Pty Ltd
9. Submission withdrawn
10. Australian Conservation Foundation
11. University of New South Wales Antarctic Astronomy Group
12. Antarctic Climate and Ecosystems Cooperative Research Centre
13. Antarctic Science Advisory Committee
14. Commonwealth Scientific and Industrial Research Organisation
15. Geoscience Australia
16. Commonwealth Bureau of Meteorology
17. Premier of Western Australia

18. Western Australian Department of Fisheries
19. I3 Aerospace Technologies
20. State Government of Tasmania
21. Alfred Wegener Institute for Polar and Marine Research
22. Australian Academy of Science
23. University of Tasmania
24. Commonwealth Department of the Environment and Heritage
25. New Zealand Antarctic Institute
26. National Science Foundation
27. Wallace Engineering Pty Ltd
28. Smithson Planning
29. French Polar Institute
30. National Institute of Polar Research (Japan)
31. City of Albany (Supplementary)
32. Commonwealth Department of the Environment and Heritage (Supplementary)
33. Norwegian Polar Institute
34. Antarctic Science Advisory Committee (Supplementary)
35. South African National Antarctic Programme
36. State Government of Tasmania (Supplementary)
37. Commonwealth Department of the Environment and Heritage (Supplementary)
38. University of New South Wales Antarctic Astronomy Group (Supplementary)
39. Godden Mackay Logan Pty Ltd (Supplementary)
40. Antarctic Science Advisory Committee (Supplementary)





## Appendix B – List of exhibits

1. Copson, G., 2002, *Integrated Vertebrate Pest Management on Subantarctic Macquarie Island: 1997-2002.*  
*Copson G., 2004, Draft Plan for the Eradication of Rabbits and Rodents on Subantarctic Macquarie Island (incomplete document).*
2. Document tabled by Mr Richard Elvin (Austral Fisheries) re Meteorology on Kerguelen Island.





## Appendix C – List of witnesses appearing at public hearings

### **Hobart – Tuesday, 16 March 2004**

#### **State Government of Tasmania**

Mr Peter Cusick, Acting District Manager (South East), Tasmanian Parks and Wildlife Service

Ms Lara Giddings MHA, Parliamentary Secretary to the Deputy Premier

Mr Greg Johannes, Acting Deputy Secretary, Programs and Enterprise Improvement Division, Department of Economic Development

Mr Alistair Scott, Manager, Nature Conservation, Department of Primary Industries, Water and Environment

#### **University of Tasmania**

Associate Professor Nathan Bindoff, Senior Lecturer, Institute of Antarctic and Southern Ocean Studies

Professor Andrew Glenn, Pro Vice-Chancellor (Research)

Dr Michael Kelvin, Acting Director, Institute of Antarctic and Southern Ocean Studies

#### **Antarctic Climate and Ecosystems Cooperative Research Centre**

Dr John Church, Program Leader (Sea Level Rise)

Dr Marcus Haward, Program Leader (Policy)

Professor Bruce Mapstone, Chief Executive Officer

**Commonwealth Scientific and Industrial Research Organisation**

Professor Tony Haymet, Chief, Marine Research

**National Committee on Antarctic Research**

Dr Ian Allison, Chair

**Albany – Friday, 30 April 2004**

**City of Albany**

Mr Andrew Hammond, Chief Executive Officer

**Great Southern Development Commission**

Mr Bruce Manning, Chief Executive Officer

**Western Australian Department of Fisheries**

Mr Tom Morris, Supervising Fisheries Marine Officer

Mr Andy Walker, Manager, Marine Operations

**Wallace Engineering Pty Ltd**

Ms Jan Axe for Mr Ray Woonings, Managing Director, Wallace  
Engineering Pty Ltd

**I3 Aerospace Technologies**

Mr Fred Moreno, Chief Executive Officer

**Austral Fisheries**

Mr Richard Elvin, General Manager, Operations

**Smithson Planning**

Mr Neil Smithson, General Manager

**Canberra – Wednesday, 23 June 2004**

**Department of the Environment and Heritage**

Mr Rod Allen, General Manager Corporate, Australian Antarctic  
Division

Mr Kim Pitt, General Manager Operations, Australian Antarctic  
Division

Dr Tony Press, Director, Australian Antarctic Division  
Professor Michael Stoddart, Chief Scientist, Australian Antarctic  
Division

**Antarctic Science Advisory Committee**

Professor Kurt Lambeck, Chairman

**Godden Mackay Logan Pty Ltd**

Dr Tracy Ireland, Senior Heritage Consultant

**University of New South Wales Antarctic Astronomy Group**

Dr Wilfred Walsh, Research Associate, Department of Astrophysics  
and Optics, School of Physics

