The release of Australia’s Oceans Policy (AOP) in 1998 was recognised in Australia and internationally as a milestone in marine resource management. This policy set out for the first time a comprehensive, national approach to ecosystem based ocean management that covered Australia’s vast ocean domain. It also sought to integrate sectoral and jurisdictional interests through the establishment of new institutions and implementation methods. During the ten years of implementation the original aims of the policy have changed reflecting a lack of integration; Federal government ownership of the policy; institutional restructuring; and a lengthy implementation process. This paper analyses these changes and discusses what can be learned from the development and implementation of this ‘new’ policy.

Introduction

The year 2008 marks ten years since the release of Australia’s Oceans Policy (AOP), an oceans governance framework that utilises ecosystem-based and integrated approaches to implementation. The AOP was viewed as a milestone in marine resource management as it was a ‘world first’ national policy that demonstrated a commitment to two key international instruments (Vince 2005, 2006). The first, the 1994 Law of the Sea Convention (LOSC) has obligated signatories to demonstrate that they can effectively manage the resources within their Exclusive Economic Zones (EEZs). While the LOSC provides a framework for oceans governance, the United Nations (UN) General Assembly Resolution 5517 (30 October 2000) requires signatories to prioritise change in their domestic policies by adhering to the legally binding measures outlined by LOSC with a particular focus on adopting integrated approaches to the management of EEZs (Juda 2003). Second, although declaratory
and not legally binding, the United Nations Conference on the Environment and Development’s (UNCED) *Agenda 21* has also acted as a catalyst for policy change in the management of EEZs. Whereas the Law of the Sea establishes the extent of each state’s maritime boundaries, Agenda 21 provides the framework for environmental controls dealing with maritime activities within those boundaries through three key principles aimed at sustainable development – ‘integrated’ (Chapter 17), ‘precautionary’ (Principle 15 Rio Declaration) and ‘anticipatory’ actions (See Johnston 1996, 15). Chapter 17 of *Agenda 21* is holistic in its approach and deals with all aspects of marine and coastal environmental management through 137 recommendations. The approach provides the foundation that coastal States “commit themselves to integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction” (UN Agenda 21, Chapter 17 1992).

Australia has over 100 laws and policy instruments that address aspects of the management of the 16 million square kilometres of oceans domain (ACF 2006). This has resulted in an oceans regime in Australia that has been fraught with jurisdictional and sectoral conflict since Federation (See Vince 2004, Haward 1991, Haward 2003). Initially, the aim was to develop a policy that would integrate sectoral interests (such as fishing, oil and petroleum mining) and jurisdictional interests (Australian Commonwealth government and state/territory governments). By the time the AOP was released in December 1998, it was clear that this was a Commonwealth government initiative and whilst different sectors were involved in policy development full sectoral integration had yet to be achieved (Vince 2003).

The implementation of the oceans policy continues and it is premature to fully evaluate the implementation process. This paper, however, examines the challenges with the implementation of a ‘new’ policy that have affected the oceans policy implementation process such as the first policy review and institutional restructuring. It begins by examining the events that led up to the release of the Oceans Policy.

The period of 1995 to 1998 demonstrates a focus by the Commonwealth government to work with states and territories, and different marine sectors to develop a policy that would be truly “national”. The policy process was initiated on 8 December 1995 when Prime Minister Keating announced that the Commonwealth government had agreed to the development of an “integrated oceans strategy” that would deal with the management of Australia’s marine resources (Keating 1995). The Department of Prime Minister and Cabinet assumed responsibility for developing the policy, however, little progress was achieved as the federal election dominated the political agenda. The Keating government was defeated in March 1996 and the Howard government announced that it would continue the development of an oceans policy with the intention of it being an “environmental protection policy” (Bateman 1997). The responsibility for oceans policy development was transferred to the Department of Environment, Sport and Territories (DEST). During mid 1996, DEST established an intergovernmental committee to assist with the preparation of the policy that included members from major Commonwealth agencies involved in marine affairs (Wescott 2000, 862).

Prime Minister Howard announced the development of the oceans policy and launched a consultation paper titled *Australia’s Oceans - New Horizons* for public comment on 3 March 1997 (Commonwealth of Australia 1997). In September 1997 the Minister for Environment and Heritage established the Ministerial Advisory Group on Oceans Policy (MAGOP) consisting of eighteen members that represented “interest groups, academic and research institutions, Aboriginal and Torres Strait Islanders, the Australian Marine Conservation Society and two members from Environment Australia. Significantly this group did not include any formal representation from the states” (Haward and Herr 2000). MAGOP’s role was to provide advice to the Minister on the views of the broad range of stakeholders of the policy and any other issues the Group thought relevant to the development of the policy. It is also suggested that MAGOP was established to gain the support of NGOs during the oceans policy process as well as to promote public awareness (Vince 2003).
In order to stimulate responses to the consultation paper, the Commonwealth government requested that the Marine and Coastal Community Network (MCCN) inform the community of the development of *Australia’s Oceans Policy*. The public consultation period ended in April 1997 with a commitment to another round of public consultation scheduled later that year followed by the final policy paper by the end of 1997 (Wescott 2000, 863). Environment Australia organised several workshops and face-to-face interviews to gather a broader understanding of stakeholder’s views. Again, the Commonwealth turned to NGOs and a National Workshop convened by the Australian Committee for the World Conservation Union (ACIUCN) was held during 15 – 17 May 1997 to provide a broader community input on the development of the oceans policy. The main recommendation from the Workshop was support for the Commonwealth government along with the continued and enhanced involvement of local and state governments in the development of the oceans policy (ACIUCN 1998, 3).

The states reacted positively to the *New Horizons* paper and were involved in discussions with the Commonwealth until July 1998. The consultation paper claimed that “the States and Northern Territory have embraced this [New Horizons] initiative and joined with the Commonwealth in the cooperative development of the Oceans Policy” (Commonwealth of Australia 1998a). At the time, the states and territories agreed that there was a need for a better base to care for, use and understanding of Australia’s marine resources and that the “oceans are too vulnerable to the tyranny of small decisions” (Commonwealth of Australia 1998a). They were, nevertheless, concerned with the policy’s institutional arrangements, financial commitments and obligations. Considering the past difficulties with the Commonwealth over offshore jurisdictional arrangements, the states’ concerns were warranted. Some discussions were held between the Commonwealth and the states on institutional arrangements and financial commitments, however, by September 1998, Senator Hill indicated that Environment Australia was to complete the final document. This action demonstrated that the policy was a Commonwealth Government initiative and the states stopped participating in the policy’s development process.

The development of the oceans policy was organised so that the final document would be released during 1998, the International Year of the Ocean. Preceding the release of
the oceans policy four Background Papers and seven Issues Papers that were publicly consulted upon and analysed in the drafting of the Oceans Policy.\textsuperscript{1} Sectoral interests were represented in the consultation and development process through the relevant Commonwealth agencies and through representation of key interest groups within MAGOP. This period up until the release of the policy documents demonstrates the demise of jurisdictional integration, which in the ten years of implementation has never been resolved, and reveals the beginning of the Commonwealth’s centralist approach to policy implementation from the “top-down”.

**Original aims of the policy**

The Commonwealth Government released the national Oceans Policy on 23 December 1998 in two volumes: *Australia’s Oceans Policy*, and *Specific Sectoral Measures* (Commonwealth of Australia 1998b, 1998c). “The Oceans Policy documents accompanied by Background and Issues Papers are the first thorough biophysical, environmental, social, cultural and legal examination of Australia’s ocean domain” (Vince 2006, 422). The Oceans Policy includes an introduction from the then Prime Minister John Howard. He states that “with the release of *Australia’s Oceans Policy* we again demonstrate our world leadership by implementing a coherent, strategic planning and management framework capable of dealing with the complex issues confronting the long term future of our oceans” (Commonwealth of Australia 1998b, 1). The document outlines that Regional Marine Plans (RMPs) are the core method of implementing the Oceans Policy “and all Commonwealth agencies are bound to those plans” (Vince 2006, 422). Although the states were left out of the final development stages of the policy, Senator Hill stated in the Forward that “implementing a national oceans policy will need better coordination between the national, state and territory governments in integrating planning and management to ensure that jurisdictional boundaries do not hinder effective management” (Commonwealth of Australia 1998b, 3).

The two documents provided a broad range of initiatives and actions. Analysis of the *Specific Sectoral Measures* document has identified 390 commitments across five broad areas. While a number of these commitment and initiatives were new and
innovative many of the sectoral level commitments were developed independently and then linked to the Oceans Policy.

The most innovative and challenging elements of the Oceans Policy centred on the new institutional arrangements established to implement the policy through the RMPs. These arrangements were also linked to the ‘whole of government approach’ to implementation promoted by the Commonwealth Government. The new institutions included the National Oceans Ministerial Board, National Oceans Office (NOO), Regional Marine Plan Steering Committees and the National Oceans Advisory Group (NOAG) (See Vince 2003). The NOO was given primary responsibility for development of the Regional Marine Plans, and was also responsible for monitoring the implementation of the 390 initiatives announced in the Oceans Policy. Initially the NOO was planned “to be housed in Environment Australia” (Commonwealth of Australia 1998b, 16) but was later designated as an Executive Agency under the Public Service Act 1999 (Cwth) that came into effect in early December 1999. This meant that the Director of the National Oceans Office reported directly to the Minister for Environment and Heritage, and through the Minister to the National Oceans Ministerial Board.

Intergovernmental dimensions of the oceans policy process were to be managed through an existing ministerial council, the Australian and New Zealand Conservation Council (ANZECC). The Council was made up of Environment Ministers from all states, the Commonwealth and Territories as well as New Zealand’s Environment Minister. The Australian states did not formally involve themselves with the oceans policy when it was released, but they continued to participate in decisions made within the policy community through ANZECC. The state participation through ANZECC was limited as the ANZECC responsibilities are restricted to environmental matters. Broader marine issues that deal with fisheries or oil and gas proved difficult to address through the ANZECC forum (Haward and Herr 2000). In 2001, ANZECC was no longer operational and was replaced by the Natural Resource Management Ministerial Council. Some of its functions include “to develop policies and strategies for national approaches to the conservation, sustainable use and management of Australia’s land, water, vegetation and biological resources”, as well as “to monitor
and evaluate outcomes of these policies, strategies and programs and the health of the nation’s natural resources” (Primary Industries Ministerial Council 2007).

The establishment of the National Oceans Office took significant time and effort, and directly affected both the scope and speed of the initial regional marine planning effort.

The same people who were trying to implement the policy were also doing the work to set the office up... and slowed the progress on the main task. However it is an unavoidable consequence of the decision to establish an executive agency (TFG 2002 17).

The Australian government recommitted itself to the Oceans Policy in the environment policy statement released by the Prime Minister as part of the 2001 federal election campaign.

**Implementation of the Oceans Policy**

The first regional marine plan was developed for the South East marine region, covering 2 million square kilometres of ocean including waters off the states of Victoria, Tasmania, southern New South Wales and eastern South Australia (Vince 2006). The South East Regional Marine Planning process comprised four phases of development. These were:

- the scoping or definition of the Plan;
- determining the economic, social, environmental and cultural characteristics of the Region via assessments;
- developing potential options; and
- analysing those options in order to implement the Plan (National Oceans Office 2001).

The process to develop the SERMP was launched at a 2-day Oceans Forum in Hobart in April 2000. The SERMP, as the first RMP, is essentially the “blueprint” for the process in Australia. The southeast is perceived to be one of the more complex maritime regions with the inclusion of four states and the Commonwealth in major
sectors such as fisheries and oil and gas production. The SERMP has evolved over
time. Initially it was expected to be primarily a “plan” that would identify gaps and
direct future oceans related policy and management within the region. As the SERMP
developed a focus on “process” emerged. The objective of the SERMP evolved into
the development of an ecosystem-based decision-making process, or framework for
making management and policy decisions at the regional level whilst identifying
specific issues that need to be addressed in meeting the objectives of the SERMP.
This reorientation from plan to process was in part a response to concerns expressed
by Commonwealth agencies over progress in developing the SERMP.

The South East RMP process has resulted in some communication between the states
from the southern region and the Commonwealth on the state officer level, through
the Southeast States Consultative Working Group (Sullivan 2004). Nevertheless, the
establishment of this Working Group has not resulted in any formal state ministerial
agreements, yet foreshadows ongoing intergovernmental engagement. Vince (2006,
428) argues that the formation of the Southeast States Consultative Working Group
“has been interesting for those involved to ‘see what works and what doesn’t’.”
Further evidence of intergovernmental coordination can be found in the processes
established to develop the Northern RMP. In October 2002, Queensland and the
Northern Territory governments agreed on Memorandums of Understanding with the
Commonwealth on activities regarding the Northern RMP (National Oceans Office
2003). This was the first successful attempt at formal intergovernmental coordination
following the release of Australia’s Oceans Policy.

Review of the Oceans Policy

“Performance assessment and reporting” was included in the Oceans Policy
Policy was commissioned prior to the completion the SERMP. The review addressed
three themes: progress with the implementation of the policy to date including
progress with regional marine planning; value for money with the funding spend to
date; and effectiveness of institutional/governance arrangements in supporting an
implementing the policy (TFG 2002, 1).
The review concluded that that “the initial implementation schedule for regional marine planning was very ambitious” (TFG 2002 2), but at the same time noted that there was “uncertainty about what will be delivered, how it will work and whether it will add value” (TFG 2002 2). The review noted the “major impediments” affecting implementation including that the Ocean Policy “did not represent an agreed position with the States and Territories and it has not been subsequently endorsed by them” (TFG 2002 8). The Review considered ways to improve coordination between Commonwealth and the States and territories. It noted that while “complex interactions and interrelationships between legislation is one of the major impediments to implementation” (TFG 2002 10), the lack of a legislative base to Oceans Policy was explicable, and “reflects both the complicated interactions and interrelationships between existing legislation and the sensible focus on pursuing a co-operative approach to developing a framework for integrated marine planning” (TFG 2002 10).

In relation to progressing key aspects of the Oceans Policy the review found that of 157 key initiatives with the Oceans Policy 136 (or 87 per cent) were “completed”, “proceeding” or a “continuing activity”. The review also explored options for the future direction of the National Oceans Office. These options included maintaining the office’s independent status, locating it as a “separate and distinct office within an existing Department, but with primary location in Hobart, with staff in Canberra and other centres. The third option was to relocate the National Oceans Office to Canberra and have a small number of staff in Hobart and in other centres” (TFG 2002 13-140).

**Five years of Policy Implementation**

Following the review of the Oceans Policy, work on the SERMP recommenced and on 21 February 2003 a workshop was held by the National Oceans Office (NOO) in Canberra with all board agencies to discuss the way forward and to ensure that agencies were satisfied with the SERMP agenda. The draft SERMP was released on 18 July 2003, by the Chair of the National Oceans Ministerial Board and Minister for the Environment and Heritage, Dr David Kemp. The draft Southeast Regional Marine Plan was the ‘action plan’ for implementing *Australia’s Oceans Policy* in the southeast marine region. The draft SERMP was released with an *Oceans Policy*:
Principles and Processes companion document outlining the Integrated Oceans Process for improving cross-sectoral integration of oceans management, effectively defining the governance framework and implementation strategies. Whilst the NOO worked hard at addressing these issues, there still remained a certain level of uncertainty about its ongoing role, hence it continued to cause anxiety amongst those involved in the process.

Prior to the release of the Draft SERMP a consortium of environmental groups released a report, Oceans Eleven in March 2003 (Smyth, Prideaux, Davey and Grady 2003). Some key recommendations of the report included

- That ecosystem-based management is reinforced as being the heart of the Oceans Policy and regional marine planning.
- That a National Oceans Act and, a sufficiently empowered National Oceans Authority be created.
- That the National Representative System of MPAs is established with a core network of marine national parks that are of sufficient number and size to protect the range of marine ecosystems in Australia’s care (Smyth, Prideaux, Davey and Grady 2003, 8).

Oceans Eleven argued although there was widespread support from the stakeholders for the oceans policy, “five years on movement from policy to action has stalled” (Smyth, Prideaux, Davey and Grady 2003, 6).

The South East RMP was completed in May 2004 and, like the Draft SERMP, met with a mixed response. The challenges in developing a “world’s first” plan, translating the commitments announced in the Oceans Policy into practice was broadly recognised. Some “disappointment” was expressed with plan (ACF 2004) for not providing strong enough commitments in key areas. This response from environmental groups may have reflected the differing expectations of stakeholders (see Vince 2006). According to Vince (2006, 427) “the implementation of the SERMP has understandably been a process of trial and error for the Commonwealth”. It was also a more complex process than first anticipated by policy makers. Changes
to regional marine planning in 2005 (see below), however, have provided new directions for the South East region.

**Institutional Restructuring**

As suggested in the TFG Report in 2002, the institutional framework for the implementation of the Oceans Policy was reviewed. Three key changes occurred from 2003 to 2007, beginning with the establishment of the Oceans Board of Management and the Science Advisory Group.

The Oceans Board of Management comprises representatives from seven Australian Government departments and agencies relevant to Australia’s marine jurisdiction. It was formed to provide high-level, whole-of-government advice on operational aspects of Australia’s Oceans Policy and its central programme of regional marine planning. The Oceans Policy Science Advisory Group, comprising representatives of Australian Government marine science and related agencies, as well as State research institutions and non-government marine science interests was also formed. It is tasked with promoting coordination and information sharing between Government marine science agencies and across the broader Australian marine science community (Department of Environment, Water, Heritage and the Arts 2008).

Second, in 2004 the NOO lost its executive agency status, “as these institutional models lost favour with the Government, and was located within the Marine Division of the Department of Environment and Heritage” (Haward and Vince forthcoming). The National Oceans Ministerial Board was also dissolved, however, the cross sectoral approach to policy implementation has continued through the Oceans Board of Management. Third, in 2007 the Department of Environment and Heritage was renamed and restructured as the Department of Environment and Water Resources (DEWR). The Marine Biodiversity Division within DEWR included four new ‘branches’: the National Oceans Office Branch; Marine Conservation Branch; Marine Environment Branch; and Natural Resources Policy Branch. The Minister for the Environment has the responsibility for the Division (that includes the NOO Branch) and reports to Cabinet on its progress.
In October 2005, following the restructuring of the NOO, Senator Ian Campbell, then Environment Minister, announced that RMPs will be established under S176 of the *Environment Protection and Biodiversity Act 1999* (EPBC Act). This would provide a legislative basis to and consistency in the implementation of RMPs, to be known as marine bioregional plans. This action should provide some consistency across different regional marine plans and provide a legislative basis for their implementation. Under the Act the marine bioregional plans will also provide the platform for the National Representative System of Marine Protected Areas. The SEMP has been reviewed and adjusted to conform to a marine bioregional plan. The former Howard government allocated $37.7 million over four years in the 2006-7 budget to create Marine Bioregional Plans for the whole of Australia (DEWR 2007a). DEWR (2007b) noted that the bioregional planning under the EPBC Act “gives new impetus for the implementation of Australia’s Oceans Policy by streamlining the planning process and providing greater guidance about marine environment conservation priorities.”

The use of section 176 of the EPBC Act addressed criticism of the lack a legislative base to the ocean policy, but does not go as far as instituting and *Oceans Act* as is the case in Canada (see ACF 2006; Vince 2008; Foster, Haward and Coffen-Smout 2005). Current advocacy centres on the development of an Australian *Oceans Act* (ACF 2006). In March 2006, ACF and National Environmental Law Association (NELA) released *Out of the Blue: An Act for Australia’s Oceans*. It was hoped that this document would “kick start” a discussion on Australian oceans governance. The ACF and NELA argued that the EPBC Act can complement an Oceans Act. The report outlines the following recommendations: the development of an Australian Oceans Authority; the signing of an Intergovernmental Agreement on Australia’s Oceans by the Commonwealth, state and territory governments through the Council of Australian Governments; and increased Indigenous community involvement (ACF 2006). Despite these efforts by advocacy groups “the Commonwealth government regards the linking of the Oceans Policy to the EPBC Act as providing a sufficient legislative anchor” (Haward and Vince 2006, 9).
Lessons learned from the development and implementation of the ‘new’ oceans policy

In 2003, five years after the release of the Oceans Policy, Vince (2003, 10) stated that “it cannot be claimed that there is full integration across sectors and jurisdictions” and that “the most significant goal for ocean institutions, key stakeholders and interest groups involved in policy implementation will be the continual support of integration across sectors and jurisdictions”. Academics and policy makers were optimistic that the RMP process, given time, would result in more integration. In 2006, Vince claimed

The SERMP process provides two valuable lessons for the implementation of other RMPs in Australia…First, the aim to reach full integration within a relatively short period of time whilst implementing a new RMP (without an agreed framework) is difficult, if not impossible to accomplish. Commonwealth agencies need to acknowledge that the restraints of Federalism may prevent full integration across sectors and jurisdictions from ever occurring. Second, partial integration in the SERMP has not resulted in policy failure, rather it has increased cohesion, community consultation, stakeholder participation, and communication between sectors and jurisdictions (Vince 2006, 428).

Ten years since its release, the Oceans Policy’s focus on integration is no longer a major priority. In the process of implementation of any new policy, “new issues, new requirements new considerations emerge as the process unfolds” (McLaughlin 1987, 174). Ecosystem based management through the bioregional marine planning has increased in importance, also reflecting that the policy has gone “full circle” with its environmental focus. For instance, the original policy documents stated that the NOO was to be located in Environment Australia, then, Senator Hill’s push for the NOO to executive agency status (outside the department) during the early years of implementation reinforced that the Oceans Policy was “neither solely an environmental protection policy nor solely an economic development policy” (Commonwealth of Australia 1998b, 3). The NOO returned to the environment department and Senator Campbell’s efforts to establish a legislative component for bioregional marine planning through the EPBC Act reflected that the Commonwealth was again interested in an “environmental” direction for the implementation of the policy. Browne and Wildavsky (1984, 234) explain that “[i]mplementation is no longer solely about getting what you once wanted but, instead, it is about what you have since learned to prefer until, of course, you change your mind again.”
There is no doubt that the implementation of the oceans policy has been a lengthy process. Original timelines were not adhered to, however, this resulted in thoughtful approaches in implementing next steps, rather than rushed decision making. This is indicative of, and an advantage of implementing ‘new’ policies. However, as Pressman and Wildavsky (1973, 130) indicate “the advantages of being new are exactly that: being new. They dissipate quickly over time”. It is not surprising then that the Australian government made the most of emphasising its ‘new’, ‘world first’ policy, and second, that “when Australian policy makers began developing a new policy and using untried implementation methods they were aware of ‘getting it right’. They were conscious that other States would be learning from the AOP process” (Vince 2008, 179). Consequently, Australia’s Oceans Policy, its institutions and implementation methods have become a source of policy learning and transfer for other countries establishing their oceans policies such as Canada and New Zealand (see Vince 2005, 2008).

**Future Directions and Conclusion**

During the 2007 federal election campaign, parties announced their positions on environmental issues. The Australian Greens was the only party to specifically mention a direction for the Oceans Policy – “The Australian Greens will introduce an Oceans Act that coordinates sustainability of ocean uses through a statutory National Oceans Authority, reporting to the parliament, and enforcing eco-system based regional management plans and targets” (Greens 2007). The Australian Labor Party focussed on marine management specifically outlining a Great Barrier Reef “Rescue Plan” (Australian Labor Party 2007), while the Coalition Government’s election plan focussed on fisheries “Strengthening and Protecting Australia’s Fishing Industry” (2007). On the 24th November 2007, a new Federal Labor government was elected and nine years of oceans policy implementation under the Coalition ended. It is interesting to note that the new government immediately changed the name of the environment department, yet again. The short lived title of Department of Environment and Water Resources is now the Department of Environment, Water, Heritage and the Arts.
The oceans policy process demonstrates and reinforces what policy analysts already know, that ‘new’ policies are complex and timely. The year 2008 marks a new era for oceans management in Australia and the oceans policy will no longer be regarded as a “new” policy. Pressman and Wildavsky (1973, 130) put it best: “youth has gone and middle age has come, hopefully more powerful, certainly more experienced, inevitably less innovative.” The preceding years under the Howard government have demonstrated a commitment to oceans policy implementation through innovative methods, although the focus of the original policy has changed. Nevertheless, the changes during oceans policy implementation should be recognised for giving the process stability and longevity over the last ten years. While it is now doubtful that jurisdictional integration is a priority for policy makers, the new emphasis on bioregional marine planning and its legislative grounding appears to be a promising way forward for the continual implementation of the oceans policy. Sectoral integration, even if only partial, will also be an important element in the continuity of this process.

References


Primary Industries Ministerial Council. 2007. “About NRMMC”,


1 The Oceans Policy “Background” and “Issues” Papers included:


Australia’s Oceans Policy. Analysis of the Submissions to the Oceans Policy Consultation Paper, Background Paper 3, Environment Australia Canberra;


2 This and the following section are based on Haward and Vince (forthcoming).