

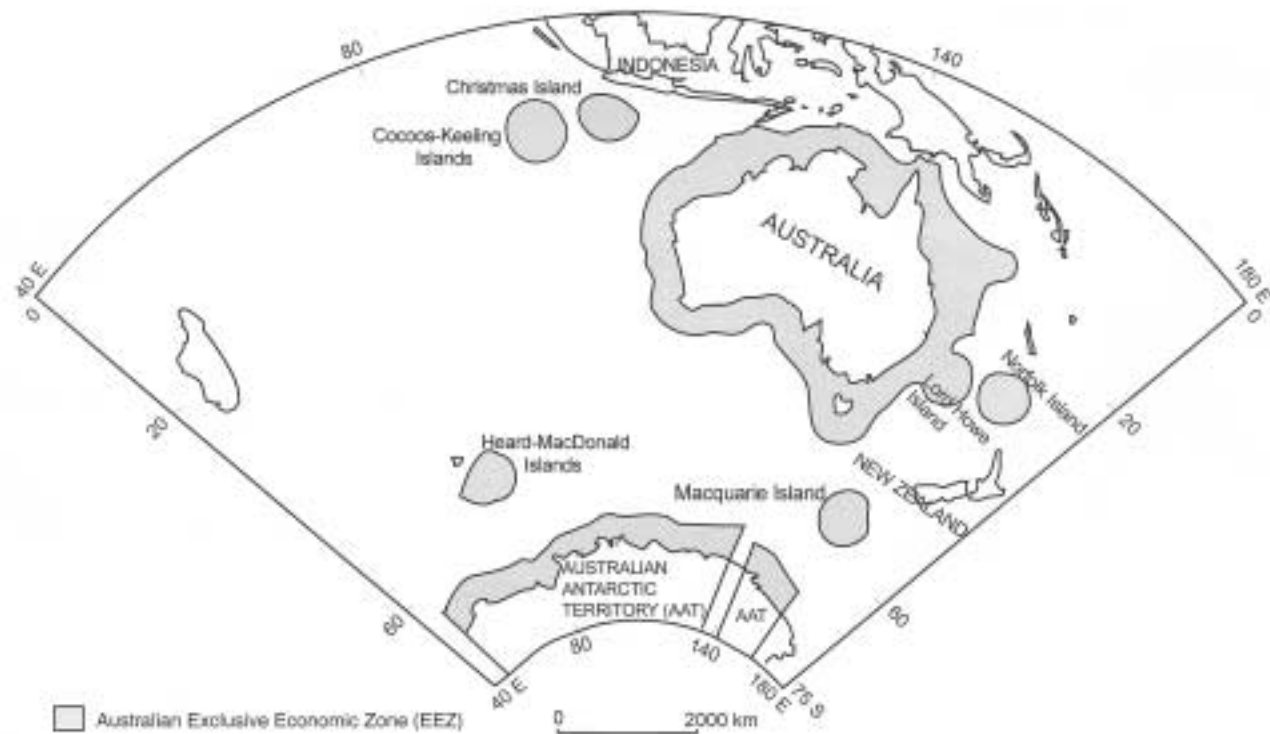
Australia's Oceans Policy: Sink or Swim?

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In 1999, Australia introduced an ecosystem-based oceans policy. This article analyzes the issues that must be addressed in implementing this policy. Institutional arrangements and regional marine management plans are the keys to translating ecosystem management principles into day-to-day operation. The proposed institutional arrangements have the potential to overcome the historical problems of coordination and jurisdictional disputes, but implementation has further polarized federal and state agencies and stakeholders. Even if these issues are resolved, the authors note that substantial development is required in the areas of designing nested ecosystem-based management frameworks at the appropriate geographic scales, methods for integrating across the range of users and ecosystem values, and tools for evaluating and assessing ocean management decisions before the policy will affect the ecologically sustainable use of Australia's ocean estate.

The United Nations Convention on the Law of the Sea (UNCLOS) came into force in 1994. At that time, nations declared their exclusive economic zones (EEZs) in anticipation that their maritime estates would contribute to further national economic growth. UNCLOS provides maritime nations with the sovereign rights to exploit resources, but also requires them to demonstrate that they are effectively managing the resources within their EEZs. This requirement is designed to discourage nations from declaring EEZs simply to prevent competing nations from gaining access to resources. Australia is the only country with full control of a continent and consequently is unique compared with other nations of similar sizes. Australia's EEZ extends from the seaward boundary of the territorial sea (nominally, 12 nautical miles from the shore) out to 200 nautical miles offshore, with additional areas of physical continental shelf that are contiguous with the 200-nautical-mile zone (see Figure 1). This EEZ and claimable seabed area is one of the worlds largest at about 16 million square kilometers. As a result of its unique position in the Southern Hemisphere, Australia manages large areas of the Pacific, Indian, and Southern Oceans.

Australia's marine jurisdiction also spans more than 40 degrees of latitude, encompassing tropical, temperate, and Antarctic ecosystems, and has a wealth of marine biodiversity with the potential to provide for considerable ecologically sustainable development (ESD) nationally and



267 Figure 1: Australian Exclusive Economic Zone

internationally (Ward et al., 1997). Consequently, Australia has immense responsibility to manage a significant portion of the world's marine resources.

Australia has developed an integrated and ecosystem-based policy for the planning and future management of its maritime estate (Commonwealth of Australia, 1998c; Westcott, 2000) as a step toward meeting its EEZ responsibilities. This was motivated in part by the need to meet its UNCLOS obligations but also by the need to provide a framework for the ESD of its complete maritime estate. UNCLOS requires signatories to the convention to demonstrate that they are managing their EEZs; this policy provides the framework for effective action to fulfill this obligation. However, Australia's Oceans Policy was also a result of the need to coordinate and integrate management across a range of domestic and other international instruments for marine conservation and fisheries management and to provide a framework for implementation to fulfill those obligations at the national level. Australia has a small population and yet one of the largest marine estates. The increasing global exploitation of marine resources means that there is increasing pressure for the increased exploration and development of EEZs that are less developed and still in good condition. Oil drilling, mining, bioprospecting, and marine aquaculture are emergent industries with the potential to conflict with established industries as well as with conservation and biodiversity management imperatives. State governments, industry, and conservation groups expressed concern over how these industries and future resource exploitation would be managed to ensure that resources are ecologically sustained and conservation requirements are met while providing for equitable resource access and economic growth. Conservation organizations worried that in the absence of guidelines for resource allocation and management, an open access system would evolve, and Australia's resources would be faced with the same problems that confront open access in fisheries around the world.

Globally, there are few examples of marine policy based on ecosystem management principles at this scale, especially with a diversity of ecosystems that span three oceans. In January 1997, an oceans act came into force in Canada; however, procedures for implementation of its principles, such as ecosystem-based management, have yet to be developed and implemented. Similarly, although with a much smaller EEZ, the Netherlands announced a plan to "harmonize" decision making in relation to its sector of the North Sea, but the processes envisaged are high-level coordination of decision making with no clear links to practical ocean activities (Herriman, Tsamenyi, Ramli, & Bateman, 1997). In the United States, Congress finally passed the Oceans Act of 2000 after much debate since 1997. However, the new U.S. act is anthropogenic in its focus: protecting life and property rather than taking a primarily ecosystem-based approach.

These attempts by other nations to design and implement ocean policies reinforce the importance of the successful implementation of Australia's Oceans Policy. In doing so, Australia will provide a model for other nations to develop ecosystem-based policies. The potential impact of good policy implementation in Australia is highest with its immediate neighbors. The development of an effective oceans policy will provide leadership and guidance for several developing nations in the South Pacific, Southeast Asia, and the Indian Ocean in managing their marine resources.

Offshore, ocean areas under Australia's jurisdiction host a small number of deepwater fisheries and limited development of gas and oil fields concentrated in the northwest region. Inshore, however, many areas are subject to extensive exploitation and development for fishing, shipping, sand mining, and tourism, and some are affected by shoreline urbanization and poor river watershed management practices (Zann 1995). Activities in nearshore areas will be extended further offshore as resources decline and technology overcomes the current problems in working in deep offshore waters. Not only will these activities expand, but other activities such as bioprospecting, fishing, mining, and aquaculture will be further developed in the maritime estate. For example, there is considerable current interest developing in fishing, bioprospecting, and the mining of deep-sea thermal vents and related ecosystems, as well as the fishing of seamounts, raising issues of environmental impacts and conservation of globally unique faunal assemblages (Richer de Forges, Koslow, & Poore, 2000). Early warning signs of coastal degradation (in estuaries and bays), such as algal blooms, are now widespread (Zann, 1995). Ensuring that current uses and future developments are sustainable through an effective oceans policy is a high priority for Australia.

The Policy

The formulation of the Oceans Policy was unique in Australia, with the commonwealth government working closely with industry, conservation groups, and research organizations throughout the process (see Table 1). Interested stakeholder representatives from across Australia were brought together to comment and make recommendations on policy direction and its implementation. Public debate on the policy was facilitated through the Marine and Coastal Community Network, which acts as an information provider for community groups and the general public and facilitates public meetings on marine management issues. This ensured that the community was aware of and had several opportunities to participate in the development of the policy. State governments

were kept informed of the policy's development, but generally, the states adopted a wait-and-see attitude in the early phases of policy development; those states with direct interests in the outcome became much more involved only when the policy moved to the implementation of regional marine plans (RMPs) in their jurisdictions.

The Oceans Policy was released in December 1998 by the federal government, with a vision of "healthy oceans: cared for, understood and used wisely for the benefit of all, now and in the future" (Commonwealth of Australia, 1998a). It is supported by a set of international, technical, economic, and social goals. The international goals reflect Australia's desire to meet its UNCLOS obligations, and the technical goals reflect the need for effective ESD and ecosystem-based management. The social and economic goals also reflect ESD requirements but focus on social and economic benefits. The overall implementation of the policy will be based on managing threats and conflicts through integrated and ecosystem-based planning within RMPs. The term *integrated* refers to the active engagement of the three spheres of government in Australia and the full range of stakeholders. *Ecosystem-based management* refers to management, usually of human activities and their effects, that seeks to identify and address direct and indirect effects on ecosystem components and to integrate planning and management activities across sectors within ecosystem-defined units or areas (Commonwealth of Australia, 1998b).

Achieving the vision and goals with the proposed policy initiatives will determine whether the policy swims or sinks. The policy holds considerable promise in establishing a set of management tools so that ocean health is not threatened and potential conflicts between ocean users are averted. Progress since the release of the policy includes establishing the proposed institutional arrangements and a commitment by governments to develop and implement the first RMP (in Australia's southeastern region) by 2002. The two key features of the policy that will enable it to be successful are a set of new institutional arrangements and effective RMPs, as discussed below.

Following the policy's release, much of the effort of government was focused on establishing the institutional structures and finalizing the location at which the first regional marine planning process would proceed. Despite their national significance, these activities took place within government, with limited interaction with the community, especially with those who had been involved in the planning. Outside government, the only external input is provided by a ministerial select committee, known as the National Oceans Advisory Group (NOAG), but this is used mainly as a sounding board for government and not to elicit broad-scale community participation in the implementation processes. When decisions were made and conveyed to the community, they were often politically based and not necessarily reflective of the effective

Table 1
Major Players in Ocean Policy in Australia

<i>Player</i>	<i>Interest and Role</i>
Commonwealth government	
Department of Environment and Heritage	• Policy coordination and implementation • Chair of the National Oceans Ministerial Board • Responsible for the marine policy in commonwealth waters • Marine protected area establishment and implementation • Conservation of marine resources • Controls funding to other agencies for policy implementation including research • Maritime heritage and historic sites
Agriculture, Fisheries and Forestry Australia	• Fisheries management through the licensing of domestic and foreign vessels • Revenue generation through foreign fishing licenses • Sustainable use of fish resources • Coordination of fisheries involving more than one state or involving international parties • International fisheries policy and transboundary activities
Minerals and Energy	• Offshore gas and oil exploration and production including foreign investment in the sector • Economic development in the sector • Energy alternatives
Transport	• Shipping • Maritime industries • Marine pollution from ships and other gas and oil facilities • Search and rescue
Defense	• National security • Enforcement of exclusive economic zone • Illegal immigration
Tourism	• Marine and coastal nature-based tourism
State governments' premiers' departments	• Ensuring that states' rights are not weakened • Ensuring that marine and coastal areas managed under their jurisdictions are not compromised • Recipients of commonwealth funding for coastal management, infrastructure development, marine park management, fisheries management, and research • Coordination with the commonwealth government and other state governments

(continued)

Table 1 Continued

<i>Player</i>	<i>Interest and Role</i>
State agencies for managing fisheries, minerals and energy, transport, marine parks, tourism, and planning	• Perceived overlap with some commonwealth responsibilities • Implementation of commonwealth policies
Industries such as fishing, aquaculture, mining, and gas and oil	• Further economic development in fisheries, aquaculture, gas and oil, seabed mining, and bioprospecting • Lobbying government to maintain future opportunities for economic growth in their sectors • Ensure rights of access to resources now and in the future in the face of strong conservation groups
Environmental groups	• Lobby government to expand the marine protected area system and to provide adequate funding for implementation of marine protected areas • Ensure that protected species are managed appropriately • Increase the awareness of the general public of the consequences of government policy on marine areas and resources • Ensure that industry does not have open access to marine resources and reduce the risk of further exploitation of marine resources
Indigenous groups	• Maintain access to their marine resources • Ensure that benefits from the exploitation of their traditional resources or from traditional areas are delivered to relevant indigenous groups
Tertiary education sector	• Expand training and education opportunities • Provide technical support for specific initiatives • Promote policies and practices for long-term funding of education research and training in marine technologies • Promotion of long-term monitoring and index sites for assessment of global change, assessment of reserve effectiveness, and benchmarks for coastal sustainable development
Science and research groups	• Further funding opportunities • Support to government, nongovernmental organizations, and industry for policy implementation • Objective technical advisers to national oceans groups

implementation of the policy. Typical issues included decisions about the structure, standing in government, and funding for the National Oceans Office and its siting in Tasmania. Similarly, although the RMPs are the key planning instruments to deliver the policy into action across the whole maritime estate, there has been no national debate about or broad involvement with the first RMP to be established. The first RMP is expected to form the basic model for all future RMPs, yet there have been no opportunities for national discussion or input from the marine planning and management community or the public. Consequently, momentum and interest in implementing the policy among the community in Australia has waned substantially.

Policy Analysis

INSTITUTIONAL ARRANGEMENTS

Ocean management in Australia is currently spread across sectors and jurisdictions. This federal policy generally applies to waters from the 3-nautical-mile limit to the EEZ boundary (see Figure 2). The waters inshore (3 nautical miles) are under state control. Poor coordination and cooperation have dogged previous attempts at managing the oceans across stakeholder groups and jurisdictions. The most striking example of this is the numerous attempts by the Australian federal government to formulate a national coastal management policy in the 1990s. The federal, state, and local governments reached a policy in 1996 (Kay & Lester, 1997). However, the federal government and states have continued to argue over annual funding of coastal management programs, and specific coastal management initiatives have now been absorbed within the Oceans Policy. Nevertheless, the right institutional framework is critical to effective policy because the states and a range of other stakeholders must be involved in and committed to the process, and someone must ultimately be responsible for managing ocean development.

The federal government acknowledges that formulating and implementing RMPs requires changes in the current institutional arrangements within the federal government and between federal and state governments. The new institutional arrangements have four main elements (see Figure 3).

The National Oceans Ministerial Board, composed of the minister of environment as the chair and five other federal ministers whose primary responsibilities are to oversee the regional planning process, further the development of the policy, oversee cross-sector coordination, and set priorities for program expenditures and marine research. The board also undertakes coordination of the Oceans Policy with state governments through the Australia and New Zealand Environment and Conserva-

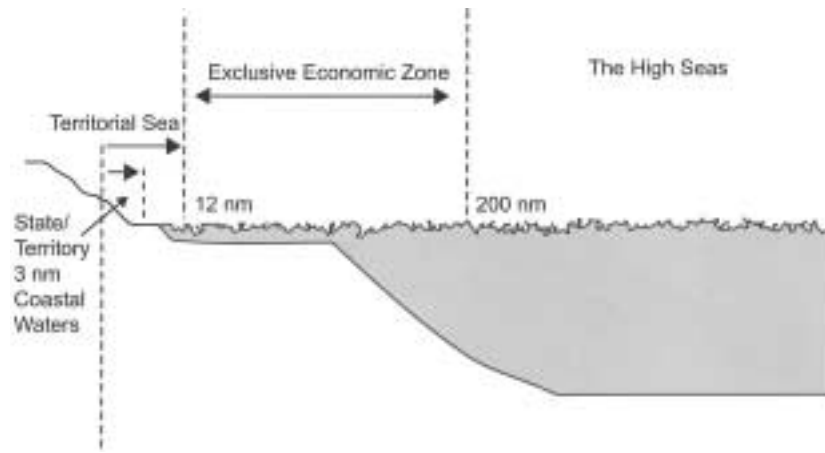


Figure 2: Australian Maritime Jurisdictions

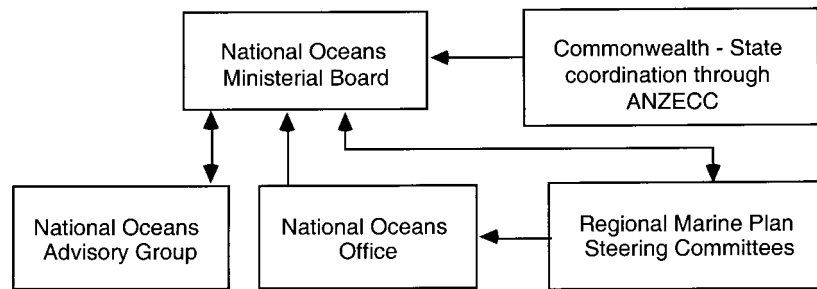


Figure 3: Institutional Arrangements for Australia's Oceans Policy

tion Council, whose membership includes representatives from the federal and state governments of Australia and New Zealand. The setting of priorities and funding by the ministers of the day risks the long-term viability of the policy. Priorities change with changing governments and cabinets, and overall support for the policy and its priorities can be expected to fluctuate. Elections are held in Australia every 3 years or less, and often, ministers have limited experience with and understanding of the policies they are responsible for, and many change portfolios before they have even reached the end of the learning curve for the policies they are expected to implement. Major funding of the Oceans Policy to date has been from the sale of a major share of the national telecommunications carrier (Telstra). Alternatives to this source of funding once it is exhausted have yet to be discussed by the government.

NOAG, comprising 16 members with mainly nongovernment interests (industry, conservation, indigenous groups, and science) advises the National Oceans Ministerial Board on cross-sectoral and cross-jurisdictional ocean issues and the scope and effectiveness of the regional planning processes, and facilitates information exchange between stakeholder groups. The inclusion of indigenous groups is important because many groups have traditional ownership of vast marine areas. NOAG is appointed by the government of the day and is subject to the bias of those sympathetic to the current government. Government-appointed advisory groups could also create a lack of long-term policy stability because membership is linked to the political parties in power.

The National Oceans Office (NOO) provides secretariat and technical support to the National Oceans Ministerial Board, NOAG, and the RMP steering committees, as well as program delivery. The NOO was originally established as a branch within the Marine Portfolio in the Department of Environment staffed by career commonwealth public servants with variable levels of experience in marine affairs. In December 1999, the NOO was changed to an executive agency under the federal Public Service Act 1999. This made the NOO more independent from the Department of Environment, reflecting the need for perceived independence of the NOO from the environment portfolio and as a result of pressure to admit more resource sector interests. The NOO is located in Tasmania, away from the more populous areas in eastern Australia and distant from Canberra, the nation's capital. Although the NOO is close to the area of the first RMP, when further RMPs are being commenced, communications and transport logistics will be difficult and expensive, and there will be a major weakness in local institutional connections. Indeed, having a state government of a different political persuasion seen to be closely associated with a national policy may itself constrain coordination and cooperation between levels of government. Also, in circumstances of contracting resources, existing models for the RMP will become most forceful and tend to dominate new RMPs, again limiting the potential for comprehensive stakeholder participation and the potential for successful implementation of the policy through effective RMPs. There is a clear need to develop a more effective model for stakeholder consultation and participation at all levels in implementing the policy and the RMPs.

RMP steering committees will oversee the formulation of the RMPs and therefore be composed of relevant nongovernment and government stakeholders. The process used to form the committee has not been open and transparent. Public support and involvement in the planning process will be effective only if the process is transparent and membership is open to publicly nominated members of the community who bring knowledge and expertise to the process. If governments decide to

appoint the members of the steering committees on other grounds, community support and participation will be diminished. The committee for the first RMP (with nine appointed members) has a broad basis of expertise in a number of relevant disciplines, although there are no planners. The functions of the first steering committee (for the southeast region) are as follows:

1. contribute to and advise on the planning process for the southeast region, including key tasks and milestones as a means of facilitating clearly specified outcomes for inclusion in the southeast RMP;
2. assist with RMP assessments, including the ecological, social, cultural, and economic value of marine resources, opportunities for regional economic development, and the assessment of impacts of proposed outcomes; and
3. provide for peer review throughout the regional marine planning process.

A key aspect of the institutional arrangements is the need to achieve integration within the commonwealth government agencies. The first steering committee has no federal government members and no transparent mechanisms for promoting integration of management practices within the federal government. In addition, the decentralization of the NOO was done without consultation with the states, territories, or commonwealth agencies. This decision was undertaken to win the support of an independent Tasmanian politician who held the balance of power in federal parliament on a number of issues. Basing the NOO in a small state away from the national capital has distanced the majority of state governments and agencies from the policy process, is likely to impede orderly policy implementation, and may threaten the policy's national success. In addition, the long delays in forming the policy institutes, as well as other political priorities such as the introduction of a goods and services tax, resulted in a loss of momentum and interest among politicians and the public in the policy.

In the United States, a commission on ocean policy, a structure similar to Australia's NOAG, is specified in the Oceans Act of 2000. The purpose of this commission is to make recommendations on marine resource management, environmental protections and stewardship, commerce, transportation, protection of life and property, cooperation at all levels of government, and international leadership in ocean issues. This is a large task to be done in 18 months. Much of the focus of the commission is on studies and recommendations. However, there is little if any scope for the commission to formulate the basis for decision making to guide decisions, setting priorities or funding for ocean policy. Unlike Australia's NOAG, commission members must be knowledgeable about ocean and coastal activities, and the composition of the commission is balanced in

the expertise and geographical distribution of its members. The Oceans Act of 2000 also requires a science advisory panel be established to assist the commission in preparing its reports and to ensure that the report is based on the best scientific information that is available. There is no similar structure in Australia's Oceans Policy, although there have been attempts to link Australia's Science and Technology Plan to the Oceans Policy as a form of support for its implementation, even though the two were developed independently (Reichelt & McEwan, 1999).

In Canada, the Oceans Act of 1997 does not make provisions for the establishment of a multisector or multiagency organization to formulate broad policy or regulations to govern the oceans (Government of Canada, 1997). The minister of fisheries and oceans has the power to consult with the appropriate agencies and other groups; however, this is not mandated in the act. Considerable discretionary power is left to the minister, in contrast with Australia and the United States, where government direction in ocean management is based on a committee approach.

RMPs

RMPs are among the key management tools in implementing the Oceans Policy. RMPs will focus on allocating resource access using geographically based, large marine ecosystems recently classified into bioregions (Commonwealth of Australia, 1998c). Principles of ecologically sustainable ocean use, developed as part of the formulation of this policy, are fundamental and will guide the RMPs. The principles are as follows:

- maintenance of healthy and productive marine ecosystems;
- the distribution of benefits from ocean use and management responsibility should be shared by all Australians;
- internationally competitive and ecologically sustainable marine industries are needed for economic development;
- economic, environmental, social, and cultural aspirations should be accommodated through multiple-use planning and management;
- the management of anthropogenic impacts on oceans will require an improved understanding of living and nonliving ocean resources and processes;
- planning and management decisions should be based on the best available information;
- priority should be given to maintaining ecosystem health and integrity if there is any potential impact on the ocean;
- incomplete information should not be used as a reason for postponing precautionary measures intended to prevent serious or irreversible impacts; and

- processes for assessing, planning, allocating, and managing ocean resources should be easily understood, openly justified, certain, and accountable; should provide intra- and intergenerational equity; should deliver a balance of outcomes that consider long- and short-term economic, environmental, social, and cultural factors; should be cooperative and coordinated; and should be effective in accounting for wider interests and community involvement (Commonwealth of Australia, 1998a).

Plans will be formulated on existing information, even though knowledge of ocean systems is highly limited. To be effective, the plans must therefore be flexible enough to adapt to new information, industries, and unforeseen impacts while providing users with secure and equitable resource allocation. The problem of poor coordination and cooperation across commercial interests, community groups, conservation organizations, and jurisdictions in planning processes will be addressed with full stakeholder participation as a key feature of the planning process. This will not be an easy task. Coastal planning initiatives in Australia have often been long, drawn-out processes with less than ideal outcomes. For example, the Great Australian Bight Marine Park, a joint federal-state initiative, was finally declared in 1999 after considerable negotiations with the South Australian state government and the federal government and limited involvement of other users such as commercial fishers, conservation groups, and indigenous owners. Consequently, subsequent implementation of the management plan has been constrained by conflicts between specific user groups that claim that their various interests are poorly represented in the final park boundaries and management zones. The key issue that has not been resolved is the arrangement of management zones such that fishing and oil exploration can continue in close proximity to areas highly valued for conservation purposes.

This park and its management plan were declared outside of the Oceans Policy and an RMP. If an RMP had been established prior to the declaration of the park, the RMP would have included the establishment of the park after consultation with stakeholders. This would have had the framework for better participation of the user groups and indigenous groups during the marine protected area planning process, and therefore the outcomes would have been more acceptable to the full range of stakeholders and most probably avoided many of the current implementation problems.

The first National Regional Marine Planning Workshop in May 1999 (Westcott, 2000) demonstrated how difficult it is to reach a consensus between stakeholders on the nature and scope of RMPs. Each stakeholder has a different perception of the objective, content, and implementation of these plans. Commercial groups perceive the regional plans as development plans and therefore conflict with conservationists,

who view the plans as bases for conserving ocean areas and resources. This lack of understanding by the various groups is due to the Oceans Policy's definition of decision making and regional marine management planning in only very broad terms, the lack of direction by the managing agency on the planning approach that would be taken, and the limited experience of most workshop participants in defining and undertaking a planning process. Many participants were experts in various fields or were advisory committee members, but few knew how to plan and how to conduct the planning process involving multisector and multiagency issues. Consequently, at the May 1999 workshop, there was limited progress on the scope, nature, and format of the plans. The problem was complicated further by various states that refused to participate fully in the formulation and implementation of the plans. The national workshop failed to achieve a major commitment of all governments to the policy. Part of the issue that is unresolved is the multiple and overlapping responsibilities of governments in relation to inshore coastal marine waters and estuaries and their biological diversity.

The first RMP will be formulated for the southeast region of Australia. The processes adopted, the information base, and the level of stakeholder involvement used in the development of this RMP will signal the level of commitment among governments, agencies, the private sector, and the community to both the implementation processes and the outcomes of the policy. The potential for impacts on the normal activities of various agencies and the private sector is substantial, given the commitment of the policy to establishing marine protected areas and to ensuring the implementation of practices that provide for sustainable development, and substantial risks are perceived by many stakeholders. Because the stakes are high, stakeholders will commit substantially to protecting their entrenched positions and to protecting their perceived rights (e.g., to fishing grounds or shipping lanes) in the face of a more integrated view of resource allocation across the various interests. As this first RMP process begins, there are early signs that the implementation process will be difficult, and without a clear vision of what is to be achieved and what tools are available and feasible, the policy implementation stands to falter.

The RMP for the southeast region of Australia will involve five stages over the estimated 3 years of the planning process:

1. Initial notice and scoping: This includes appointing a southeast RMP steering committee, identifying what activities the plan will cover within the region, identifying key issues and interests in the region, and proposing a public consultation process to meet the requirements established by the National Oceans Ministerial Board.
2. Assessment: This involves analysis of environmental, economic, social, and cultural values, as well as current uses and impacts in the southeast

region. Analysis combined with extensive consultation is expected to help define each sector's objectives for the region.

3. Options development: This involves the development of optional aspects of the regional marine plan, including assessments of the risks, costs, and benefits of each option.
4. Negotiation of options: This will include attempting to balance sectoral with cross-sectoral objectives for the southeast region and providing governments and the National Oceans Ministerial Board with a refined set of options.
5. Final drafting: This will involve preparation and securing final government approval for the southeast RMP, which will include a timetable and responsibilities for implementation, monitoring, and assessment.

The NOO expects that each phase will include one or more public documents to provide a focus for public comment and input, although there are no clear strategies for broad stakeholder consultation and inputs beyond those of local interest groups and, despite the national importance of this first RMP, no options for national review or analysis. It is not clear how governments will be involved in the planning process, but because the NOO has a mandate to ensure governmental approval of final RMPs, it seems that government involvement may be reserved until later stages; this opens the prospect of government vetoes or substantial change to otherwise agreed-on RMPs without public consultation and involvement. The lack of participation of governments at the working level is a major risk to the credibility of the policy and to the transparency of the process.

Regional marine management plans are a critical part of the Oceans Policy in Australia; this is in contrast to the U.S. Oceans Act of 2000, in which planning has no current role. The U.S. Oceans Act does not directly address the need for planning spatially or for resource allocation. There are provisions for examining federal policy and for making recommendations for specific activities, including the promotion of marine stewardship and interagency cooperation. However, how these issues will be addressed in an integrated and holistic manner is not clear in the act. This lack of clear direction in ocean planning may make the development of policies and plans difficult and subject to considerable debate and, more important, may lead to suboptimal decision making.

Canada's Oceans Act of 1997 is similar to Australia's Oceans Policy; a national ocean management strategy is specified. Like the Australian policy, Canada's policy is to be formulated by involving a range of stakeholders, using sustainable development principles, integrating the management of ocean activities, and taking a precautionary approach. There are also provisions for the formulation of integrated management plans for specific areas within Canada's oceans. These plans will also involve a range of stakeholders, manage marine activities using policies and programs that are coordinated and integrated, and use existing boards or

establish new boards to implement the plans. Although considerable attention to planning is given in Canada's act, to date, there is no national strategy and no area-specific integrated management plans.

Marine protected areas are expected to play a significant role in managing for conservation in Australia's and Canada's oceans. The instruments in both countries specify the establishment of a national representative system of marine protected areas. However, the U.S. Oceans Act makes no mention of marine parks but does specify the protection of the marine environment. It is not clear how existing marine protected area initiatives in U.S. waters will be coordinated with activities developed for implementation under the U.S. Oceans Act

From Words to Actions (policy implementation)

Translating Australia's Oceans Policy into on-the-water actions will not be easy, especially with a budget constrained to about U.S. \$30 million over the next 3 years. The funds will be used to establish the new institutional arrangements, formulate RMPs, establish marine reserves, and complement other national and state marine and coastal programs. The industry sectors will also be encouraged to continue their shift to sustainable use practices and to minimize environmental impacts. In addition, the links between the recently developed national Marine Science and Technology Plan (MS&TP) and the Oceans Policy are diffuse, heightening fears that the MS&TP will provide only limited and indirect technical support for the policy (Reichelt & McEwan, 1999).

Setting aside the argument of sufficient resources to implement the policy, Australia's Oceans Policy will sink or swim depending on whether it (a) provides explicit and transparent guidance for resource allocation among competing uses and aspirations, (b) engenders a sense of stewardship among stakeholders, and (c) provides for evaluation of the policy's effectiveness. Three critical issues must be resolved before the above three criteria can be met:

- The approach to participatory planning and decision making across all sectors and interests in a transparent and accountable manner must be articulated by ocean policy managers and agreed to by those engaged in the planning process.
- The policy must provide or foster the required framework to guide operational decision making for resource allocation among competing users.
- Policy implementation must deliver on the principles of ecosystem management while meeting current and future demands (economic, social, and environmental) by the community.

PARTICIPATORY PLANNING AND DECISION MAKING

The diversity of participants in regional marine planning and the nature of the planning process itself will be critical to implementing the policy through decision making. The policy does not explicitly state who the key stakeholders are; therefore, for each region, the RMP steering committees must ensure that as many stakeholder representatives as possible are engaged in the process. Representation must include a range of conservation, commercial, industrial, recreational, indigenous, and vicarious interests. Just as important is the process itself; recent coastal planning initiatives (Kay & Alder, 1999) have demonstrated the benefits of consensus planning. The consensus approach effectively deals with multiuser, multiagency, and multijurisdiction deliberations and therefore has the potential to engage all stakeholders in the regional marine planning process.

Consensus planning attempts to build unanimity among stakeholders through dispute resolution, pragmatism, and education while emphasizing the importance of learning communities, empowerment, and communication. This approach takes the deliberate view that everyone has equal importance in the process, with the goal of reaching a win-win situation with mutually beneficial outcomes for all interest groups (Potapchuk, 1995). A requisite feature of this planning approach, or any other that is used in regional marine planning, is a political commitment to the planning process and a firm stand on refusing to negotiate outside the process. Politicians must refuse to deal with stakeholder groups that choose to disengage from the planning, no matter how influential they may appear to be. The development of the 25-year strategy for the Great Barrier Reef Marine Park is an example of consensus planning that has worked. More than 60 stakeholders were represented and ultimately endorsed the plan. Consequently, stakeholders not only understand and support the strategy but also assist in implementing it through their corporate plans (Raymond & Craik, 1992).

If the regional marine planning process is effective, then implementation (i.e., good decision making) is also effective, because stakeholders will be committed to a decision-making system that is fair and equitable to all groups. Putting the plan into operation is considered below.

OPERATIONAL DECISION MAKING IN RESOURCES MANAGEMENT

Integrated resource allocations will mean that some existing ocean users will have to make resource trade-offs in spatial terms in return for increased certainty and resource security. Defining acceptable trade-offs

and their spatial implications will require new conceptual models and management practices.

First, existing models of resource allocation (e.g., in commercial fisheries) will need to explicitly recognize and embrace the existence of marine reserves, which the policy will use to ensure protection of representative ocean ecosystems. In fisheries management, reserves may be recognized as a competing resource allocation problem, but more usefully, they should be considered as an opportunity to improve management of fishing practices and returns to the fishery (Sumaila, Guenette, Alder, & Chuenpagdee, 2000; Ward, Heinemann, & Evans, 2001). For other sectors (such as tourism), reserves may already be recognized as a substantial benefit.

Second, models of resource allocation issues will need to specifically embrace both indirect impacts of resource harvesting on nontarget organisms and interactions with the impact of external factors (such as pollution, other industry sectors, or large-scale changes in climate) on those resources. Interfacing these new resource allocation models to the existing activities will require considerable further knowledge and data than already exist and the development of broader approaches to natural resource management. In essence, although some of the mechanisms exist for resource allocations (such as quota allocations in fisheries), these will need to be expanded using new models that integrate other users' requirements and conservation imperatives. The single most critical area in which knowledge is weakest is in how natural ecosystems respond to changes in stresses, including pollution, harvesting, and the introduction of pest species. This area is most critical because knowledge of cause-effect relationships is weak, highly uncertain, and typically based on knowledge drawn from highly inadequate local studies or, even worse, from Northern Hemisphere examples. This means that spatial trade-offs of the resource allocation rights of any stakeholder engaged in the planning process are made extremely difficult because of the high uncertainty that is attached to any decision.

Third, resource allocation processes operate at a range of spatial and temporal scales and across different jurisdictions, for example, from regional commercial fisheries to local recreational harvesting of the same species. The nesting of resource allocation issues across the full range of scales of space, time, and jurisdiction will require new ways of managing natural resources beyond the existing sector-based approaches. The key to resolving these conceptual problems is the consensus-based adoption of a common but limited currency set as the focus for management for all levels and jurisdictions and the development of operational resource allocation models that are designed to be flexible and adapt to new knowledge as it arises.

DELIVERING ECOSYSTEM-BASED MANAGEMENT

The essence of ecosystem-based management is managing human activities so that they will not unacceptably degrade the ocean, its ecosystems, or its resources (Ward et al., 1997). This admits human uses of ocean resources in places, at times, and in ways that are socially, ecologically, and environmentally acceptable, where acceptability is determined by a comprehensive, consensus-based process. The critical issue, therefore, is how ocean-based goods and services are delivered to the relevant stakeholders in a way that maintains the integrity of the ocean ecosystems and achieves acceptable levels of conservation and protection of its biological diversity. To achieve ecosystem-based management, the policy highlights a set of important principles as a guide to decision making.

The main principles include maintenance of ecological integrity, integration of planning and management for multiple uses, promotion of ecologically sustainable industries, clear governance arrangements, planning and management that accommodates uncertainty, and use of the precautionary principle. However, there is little global experience of implementing these principles in the oceans. The policy guidance is therefore not strong. It does not address the key problems of defining what integration means in the context of users of ocean ecosystems; how the resulting regional plans will be translated into terms that users can incorporate into their activities; and what organization or institution has carriage of implementation of the regional plans, ensures effective participation from stakeholders, oversees plan implementation, and assesses compliance. The weakest elements of the policy principles are the lack of specific guidance on how to enforce effective interagency cooperation, enable effective participation of a full range of stakeholders, facilitate organizational change, ensure that the values of biological diversity are properly accounted for in the planning, oversee management and activities of ocean users, and ensure that there is effective monitoring of biological diversity in off-reserve areas (despite linkages to national state-of-the-environment reporting) (Ward, 2000) to assess the real effectiveness of the policy in terms of its objectives and outcomes.

Key resource allocation issues may involve many stakeholders, and they are most complex when they cross the boundaries of what are considered to be traditional management sectors, such as fisheries management. The lack of an integrated approach to marine conservation and resource use has resulted in serious ecological consequences in southern Australian marine ecosystems. As one example, the repeated episodes of mass mortalities of Australian pilchards across southern Australian coasts are considered to be linked to the importation of frozen pilchards from California, Chile, Peru, and Japan to feed caged southern bluefin

tuna in marine aquaculture operations. The Australian pilchards die of a herpes-like viral infection, each episode killing tens of thousands of tons of fish (Gaughan, Mitchell, & Blight, 2000). The highly contentious practice of importing frozen food for the aquaculture operations continues, despite clear linkages to impacts on commercial harvesting of Australian pilchards and major ecosystem-level impacts across much of southern Australia's waters. Here, the highly valued tuna aquaculture operations are traded off against ecosystem-level effects and costs imposed on natural populations of pilchards and wild-capture fisheries. The tuna aquaculture operations continue to be highly controversial.

The elements of this problem are common to many maritime nations. Systems of governance and oceans management are hierarchical, and achieving a cohesive and meaningful connection of global, regional, and national policies to the local scale of management and action is highly complex in all jurisdictions. Australia's problems of integrating across multiple levels of government, private sectors, and the community to achieve meaningful conservation and sustainable use of its marine biodiversity are faced by all maritime nations. If the Oceans Policy can be used to successfully overcome many of these difficulties, particularly the issue of vertical integration of natural resources management, Australia will be able to assist its many tropical neighbors. These nations also have highly valued marine biodiversity and needs for more integrated approaches to marine resource conservation and management. Of course, specific local and cultural settings will most likely result in very different implementation approaches, but experience in Australia will help define a broad framework and elements that might need to be included within other national (or regional) oceans policies to maximize their potential for success.

Lessons Learned

Despite the already obvious shortcomings of Australia's Oceans Policy, it has demonstrated that the apparent intangible concepts of ecosystem-based management, ecologically sustainable development, and the precautionary principle can be translated into pragmatic policy. Experience so far has shown the following:

- Translating policy to on-the-water management requires consistent and constant involvement at the political and public levels. The momentum of stakeholder and government interest and involvement must be maintained through ongoing liaison after the policy is declared and when implementation begins, and this should be maintained at a national level as well as a local level. This will set the foundation for consensus planning of marine areas.

- Issues of overlapping jurisdictions and interactions must be resolved early to gain the commitment of different governments and their agencies.
- Institutional changes must be made to facilitate coordination and integration across and between levels of government; the politics of who has existing responsibility and where that responsibility is based should be set aside. The new institutes should be structured so that operational political influences are minimized, and they should be focused on achieving outcomes in terms of ocean management objectives. This can be achieved by using an open and transparent process for design and operations of new institutional structures and arrangements.
- Sufficient funding must be planned and provided for. The sale of public utilities is not a secure and long-term basis for funding the management of ocean resources.
- The policy implementation process must build in a learning curve and facilitate learning so that all participants operate on an equal knowledge base, the same management language is spoken, and a shared vision of the future for the oceans is achieved.
- The management principles must be articulated as early as possible in the policy development process. Models for converting the principles into on-water action must also be developed and distributed for public debate early in the process. This provides the guidelines for making secure resource allocation decisions.
- There should be continuity for those involved in policy formulation and implementation. Not all participants need to be involved in implementation; however, there should be some overlap so that the overall philosophy and essence developed in policy formulation are carried through into the implementation phase.

These lessons can be applied to developed and developing nations that have embraced public participation in coastal and marine management decision making. Government agencies' and the public's interest in the process can be maintained if the culture of decision makers accommodates ongoing participation. When government agencies are involved in a participatory capacity, not as competitors or adversaries, the problems of overlapping jurisdictions and interactions can be resolved, and institutional change and continuity of participants can be facilitated.

Conclusion

We conclude that considerable further development is required of the linkages from the policy framework to the operational guidelines and criteria for actual resource allocation decisions. Key areas needing development include

- design and testing of local-scale, ecosystem-based management frameworks that are integrated across the full range of users and ecosystem values (including conservation on and off reserves);
- design and testing of a regional management framework with local management effectively integrated and nested within a national context; and
- provision of better tools for evaluation and assessment of marine resources in negotiations to facilitate improved negotiations among planners, managers, and users at the local level.

Ocean policy managers seeking management frameworks can draw on the experiences of others working in natural resources management, especially in capture fisheries and marine conservation. In Queensland, organizations such as management advisory committees for specific fisheries and zonal advisory committees for fisheries within spatial areas integrate different user groups at the regional and local level for the Queensland Fisheries Management Authority (1997). For the Great Barrier Reef Marine Park Authority, a range of advisory committees work with commonwealth and state agencies to provide advice and feedback at a range of spatial levels and from various sectors to achieve consensus planning outcomes for the Great Barrier Reef Marine Park. Members of these committees are publicly selected to serve on the basis of their expertise and experience. These advisory committees have developed over the past 10 to 15 years, with a number of lessons learned.

These committees could be extended or used as bases to form regional marine management planning committees. For effective operations, their activities would need to be supported by a range of integrated ecosystem management tools. For example, ecosystem modeling and decision support systems have developed rapidly over the past decade, and modeling software programs such as ECOSPACE, ECOSIM (Watson, Alder, & Walters 2000) and Marxan (Ball & Possingham 2000; Possingham, Ball, & Andelman, 2000) enable managers to evaluate and assess management scenarios that form part of the negotiations in a marine planning process. The further development and application of these programs to implement the Oceans Policy and to assist in formulating regional marine management planning requires substantial funding. This may not be possible given the limited funding currently allocated to implementing the Oceans Policy, and such constraints will impede development and application of the RMPs. Although these matters require significant resource commitments, stakeholders will be rightly skeptical of the level of commitment of governments to the RMP process if it cannot be properly resourced. After all, stakeholders are likely to be required to trade off some of their existing rights in exchange for security and stability, and they will not be convinced to commit to a

process that appears to be mainly one of political expediency that is weakly resourced. For stakeholders, engaging in a process that is poorly resourced and in which governments reserve the right to impose planning solutions, the risks of failure will be high, and outcomes may be worse than not engaging in the process. In these circumstances, lobbying to undermine the planning process may be more productive for stakeholders who are already well resourced and experienced in protecting their sectors.

Will the policy sink or swim? The answer to this question is that having already begun the process, Australia cannot afford to have the policy sink. Australia's marine biological diversity is too valuable to squander, and the eyes of the world will watch as Australia designs and navigates its way toward more sustainable use of its oceans. An effective policy will provide a hedge against such squandering. Developing the policy has been an expensive process to date, and future governments will not want to repeat the exercise. In addition, the level of use and degrees of conflict are at manageable levels now, but it may be too difficult in the future. Finally, lessons can be learned from the process, and indeed, if it can work in Australia, there is a good chance that it can work in many other countries.

Manuscript submitted June 15, 2000; revised manuscript accepted for publication May 12, 2001.

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