

AUSTRALIA'S OCEAN POLICY



Caring for the Commons: Socio-cultural Considerations in Oceans Policy Development and Implementation

Socio-cultural Considerations - Issues Paper 4

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CONTENTS

EXECUTIVE SUMMARY	3
1. THE OCEANS AS A COMMON POOL OF RESOURCES	5
2. MANAGING THE COMMONS	8
3. POLICY PRIORITIES: ANALYSIS OF SUBMISSIONS AND INTERVIEWS	12
4. WORKING DEFINITIONS	14
4.1 Stewardship	
4.2 Community partnership	
4.3 Integrated management	
5. MANAGEMENT OPTIONS	19
5.1 Open access with minimum regulation	
5.2 Privatisation with minimum regulation	
5.3 Government regulation	
5.4 Community-based management	
5.5 Integrated stewardship	
6. COMMUNITY STEWARDSHIP WITH INTEGRATED MANAGEMENT	26
REFERENCES	29
APPENDIX: ORGANISATIONS CONSULTED	32

EXECUTIVE SUMMARY

The worldwide decline in the sustainability of the oceans' resources brings with it the need to manage the oceans as one of the world's last commonly-held resource pools. Socio-cultural considerations will determine the policy options capable of achieving an effective management regime. The stakeholders in the policies are those current and future Australian citizens who have major economic, socio-cultural interests and/or environmental interests in the oceans (Figure 1). In one respect or another this will involve every citizen.

For the purposes of this paper, the interested parties in oceans' policy are identified by level of contribution to the national income, area of social responsibility of government and non-government agencies, and the effects of environmental impact, respectively. Applying these criteria, documents are reviewed and opinions are canvassed from members of (a) the industries of tourism, oil, shipping, fishing and farming; (b) community-based initiatives such as the national Coastal Strategy, CoastCare, local watchdog groups, sailing associations, conservation organisations, and Indigenous communities; and (c) environmental scientists and managers knowledgeable about the risks to the oceans from unsustainable resource extraction, terrestrial run-off, loss of biodiversity and pollutants such as oil slicks and ballast water.

The management priorities for each of the stakeholder groups are identified through review of existing documents, submissions to the inquiry, and interviews with members of twenty major Australian initiatives with an interest in oceans policy such as CoastCare, Australian Seafood Industry Commission, Great Barrier Reef Marine Park Authority (GBRMPA) (Appendix 1). In spite of the extreme diversity of interests in the future management of the oceans, there was almost complete unanimity on three basic policy principles:

- a stewardship ethic to be incorporated in Australia's Oceans Policy
- the community to be included as an active partner in Oceans Policy development and implementation
- an integrated management regime to be established for Australia's oceans.

Working definitions of the principle terms being applied to oceans policy development and implementation are:

Stewardship: *long-term care of a given resource for the benefit of oneself and others, including the resource itself, as for example in Landcare, CoastCare, commercial due diligence, precautionary practice.*

Community: *a self-managing, self-identified social group sharing key resources over time, for example the Australian community, the farming community, the sailing community, Byron Bay residents.*

Integrated management: *integrating social, economic and environmental concerns in policy development and implementation, for example the work of Great Barrier Reef Marine Park Authority, and Integrated Local Area Planning in the local government sector*

Five management options for the oceans as a 'commons', that is, a pool of commonly held resources, are evaluated against the three policy principles, applying the working definitions to each option:

- open access with minimum regulation;
- privatisation with minimum regulation;
- extensive government regulation;
- community-based management; and
- integrated stewardship.

All respondents and most commentators identify a need for a stewardship ethic for the oceans, whichever management option is chosen. Each of the management options has at least one proponent among the major responsible agencies. Strongly held views by 80% of submission writers and respondents advocated some version of collaborative, multi-party management based on cooperation between industry, science, government, and community.

The paper concludes with a profile of Community Stewardship With Integrated Management (CSWIM), a tool kit for implementing the option preferred by almost all groups involved in the policy process. Policy implications and examples of current best practices for this approach are drawn from a wide range of examples including Convention on the Conservation of Antarctic Marine Living Resources, GBRMPA, Landcare, Integrated Local Area Planning, and Canadian community partnerships.

1. THE OCEANS AS A COMMON POOL OF RESOURCES

The ocean is best viewed as a commonly-held pool of natural resources shared between a variety of stakeholders who include commercial wild fishers, fish farmers, recreational users, tourist operators, shipping and mining interests, and the many communities for whom the ocean is a source of social, cultural and/or spiritual meaning. The commons is the term generally used to refer to such a common pool of resources, of which the ocean is a prime example, since it is shared not only at the local level, but also between states, nations and continents. The natural resource function of the ocean is but one element of an amalgamation of economic, ecological and socio-cultural resources. In the longer term, no one of these can be managed in isolation from the others (Figure 1).

In Figure 1, O indicates the area in which oceans' management needs to operate, if it is to be successful in integrating the needs of stake-holders from all sectors and in ensuring sustainable access to the ocean's resources. There is an almost infinite potential for conflict in attempting to reconcile priorities within and between the three dimensions of the oceans' resources. The classic parable 'Tragedy of the commons' forecasts the inevitable destruction of the biophysical resources of the commons (in the original paper, village grazing land) in the absence of some agreed-upon social system of monitoring and control. It is encouraging to find all resource sectors expressing a concerted level of agreement that the oceans do in fact represent a common pool of resources, and that they should be managed as such (Berkes 1996, Zann 1996, McKay 1996).

There is less agreement about how the oceans should be managed in practice. Rather than further fragmenting approaches to oceans policy development by highlighting economic sector and social group differences, this Discussion Paper seeks to identify areas of potential agreement and the avenues by which these could be put into effect. The focus of the paper is therefore on the options for collaborative management and long-term stewardship identified by Australia's various socio-cultural interests. Stewardship, community, and integrated management are defined, followed by a description of property rights regimes as applied to the oceans, and an analysis of options for management of common-pool resources.

ECONOMIC RESOURCES

The gross financial value of marine based industries increased around 8% per annum from 1987 (\$16 billion) to 1994 (\$30 billion). Tourism and recreation contribute \$15 billion, almost double that of the next largest industry, oil, gas and engineering (\$8 billion). Third in size is the shipping and transport sector (\$3.8 billion), followed by commercial fishing and aquaculture (\$1.6 billion) (AMISC 1996, ABARE 1996). Australian tourism, fishing and aquaculture are directly dependant on the state of the marine environment, and reflect the range of the nations' socio-cultural interests.

Continued economic development of natural resources requires the monitoring and regulation of the effects on the nations' socio-cultural resources and the oceans' self-sustaining ecological systems, as represented in Figure 1. Oceans management would benefit from economic tools which identify and internalise all costs associated with producing resources, and from better recognition of the value of non-use resources such as amenity.

ECOLOGICAL RESOURCES

Australia's 200 nautical mile Exclusive Economic Zone is one of the largest in the world, covering over 11 million square kilometres. All five of the world's temperature zones are represented and a plethora of life forms make up the inter-dependent ocean ecosystems.

Issues for policy and implementation found throughout the ecological literature on oceans include:

- a relatively low nutrient level, particularly phosphorus and nitrogen, resulting in a low biological productivity;
- the vulnerability of ecosystems adapted to low biological productivity, such as mangroves in river estuaries, corals in the north and sea-grasses in the south;

- eutrophication (presence of excess nutrients) and sedimentation due to agricultural run-off and sewage, with records of serious damage to mangroves, corals and seagrasses;
- pollutants generated by industrial use, such as toxic chemical and oil spills, discharge of ballast water with invasive exotic species, and on-shore and off-shore engineering works;
- coastal development with its demands for sites very close to environmentally sensitive features; and
- overexploitation of ocean species through regular fishing (of 100 main species fished in Australia, 9 are considered underexploited, 23 fully or heavily exploited, 9 overexploited and 59 are of unknown status), the discarded 'by-catch', and the method of ocean-floor trawling (ABARE 1996, Zann 1996).

More important than any one of these single factors alone is the inter-relationship between them. A pressure or a damage to any one will affect all the others. It is also the case that while the pressures are cumulative, the capacity of the system to tolerate them is not unlimited. An ecosystem pushed beyond its self-sustaining limits will crash (Krebs 1985).

SOCIO-CULTURAL RESOURCES

The sea is important to Australians' lives, with a quarter of the population living within three kilometres of the beach, and three quarters within fifty kilometres. Many aspects of Australia's culture, lifestyle and social values are played out in marine environments. Families' summer holidays at the beach are a national icon. While the beach provides a national recreational playground, it also inspires art, novels and music and is the destination for many seeking improved health and well-being. Recreational coastal activities include fishing, swimming, surfing, bird-watching and walking along the beach; while the open oceans support sailing, boating, snorkelling, scuba diving and more recently, whale-watching.

Aboriginal peoples had and have strong physical, cultural and spiritual links to the marine environment with extremely knowledgeable management systems for their traditional areas. (discussed in detail in a parallel paper in this series). Strong attachments to particular aspects of coastal and marine areas are demonstrated by user groups such as Surf-riders, Coastwatchers, Greenpeace, the yacht clubs of every large and small coastal town, and the 'Friends of' associations of Shoal Bay, Bay, Hinchinbrook and others (Bonyhady 1993).

Despite the self-evident importance of the coast and the sea to the Australian population research into the social and cultural values and the relationship of the people to the environment is scarce (Bushell 1997). Tourism, which accounted for 52.8% of earnings from marine industries in 1994, is growing at around 8% per annum. Nature based tourism is growing well above this average, and adventure and cultural tourism are also exceeding the growth average.

The cultural value of the ocean to Australians has led to vocal community concern over threats to the marine environment and has been costed at extremely high values (Driml 1994), for example, the Great Barrier Reef has been protected from oil drilling due to community concern, rather than the objective calculation of risk (Bonyhady 1992). A national survey has shown 75% of people were concerned about the environment, with the top four concerns air pollution (40.2%); destruction of trees and ecosystems (32.4%); ocean pollution (32.3%); and fresh water pollution (29.9%). Protection of the environment and economic growth were rated as being of equal importance by 70%, with 7% rating economic growth as more important and 19% rating environmental protection higher (Australian Bureau of Statistics 1992).

Despite growing commitment to routine public participation in environmental planning, the social and cultural values of the community are often revealed only after matters have come to a dispute (Boer, Craig, Handmer and Ross 1991). The many examples include Sydney residents' demonstrations over sewage on Sydney's beaches, the stream of cases through the Land and Environment Courts, and the public outcry when the Interim Report of the Coastal Zone Inquiry suggested charges could be made for access to the nation's beaches (Resource Assessment Commission 1992).

These precedents demonstrate that oceans' policy and its implementation will need to identify and integrate socio-cultural values from the beginning of the planning phase, and throughout the policy

application. The oceans make a major contribution to Australia's socio-cultural resources. Community socio-cultural interests have made it abundantly clear that they are in turn willing to assist in the future management of the oceans. The rest of this Discussion Paper therefore explores systems of management of the common pool of resources of the oceans capable of satisfying those socio-cultural considerations.

2. MANAGING THE COMMONS

The ocean is a true commons: a pool of resources shared between neighbours, states, nations and continents. The management of commonly-shared resources has long been seen as problematic from a rationalist and individualist perspective, strongly influenced by a 1968 paper by an economist, Garret Hardin (Hardin 1968). The seminal paper titled 'The Tragedy of the commons' puts forward open access without regulation as the only scenario for managing common property. This analysis represents the sharing of common resources under communal ownership as an inevitable disaster for all concerned, including the commons itself.

In Hardin's hypothetical medieval English commons the land is open to all herdsmen. Each herdsman acts to maximise his individual interest by increasing his herd size, with no-one being responsible for preventing degradation of the commons. Eventually the land becomes over stocked, all the herdsmen suffer, and the resource is gone--the tragedy of the commons is the ruin of all. In this black and white perspective, people are viewed as motivated purely by self-interest resulting in a choice between uncontrolled open access and sole use rights--neither of which scenarios adequately reflects the pattern of use of natural resources in Australia.

The management options presented in the 'Tragedy of the commons' range from the unregulated, self-interested herdsmen to the self-interested private owner. This ignores the many possible modes of social organisation for management of common property. The capacity of groups of individuals to form effective self-managing communities, rather than a coincidental aggregation of individuals each acting independently out of self-interest, is not considered. The parable also fails to recognise economic externalities as they relate to the self-interested private owner.

The important gap in Hardin's analysis is the existence of many examples of community management of their common pool of resources which act to limit open access and create sustainable resource regimes, and which are based on the notion of collective good and respect for the resource itself. Communities develop social rules and norms regarding resource use, as well as sanctions for those who do not comply with these informal rules. Community values often reflect moderation and prudence rather than excessiveness and recklessness. Communities are social entities which amount to more than the sum of their individual parts. For example, a community of fishermen is more than a collection of individuals with boats and nets, it is also a social system with recognisable attributes.

The same sense of community exists for groups of economists, engineers or tourist operators. The larger community who will determine Australia's oceans policy in the final analysis is an amalgam of all these communities of common interest, representing a wide range of views and values. One of the strongest influences in the larger community are those groups whose economic, environmental or socio-cultural resources are strongly integrated within the locality of interest. This concentration has generated dramatic policy changes, from the Franklin River to the drift-net ban to the Antarctic Marine Park (Bonyhady 1993).

Another problem with Hardin's model is the assumption that unrestricted privatisation will lead to ecologically sustainable outcomes. In Australia 52% of arable land has been degraded, mostly at the hands of private owners, or long-term lessees (99 years) who conceptually are more similar to Hardin's private owners than to shared users of commons. Australian Landcare, a community movement in which these same landholders join in re-orienting their association with their land from ownership to stewardship, has been called one of the largest community movements at present in the world. Three thousand Landcare groups of between five and fifty people meet regularly to rework their land management practices. Together this has the capacity to change the face of this large continent. Landcare represents a working example of both government partnership and community stewardship. It is moving patterns of rural land use toward sustainability, working to rehabilitate damage already done and improving future productivity.

To improve on Hardin's model it is necessary to examine how property rights and related management systems apply when natural resources are held in common. These rights and systems will need to include respect for the interests of all stakeholders, including different forms of

tourist, tourism operators, commercial and recreational fishers, shipping, and mining, as well as those with aesthetic, heritage and cultural interests

If one assumes that all these groups share equal property rights to the oceans' resources, there are four basic property management regimes:

- free access--in which anyone can enter and use the resources of the commons;
- private property--in which individuals or corporations buy and sell exclusive rights to the resources;
- state property--where the Government controls all access and use of the resource; and
- communal property--with the rights to resources held by all stakeholders in the resource, who then agree on a common management system to regulate access.

These overly simplistic options demonstrate the dangers in regarding the oceans' resources solely as property. Much of the literature on managing common pools of resources is based on a confusing overlap of poorly defined property rights regimes and conventional hierarchical management systems, making meaningful solutions difficult (Ostrom 1990). In this Discussion Paper it is assumed that the oceans provide the nation with social, economic and ecological capital, as well as making important social, cultural and aesthetic contributions to national and individual well-being, for this and for future generations. Policy and management options will need to be capable of interpreting this diversity and complexity.

In Table 1., five policy options based on different approaches to regulated common property rights are subject to a SWOT analysis (identification of Strengths, Weaknesses, Opportunities and Threats). They are:

- open access with minimum regulation;
- privatisation with little regulation;
- extensive government regulation;
- community-based management; and
- integrated stewardship.

TABLE 1.
Policy options: a SWOT (Strengths, Weaknesses, Opportunities, Threats) Analysis
ANALYSIS OF MANAGEMENT SYSTEMS

	Strengths	Weaknesses	Opportunities	Threats
Open access with minimum regulation	Fits well into individualistic society with 'rights' of individual to common resources protected	Not ecologically (and therefore not socially or economically) sustainable	Every individual can theoretically increase their capital	Creates serious conflict without means of resolution
Privatisation with minimum regulation	Increases economic efficiency In theory improves ecological sustainability by default	Concentrates wealth and power in the few with dispossession of the many Can be	Offers examples of best (and worst) practice	Market failures Under accounting for externalities

		ecologically ruinous		
Extensive government regulation	In theory can improve social, ecological and economic outcomes	Expensive to enforce Prone to failure Lack of flexibility and slow to respond	Allows 'perfect' systems to be put in place	Fragmentation into jurisdictions
Community based management	Self-regulating Can lead to socially equitable outcomes and ecological sustainability Expected to be low-cost	Asks for altruism Lacks the strength of economic and political power blocks	Taps into community cooperation and commitment	Population increase Changing technology Change from subsistence to cash economy State intervention
Integrated stewardship Strengths	Can lead to equitable and sustainable economic, environmental and socio-cultural outcomes	Needs extensive management time Still emerging as a formal management system	Sharing of power increases social capital Partnerships create ownership	Lack of commitment to sharing power Tokenistic partnerships

LESSONS LEARNT FROM THE SWOT ANALYSIS

The system established to manage Australia's oceans will need to learn from experience, building on existing successes (such as Western Australian Lobster Fisheries, Great Barrier Reef Marine Park Authority, growth of ecotourism) and avoiding failures (such as the management regimes for gemfish and pearl oysters), learning from both local and international examples.

The role of government is crucial for sustainable management. Government needs to be flexible and proactive; involved in developing community skills, knowledge and participation; committed to partnership and community stewardship with seamless social, economic and environmental policies; and have skills in building cooperative platforms, conflict resolution and problem solving.

A successful policy and implementation program able to integrate the management of the economic, environmental and socio-cultural aspects of the oceans with the cooperation of all stakeholders from the various sectors will require active attention to the following:

- adopting sustainable management practices;
- internalising all costs;
- maximising public participation;
- acknowledging the role of government/community partnerships;
- incorporating a community stewardship ethic;

- trialling methods of integration in policy and practice; and
- accepting modes of international governance.

3. Policy priorities:

Analysis of submissions and interviews

Policy development depends upon the political system of the time, advised by special interest groups which include industry, the three levels of government administration, community interests and values, responsible professionals, and scientists. For the purposes of this discussion paper, current priorities among these policy influences were identified in two ways. Submissions on the topic to Environment Australia were reviewed to identify common themes for the major issues and policy options involved. Twenty senior members of Australia's chief institutions with some responsibility for oceans management were asked to name the three major threats to the oceans, their own preferred system of management, and to rank five management options identified from the literature. The institutions included higher education (policy research, marine science), management (Federal, State and regional), conservation (government and non-government) and industry (practitioners, lobby groups and government).

The issues nominated in the 63 submissions on Oceans Policy were analysed by Environment Australia by region and by sector. Equal as top priority issues were the need to preserve marine biodiversity and the need for vision in developing the oceans policy. This confirms that environmental and social concerns weigh equally with the leading stakeholders. Second priorities not far behind were ocean-based industries and employment, Indigenous issues, planning and management and the need for accountable goals. With them in the top cluster are intergovernmental issues, the need for policy principles and objectives, and fisheries and aquaculture.

The same issues recur for the senior members of oceans-related institutions (Table 2), but in the interviews there was the opportunity to ask for preferred options in policy directions, and interpretations of stewardship and integrated management (Table 2).

TABLE 2.
Major threats to the oceans as nominated by interview respondents from 20 key policy interests (each respondent giving 3 major threats, not in priority order).

Threat responses	Examples cited	No. (out of 60 possible)
Pollution	Marine and land-based pollution, eutrophication Ballast water Urban, rural, industrial, nuclear contamination	23
Fishing pressures	Particular fisheries Over fishing of migratory fish Eradication of molluscs and crustaceans Illegal foreign fishing within the Exclusive Economic Zone Large by-catch, Canadian fisheries collapse	19
Habitat loss	Dredging, trawling, canal developments Destruction of seagrasses Decimation of tuna schools	8
Climate change	Generating unreliable ocean currents and ozone depletion Loss of oxygen-generating plankton	5
Coastal development	Urban expansion Tourism	3

	Shipping lanes	
Ethic of overuse	Greed in resource use Lack of recognition of ecological integrity	2

The pattern of policy options is clear (Table 3). There is a strong preference from all quarters for integrated management in some form, usually a combination of private property rights, government regulation and community leadership. The acceptance for the need for a stewardship ethic was unanimous, although definitions of and reasoning behind the application of stewardship varied.

TABLE 3.
Rating of five oceans' policy options by 19 key policy interests*.

	Desirable ----- Undesirable				
	1	2	3	4	5
A. Open access with minimum regulation	1				18
B. Privatisation with minimum regulation	2		7		9
C. Extensive government regulations	3	2	4	6	4
D. Community-based management	7	6	3	3	1
E. Integrated stewardship+	15	2	1	1	

*One respondent did not wish to rank

+ All respondents interpreted integrated stewardship as some combination of B, C, D and E

Interpretations of stewardship ranged from: 'a waffly term which implies more than a mechanistic way of making decisions, has connotations of care and precaution and looking after the resource' to 'It will take action from the top of the highest mountains to the greatest depth of the ocean' Systems already in place which were nominated as assisting the preferred options were :

- Landcare and integrated catchment management;
- Great Barrier Reef Marine Park Authority;
- Australian Fishing Management Authority;
- Management Advisory Committees (Commonwealth and State);
- National Policy on Pesticides and Veterinary Chemicals;
- Mediterranean Action Plan;
- North Sea Treaty; and
- Integrated Local Area Planning.

4. WORKING DEFINITIONS

4.1 STEWARDSHIP

Throughout the activities of natural resource management the idea of stewardship is emerging as the key to sustainable management practices, that is, practices which safeguard the self-renewing capacity of the resource. The topic of stewardship arose continually in reviews of the condition of the oceans, in the 63 submissions to the Oceans' Policy consultation paper and the 20 interviews conducted for this Discussion Paper. The term was variously defined, but all views had in common the caring for a resource for its own sake as well as for the benefit of oneself and others.

There is clearly a difference between property rights on land and sea. Stewardship in land management brings issues of private ownership working for the public good. Stewardship of the oceans carries with it the difficulties in defining boundaries and resource rights. These differences are not absolute. Seafarers report that to those who work on the sea, the surface of the sea is as covered with currents, sea-ways and different resource uses as is the surface of the land.

A study of the implications of stewardship for the range of people involved in Landcare offers an interpretation of stewardship which can be applied to the oceans (Brown 1996). The same understanding of stewardship expressed by stakeholders in managing Australia's oceans proved to be shared by Landcare members (mostly land-owners), government and non-government agencies, environmental scientists, and the general public. In areas of innovation and change, it is unusual to find such strength of consistency on the change of policy and practice implied by the stewardship option.

The agreement on the need for a stewardship ethic did not, however, mean that all parties had adopted the ethic for the same reason. Box 1. provides examples of the range of reasons given for adopting the stewardship ethic of Landcare.

BOX 1.

Value positions linked to the adoption of the stewardship ethic of Landcare

Innovation - experiment, risk-taking, a gamble, taking a chance likes to try new things

Pragmatism - problem-solving, whatever it takes, anything that works or makes a profit

Sense of place - ownership, home, identity, loyalty, patriotism

Conservation - land protection, respect for natural systems for their own sake

Development - maximising sustainable output, making optimum use of resources, investment as a primary goal

Instrumental - a step to something else--a new skill, a new career, political advantage

Technical - confidence in existing knowledge, technical solutions

Personal growth - establishing identity, making life worthwhile, learning new skills

Utopia - a social experiment, the way of the future, survival of the planet

The responses in Box 1. identify a wide range of value positions among Landcare participants as a whole, not linked to any particular group of stakeholders. No single occupational group were solely development, nor was any one group all conservation-minded, or all personal risk-takers. The same appears to be true from the responses by stakeholders to Oceans Policy in Tables 2 and 3 above.

TABLE 4.
Responses to question
'What is your relationship to the Landcare stewardship ethic?'

Total	Landcare group members	Gov't support agencies	Local Gov't	Expert adviser	N	%
Conservation	9	8	3	3	23	16
Development	5	7	4	2	19	13
Pragmatism	5	8	3	2	18	12
Technical	5	6	2	5	18	12
Sense of place	7	5	3	0	15	10
Innovation	5	7	1	2	14	9
Instrumental	1	6	3	4	14	9
Personal identity	5	6	0	1	12	9
Brave new world	4	3	1	1	9	5
Total respondents	46	56	20	19	141	

A working definition of stewardship based on the precedent of Landcare and interviews with twenty members of major national organisations concerned with oceans policy:

Stewardship: long-term care for a given resource for the benefit of both oneself and others including the resource itself, as, for example, in CoastCare, commercial due diligence, precautionary practice.

4.2 COMMUNITY PARTNERSHIP

A community can be defined in a formal way by geography, that is, residence in a particular place; by the sharing of ideals and interests; or by a shared knowledge base such as a profession or a commonly held set of experiences. A firmly established community shares all of those things. The central social significance of community is by-passed in a purely economic perspective. In this market view of society, community is dismissed to that part of people's life devoted to unpaid 'voluntary' activity. As the 'weak', optional extra part of our lives, it can then safely be left outside normal economic considerations, or exploited as a 'free' good.

The policy options proposed for the oceans require a 'strong' version of community, that is, accepting that the community is the social unit of society, incorporating the shared social, economic and environmental dimensions of the members' lives. Community members derive their identity from their group. An indicator of the existence of community is where the group has a sufficiently established identity to allow members to know that they belong. It also implies that the group has enough coherence and strength to support members in pursuing their mutual goals, as in community action to safeguard their future resources.

Government agencies and industry tend to refer to public participation when considering the involvement of the community. Community agencies, conservation groups and professions such as education, health and social workers use the words 'community consultation' for the same process. Working with community interests can be community consultation, involvement or partnership (Box 2.). Many conflicts arise in seeking community participation in setting environmental priorities if the political interests consider it to be a token gesture, and that community authority should be exerted

only at voting time; while at the same time the community members believe that they have been offered partnership in managing their local environmental region.

BOX 2.

Levels of community partnership:

To work within a community - *participation*
To work with a community - *partnership*
To work for one's own community - *involvement*
To work on behalf of a community - *commitment*
To work on a community - *exploitation*

Five distinct uses of the term public consultation can be identified in practice, with the extent of public involvement increasing along a continuum. Consultation can be:

- a. a means of convincing the public of the value of decisions already taken--better described as *public education* (e.g. public meetings);
- b. an activity undertaken at the discretion of the decision-makers, if they consider the situation warrants it--more honestly called *public relations* ;
- c. a contribution to project management, in which public opinion is canvassed at certain stages of the process-- *public consultation* ;
- d. a method of conflict management after a range of apparently incompatible positions have developed-- *public inquiries* ; or
- e. an integral part of the decision-making process, in which the relevant publics are regarded as partners in the policy development, management and monitoring of a natural resource, that is, *public partnership* in the enterprise.

Formal and informal public involvement in resolving environmental disputes in Australia has become routine. Public participation was one element of the 1992 Ecologically Sustainable Development Strategy (DEST 1992), and is recognised in the 1974 Environmental Protection (Impact of Proposals) Act (Australian Government 1974) and in the Intergovernmental Agreement on the Environment 1992 (. Each State has recognised a role for public contributions to environmental management through its Environmental Protection Agency or equivalent, and in the newly-emerging protocols with their local government sector (Brown and Reynolds 1992). Non-government Organisation (NGO) forums hold regular consultations on environmental considerations with AusAID and the Departments of Foreign Affairs and Trade, Environment and Primary Industry and Energy. In its 1993 guidelines, the Australian Review Council proposes that public consultation be 'an integral part of environmental decision-making'. Decisions are subject to review if the public involvement has not been satisfactory.

BOX 3.

Community Avenues for contribution to environmental issues

Legal-judicial mechanisms invoking the use of the courts and special tribunals;

Political avenues, including three different levels of elected representative (local, State and Federal), and the possibility of a referendum;

Market economy through the pressures of supply and demand, adjusted by pricing and taxes;

Bureaucratic-administrative procedures through impact assessment, regulation, licensing and statutory agencies;

Scientific inquiries evaluating and coordinating technical evidence; and

Public participation/community partnership, ranging from consultation with a local community group through to full partnership in national policy making and its implementation.

There are many formal and informal avenues for involving the public, ranging from Royal Commissions to meetings in neighbourhood centres. A working definition of community for the purposes of Oceans Policy and implementation is:

Community: a self-managing, self-perpetuating social group sharing key resources, for example, Australian community, the fishing community, residents of Byron Bay.

4.3 INTEGRATED MANAGEMENT

The integrative process of resource management is directed towards ultimate outcomes of social equity, supportive environments and environmental sustainability (Figure 1). These goals are at the same time intangible ideals and very real outcome measures for management. The goals are regarded as so interwoven that a move toward one necessarily involves all three. Social well-being is dependent on a supportive environment, equity in resource allocation on a successful economy, and environmental sustainability on the continuity of the major natural ecosystems.

In integrated management, the integration of resources is coupled to integration of policy interests, integration of professional practices and a shared approach to problem-solving (Box 4.). Application to a particular policy issue is the reality check for the integration process, because it is only at a given place and time that policies, work practices and problem-solving can be evaluated for their effectiveness. Scenarios, community needs analyses, projections, and guided imagery all help the full range of stakeholders to articulate their shared vision for policy development.

BOX 4.

Working definitions of the four components of integrated local area management

Policy integration--forming policy communities

The full range of government (Federal, State and local) and of community interests (economic, environmental and social) develop a common policy direction, through negotiations between all the stakeholders. The natural policy communities on most long-standing issues collaborate on a continuing, rather than the present ad hoc basis.

Practical integration--establishing multi-skilled teams

The range of different occupations and skills needed on any one local issue, from approving development applications to regenerating sand dunes, hold regular team meetings. Decisions are made in concert, with mediation and facilitation, rather than sequentially or in opposition.

Problem-solving integration--synthesising all the evidence around a key principle

The social, economic, environmental and management aspects of an issue are recognised as interconnected and of equal importance in decision-making on any issue. Modern management education includes multi-disciplinary problem-solving; and information technology can provide access to the full range of specialised knowledge.

Integration by level and place--working towards community goals (the local vision)

One of the most developed forms of integrated management has been the Federal, State and local government consortium known as Integrated Local Area Planning (ILAP). ILAP initiatives have been established in local government authorities throughout Australia. These ILAP principles underlie almost all integrated management initiatives. The ILAP process and indeed all integrated management options requires the involvement of all the key stakeholders in the central issue (Box 5).

BOX 5.
Principles of Integrated Local Area Planning (ILAP)

- Governance focused on stewardship
 - forming policy communities which act as advocates for the locality; providing the means for identifying, developing and coordinating key decisions on matters in the locality. The decisions will be negotiated between all spheres of government and all local communities of influence.
- Inter-governmental coordination
 - integration of resources and regulations so that they are both flexible and coherent at the local level; establishing avenues by which the three spheres of government consult and cooperate on the activities and the decisions affecting that particular locality.
- Community partnership
 - the strategic alliances by which government and non-government interests from all scales of responsibility (national, State, regional and local) work together in the interests of a locality; a network of communication channels is put in place for interaction and cooperation between the full diversity of decision-makers.
- Integrated planning
 - use of conflict management and mediation methods to arrive at shared goals and make maximum use of the wide variety of advice on options for managing the socio-cultural, economic and environmental resources of the locality and the region; ensuring that all stakeholders have contributed constructively to the strategic direction of the locality.
- Optimisation of resources
 - the means by which the efficiency and effectiveness of the use of resources is increased, through processes such as the elimination of gaps and overlaps in administration, recognising the strengths of variety and diversity, and supporting the innovative.
- Shared vision
 - the method by which all participants in the management of the locality (which includes all the interests in Figure 1), from both government and community, contribute their experiences and ideals to a shared future for their locality.
- Local ownership
 - objectives and outcomes of the process are set, and key decisions are made by local administrators and community representatives, with a high degree of commitment to the shared vision and desired outcomes.
- Sustainable long-term change
 - all the seven activities listed above are set up with a view to creating long-term structural change towards ecologically sustainable development which incorporates the vision of the locality.

A working definition of Integrated Management for the purposes of Oceans Policy and its implementation is:

Integrated management: integrates social, economic and environmental priorities in the management of resources, in policy and in practice.

5. MANAGEMENT OPTIONS

5.1 OPEN ACCESS WITH MINIMUM REGULATION

Open access describes the use of a common pool of resources in which there are no well defined property rights, and no management system. The 'Tragedy of the commons' paper describes such a situation as an inevitable path to ruin. However, the model erroneously presumes common property is synonymous with open access. Historically this is inaccurate with wide evidence of regulation of common pools of resources in many nations. The problems of free access have long been handled in traditional societies by social institutions. The cause of the 'Tragedy of the commons' with its permanent destruction of resources is not the free access as such, but the lack of a competent management system to regulate resource extraction. The tragedy of the commons is frequently a result of open access following the decline of traditional management systems (Box 6.).

Situations of true open access are unlikely to be problematic as long as resources are relatively abundant compared to demand. However once demand exceeds sustainable resource use there is historical evidence to support the 'Tragedy of the commons'. This can occur due to population growth, changes in resource extraction technology or conversion to a cash-based economy. Some marine examples include the depletion of various whale species and the depletion of various fish stocks in the Pacific Islands and the Pacific Coast salmon rivers in the United States and Canada. As open access use of commonly-owned resources is inconsistent with sustainable resource use, long term economic viability is also unsustainable.

Given the increasing ratio of people to resources, as well the decreasing supplies of many natural resources it is probable the pressure on natural resources will increase significantly. When demand begins to outstrip sustainable production levels, effective management systems are required in order to prevent the 'Tragedy of the commons'. Management systems which maintain open access, but restrict resource extraction are in use in some areas.

BOX 6.

Community management in a west Malaysian fishery

The west Malaysian fishery was an exceedingly rich fishery and was heavily fished. From around 1960 large motorised boats began fishing the coast, as well many medium and small sized boats were active. In the 1970s yields began to decline and by the 1980s the stocks, especially of the more valuable species, had declined catastrophically with whole communities of fishermen ruined. Over-fishing was the main cause of the decline. Fishermen in the 1960s were reported to be making one three to four hour trawl haul a day; in 1970 this had increased to four hauls per day. The hauls were yielding almost all immature fish, shrimp and crabs, suitable only for fish meal fertiliser.

Traditional fishermen recognised the arrival of motorised trawling as a threat to their livelihood and fishing wars followed; however the profitability of trawling ensured their proliferation. The sheer numbers of the smaller fishers enabled the trawlers to be forced to operate out of the significant mainland ports. However the "inshore" fishermen were now so numerous they were capable of producing a "Tragedy of the commons" by themselves. In all violence was common and recurrent. These attempts to restrict access to the commons were unsuccessful and the violence was halted by military and police intervention

The Government then tried to control the commons. Unfortunately the laws could not be adequately enforced, and the fishermen could not stop fishing as they had no other way to make an income. In effect the Government took actions which prevented the fishermen from helping themselves, while Government interventions did not adequately address the problems.

Reference: J. Anderson 1987

The results of open access without effective management, when the demand for a resource exceeds supply will be the 'ruin of all'. The community will be decimated as a food supply and/or

source of income disappears. This situation is one in which there is no management system, and hence no stewardship ethic in place. All resource sectors, that is the economy, the ecological system and the socio-cultural norms will be non-sustainable under this (non) management system.

5.2 PRIVATISATION WITH MINIMUM REGULATION

Frequently the failure of open access to private property type rights has resulted in a leap towards a privatised management system for fisheries, as in the Mexican example below. Privatisation defines who has access rights to a resource, and usually implies transferability. While private property rights may be assigned to sedentary species or home-seeking species when they return to spawn, application of private property rights to more mobile species is problematic; and there are problems with exclusion enforcement.

BOX 7.

How they privatised the Ascension Bay lobster fishery

Ascension Bay in Mexico in a lobster fishery. All fishers are members of the Vigia Chico cooperative. Cooperative members divided the bay into areas ranging from 0.5 to 3 square kilometres which are individually held capture areas. Each cooperative member has complete rights over their capture area. An owner may transfer their capture area to someone else, with several areas being sold or bartered each season. Fishers who have sold their capture area no longer have any rights in relation to Ascension Bay lobster grounds.

Reference: Ostrum E. and Schager E. 1996

Managers of fishing rights can only assign imperfect approximations of private property rights. Individual transferable quotas are often used and appeal to some since they allow market forces to control resource allocation. This system has spread rapidly through the world's fisheries over the last decade. The quota system is not free of problems, including difficulties in fisheries where the catch cannot not be accurately forecast, when there is a mixed fishery and an incidental catch problem, and where fishing units are small and there are difficulties enforcing exclusion and allowable limits. This system may also allow a small number of fishers or companies to control a fishery (Box 7).

In most situations, private property type rights, such as restricting access to licensed fishers, usually needs to be supported by effort limitation schemes to prevent overexploitation of the resource. However such schemes are prone to failure as each fisher has a competitive incentive to defeat the imposed effort-limiting rule, such as by hiding the number of nets they operate, under-reporting catch and building bigger boats. Artificial schemes to mimic private property rights and conditions tend to lack incentives for appropriate behaviour and effective enforcement mechanisms.

The introduction of private property rights has often been done at the expense of traditional use rights, which may lead to lack of community recognition of the validity of the assigned rights and expensive enforcement issues. Privatisation may also damage the community fabric, with individual fishermen moving from cooperative socialised beings who identify with the collective good to individuals in a purely competitive relationship.

Another possible outcome is the reallocation of resources from the many to the few--'the tragedy of the commoners', with concurrent concentration of power and alienation of many from a traditional source of food and income. It has also been demonstrated privatisation does not necessarily equate with ecologically sustainable resource use, especially where long-term or indirect ecological effects are involved and the costs of externalities are not fully internalised. Indeed in some situations community management and stewardship have been far more successful at creating ecologically sustainable resource use than privatisation.

Privatisation can lead to a weakening of the community as the people who share the economic resource is restricted. Communities may respond by further increasing their exploitation of

resources still available to them, possibly leading to overexploitation, or by ignoring the access restrictions creating enforcement problems. The community could lose its self-identity, for example, as a fishing village or community, as less people are directly involved in the industry, effectively reducing social capital. This also has consequences for integrated management, since not all sectors are likely to be fully integrated in this scenario, resulting in tensions and disputes over resource use. Stewardship under these circumstances is likely to occur only if the long-term benefit to oneself and to others is consistent with profitability.

5.3 GOVERNMENT REGULATION

Extensive government regulation can occur under private, communal or state property rights regimes. Extensive governance is a good illustration of the overlapping nature of the management systems since privatisation will always require a level of regulation to maintain and enforce property rights, and community property rights in modern times often exist, or are extinguished, by government actions. Open access rights to commons have also been maintained, but with resource extraction limitations applied.

BOX 8. Legislation controlling fisheries in Alaska

In 1973 Alaska adopted legislation to control salmon and herring fisheries. The Alaskan fisheries were divided into a number of separate fisheries for which there is a limited number of entry permits available, as determined by an Entry Commission. The Entry Commission can make more permits available or buy back permits as conditions change. Fishers can hold only one permit per fishery; they are transferable and control access and resource extraction. Fishers have no rights to directly determine operational level rules, which are determined by the state.

Reference: Ostrum E and Schlager E. 1996

Private property type rights involve limiting access, however further government regulation is often necessary to prevent resource decline. Communal ownership is another property system which has often been regulated by the state to try to ensure sustainable production. Such management systems have ranged from top-down approaches to more integrative attempts.

BOX 9. Government regulation in Iceland

Approximately 75% of Iceland's exports come from fishing. Open unregulated access led to the classic 'Tragedy of the commons'-- between 1970 and 1972 the most important catch, cod, had fallen by 26% despite increasing effort. Management systems introduced by the state were constructed through cooperative dialogue between fishers, scientists and government, a process facilitated by the small population of Iceland (approximately 230 000 in 1987). The resultant policies have had a variety of impacts and require constant monitoring and changes to try to maintain sustainable fisheries. Management systems have included catch quotas, restrictions on net numbers, restrictions on fishing gear and the introduction of fishing seasons. Individual fishers have responded with a variety of methods to try to increase their own personal gain. If the introduced measures have community support, community based sanctions often arise to informally enforce the regulations. Access to the fisheries has not been limited.

Reference: Durrenburger E. and Pallson G 1987

Government interventions have tended to fail when the institutions involved are large, lack effective feedback mechanisms, have poor public participation and are slow to react to changes in the resource. Additionally, state interventions can be costly to enforce, and as rules and regulations proliferate non-compliance can become a major issue. This is especially likely if the regulations are not supported by the affected community (such as fishers, tourist operators, environmental groups,

shipping). Some regulatory initiatives have been counterproductive and resulted in resource decline, often with increases in social disharmony. The reasons for such failures have included short term political agendas which do not have economic and environmental sustainability as a goal, lack of knowledge, lack of integration and non-responsiveness of management.

There is nothing intrinsic to government regulation that results in poor outcomes, with some government regulated and managed fisheries performing well. For example, the valuable Western Australian western rock lobster fishery is internationally recognised as a well managed fishery. The fishery is fully exploited and catch effort is regulated by limiting access and gear, and through closed seasons. These regulations are closely monitored. There is much to be learnt both from previous failures and successes for the future management of common resources.

Management by extensive government regulation needs to be vigilant and proactive to succeed. The Government has a role in protecting the public good, which in principle would mean having a stewardship role. The actual role of government has often fallen short of this due to other competing agendas and political imperatives. To successfully undertake a role of facilitating stewardship the state would need to be fully committed to working with the community. Community partnership is difficult to achieve but has been well modelled in Australia by Landcare. The partnership would also require the three tiers of government to be fully integrated, and the various departments operating as a whole rather than as a group of parallel 'silos'.

5.4 COMMUNITY BASED MANAGEMENT

Community based management occurs whenever a local, established multiple-interest group regulates the use of a resource. This usually occurs when the resource is common property. The 'Tragedy of the commons' model presumes that common property is synonymous with open access. Historically this is inaccurate with wide evidence of regulation of commonly-held resources in many nations. Communal systems of management were often comprehensive and commons use extended over centuries without evidence of the tragedy of the commons. Some community management systems are still present, and new systems are evolving. Berkes (1992) found several Turkish fisheries evolved regulations for self-management over approximately a decade in the 1970s and 1980s.

BOX 10.

Community control of the Maine lobster fisheries, USA

The state of Maine is the largest producer of lobsters in the USA. The Maine laws do not limit entry and do little to limit fishing effort. The laws restrict size and protect pregnant females, who have their tail notched - notched tail lobster can never be taken. However informal community controls continue to limit both entry and effort, although they have no legal jurisdiction

In reality, in order to go lobster fishing in Maine a new fisherman must gain acceptance by a local "harbour gang". Fishing without acceptance, or in an area controlled by another gang leads to sanctions, often the destruction of fishing gear. The islands off the coast are also associated with de facto property rights, with ownership of coastal island land conferring fishing rights to nearby waters, despite the fact the ocean areas are legally part of the public domain. This system is so strong that a land owner may rent out his lobster territory. The fishermen who work the mainland coast have much greater difficulty in controlling access and effort, with traditional methods beginning to fail. The island based fishers are much more successful at restricting access. Consequently, island based fishers are able to implement conservation measures such as limiting the number of traps and season length. As a result, the island based fisher have both economic and biological benefits for a reduced fishing effort.

Reference: Acheson J 1987

Community management relies on users being able to form social systems which prevent the tragedy of the commons occurring, they also often tend toward equitable distribution of resources. Such systems are liable to failure under certain conditions such as increasing population, moving from a subsistence to a cash economy, and changes in technology. Consequently successful community based management is more common amongst traditional peoples and in lesser developed nations.

BOX 11.

Community management in James Bay, Canada

James Bay is in subarctic Canada. The Cree Indians signed an agreement with the Canadian government which allowed dams to be constructed on their land in exchange for specific and consolidating land and resource use rights in 1972. The local Cree bands have a fishing "boss" whose role is one of "ownership to take care of" the resource. Anyone wanting to go fishing would normally request permission, which is rarely turned down, but allows the boss to have good information about local fishing. Open access is, in reality, only available for around 15 kilometres around the estuary mouth. Other spots are informally held as favourite spots of individual fishers. Fishing is a cooperative part-time subsistence activity. In summer it becomes the primary activity. Fish are used for feeding the family as well as given away in informal exchange networks and reciprocal relations. A negligible part of the total catch is sold through the local cooperative store.

Fishing operations are orderly with simple techniques. There is a code of ethics which provides for respect of other fishermen and for the fish, and rules against waste. Fishermen who break these rules report suffering a loss of success for some time as a consequence. A variety of sophisticated fishing practices have been established over many years, and constitute effective and ecologically sensible management. However the Cree have no biological management expertise as understood by modern fisheries, and use no scientific methodology. The Cree Indians believe the fish are a limitless resource whose numbers are independent of last year's catch. Instead productivity is maintained in Cree belief systems by proper harvesting techniques, and maintaining an essential humility toward nature and respect for animals.

Reference: Berkes F 1987

Community based management requires the community to be strengthened, which will require a state which values and invests in social capital. Such a management system would require government recognition of the community as an equal partner, as well as an emphasis on equity in which all voices in the community are heard. A strong community based system could be expected to have a well-developed stewardship ethic.

5.5 INTEGRATED STEWARDSHIP

Integrated stewardship implies that all stakeholders will work together to ensure the accountable management of the oceans' resources for themselves, future users and in support of the oceans own capacity to remain self-renewing. This would imply that economic, environmental and socio-cultural voices would all be heard and that this management option would meet the objectives of social equity, supportive environments and sustainable development (Figure 1). The management option of integrated stewardship was not within the direct experience of most of the people interviewed. This was surprising, since established models exist, and most nominated care for the future of the oceans and cooperation between the stakeholders in the oceans' resources as the most important policy considerations.

One reason this mode of management is not well understood could be that it is a response to the complexities of the current issues of our times, and consequently does not have the extensive body of knowledge associated with it of more traditional management systems. Their community participation procedures. Their management practices reflect the basic principles of Integrated Local Area Planning (Box 4)

BOX 12.

Integrated stewardship protocols in use in Tasmania

Tasmania has a long history of implementing Integrated Local Area Planning, generally known as ILAP throughout the local government sector. ILAP is an approach to locally-based management which has ten principles for involving managers of social, economic and environmental resources, at all levels of government, and with all local industries, in developing future-oriented policies and practice (Box 4). The Coastal Management Plan for Eastern Tasmania provides step-by-step guidelines for establishing ILAP as integrated stewardship for Tasmanian coastal waters. It has been in place now for two years, and so is close to being evaluated.

Reference: Grahame R 1994

There are many current applications of integrated management based on a stewardship ethic, from the Murray-Darling Basin to the Healthy Cities and Local Agenda 21 projects throughout Australia. Integrated environmental management is now the subject of formal protocols across the full range of Australian Governments:

- International as in Agenda 21 from UNCED 1992
- Federal Government as in the ESD Strategy 1992
- State Government as new Local Government Acts in several States
- All three levels of government as in the National Coastal Strategy
- All three levels of government as signatory to the InterGovernmental Agreement on the Environment (IGAE) 1992.

The Precautionary Principle which was the core of that agreement is so central to oceans policy as to be worth reproducing in full:

Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle public and private decisions should be guided by careful evaluation to avoid, wherever practicable, serious or irreversible damage; and an assessment of the risk-weighted consequences of the various options

InterGovernmental Agreement on the Environment May 1992 para 3.5.1

Important aspects of this management system are built-in procedures for community partnership and conflict management. While some examples, such as the management of Iceland's fisheries and Canadian native community natural resources, have incorporated these, they have rarely been accepted as fundamental management tools. Community involvement in management is perceived by many as being an essential response to the phenomenon of globalisation. The interface between community responsibilities and global agents' accountability is known as the civil society, as discussed in the 1996 Boyer Lectures (Cox 1996).

Globalisation involves a sense of the constraints of geography as shrinking, and involves developments such as global communications, transnational companies, globally responsive financial markets and global environmental issues. Part of the environment of globalisation is created by inter-governmental organisations, international non-government organisations and international treaties. The World Wildlife Fund's (WWF) development of the Marine Stewardship Council is a clear example of the increasing influence of transnational industry, large non-government organisations and international treaties in setting policy agendas.

BOX 13.

Forming a Marine Stewardship Council

In February 1996 the WWF and its industry partner Unilever formed a conservation partnership to create economic incentives for sustainable fishing by establishing an independent Marine Stewardship Council (MSC). While these organisations have different motivations both share objectives of ensuring the long term viability of global fish populations and the health of the marine ecosystem on which they depend. The MSC will establish a broad set of principles for sustainable fishing and set standards for individual fisheries. Only fisheries meeting these standards will be eligible for 'certification' by independent, accredited certifying firms. Seafood companies will be encouraged to join sustainable buyers' groups. Eventually products from sustainable fisheries will be marked with a logo to allow consumer choice. The MSC is gathering world wide support for the scheme and has held talks in Japan, Canada, Australia, the United Kingdom, South Africa, and Denmark. A number of large processing and sales companies have signed a Letter of Support for the scheme.

Reference: Marine Stewardship Council Newsletter Numbers 1 and 3

6. COMMUNITY STEWARDSHIP WITH INTEGRATED MANAGEMENT

A TOOL KIT FOR THE COORDINATED GOVERNANCE OF AUSTRALIA'S OCEANS

In conclusion, it is possible to say that there is no ready-made solution to satisfy socio-cultural considerations in Australia's oceans policy. There is considerable agreement among all socio-cultural interests on the guiding principles for an Oceans Policy but far less guidance for the particular form it should take. While there are successful examples of the integrated stewardship of natural resources, such as Landcare and Coastcare, these are major individual strategies rather than a national long-term policy and its implementation. Overall, commentators on oceans policy from all sectors identify the need for a mix of private rights, government regulation, and whole-of-community stewardship. The policy principles supported by almost all stakeholders in the common resource pool of the oceans are the fostering of a stewardship ethic, community partnership and integrated management.

Prototype programs where these principles have been put into effect include the work of the Great Barrier Reef Marine Park Authority, Landcare, and the National Coastal Strategy, Integrated Local Area Planning and Local Agenda 21 initiatives. Extracting from each some general principles and successful practices leads to a potential tool kit for good practice of **Community Stewardship With Integrated Management** (CSWIM).

The successful initiatives have the following four factors in common. They have:

In **policy development**: established a policy community for stewardship of the oceans, made up of decision-makers from the market and government regulatory processes and from the key community interests outside those processes, such as the education, science, conservation, Indigenous users, and industry sectors involved in the policy process of the Great Barrier Reef Marine Park Authority; and the several levels of government and non-government contributing to policy development in the decentralised learning model of governance by Davis and Weller (Davis and Weller 1993).

In **professional practice**: created multi-skilled teams connecting social, economic and ecological expertise (rather than applying different specialist solutions on an independent basis) as practised in the Integrated Local Area Planning processes in local government in Tasmania and Victoria.

In developing a **stewardship perspective**: based policy and practice on a achieving individual group goals, while managing for the good of all, including the resource itself as in Landcare, Coastcare, and Local Agenda 21.

In setting up a **networked communication base**: accessed Information Technology networks which have open access, a transparent use of language and two-way communication channels available to all players, particularly community interests, for example the Environet database of Environment Australia and the Environmental Resource Officer Project in State Municipal Associations

Forming an oceans-based policy community Linkages of different interests is a powerful factor in policy development when the alliances between interested parties bridges local, regional and national interests. The Business Council of Australia, Greening Australia, the Surf-riders Association, and the Public Health Association are examples of such alliances who work closely with the equivalent government agencies. Such a consortium of interests has been labelled a policy community, a title which adequately describes the internal support and coherence which develops within such groupings.

Policy interests in the oceans include international, national, State and local authorities; conservation; industry; environmental management; and social interests. The potential exists to form a cooperative policy community of all these players. They already report that they work on the same basic set of information (Brown 1994). The submissions and the interviews summarised in Chapter 3 above, indicate strong agreement on the preferred policy principles.

Establishing multi-skilled management teams People whose work affects the oceans come from administration, conservation, education, engineering, environmental management, environmental health, commerce and industry, recreational users, the conservation movement, research and political office. While they use the same basic set of integrated information as the policy makers, communication between them is largely restricted to the colleagues in the same organisations in the same policy sectors. The effect is of a grid of closed communication boxes (Brown 1994).

Formation of multi-skilled teams for management of the 'trackless oceans' would therefore require considerable work in building alliances between different departments in the same organisation, and mediation and negotiation between government and non-government agencies, different industry sectors and different spheres of government.

Developing the stewardship ethic

Adoption of the stewardship ethic does not remove, but links together, the different agendas of the existing interests involved. It imposes a duty of care for the oceans in all aspects of developing and implementing a policy for the oceans as a 'commons'. There is already a considerable body of work on re-orienting the primary goals of market forces, government regulatory mechanisms and community special interests to incorporate the maintenance of the natural self-renewing systems for their own sake. What is required is an ocean-centred rather than an economic, social or environmental perspective (Figure 1).

Every profession and occupation connected with managing major natural systems has a continuum of practice ranging from a conservation to a development ethic. Studies show that the range of approaches is not confined to one occupation, as in the popular stereotype of engineers and industry as developers, and environmental scientists and radical social movements as conservers. In practice these interests exist in every skills area. There are 'green' economists. The Institution of Engineers has a charter adopting the Ecologically Sustainable Development Principles in full. The conservation ethic in industry has led to major profits for businesses such as the Body Shop and Eco-tourism ventures. Caring for the oceans as a commons will require the application of such stewardship principles in all partners.

Building networked communications

All natural resource policy sectors depend ultimately on a monitoring system based on effective local coordination of place-based information, informing each management sphere. The essentials of such a system for the oceans are already there--studies have shown that decisions are already made using a core set of social, economic, and environmental management information; and there are integrated decision-making systems at the local level (Brown 1994). However, the system struggles against the current centralised, compartmentalised, fixed system of information ownership, collection and storage.

Management systems are emerging which are explicitly designed to deal with the complexity, and ensure the inclusion of a diversity of interests and skills. In each case, such management systems use the locality and its community as their base unit. The iterative decentralised learning system of Davis and Weller offers a new type of policy and administrative structure, based on two-way vertical integration, from centralised policy development outwards through decision-making regions and sectors, flowing back to the coordinating point after the regions and sectors have determined their priorities and undertaken their management responsibilities. There are active integrative processes and an appropriate advocacy at every stage of the process (Davis and Weller 1992).

The result of implementing the Landcare stewardship ethic, the Davis and Weller policy development processes, and the ILAP management style is a markedly different type of system, functioning as a network, rather than a grid. The cooperative processes put in place in each of the four dimensions of the system work constructively with each other, applying a core set of stewardship-oriented management information to which all interests contribute.

Making it work

Community stewardship with integrated management may be the optimal strategy for policy and development but case studies demonstrate that it cannot be achieved through predetermined management blueprints. There are, however, a set of principles for developing a stewardship ethic, community partnerships and integrated management of social, economic and ecological resources which are being applied at all levels of policy development and implementation.

For the principles to be applied to managing the oceans as a commonly-held resource, there is a tool kit of skills required by all concerned. Together, these skills enable the development of an integrated management system based on community partnerships and underpinned by a common ethic of stewardship of the oceans. The fundamental tool-box in Box 14 allows **Community Stewardship and Integrated Management** to be built from a fertile combination of past experience and innovative problem-solving, with the final product determined and owned by the community partnership itself.

BOX 14.

Tool kit for Community Stewardship and Integrated Management of Australia's oceans (CSWIM):

- a shared ethic of stewardship with the ocean, fostered in all sectors and in all systems;
- acceptance of supportive environments, social equity and sustainable development as the inter-connected goals of the management process;
- commitment to community partnership and sharing the responsibility for conserving resources for the future;
- active development of a policy committee which integrates, rather than represents social, economic and environmental interests;
- formation of multiskilled teams which work between and within government departments and various government spheres while incorporating non-government sectoral interests;
- development of basic skill platform of cooperative problem solving, conflict resolution and facilitation; and
- establishment of information flows and monitoring systems which cross vertical and horizontal stratifications to ensure a network rather than a grid.

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APPENDIX

Organisations whose senior members agreed to be interviewed on their personal preferred policy options for the oceans*:

Australian Heritage Commission

Australian Seafood Industry Council

Centre for Resource and Environmental Studies, Australian National University

Clean Up Australia

Cooperative Research Centre for Waste Management and Pollution Control

CSIRO Antarctic Division

Department of Primary Industry and Energy

Environment Australia

Great Barrier Reef Marine Park Authority

Greenpeace

Landcare Group Chair

Marine and Coastal Community Network

Marine Tourism Operator, Queensland

NSW Coastal Council

Ocean and Marine Group

Oceanwatch

Recreational Fishing Association

South Australian Marine and Coastal Network

State Department of Agriculture

Tuna Boat Owners Association

*Note: Participants in the interviews were asked for their personal views based on their own knowledge and experience. They were not asked to speak on behalf of their organisations.